MITIGATED NEGATIVE DECLARATION

Tombstone Territory Water Connection Project

July 2020

PREPARED FOR:

City of Sanger
1700 7th Street
Sanger, CA 93657

PREPARED BY:

Crawford & Bowen Planning, Inc.
113 N. Church Street, Suite 302
Visalia, CA 93291

Initial Study/Mitigated Negative Declaration

Tombstone Territory Water Connection Project

Prepared for:

City of Sanger
1700 7th Street
Sanger, CA 93657

Contact: Tom Navarro, Community Development Director
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July 2020

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Chapter 1

INTRODUCTION

INTRODUCTION

1.1 Project Summary

This document is the Initial Study/Mitigated Negative Declaration describing the potential environmental effects of installing a new potable water distribution system within the Tombstone Territory to connect to the City of Sanger's existing water distribution system. The Project involves installation of water main pipelines and associated hydrants and valves. The proposed Project is more fully described in Chapter Two – Project Description.

The City of Sanger will act as the Lead Agency for this project pursuant to the *California Environmental Quality Act (CEQA)* and the *CEQA Guidelines.*

The Project is expected to be funded through a combination of funds including the Drinking Water State Revolving Fund (DWSRF) funds administered through the California State Water Resources Control Board (Water Board). One requirement of DWSRF funding is that the City will be required to comply with the Water Board's environmental requirements including CEQA-Plus. CEQA-Plus involves additional environmental analysis of certain topics to include federal thresholds, rules and regulations. In addition to this Mitigated Negative Declaration, the City has prepared a separate Environmental Package for submittal to the Water Board which includes the CEQA-Plus analysis.

1.2 Document Format

This IS/MND contains five chapters, and appendices. Section 1, Introduction, provides an overview of the project and the CEQA environmental documentation process. Chapter 2, Project Description, provides a detailed description of project objectives and components. Chapter 3, Initial Study Checklist, presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the proposed 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 4, Mitigation Monitoring and Reporting Program, provides the proposed mitigation measures,

completion timeline, and person/agency responsible for implementation and Chapter 5, List of Preparers, provides a list of key personnel involved in the preparation of the IS/MND.

Environmental impacts are separated into the following categories:

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 After 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 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.)

Regardless of the type of CEQA document that must be prepared, the basic purpose of the CEQA process as set forth in the CEQA Guidelines Section 15002(a) is to:

(1) Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.
(2) Identify ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

According to Section 15070(b), a Mitigated Negative Declaration is appropriate if it is determined that:

(1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and

(2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

The Initial Study contained in Section Three of this document has determined that with mitigation measures and features incorporated into the project design and operation, the environmental impacts are less than significant and therefore a Mitigated Negative Declaration will be adopted.

Chapter 2

PROJECT DESCRIPTION

Project Description

2.1 Location

The Tombstone Territory is in an agricultural area of Fresno County, located approximately one-half mile south of the City limits of Sanger, California. The new water system will be installed within the community of Tombstone and two pipelines will connect with the City's distribution system and transmit water south along Greenwood Avenue and west along Central Avenue. New water distribution pipelines will be installed under paved and dirt surface streets including Fairbanks Avenue, Tinoco Avenue, Cottle Avenue, and an unnamed dirt road in the community of Tombstone. See Figures 1 and 2 for Project location.

2.2 Setting

The proposed Project site is located in the central portion of the San Joaquin Valley of California. The valley is a large, nearly flat alluvial plain bordered by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the California coast ranges to the west, and the Sacramento-San Joaquin Delta to the north.

Like most of California, the central/southern San Joaquin Valley experiences a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely exceed 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. According to the Western Regional Climate Center, annual precipitation in the vicinity of the Project site is about 11 inches, about 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain.

The Project site is confined to previously disturbed land cover consisting of paved streets and dirt roads. The Project site is surrounded by residential development, orchards, vineyards, fallow fields, and row crop agriculture.

2.3 Project Background

The City of Sanger proposes to expand its water delivery system by connecting its distribution system with the community of Tombstone. The purpose of the Project is to provide a clean and

reliable drinking water source to alleviate water quality issues in the Tombstone Territory (refer to Section 3.10 – Hydrology and Water Quality for more information pertaining to water quality issues in the community). The City will obtain financing for this water system Project from the Drinking Water State Revolving Fund (DWSRF). The DWSRF is administered by the State Water Resources Control Board and partially funded by a capitalization grant from the United States Environmental Protection Agency (EPA). Due to this federal nexus, issuing funds from the DWRSF constitutes a federal action, one that requires the EPA to determine whether the proposed action may affect federally protected resources. The proposed Project must therefore comply with requirements of the California Environmental Quality Act (CEQA) and certain federal environmental laws and regulations as well. This state and federal review process is known as CEQA-Plus.

2.4 Project Description

The proposed Project will involve installing approximately 13,130 linear feet of water main pipeline and associated hydrants and valves to connect the City of Sanger's water distribution system to the community of Tombstone. A total of 3,986 linear feet of new water pipeline will tie into the City distribution system along Greenwood Avenue just south of its intersection with Lime Avenue and run south to its intersection with Central Avenue. Another 4,978 linear feet of new pipeline will connect to the City distribution system at the intersection of Central Avenue and Academy Avenue and run west along Central Avenue, connecting to the new Greenwood Avenue pipeline, then continuing west to just short of the intersection of Central Avenue and Bethel Avenue. Additional new segments (totaling 4,166 linear feet) will tie into the new Central Avenue and Greenwood Avenue pipelines and run under paved surface streets (Fairbanks Avenue, Tinoco Avenue, and Cottle Avenue) and an unnamed dirt road in the community of Tombstone. A network of hydrants and valves will be installed along the new pipeline alignment. The new water system will serve 57 existing lots (83 total living units) within the community. See Figure 3 for the proposed improvements within the Tombstone Territory.

Construction:

Construction will occur as plans and funding are in place and is expected to start in Year 2021 and will take approximately one year to complete. All construction staging of equipment and materials will be within existing paved and dirt roads and their right-of-ways.

Figure 1 – Regional Map

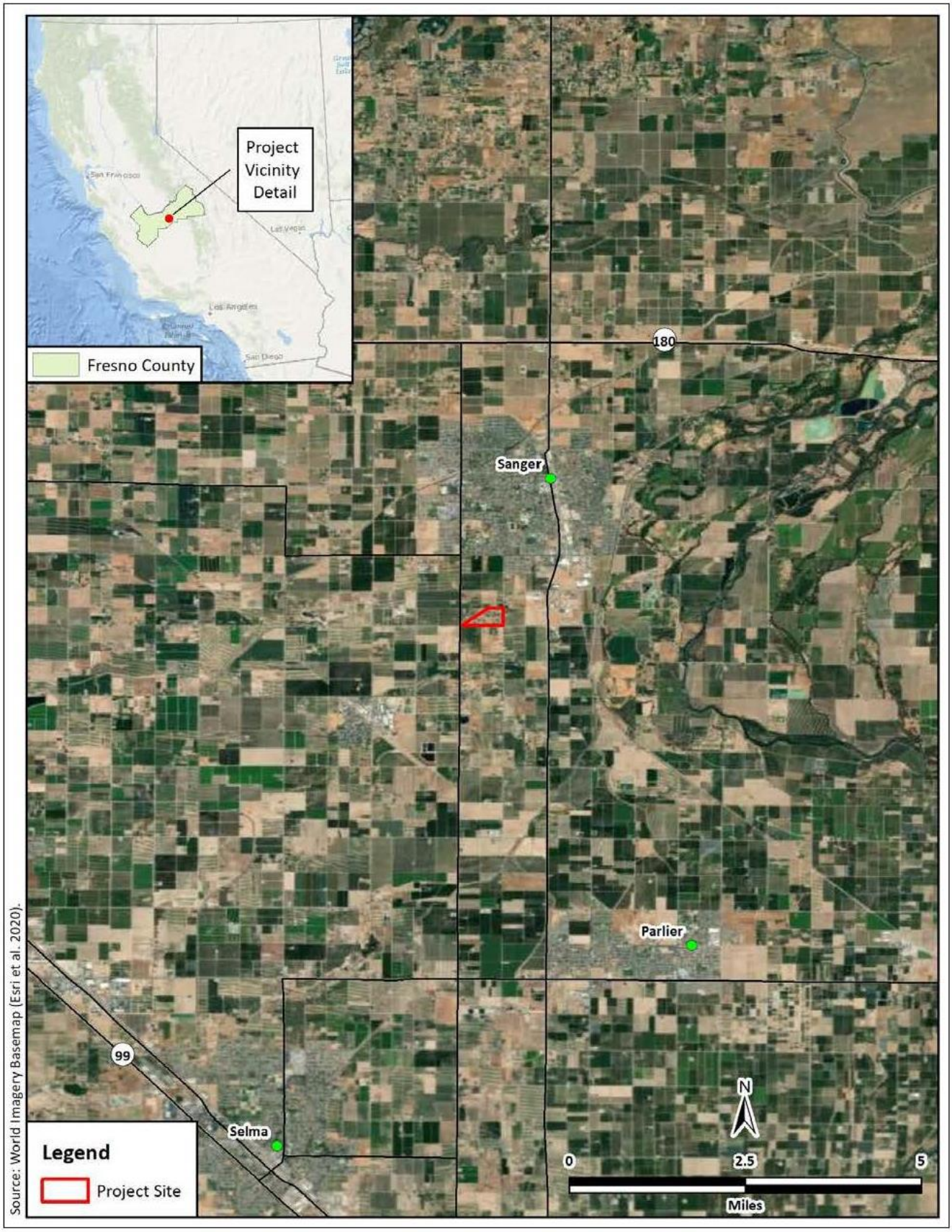
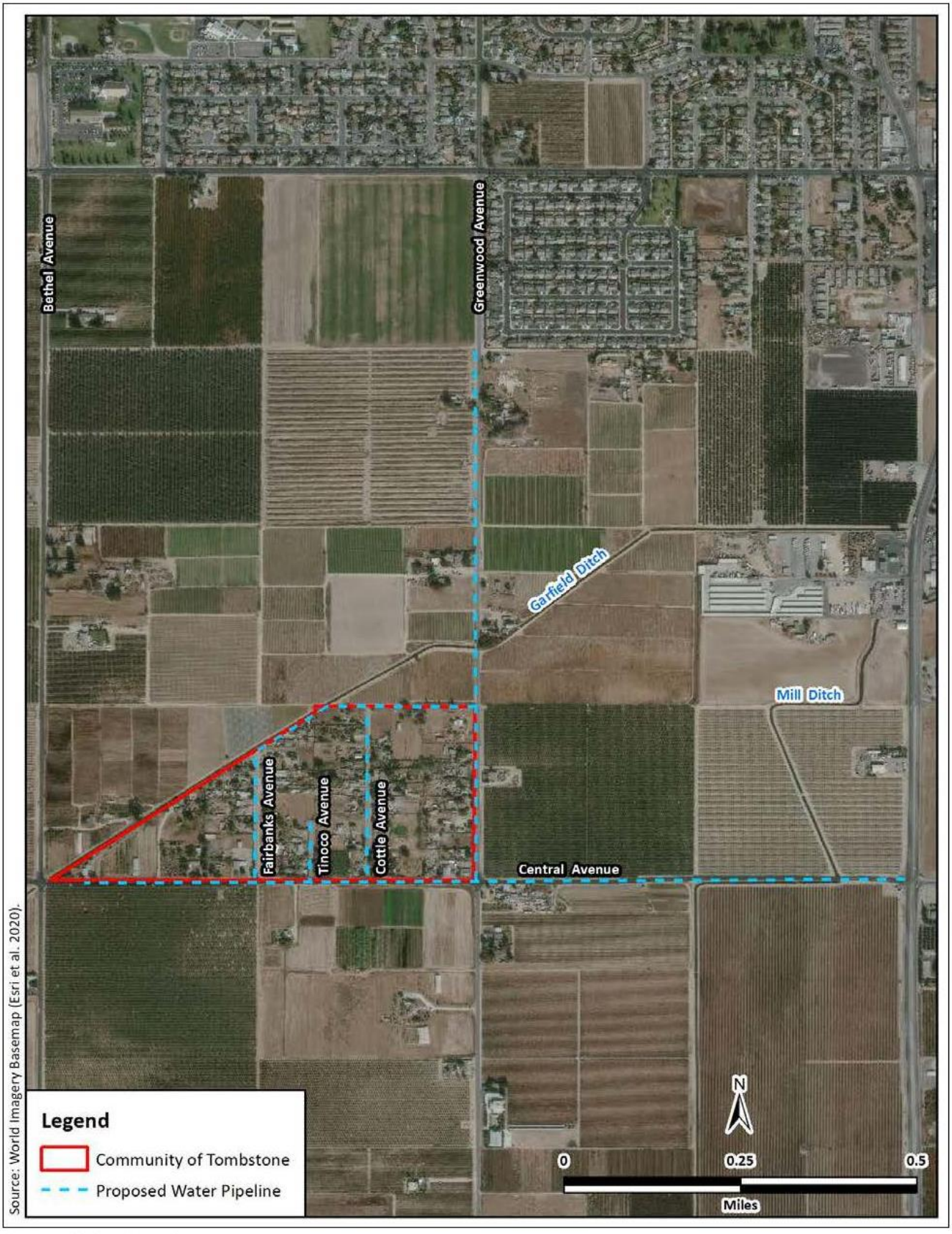


Figure 2 –Site Aerial



2.5 Objectives

The primary objectives of the proposed Project are as follows:

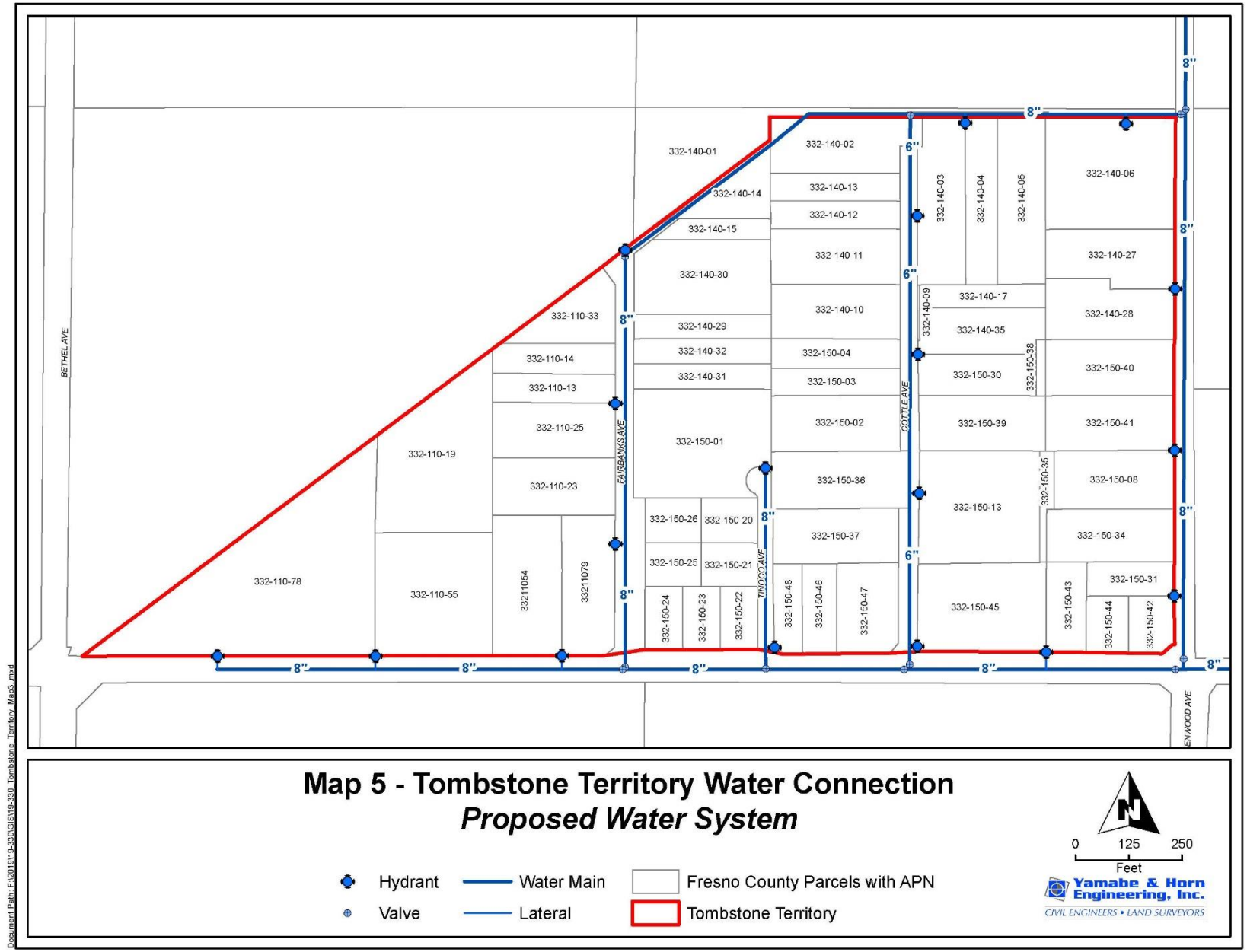
- To eliminate existing water quality issues in the Tombstone Territory.
- To provide water service to the Tombstone Territory while maintaining existing levels of regulatory compliance for the protection of water quality and public health.
- To operate the proposed water distribution system with the most cost-effective methods available that meet the City's overall system performance and regulatory compliance requirements.

2.6 Other Required Approvals

The proposed Project will include, but not be limited to, the following regulatory requirements:

- The adoption of a Mitigated Negative Declaration by the City of Sanger.
- San Joaquin Valley Air Pollution Control District (dust control and other construction/operation permits)
- Regional Water Quality Control Board approval (SWPPP)
- CA Water Resources Control Board (CEQA-plus approval)

Figure 3 – Water Distribution System Within the Tombstone Territory



Chapter 3

IMPACT ANALYSIS

Initial Study Checklist

3.1 Environmental Checklist Form

Project title: Tombstone Territory Water Connection Project

Lead agency name and address:

City of Sanger
1700 7th Street
Sanger, CA 93657

Contact person and phone number:

Tom Navarro, Community Development Director
City of Sanger
(559) 876-6300

Project location:

The Tombstone Territory is in an agricultural area of Fresno County, located approximately one-half mile south of the City of Sanger. The new water system will be installed within the community of Tombstone and two pipelines will connect with the City's distribution system and transmit water south along Greenwood Avenue and west along Central Avenue. New water distribution pipelines will be installed under paved and dirt surface streets including Fairbanks Avenue, Tinoco Avenue, Cottle Avenue, and an unnamed dirt road in the community of Tombstone. See Figures 1 and 2 for Project location.

Project sponsor's name/address:

City of Sanger
1700 7th Street
Sanger, CA 93657

General plan designation:

Fresno County – Agriculture

Zoning:

Fresno County – AE-20 (Exclusive Agriculture – 20 acre minimum)

Description of project:

The City of Sanger intends to install a water system within the Tombstone Territory to connect to the City's water distribution system. The proposed Project is more fully described in Chapter Two – Project Description.

Surrounding land uses/setting:

The Project site is confined to previously disturbed land cover consisting of paved streets and dirt roads. The Project site is surrounded by residential development, orchards, vineyards, fallow fields, and row crop agriculture. The proposed Project setting is fully described in Chapter Two – Project Description.

Other Required Approvals:

- The adoption of a Mitigated Negative Declaration by the City of Sanger.
- San Joaquin Valley Air Pollution Control District (dust control and other construction/operation permits)
- Regional Water Quality Control Board approval (SWPPP)
- CA Water Resources Control Board (CEQA-plus approval)

California Native American Tribal Consultation:

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun or is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

In accordance with Assembly Bill (AB) 52, potentially affected Tribes were formally notified of this Project and were given the opportunity to request consultation on the Project. The City contacted the Native American Heritage Commission, requesting a contact list of applicable Native American Tribes, which was provided to the City. The City provided letters to the listed Tribes, notifying them of the Project and requesting consultation, if desired. A response came from Rick Osborne of the Traditional Choinumni Tribe requesting archaeological monitoring of all trenching activity in the APE due to the areas sensitivity for potential tribal cultural resources. Refer to Section 3.18 – Tribal Cultural Resources for more information.

3.2 Environmental Factors Potentially Affected

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

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

3.3 Determination

Based on this initial evaluation:

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

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

NEGATIVE DECLARATION will be prepared.

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

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

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

Tom Navarro, Community Development Director Date

City of Sanger

I. AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. 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 regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

RESPONSES

a. Have a substantial adverse effect on a scenic vista?
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. A scenic vista is defined as a viewpoint that provides expansive views of highly valued landscape for the benefit of the general public. The Sierra Nevada Mountains are the only natural and visual resource in the proposed Project area. Views of these distant mountains are afforded only during clear conditions due to poor air quality in the valley. Distant views of the Sierra Nevada Mountains would largely be unaffected by the development of the Project because of the nature of

the Project, distance and limited visibility of these features. The County of Fresno does not identify views of these features as required to be "protected."

The nearest eligible scenic highway is a section of SR 168 which is located over 15 miles northeast of the site. However, the Project is not visible to or from this eligible scenic highway due to intervening land uses.

Therefore, the Project has ***no impact*** on scenic vistas or designated scenic resources or highways.

Mitigation Measures: None are required.

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 regulations governing scenic quality?

Less Than Significant Impact. The proposed Project involves installation of a water system within the Tombstone Territory to connect to the City's water distribution system. The Project consists of underground pipelines and will not be visible from the adjacent roadsides, except for the above ground hydrants that will be installed as part of the Project. Once constructed, the Project will not result in a substantial change to the existing visual nature.

Therefore, the Project would have ***less than significant impacts*** on the visual character of the area.

Mitigation Measures: None are required.

No Impact. Currently the sources of light in the Project area are from street lights, the vehicles traveling along surrounding roads, and lighting from residences in the area. No lighting will be associated with the water distribution system. Accordingly, the proposed Project would not create substantial new sources of light or glare. There are ***no impacts.***

Mitigation Measures: None are required.

II. AGRICULTURE AND FOREST RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

RESPONSES

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

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

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

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

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

No Impact. The new water system will be installed within the community of Tombstone and a pipeline will connect with the City's distribution system and transmit water south along Greenwood Avenue and west along Central Avenue. New water distribution pipelines will be installed under paved and dirt surface streets including Fairbanks Avenue, Tinoco Avenue, Cottle Avenue, and an unnamed dirt road in the community of Tombstone. The water distribution system will be installed within existing paved and dirt roads and their right-of-ways and will not impact any agricultural facilities.

The proposed Project does not conflict with any forest land or Timberland Production or result in any loss of forest land. The proposed Project does not include any changes which will affect the existing environment. There is ***no impact.***

Mitigation Measures: None are required.

III. AIR QUALITY

Would the project:

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

Responses:

a. Conflict with or obstruct implementation of the applicable air quality plan?

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

c. Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The proposed Project lies within the San Joaquin Valley Air Basin (SJVAB). At the Federal level, the SJVAB is designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM_{10} and CO, and nonattainment fort $PM_{2.5}$. At the State level, the SJVAB is designated as nonattainment for the 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards. Although the Federal 1-hour ozone standard was revoked in 2005, areas must still attain this standard, and the SJVAPCD recently requested an EPA finding that the SJVAB has attained the standard based on 2011-2013 data.[1]

[1] San Joaquin Valley Air Pollution Control District. Guide to Assessing and Mitigating Air Quality Impacts. March 19, 2015. Page 28. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Accessed February 2019.

To meet Federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

- Extreme Ozone Attainment Demonstration Plan (EOADP) for attainment of the 1-hour ozone standard (2004);
- 2007 Ozone Plan for attainment of the 8-hour ozone standard;
- 2007 PM_{10} Maintenance Plan and Request for Redesignation; and
- 2008 $PM_{2.5}$ Plan.

Because of the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if the Project-generated emissions of either of the ozone precursor pollutants (ROG or NOx), PM_{10}, or $PM_{2.5}$ were to exceed the SJVAPCD's significance thresholds, then the Project uses would be considered to conflict with the attainment plans. In addition, if the Project uses were to result in a change in land use and corresponding increases in vehicle miles traveled, they may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

The annual significance thresholds to be used for the Project emissions are as follows[2]:

Pollutant/ Precursor	Construction Emissions (tpy)	Operational Emissions (permitted) (tpy)	Operational Emissions (non-permitted) (tpy)
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
SOx	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

The estimated annual construction and operational emissions are provided below. The California Emissions Estimator (CalEEMod), Road Construction Emission Model (Version 9.0.0) was used to estimate construction of the Project. The proposed Project will involve installing approximately 13,130 linear feet of water main pipeline and associated hydrants and valves to connect the City of Sanger's water distribution system to the community of Tombstone. Modeling results are provided in Table 1 and the CalEEMod and Road Construction Emissions Model output files are provided in Appendix A.

[2] San Joaquin Valley Air Pollution Control District. March 19, 2015. Guide for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Page 80. Accessed February 2019.

Table 1
Proposed Project Construction and Operation Emissions

Pollutant/ Precursor	Construction Emissions (tpy)	Threshold/ Exceed?	Operational Emissions (permitted) (tpy)	Threshold/ Exceed?
CO	2.43	100/**N**	0.00	100/**N**
NOx	3.13	10/**N**	0.00	10/**N**
ROG	0.30	10/**N**	0.00	10/**N**
SOx	0.00	27/**N**	0.00	27/**N**
PM_{10}	0.42	15/**N**	0.00	15/**N**
$PM_{2.5}$	0.19	15/**N**	0.00	15/**N**
CO_2	430.51	n/a	0.00	n/a

As demonstrated in Table 1, estimated construction and operational emissions would not exceed the SJVAPCD's significance thresholds for ROG, NOx, PM_{10}, and $PM_{2.5}$. As a result, the Project uses would not conflict with emissions inventories contained in regional air quality attainment plans and would not result in a significant contribution to the region's air quality non-attainment status.[3]

Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. The SJVAPCD provides screening criteria to determine when to quantify local CO concentrations based on impacts to the level of service (LOS) of roadways in the Project vicinity.

As further discussed in the Transportation/Traffic checklist evaluation, the Project would not generate substantial traffic that would reduce the level of service on local roadways. Therefore, the Project would not significantly contribute to an exceedance that would exceed state or federal CO standards. Additionally, as the estimated construction and operational emissions are below SJVAPCD thresholds, any cumulative considerable increase in criteria pollutants would be less than significant.

As described above, the Project will not occur at a scale or scope with potential to contribute substantially or cumulatively to existing or projected air quality violations, impacts, or increases of criteria pollutants for which the San Joaquin Valley region is under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). The proposed Project will comply with all applicable air quality plans. Therefore, no violations of air quality standards will occur and no net increase of pollutants will occur. However, the construction contractor will be required to adhere to SJVAPCD Regulation VIII. Regulation VIII is a series of rules designed to reduce fugitive dust from construction sites, parking and staging areas, open areas, material storage

[3] San Joaquin Valley Air Pollution Control District. Guide to Assessing and Mitigating Air Quality Impacts. March 19, 2015. Page 65. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Accessed February 2019.

areas, etc. No permits are required by this regulation, but failure to comply can result in fines and penalties. Any impacts would be ***less than significant.***

Mitigation Measures: None are required.

e. Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?

Less Than Significant Impact. During construction, the various diesel powered vehicles and equipment in use on-site could create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the Project site. In addition, once the Project is operational, there would be no source of odors from the Project. Therefore, the impact is ***less than significant.***

Mitigation Measures: None are required.

IV. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐

IV. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Responses:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant Impact With Mitigation. The new water system will be installed within the community of Tombstone and a pipeline will connect with the City's distribution system and transmit water south along Greenwood Avenue and west along Central Avenue. New water distribution pipelines will be installed under paved and dirt surface streets including Fairbanks Avenue, Tinoco Avenue, Cottle Avenue, and an unnamed dirt road in the community of Tombstone. The water distribution system will be installed within existing paved and dirt roads and their right-of-ways and ground disturbance will not occur on adjacent areas.

A Biological Resource Evaluation (BRE) was prepared for the proposed Project in April 2020 by Colibri Ecological Consulting, LLC (see Appendix B). As part of the BRE, the California Natural Diversity Data Base (CNDDB), the California Native Plant Society's Inventory of Rare and Endangered Plants, and the USFWS special status species lists were queried for records of special-status plant and animal species in the Project area. In addition, a field reconnaissance survey of the Project site was conducted in March 2020.

The BRE concluded that one special-status species, Swainson's hawk could occur on or near the Project site. In addition, protected migratory birds could occur on or near the Project site. Swainson's hawk uses open areas such as grasslands and some agricultural fields for foraging and medium to large trees near open areas for nesting. The Project is not expected to affect any other special-status species due to the lack of habitat or known occurrence records for those species near the Project site.

Construction disturbance during the breeding season for both the Swainson's hawk and migratory birds could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Loss of fertile eggs or nestlings, or any activities resulting in nest abandonment, would constitute a significant impact. Implementation of mitigation measures BIO-1 and BIO-2 will reduce any impacts to ***less than significant.***

Mitigation Measures:

BIO – 1 Protect nesting Swainson's hawks

1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August.
2. If it is not possible to schedule work between September and February, a qualified biologist shall conduct a survey for active Swainson's hawk nests within 0.25 miles of the Project site no more than 14 days prior to the start of construction. If an active nest is found within 0.25 miles, and the qualified biologist determines that Project activities would disrupt nesting, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

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 Game or U.S. Fish and Wildlife Service?

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. Two potentially regulated habitats, Garfield Ditch and Lone Tree Channel (shown as Mill Ditch in Figure 2), cross and or are adjacent to the Project site. Both features are heavily disturbed agricultural ditches that transport irrigation water to farms, support sparsely distributed ruderal vegetation, and evidently undergo regular herbicide treatment. The proposed pipelines will be installed under these existing ditches/canals and will not impede on the right-of-way of these

facilities. Garfield Ditch crosses the new pipeline alignment along Greenwood Avenue and continues southwest where it parallels the segment of proposed pipeline that connects Fairbanks Avenue with Cottle Avenue on the northwest side of Tombstone. Garfield Ditch drains to Fowler Switch Canal. No impacts to this feature are anticipated. Lone Tree Channel (shown as Mill Ditch in Figure 2) crosses the eastern segment of proposed pipeline along the Central Avenue alignment. South of Central Avenue, Lone Tree Channel splits into McCall Ditch, which flows southwest and eventually drains to Fowler Switch Canal, and Harp Ditch, which eventually drains to the Cole Slough via Santa Fe Ditch near Kingsburg.

No stretch of any Wild and Scenic River are near the Project site; the nearest stretch is associated with the Kings River, approximately 35 miles west-northwest of the Project site (USFWS 2020b). No marine or estuarine fishery resources or migratory routes to and from anadromous fish spawning grounds were present in the survey area. In addition, no EFH, defined by the Magnuson-Stevens Act as those resources necessary for fish spawning, breeding, feeding, or growth to maturity, were present in the survey area.

No wetlands, riparian habitat, or other sensitive natural community were present in the proposed Project area and as such, there would be ***no impacts*** associated with the proposed improvements.

Mitigation Measures: None are required.

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

Less Than Significant with Mitigation. The Project could impede the use of nursery sites for native birds protected under the Migratory Bird Treaty Act and California Fish and Game Code. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort is considered take by the California Department of Fish & Wildlife. Loss of fertile eggs or nestlings, or any activities resulting in nest abandonment, could constitute a significant impact if the species is particularly rare in the region. Construction activities such trenching and grading that disturb a rare nesting bird on the site or immediately adjacent to the construction zone could constitute a significant impact. Implementation of BIO-2 would ensure any impacts remain ***less than significant***.

Mitigation Measures:

BIO – 2 Protect Nesting Birds

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.
2. If it is not possible to schedule construction between September and January, preconstruction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during Project implementation. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas for nests. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. No trees or biologically sensitive areas will be impacted by the proposed Project. Additionally, there are no adopted local, regional, or state habitat conservation plans adopted for the area. As such, there is ***no impact.***

Mitigation Measures: None are required.

V. CULTURAL RESOURCES

Would the project:

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

RESPONSES

a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

c. Disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact With Mitigation. A Historic Property Identification Report (Report) was prepared for the proposed Project in July 2020 by Applied EarthWorks, Inc. (see Appendix C). The Report included: (1) a records search at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System to identify previously recorded cultural resources and prior studies in the APE and surrounding 0.5-mile radius of the APE; (2) a search of the Native American Heritage Commission's (NAHC) Sacred Lands File for known sacred resources and request for contact information for individuals and tribal representatives who may have information about the Project; (3) desktop archival research; (4) an archaeological and built environment pedestrian survey of the APE; (5) an National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility evaluation of a historical archaeological site; and (6) a buried site sensitivity assessment.

The SSJVIC reported that four previous investigations have been conducted that overlap the Project Area of Potential Effect (APE); however, the only previously recorded resource within the APE is the Lone Tree Channel. The SSJVIC identified six previous investigations and two historical resources within 0.5 mile of the APE—the Southern Pacific Railroad (P-10-003930) and Lone Tree Channel (shown as Mill Ditch) (P-10-005812), a historic water conveyance feature of the Centerville & Kingsburg Canal system. No archaeological sites or tribal cultural resources were identified in the APE as a result of the NAHC Sacred Lands File search, outreach with Native American representatives, or pedestrian survey.

The cultural resource assessment of the vertical APE for intact buried deposits revealed that there is moderate sensitivity for the Project to impact buried historic properties within the APE. The survey of the historical built environment within the APE revealed that two separate canals intersect the Project—the Garfield Ditch at Greenwood Avenue and the Lone Tree Channel at East Central Avenue. As the Project has been designed to install the pipelines underneath these facilities (outside of their respective right-of-ways), there is no potential for the Project to affect these historical waterways. Consequently, Applied Earthworks recorded each resource on the appropriate California Department of Parks and Recreation cultural resource record forms but did not formally evaluate the resources for significance and eligibility for listing in the National Register of Historic Places or California Register of Historical Resources. Thus, the study concludes that no historic properties will be affected by the proposed undertaking.

No other cultural resources were identified in the APE as a result of the NAHC Sacred Lands File search, archival research, or pedestrian survey. Although no cultural or archaeological resources, paleontological resources or human remains have been identified in the Project area, the possibility exists that such resources or remains may be discovered during Project site preparation, excavation and/or grading activities. Mitigation Measures CUL – 1 and CUL – 2 will be implemented to ensure that Project will result in ***less than significant impacts with mitigation***.

Mitigation Measures:

CUL – 1 Should any potentially significant cultural, historical, archaeological or fossil resources be discovered, no further ground disturbance shall occur in the area of the discovery until the Planning Director concurs in writing that adequate provisions are in place to protect these resources. Unanticipated discoveries shall be evaluated for significance by a certified professional archaeologist or paleontologist that meets the Secretary of the Interior's Professional Qualifications Standards. If significance criteria are met, then the project shall be required to perform data recovery, professional identification, radiocarbon dates as applicable, and other special studies; curate materials with

recognized scientific or educational repository; and provide a comprehensive final report as required by Senate Bill 18; California Historical Building Code (Title 24, Part 8); California Public Resources Code Sections 5020-5029.5, 5079-5079.65, 5097.9-5097.998, and 5097.98; and California State Health and Safety Code, Section 7050.5, as applicable.

CUL – 2 In order to ensure that the proposed project does not impact buried human remains during project construction, the project proponent shall be responsible for on-going monitoring of project construction. Prior to the issuance of any grading permit, the project proponent shall provide the City of Sanger with documentation identifying construction personnel that will be responsible for on-site monitoring. If buried human remains are encountered during construction, further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall be halted until the Fresno County coroner is contacted and the coroner has made the determinations and notifications required pursuant to Health and Safety Code Section 7050.5. If the coroner determines that Health and Safety Code Section 7050.5(c) require that he give notice to the Native American Heritage Commission, then such notice shall be given within 24 hours, as required by Health and Safety Code Section 7050.5(c). In that event, the NAHC will conduct the notifications required by Public Resources Code Section 5097.98. Until the consultations described below have been completed, the landowner shall further ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices where Native American human remains are located, is not disturbed by further development activity until the landowner has discussed and conferred with the Most Likely Descendants on all reasonable options regarding the descendants' preferences and treatments, as prescribed by Public Resources Code Section 5097.98(b). The NAHC will mediate any disputes regarding treatment of remains in accordance with Public Resources Code Section 5097.94(k). The landowner shall be entitled to exercise rights established by Public Resources Code Section 5097.98(e) if any of the circumstances established by that provision become applicable.

VI. ENERGY

Would the project:

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

Responses:

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

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The new water system will be installed within the community of Tombstone and a pipeline will connect with the City's distribution system and transmit water south along Greenwood Avenue and west along Central Avenue.

During construction, the Project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials. Title 24 Building Energy Efficiency Standards would provide guidance on construction techniques for the plant house to maximize energy conservation and it is expected that contractors and the City have a strong financial incentive to use recycled materials and products originating from nearby sources in order to reduce materials costs. As such, it is anticipated that materials used in construction and construction vehicle fuel energy would not involve the wasteful, inefficient, or unnecessary consumption of energy.

Operational Project energy consumption would occur for multiple purposes, including but not limited to the new components in the water distribution.

As discussed in Impact XVII – Transportation/Traffic, once constructed the proposed Project would not generate any on-going vehicle trips except for maintenance or inspection. The length of these trips and

the individual vehicle fuel efficiencies are not known; therefore, the resulting energy consumption cannot be accurately calculated. Adopted federal vehicle fuel standards have continually improved since their original adoption in 1975 and assists in avoiding the inefficient, wasteful, and unnecessary use of energy by vehicles.

As discussed previously, the proposed Project would be required to implement and be consistent with existing energy design standards at the local and state level, such as Title 24. The Project would also be subject to energy conservation requirements in the California Energy Code and CALGreen for the new plant house. Adherence to state code requirements would ensure that the Project would not result in wasteful and inefficient use of non-renewable resources due to building operation.

Therefore, any impacts are ***less than significant***.

Mitigation Measures: None are required.

VII. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☐	☒
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the most recently	☐	☐	☒	☐

VII. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
adopted Uniform Building Code creating substantial direct or indirect risks to life or property?				
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Responses:

a-i. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

a-ii. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

a-iii. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

a-iv. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

No Impact. The proposed Project site is not located in an earthquake fault zone as delineated by the 1972 Alquist-Priolo Earthquake Fault Zoning Map Act. The nearest known potentially active fault is the Clovis Fault, located about 10 miles north of the site.[4] No active faults have been mapped within the Project boundaries, so there is no potential for fault rupture. It is anticipated that the proposed Project site would be subject to some ground acceleration and ground shaking associated with seismic activity during its design life. The Project site would be engineered and constructed in strict accordance with the earthquake resistant design requirements contained in the latest edition of the California Building Code (CBC) for seismic zone III, as well as Title 24 of the California Administrative Code, and therefore would avoid potential seismically induced hazards on planned structures. The impact of seismic hazards on the Project would be ***less than significant.***

Mitigation Measures: None are required.

b. Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact With Mitigation. The Project site is underlain by Atwater sandy loam 0 to 3% slopes, Delhi loamy sand 0 to 3% slopes, Delhi sand 0 to 3% slopes, Exeter loam, Exeter sandy loam, Greenfield sandy loam 0 to 3 % slopes, Hanford fine sandy loam, Hanford sandy loam, and Tujunga loamy sand 0 to 3% slopes (NRCS 2020).

Construction activities associated with the Project involves excavation of soil for a new water distribution pipelines, and installation of related components such as hydrants. These activities could expose barren soils to sources of wind or water, resulting in the potential for erosion and sedimentation on and off the Project site. During construction, nuisance flow caused by minor rain could flow off-site. The City and/or contractor would be required to employ appropriate sediment and erosion control BMPs as part of a Stormwater Pollution Prevention Plan (SWPPP) that would be required in the California National Pollution Discharge Elimination System (NPDES). In addition, soil erosion and loss of topsoil would be minimized through implementation of the SVJAPCD fugitive dust control measures (See Section 3.3 – Air Quality). Once construction is complete, the Project would not result in soil erosion or loss of topsoil. Mitigation Measure GEO – 1 will ensure that impacts remain ***less than significant.***

[4] California Department of Conservation. Fault Activity Map of California (2010). http://maps.conservation.ca.gov/cgs/fam/. Accessed June 2020.

Mitigation Measures:

GEO – 1 In order to reduce on-site erosion due to project construction and operation, an erosion control plan and Storm Water Pollution Prevention Plan (SWPPP) shall be prepared for the site preparation, construction, and post-construction periods by a registered civil engineer or certified professional. The erosion control plan shall incorporate best management practices consistent with the requirements of the National Pollution Discharge Elimination System (NPDES). The erosion component of the plan must at least meet the requirements of the SWPPP required by the California State Water Resources Control Board.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

d. Be located on expansive soil, as defined in Table 18-1-B of the most recently adopted Uniform Building Code creating substantial risks to life or property?

Less Than Significant Impact. See Section VIa. above. The site is not at significant risk from earthquakes, ground shaking, liquefaction, or landslide and is otherwise considered geologically stable. Expansive soils are soils that expand when water is added and shrink when they dry out. Soils in and around the site include soils characterized as moderately well drained. These soils have no limitations for load supporting capacity and as such, would not be classified as expansive. Any impacts would be ***less than significant.***

Mitigation Measures: None are required.

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 waste water?

No Impact. The Project does not include the construction, replacement, or disturbance of septic tanks or alternative wastewater disposal systems. Therefore, there is ***no impact.***

Mitigation Measures: None are required.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact. As identified in the cultural studies performed for the Project site, there are no known paleontological resources on or near the site. (See Section V. and Appendix C for

more details). Mitigation measures have been added that will protect unknown (buried) resources during construction, including paleontological resources. In addition, the site is substantially disturbed and graded and there are no unique geological features on site or in the area. Therefore, there is a ***less than significant impact.***

Mitigation Measures: None are required.

VIII. GREENHOUSE GAS EMISSIONS

Would the project:

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

Responses:

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

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

Less Than Significant Impact. The U.S. Environmental Protection Agency published a rule for the mandatory reporting of greenhouse gases from sources that in general emit 25,000 metric tons or more of carbon dioxide (CO2) per year. As shown in the CalEEMod results (Appendix A), the Project is estimated to produce 430.51 tons per year of CO2 during construction. This represents approximately 0.02% of the reporting threshold. The impact is therefore considered ***less than significant.***

Additionally, emissions from construction are temporary in nature. The SJVAPCD has implemented a guidance policy for development projects within their jurisdiction. This policy, "Guidance for Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA," approved by the Board on December 17, 2009, does not address temporary GHG emissions from construction, nor does this policy establish numeric thresholds for ongoing GHG emissions. Therefore, construction-generated GHGs are ***less than significant.***

Mitigation Measures: None are required.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

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

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
response plan or emergency evacuation plan?				
g. Expose people or structures either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Responses:

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

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact. Under Title 22 of the California Code of Regulations (CCR), the term hazardous substance refers to both hazardous materials and hazardous wastes and both are classified according to four properties: toxicity, ignitability, corrosiveness, and reactivity (CC R Title 22, Chapter 11, Article 3). A hazardous material is defined as a substance or combination of substances that may cause or significantly contribute to an increase in serious, irreversible, or incapacitating illness or may pose a substantial presence or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been discarded, discharged, spilled, or contaminated or are being stored until they can be disposed of properly.[5] Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific CCR Title 22 criteria. While hazardous substances are regulated by multiple agencies, cleanup requirements of hazardous wastes are determined on a case-by-case basis according to the agency with lead jurisdiction over the project. Public health is potentially at risk whenever hazardous materials are or will be used.

[5] CCR Title 22, Chapter 11, Article 2, Section 66261.10.

Potential hazards within the Project area may include asbestos containing materials, lead-based materials, septic systems, electrical facilities and electromagnetic fields, polychlorinated biphenyls (PCB) transformers, residual agricultural chemicals, and mosquitoes as a disease vector.

While grading and construction activities may involve the limited transport, storage, use or disposal of hazardous materials, such as the fueling/servicing of construction equipment onsite, the activities would be short-term or one-time in nature and would be subject to federal, state, and local health and safety regulations.

Long-term operation of the proposed Project would not involve transport, storage, use or disposal of hazardous materials. Water that will be provided through the Project by the City of Sanger is treated within the City's existing water system.

There are several federal, state and local requirements and regulations that are designed to minimize risks from accidental releases of hazardous materials and the proposed Project will be in compliance with all applicable requirements and regulations. Hazardous material storage and use during construction will be stored and operated in compliance with the minimum requirements of the Uniform Fire Code and the California Fire Code. Some of the requirements are secondary containment for liquids, fire water sprinklers over inside storage/use areas, and non-combustible construction materials.

With implementation of the proposed Project, there are no reasonably foreseeable upset and accident conditions that would create a significant hazard to the public due to the release of hazardous materials. Impacts are considered ***less than significant***.

Mitigation Measures: None are required.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. No schools are located within 0.25 mile of the Project site, as the nearest school is Madison Elementary School, approximately 0.4 miles north of the pipeline connection point on Greenwood Avenue. ***No impact*** would occur.

Mitigation Measures: None are required.

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?

No Impact. A database search was conducted to identify recorded hazardous materials incidents in the Project area[6]. The search included recorded incidents on the National Priorities List (NPL), State Priority List (SPL), the Superfund Comprehensive Environmental Response Compensation and Liability Information System List (CERLIS), the EPA's emergency response notification system list (ERNS), and other federal, state, and local agency databases. The Project site was not listed in any of the databases searched. There is ***no impact.***

Mitigation Measures: None are required.

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 nearest public airport to the Project site is the Reedley Municipal Airport (seven miles southeast). The nearest commercial airport is Fresno Yosemite International Airport. Fresno Yosemite International Airport is a joint civil-military public airport in eastern Fresno, approximately 10 miles northwest of the City of Sanger via State Route 180/Peach Avenue. The proposed Project is not located within any airport safety zone. The Project will have ***no impact*** to airport operations.

Mitigation Measures: None are required.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The proposed Project involves installation of a water distribution facility within the Tombstone Territory and connecting to the City of Sanger's water distribution system. Construction activities will take place within right-of-ways of existing roadways. Construction activities will be temporary in nature and will not cause any road closures that could interfere with any adopted emergency response or evacuation plan. The construction contractor will be required to work with the City and County (public works, police/fire, etc.) if and when roadway diversions are required to ensure that adequate access is maintained for residents and emergency vehicles. As such, any impacts will be ***less than significant***.

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6 https://www.envirostor.dtsc.ca.gov/public/search?CMD=search&city=Sanger&zip=&county=Fresno&case_number=&business_name=&FEDERAL_SUPERFUND=True&STATE_RESPONSE=True&VOLUNTARY_CLEANUP=True&SCHOOL_CLEANUP=True&CORRECTIVE_ACTION=True&tiered_permit=True&evaluation=True&operating=True&post_closure=True&non_operating=True&inspections=True (Accessed July 2020).

Mitigation Measures: None are required.

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

No Impact. Implementation of the Project would not change the degree of exposure to wildfires because no new housing or businesses will be constructed and there are no wildlands in the Project vicinity, thus precluding the possibility of wildfires. Therefore, there is ***no impact.***

Mitigation Measures: None are required.

X. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	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?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i. Result in substantial erosion or siltation on- or off- site;	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. impede or redirect flood flows?	☐	☐	☒	☐

X. HYDROLOGY AND WATER QUALITY

Would the project:

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

Responses:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. The primary purpose of the proposed Project is to alleviate water quality issues in the Tombstone Territory. Water quality tests within the Tombstone Territory have been taken in 2017, 2018 and 2019, and the results are presented in the Preliminary Engineer Report prepared for the Tombstone Territory Water Connection Project[7]. The tests were taken at 14 different residences at locations dispersed throughout the community. The water samples were collected by Self-Help Enterprises and the Leadership Counsel for Justice and Accountability. Repeat testing was done at one home (TT04). The results show:

a. Six locations tested positive for Total Coliform.

b. Five residences had Nitrate levels above the MCL.

c. One residence had 1,2,3-TCP above the MCL.

For these reasons, an alternate source of water supply for the Tombstone Territory is being presented through the proposed Project (connection to the City's existing water distribution system). The Sanger Water System is currently in compliance with State Water Board regulations. The Sanger

[7] Preliminary Engineering Report – Tombstone Territory Water Connection Project, page 3 (2020).

Water System contains treatment to remove 1,2-Dibromo-3-Chloropropane (DBCP) using Granulated Activated Carbon filters at several well sites. Well No. 8 has tested high in nitrates and is currently off-line until Tank No. 3 is constructed to allow blending of water from Well No. 8 to reduce the concentration below the MCL. The City of Sanger's Water System is operated by the City's Public Works Department. The Public Works Director reports to the City Manager and City Council and oversees all divisions of the Public Works Department, including the Water Division, which operates and maintains the water system for the City, serving a current population of 27,094 people (2019). The Water Division handles all water sampling requirements with the State at each ground water well and at the various sampling stations throughout the City. The State Water Board, through the Division of Drinking Water, has regulatory jurisdiction over the operation of the Water System by the City.

Once the Tombstone Territory is connected to Sanger's Water System, it will be in compliance with existing water quality standards. The State Water Resources Control Board will have ultimate review and approval of the upgraded system, thereby ensuring adequate water quality standards. Any impacts would be ***less than significant***.

Mitigation Measures: None are required.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. The proposed Project involves installation of a water distribution system within the Tombstone Territory and connection to the City of Sanger's existing water system. The existing water source for Tombstone is private wells.

Tombstone Water Demand

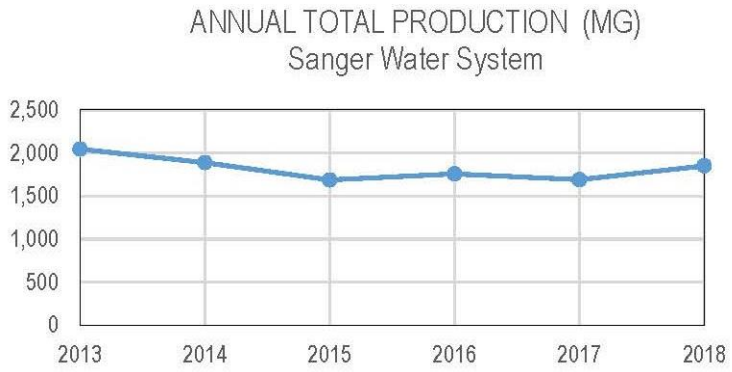
There are no meters on any of the private wells in Tombstone, therefore some assumptions will have to be made as to the consumption of water for a potential community system. The 2015 Sanger Urban Water Management Plan shows an average single-family water use of 405 gal per day per unit. The lots in Tombstone average 35,300 square feet (sf), which is larger than the average lot size in Sanger of 7,000 sf. The property in the Tombstone Territory is zoned as Exclusive Agriculture, with a minimum lot size of 20 acres (AE-20). Therefore, the potential for creating new lots from the existing ones does not exist. However, an additional 26 second living units exist on some of the lots, for a total of 83 living units in the Tombstone Territory. Additionally, larger lot size leads to additional water used for landscape irrigation, which is typically the largest component of residential water demand. Therefore, the estimated annual average water consumption for units in the Tombstone Territory will be taken as twice the Sanger rate for single family residential use of 405 gal per day (gpd), or 810 gpd

per unit. This equates to 67,230 gpd (810 gpd x 83 units), or 47 gpm average day demand for the entire community. The summary of the Tombstone design values is shown below[8]:

Total number of lots:	57
Total existing number of living units:	83
Tombstone average day demand per unit:	810 gpd
Tombstone average day demand:	67,230 gpd or 47 gpm

City of Sanger Existing Water Demand

The City of Sanger relies 100% on local groundwater for its water supplies. The City's annual potable water production declined from a high of 2,044.87 million gallons (mg) in 2013 to a low of 1,687.00 mg in 2015 in response to the drought and water conservation measures. Annual production continued to remain constant through 2017 with an increase in 2018. The figure below shows the annual production for these years. The number of service connections has increased steadily from 6,344 in 2013 up to 6,786 in 2018. The 6-year average number of service connections is 6,557. The industrial and commercial water users consume about 37% of the City's annual production.



Project Impact on Groundwater Supplies

As stated previously, the Project would provide potable water to 57 lots (83 living units). This equates to approximately 67,230 gallons per day or approximately 24,538,950 gallons per year. The City's

[8] Preliminary Engineering Report – Tombstone Territory Water Connection Project, page 3 (2020).

estimated water demand is approximately 1,900,000,000 gallons per year (2018). Adding the Tombstone Territory water demands to the City's existing system would result in an increase of approximately 0.013% to the City's current water supply system. According to the City's General Plan EIR, as population and development within the City increases, additional wells and a storage tanks will be added to the water system to meet the growing demand. Sufficient water supply is expected through Year 2040 (planning horizon of the City's UWMP). In addition, implementation of the City's policies will incrementally reduce the City's incremental cumulative impact on groundwater by encouraging groundwater recharge, limiting development where a demonstrated source of water is not available, ensuring continued participation in regional integrated water resources planning and project development, facilitating water conservation, and protecting groundwater quality[9]. Therefore, it is determined that the proposed Project would not substantially deplete groundwater resources such that a significant environmental impact would occur. Therefore, the impact is ***less than significant.***

Mitigation Measures: None are required.

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 offsite;

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

iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv. impede or redirect flood flows?

Less Than Significant Impact. The proposed pipelines and related components will not introduce new non-permeable surfaces. Once constructed, the pipelines will be underground and the surface area will be restored to pre-Project conditions. During construction, the City would be required to obtain a Stormwater Pollution Prevention Plan to minimize erosion and potential site runoff. As such, any impacts resulting from drainage patterns would be ***less than significant.***

[9] City of Sanger 2035 General Plan EIR, page 3.10-27.

Mitigation Measures: None are required.

d. In flood hazard, tsunami or seiche zones, risk release of pollutants due to project inundation?

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The Project is not within a regulatory floodway or within a base floodplain (100 year) elevation. In addition, the Project does not include any housing or structures that would be subject to flooding either from a watercourse or from dam inundation. There are no bodies of water near the site that would create a potential risk of hazards from seiche, tsunami or mudflow. The Project will not conflict with any water quality control plans or sustainable groundwater management plan. Therefore, there are ***no impacts.***

Mitigation Measures: None are required.

XI. LAND USE AND PLANNING

Would the project:

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

Responses:

a. Physically divide an established community?

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. Construction and operation of the proposed Project would not cause any land use changes in the surrounding vicinity nor would it introduce barriers that would divide and established community. The proposed Project involves a water distribution system and does not conflict with any land use plans, policies or regulations. There are ***no impacts.***

Mitigation Measures: None are required.

XI. MINERAL RESOURCES

Would the project:

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

Responses:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. There are no known mineral resources in the Project area and none are identified in the City's General Plan or Fresno County's General Plan near the proposed Project site. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

XII. NOISE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	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?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Responses:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b. Generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. The nearest sensitive receptors to the Project are the residents adjacent to the proposed Project. Once operational, the installed pipelines will not generate noise above levels that currently exist.

Proposed Project construction related activities will involve temporary noise sources and are anticipated to begin in 2021 through 2022. Typical construction related equipment include graders, trenchers, small tractors and excavators. During the proposed Project construction, noise from construction related

activities will contribute to the noise environment in the immediate vicinity. Activities involved in construction will generate maximum noise levels, as indicated in Table 2, ranging from 79 to 91 dBA at a distance of 50 feet, without feasible noise control (e.g., mufflers) and ranging from 75 to 80 dBA at a distance of 50 feet, with feasible noise controls.

Table 2
Typical Construction Noise Levels

Type of Equipment	dBA at 50 ft	
	Without Feasible Noise Control	With Feasible Noise Control
Dozer or Tractor	80	75
Excavator	88	80
Scraper	88	80
Front End Loader	79	75
Backhoe	85	75
Grader	85	75
Truck	91	75

The distinction between short-term construction noise impacts and long-term operational noise impacts is a typical one in both CEQA documents and local noise ordinances, which generally recognize the reality that short-term noise from construction is inevitable and cannot be mitigated beyond a certain level. Thus, local agencies frequently tolerate short-term noise at levels that they would not accept for permanent noise sources. A more severe approach would be impractical and might preclude the kind of construction activities that are to be expected from time to time. Most residents recognize this reality and expect to hear construction activities on occasion.

Typical outdoor sources of perceptible ground borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. Construction vibrations can be transient, random, or continuous. Construction associated with the proposed Project is earthmoving activities associated installing pipelines and installing equipment.

The approximate threshold of vibration perception is 65 VdB, while 85 VdB is the vibration acceptable only if there are an infrequent number of events per day.[10] Table 3 describes the typical construction equipment vibration levels.

[10] Transit Noise and Vibration Impact Assessment. Final Report No. FTA-VA-90-1003 prepared for the U.S. Federal Transit Administration by Harris Miller Miller & Hanson Inc., May 2006. Page 7-5. http://www.rtd-fastracks.com/media/uploads/nm/14_Section_38_NoiseandVibration_Part3.pdf. Accessed February 2019.

Table 3
Typical Construction Vibration Levels

Equipment	VdB at 25 ft
Small Bulldozer	58
Jackhammer	79

Vibration from construction activities will be temporary and not exceed the Federal Transit Authority threshold for the nearest sensitive receptors.

As such, any impacts resulting from an increase in noise levels or from groundborne noise levels is ***less than significant.***

Mitigation Measures: None are required.

e. 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. As the nearest airport is approximately eight miles to the northwest, there is ***no impact***.

Mitigation Measures: None are required.

XIV. POPULATION AND HOUSING

Would the project:

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

Responses:

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Less Than Significant Impact. There are no new homes associated with the proposed Project, nor would Project implementation displace people or housing. The proposed Project is needed to provide a water source to the Tombstone Territory that meets statewide water quality standards. The Project is intended to only serve the existing residents. There is a ***less than significant impact***.

Mitigation Measures: None are required.

XV. PUBLIC SERVICES

Would the project:

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

Responses:

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

Fire protection?

Police Protection?

Schools?

Parks?

Other public facilities?

No Impact. The proposed Project would provide water to the Tombstone Territory. The proposed Project would not directly or indirectly induce population growth because it will only serve existing residents of the Tombstone community. As such, the Project will not increase demand for schools, parks, or other public facilities. There would be ***no impacts.***

Mitigation Measures: None are required.

XVI. RECREATION

Would the project:

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

Responses:

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

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

No Impact. The proposed Project does not include the construction of residential uses or recreational facilities and would not directly or indirectly induce population growth. Therefore, the proposed Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities. The Project would have ***no impact*** to existing parks.

Mitigation Measures: None are required.

XVII. TRANSPORTATION/ TRAFFIC

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

Responses:

a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

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

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

d. Result in inadequate emergency access?

Less Than Significant Impact. The proposed Project would provide water to the Tombstone Territory. There are no components of the proposed Project that would increase hazards due to a geometric design feature. Construction activities will be temporary in nature and will not cause any road closures that could interfere with any adopted emergency response or evacuation plan. The construction contractor will be required to work with the City and County (public works, police/fire, etc.) if and when roadway

diversions are required to ensure that adequate access is maintained for residents and emergency vehicles. Once installed, the new pipelines would not generate significant additional traffic trips per day. The only operational trips associated with the Project would be for routine maintenance or inspection. The Project would not conflict with a program plan, ordinance, or policy addressing the circulation system and as such, impacts would be ***less than significant.***

Mitigation Measures: None are required.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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 a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Responses:

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 a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

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

Less Than Significant Impact. In accordance with Assembly Bill (AB) 52, potentially affected Tribes were formally notified of this Project and were given the opportunity to request consultation on the Project. The City contacted the Native American Heritage Commission, requesting a contact list of applicable Native American Tribes, which was provided to the City. The City provided letters to the listed Tribes, notifying them of the Project and requesting consultation, if desired. A response came from Rick Osborne of the Traditional Choinumni Tribe requesting archaeological monitoring of all trenching activity in the APE due to the areas sensitivity for potential tribal cultural resources. The City will work with the Traditional Choinumni Tribe regarding their request for monitoring. No other responses were received. Therefore, there is a ***less than significant impact***.

Mitigation Measures: None are required.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

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

Responses:

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?

Less Than Significant Impact with Mitigation. The primary purpose of the proposed Project is to alleviate water quality issues in the Tombstone Territory. The Project itself is the construction of a water distribution system within the Tombstone Territory and connection to the City of Sanger's existing water system. Any environmental impacts resulting from the improvements are discussed within this document.

Mitigation Measures: The Project will require multiple mitigation measures as identified throughout this document.

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

Less Than Significant Impact. The proposed Project involves installation of a water distribution system within the Tombstone Territory and connection to the City of Sanger's existing water system. The existing water source for Tombstone is private wells.

Tombstone Water Demand

There are no meters on any of the private wells in Tombstone, therefore some assumptions will have to be made as to the consumption of water for a potential community system. The 2015 Sanger Urban Water Management Plan shows an average single-family water use of 405 gal per day per unit. The lots in Tombstone average 35,300 square feet (sf), which is larger than the average lot size in Sanger of 7,000 sf. The property in the Tombstone Territory is zoned as Exclusive Agriculture, with a minimum lot size of 20 acres (AE-20). Therefore, the potential for creating new lots from the existing ones does not exist. However, an additional 26 second living units exist on some of the lots, for a total of 83 living units in the Tombstone Territory. Additionally, larger lot size leads to additional water used for landscape irrigation, which is typically the largest component of residential water demand. Therefore, the estimated annual average water consumption for units in the Tombstone Territory will be taken as twice the Sanger rate for single family residential use of 405 gal per day (gpd), or 810 gpd per unit. This equates to 67,230

gpd (810 gpd x 83 units), or 47 gpm average day demand for the entire community. The summary of the Tombstone design values is shown below[11]:

Total number of lots:	57
Total existing number of living units:	83
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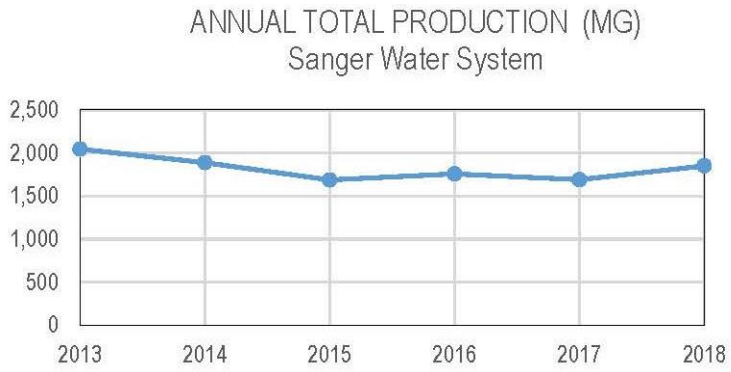
The City of Sanger relies 100% on local groundwater for its water supplies. The City's annual potable water production declined from a high of 2,044.87 million gallons (mg) in 2013 to a low of 1,687.00 mg in 2015 in response to the drought and water conservation measures. Annual production continued to remain constant through 2017 with an increase in 2018. The figure below shows the annual production for these years. The number of service connections has increased steadily from 6,344 in 2013 up to 6,786 in 2018. The 6-year average number of service connections is 6,557. The industrial and commercial water users consume about 37% of the City's annual production.



Project Impact on Groundwater Supplies

As stated previously, the Project would provide potable water to 57 lots (83 living units). This equates to approximately 67,230 gallons per day or approximately 24,538,950 gallons per year. The City's estimated

[11] Preliminary Engineering Report – Tombstone Territory Water Connection Project, page 3 (2020).

water demand is approximately 1,900,000,000 gallons per year (2018). Adding the Tombstone Territory water demands to the City's existing system would result in an increase of approximately 0.013% to the City's current water supply system. According to the City's General Plan EIR, as population and development within the City increases, additional wells and a storage tanks will be added to the water system to meet the growing demand. Sufficient water supply is expected through Year 2040 (planning horizon of the City's UWMP). In addition, implementation of the City's policies will incrementally reduce the City's incremental cumulative impact on groundwater by encouraging groundwater recharge, limiting development where a demonstrated source of water is not available, ensuring continued participation in regional integrated water resources planning and project development, facilitating water conservation, and protecting groundwater quality[12]. Therefore, it is determined that the proposed Project would not substantially deplete groundwater resources such that a significant environmental impact would occur. Therefore, the impact is ***less than significant.***

Mitigation Measures: None are required.

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?

Less Than Significant Impact. As the proposed Project includes installation of a water system in the Tombstone Territory and connection to the City of Sanger's existing water system. No component of the proposed Project would generate wastewater. There is ***no impact***.

Mitigation Measures: None are required.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. Proposed Project construction and operation will generate minimal amounts of solid waste. The proposed new water system will be un-manned and therefore won't generate waste on an on-going basis. The proposed Project will comply with all federal, state and local

[12] City of Sanger 2035 General Plan EIR, page 3.10-27.

statutes and regulations related to solid waste during construction. Any impacts will be ***less than significant.***

Mitigation Measures: None are required.

XX. WILDFIRE

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

Responses:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

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

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

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact. The proposed Project is located in the center of a highly disturbed area (roads, active agriculture, water conveyance facilities, ect.) which precludes the risk of wildfire. The area is flat in nature which would limit the risk of downslope flooding and landslides, and limit any wildfire spread.

To receive construction permits, the proposed Project would be required to be in compliance with the adopted emergency response plan. As such, any wildfire risk to the Project structures or people would be ***less than significant.***

Mitigation Measures: None are required.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

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

Responses:

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

Less than Significant Impact With Mitigation. The analyses of environmental issues contained in this Initial Study indicate that the proposed Project is not expected to have substantial impact on the environment or on any resources identified in the Initial Study. Mitigation measures have been incorporated in the Project to reduce all potentially significant impacts to ***less than significant***.

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. 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. Due to the nature of the Project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The proposed Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increase need for housing, increase in traffic, air pollutants, etc.). The impact is ***less than significant***.

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

Less than Significant Impact With Mitigation. The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have substantial impact on human beings, either directly or indirectly. Mitigation measures have been incorporated in the Project to reduce all potentially significant impacts to ***less than significant.***

Chapter 4

MITIGATION MONITORING & REPORTING PROGRAM

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 Water Treatment / Water Storage project. The MMRP lists mitigation measures recommended in the IS/MND for the proposed Project and identifies monitoring and reporting requirements as well as conditions recommended by responsible agencies who commented on the project.

The first column of the Table identifies the mitigation measure. The second column, entitled "Party Responsible for Implementing Mitigation," names the party responsible for carrying out the required action. The third column, "Implementation Timing," identifies the time the mitigation measure should be initiated. The fourth column, "Party Responsible for Monitoring," names the party ultimately responsible for ensuring that the mitigation measure is implemented. The last column will be used by the City to ensure that individual mitigation measures have been monitored.

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Biology				
BIO – 1 Protect nesting Swainson's hawks 1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August. 2. If it is not possible to schedule work between September and February, a qualified biologist shall conduct a survey for active Swainson's hawk nests within 0.25 miles of the Project site no more than 14 days prior to the start of construction. If an active nest is found within 0.25 miles, and the qualified biologist determines that Project activities would disrupt nesting, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW. **BIO – 2 Protect Nesting Birds** 1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.	City of Sanger	Prior to construction	City of Sanger	

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
If it is not possible to schedule construction between September and January, preconstruction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during Project implementation. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas for nests. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.				
Cultural				

	Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
CUL – 1	Should any potentially significant cultural, historical, archaeological or fossil resources be discovered, no further ground disturbance shall occur in the area of the discovery until the Planning Director concurs in writing that adequate provisions are in place to protect these resources. Unanticipated discoveries shall be evaluated for significance by a certified professional archaeologist or paleontologist that meets the Secretary of the Interior's Professional Qualifications Standards. If significance criteria are met, then the project shall be required to perform data recovery, professional identification, radiocarbon dates as applicable, and other special studies; curate materials with recognized scientific or educational repository; and provide a comprehensive final report as required by Senate Bill 18; California Historical Building Code (Title 24, Part 8); California Public Resources Code Sections 5020-5029.5, 5079-5079.65, 5097.9-5097.998, and 5097.98; and California State Health and Safety Code, Section 7050.5, as applicable.	City of Sanger	Prior to and during construction	City of Sanger	

	Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
CUL – 2	In order to ensure that the proposed project does not impact buried human remains during project construction, the project proponent shall be responsible for on-going monitoring of project construction. Prior to the issuance of any grading permit, the project proponent shall provide the City of Sanger with documentation identifying construction personnel that will be responsible for on-site monitoring. If buried human remains are encountered during construction, further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall be halted until the Fresno County coroner is contacted and the coroner has made the determinations and notifications required pursuant to Health and Safety Code Section 7050.5. If the coroner determines that Health and Safety Code Section 7050.5(c) require that he give notice to the Native American Heritage Commission, then such notice shall be given within 24 hours, as required by Health and Safety Code Section 7050.5(c).				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
In that event, the NAHC will conduct the notifications required by Public Resources Code Section 5097.98. Until the consultations described below have been completed, the landowner shall further ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices where Native American human remains are located, is not disturbed by further development activity until the landowner has discussed and conferred with the Most Likely Descendants on all reasonable options regarding the descendants' preferences and treatments, as prescribed by Public Resources Code Section 5097.98(b). The NAHC will mediate any disputes regarding treatment of remains in accordance with Public Resources Code Section 5097.94(k). The landowner shall be entitled to exercise rights established by Public Resources Code Section 5097.98(e) if any of the circumstances established by that provision become applicable.				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Geology and Soils				
GEO – 1 In order to reduce on-site erosion due to project construction and operation, an erosion control plan and Storm Water Pollution Prevention Plan (SWPPP) shall be prepared for the site preparation, construction, and post-construction periods by a registered civil engineer or certified professional. The erosion control plan shall incorporate best management practices consistent with the requirements of the National Pollution Discharge Elimination System (NPDES). The erosion component of the plan must at least meet the requirements of the SWPPP required by the California State Water Resources Control Board.	City of Sanger	Prior to and during construction	City of Sanger	

Chapter 5

PREPARERS

LIST OF PREPARERS

Crawford & Bowen Planning, Inc.

- Travis Crawford, AICP, Principal Environmental Planner
- Emily Bowen, LEED AP, Principal Environmental Planner

Yamabe & Horn Engineering, Inc.

- Josh Rogers, PE

Colibri Ecological Consulting, LLC.

- Jeff Davis

Applied EarthWorks, Inc.

- Mary Baloian

Appendices

Appendix A

CalEEMod Output Files

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Tombstone Territory Water Connection

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.51	12.33	14.87	5.66	0.66	5.00	1.62	0.58	1.04	0.03	2,590.70	0.61	0.05	2,622.26
Grading/Excavation	6.43	50.51	70.61	8.10	3.10	5.00	3.84	2.80	1.04	0.11	10,095.79	2.90	0.13	10,207.72
Drainage/Utilities/Sub-Grade	3.92	32.80	38.32	6.87	1.87	5.00	2.77	1.73	1.04	0.06	6,081.81	1.24	0.09	6,139.21
Paving	1.99	19.96	18.09	1.07	1.07	0.00	0.95	0.95	0.00	0.03	3,246.69	0.78	0.06	3,285.14
Maximum (pounds/day)	6.43	50.51	70.61	8.10	3.10	5.00	3.84	2.80	1.04	0.11	10,095.79	2.90	0.13	10,207.72
Total (tons/construction project)	0.30	2.43	3.13	0.42	0.14	0.28	0.19	0.13	0.06	0.00	469.51	0.12	0.01	474.56

Notes:

Project Start Year ->	2020
Project Length (months) ->	6
Total Project Area (acres) ->	3
Maximum Area Disturbed/Day (acres) ->	1
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	480	40
Grading/Excavation	0	0	0	0	1,080	40
Drainage/Utilities/Sub-Grade	0	0	0	0	800	40
Paving	0	0	0	0	680	40

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

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

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

Total Emission Estimates by Phase for -> Tombstone Territory Water Connection

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.08	0.10	0.04	0.00	0.03	0.01	0.00	0.01	0.00	17.10	0.00	0.00	15.70
Grading/Excavation	0.19	1.50	2.10	0.24	0.09	0.15	0.11	0.08	0.03	0.00	299.84	0.09	0.00	275.03
Drainage/Utilities/Sub-Grade	0.08	0.65	0.76	0.14	0.04	0.10	0.05	0.03	0.02	0.00	120.42	0.02	0.00	110.28
Paving	0.02	0.20	0.18	0.01	0.01	0.00	0.01	0.01	0.00	0.00	32.14	0.01	0.00	29.50
Maximum (tons/phase)	0.19	1.50	2.10	0.24	0.09	0.15	0.11	0.08	0.03	0.00	299.84	0.09	0.00	275.03
Total (tons/construction project)	0.30	2.43	3.13	0.42	0.14	0.28	0.19	0.13	0.06	0.00	469.51	0.12	0.01	430.51

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

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

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

The CO2e emissions are reported as metric tons per phase.

Appendix B

Biological Evaluation Report

Biological Resource Evaluation

Tombstone Territory Water Extension Project

Fresno County, California

PREPARED FOR:

City of Sanger
1700 7th Street
Sanger, CA 93657

PREPARED BY:

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April 2020

Contents

Figures

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Appendices

Executive Summary

The City of Sanger (City) proposes to extend its water delivery system to the community of Tombstone by installing roughly 13,130 linear feet of 6-inch and 8-inch water delivery main pipeline and associated hydrants and valves. The new water pipeline will be installed under paved and dirt roads and tie into the existing City distribution system. The purpose of this project is to provide residents of the community of Tombstone with a clean and reliable water source.

The City will obtain funding for the project from the Drinking Water State Revolving Fund (DWSRF). The DWSRF is a state and federal partnership that helps provide communities a source of low-cost financing for infrastructure projects that help ensure safe drinking water. It is administered by the State of California and partially funded by the United States Environmental Protection Agency. Consequently, the project must not only meet environmental documentation and review requirements under the California Environmental Quality Act (CEQA) but must meet such requirements with respect to certain federal laws and regulations as well. This state and federal review process is known as CEQA-Plus.

To evaluate whether the project may affect biological resources under CEQA-Plus purview, we (1) obtained official lists from the United States Fish and Wildlife Service, California Department of Fish and Wildlife, and California Native Plant Society of special-status species and designated and proposed critical habitat; (2) reviewed other relevant background information such as aerial images and topographic maps; and (3) conducted a field reconnaissance survey of the project site.

This biological resource evaluation summarizes (1) existing biological conditions on the project site, (2) the potential for special-status species and regulated habitats to occur on or near the project site, (3) the potential impacts of the proposed project on biological resources and regulated habitats, and (4) measures to reduce those potential impacts to less-than-significant levels. We concluded the project will have no effect on regulated habitats but could affect the state-listed as threatened Swainson's hawk (*Buteo swainsoni*) and nesting migratory birds. However, impacts can be reduced to less-than-significant levels with mitigation.

Abbreviations

Abbreviation	Definition
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CWC	California Water Code
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
DWSRF	Drinking Water State Revolving Fund
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
FE	Federally listed as Endangered
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FP	Fully Protected
FT	Federally listed as Threatened
NMFS	National Marine Fisheries Service
SE	State-listed as Endangered
SSSC	State Species of Special Concern
ST	State-listed as Threatened
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

1.1 Background

The City of Sanger proposes to expand its water delivery system by connecting it distribution system with the community of Tombstone. The City will obtain financing for this water infrastructure improvements project (Project) from the Drinking Water State Revolving Fund (DWSRF). Because the DWSRF is partially funded by the Environmental Protection Agency (EPA), the project will constitute a federal action. Consequently, the environmental review for the Project must meet not only state requirements under the California Environmental Quality Act (CEQA) but some federal requirements as well. To comply with applicable federal statutes and authorities, the EPA established specific "CEQA-Plus" requirements in its operating agreement with the State Water Resources Control Board (SWRCB), which administers the DWSRF program.

The purpose of this biological resource evaluation is to assess whether the Project will affect state- or federally protected resources pursuant to CEQA-Plus guidelines. Such resources include species of plants or animals listed or proposed for listing under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA) as well as those covered under the Migratory Bird Treaty Act (MBTA), the California Native Plant Protection Act, and various other sections of the California Fish and Game Code. Biological resources considered here also include designated or proposed critical habitat recognized under the FESA. This biological resource evaluation also addresses Project-related impacts to regulated habitats, which are those under the jurisdiction of the United States Army Corps of Engineers (USACE), the SWRCB, or the California Department of Fish and Wildlife (CDFW) as well as those addressed under the Wild and Scenic Rivers Act, Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), and Executive Order 11988 pertaining to floodplain management.

1.2 Project Description

This Project will involve installing approximately 13,130 linear feet of water main pipeline and associated hydrants and valves to connect the City's water distribution system to the community of Tombstone. A total of 3986 linear feet of new water pipeline will tie into the City distribution system along Greenwood Avenue just south of its intersection with Lime Avenue and run south to its intersection with Central Avenue. Another 4978 linear feet of new pipeline will connect to the City distribution system at the intersection of Central Avenue and Academy Avenue and run west along Central Avenue, connecting to the new Greenwood Avenue pipeline, then continuing west to just short of the intersection of Central Avenue and Bethel Avenue. Additional new segments (totaling 4166 linear feet) will tie into the new Central Avenue and Greenwood Avenue pipelines and run under paved surface streets (Fairbanks Avenue, Tinoco Avenue, and Cottle Avenue) and an unnamed dirt road in the community of Tombstone. A network of hydrants and valves will be installed along the new pipeline alignment. All construction will be confined to existing paved and dirt roads.

1.3 Project Location

The Project site is just south of the City of Sanger in central Fresno County, California (Figure 1). The new water pipeline will connect with the City distribution system and transmit water south along Greenwood Avenue and west along Central Avenue to the small community of Tombstone (Figure 2). New water distribution pipeline will be installed under paved and dirt surface streets including Fairbanks Avenue, Tinoco Avenue, Cottle Avenue, and an unnamed dirt road in the community of Tombstone (Figure 2).

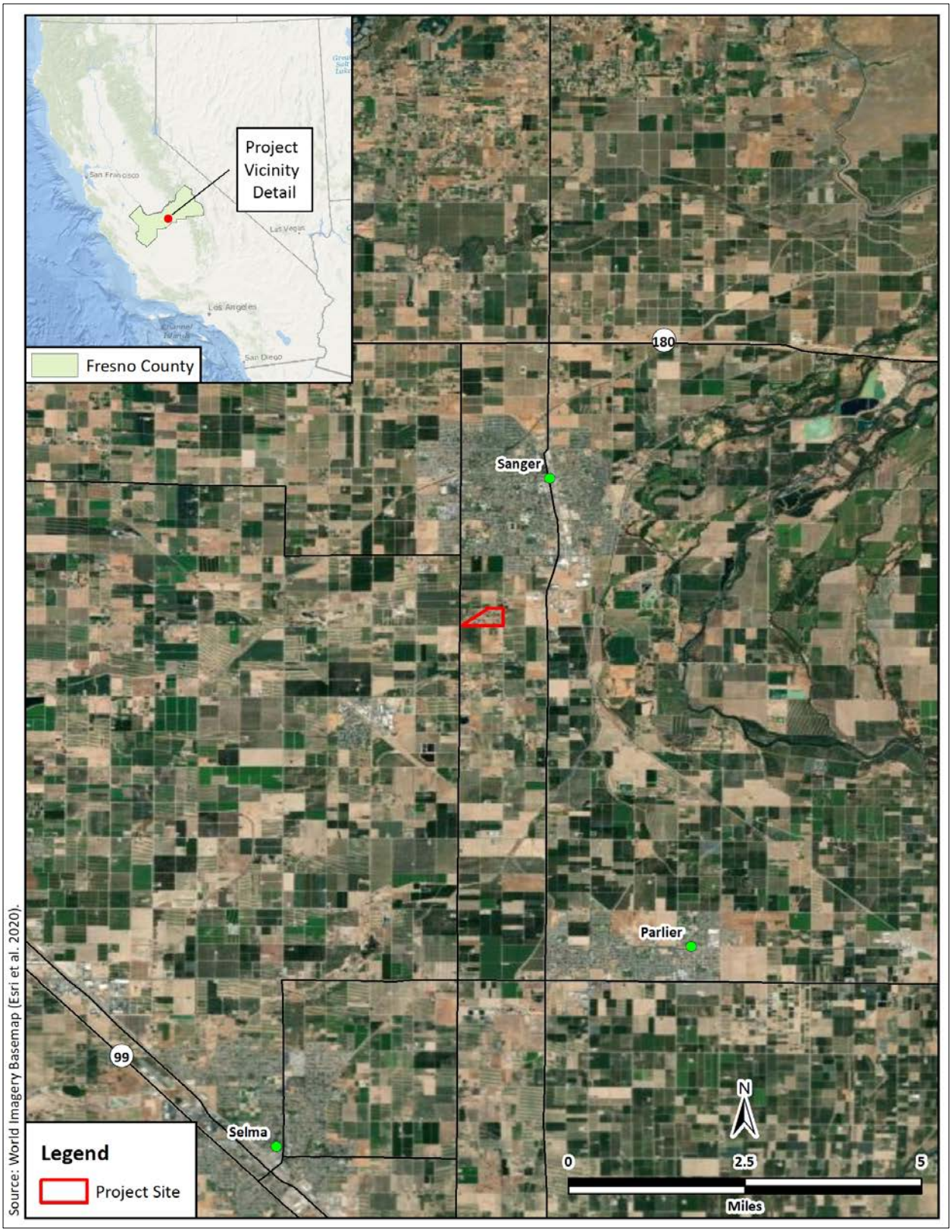

Figure 1. Site vicinity map.

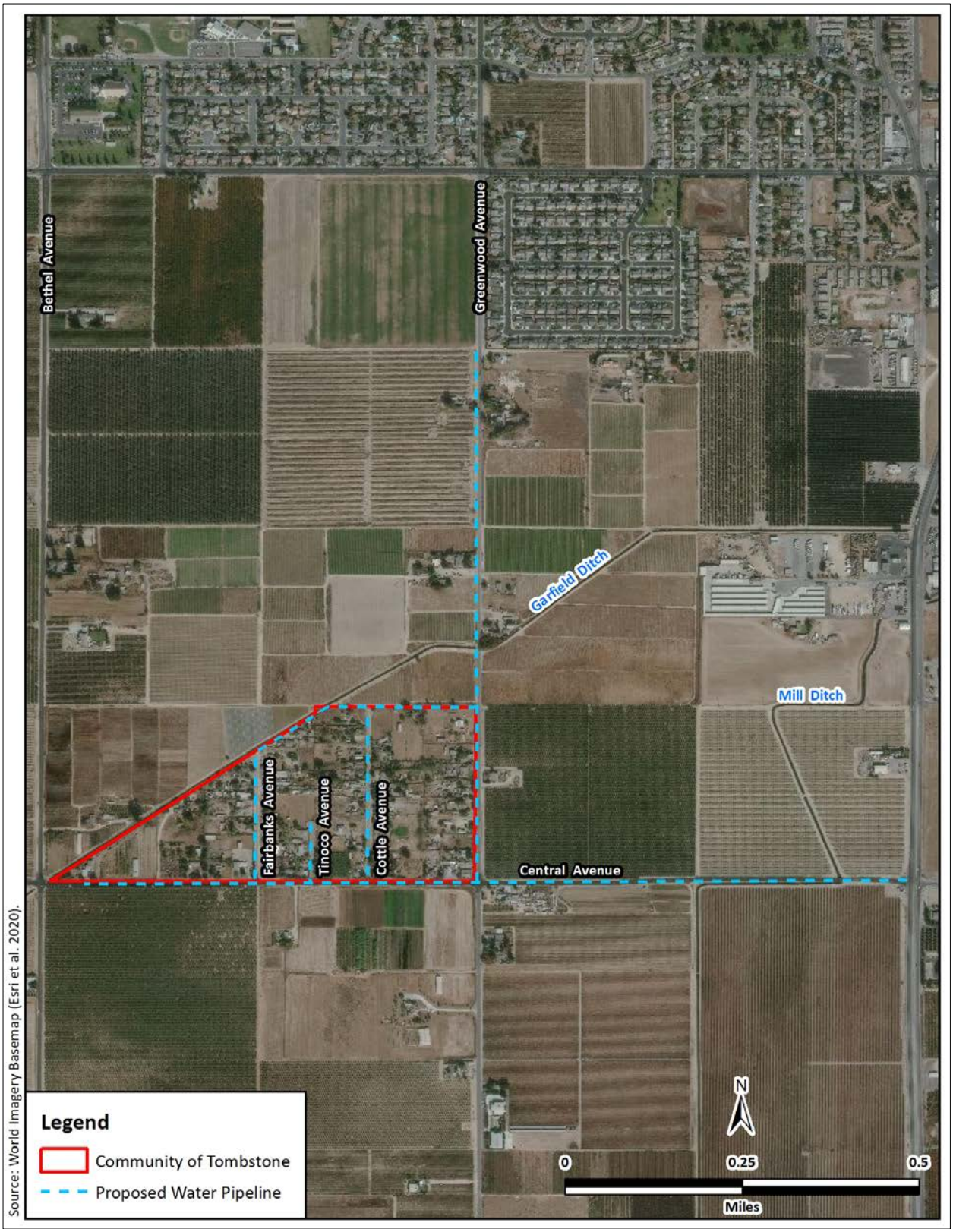

Figure 2. Project site map.

1.4 Purpose and Need of Proposed Project

The purpose of the Project is to provide a clean and reliable drinking water source to the community of Tombstone. The Project is needed because Tombstone suffers from failed wells and contaminated drinking water supplies.

1.5 Consultation History

Lists of all species listed or proposed for listing as threatened or endangered and all designated or proposed critical habitat under the FESA that could occur near the Project site were obtained by Colibri Associate Scientist Joe Medley from the United States Fish and Wildlife Service (USFWS) website (https://ecos.fws.gov/ipac/) on 10 March 2020 (Appendix A).

1.6 Regulatory Framework

The relevant federal and state regulatory requirements and policies that guide the impact analysis of the Project are summarized below.

1.6.1 Federal Requirements

Federal Endangered Species Act. The USFWS and the National Oceanographic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) enforce the provisions stipulated in the Federal Endangered Species Act of 1973 (FESA, 16 USC § 1531 et seq.). Threatened and endangered species on the federal list (50 Code of Federal Regulations [CFR] 17.11 and 17.12) are protected from take unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present on the project site and determine whether the proposed project may affect such species. Under the FESA, habitat loss is an impact to a species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species that is listed or proposed for listing under the FESA or result in the destruction or adverse modification of critical habitat proposed or designated for such species (16 United States Code [USC] § 1536[3], [4]). Therefore, project-related impacts to these species or their habitats would be considered significant and would require mitigation.

Migratory Bird Treaty Act. The federal Migratory Bird Treaty Act (MBTA) (16 USC § 703, Supp. I, 1989) prohibits killing, possessing, trading, or other forms of take of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. "Take" is defined as the pursuing, hunting, shooting, capturing, collecting, or killing of birds, their nests, eggs, or young

(16 USC § 703 and § 715n). This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA specifically protects migratory bird nests from possession, sale, purchase, barter transport, import, and export, and take. For nests, the definition of take per 50 CFR 10.12 is to collect. The MBTA does not include a definition of an "active nest." However, the "Migratory Bird Permit Memorandum" issued by the USFWS in 2003 clarifies the MBTA in that regard and states that the removal of nests, without eggs or birds, is legal under the MBTA, provided no possession (which is interpreted as holding the nest with the intent of retaining it) occurs during the destruction (USFWS 2003).

United States Army Corps of Engineers Jurisdiction. Areas meeting the regulatory definition of "waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the United States Army Corps of Engineers (USACE) under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as waters of the United States, tributaries of waters otherwise defined as waters of the United States, the territorial seas, and wetlands adjacent to waters of the United States (33 CFR part 328.3). Ditches and drainage canals where water flows intermittently or ephemerally are not regulated as waters of the United States. Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* and related Regional Supplement (USACE 1987 and 2008). Construction activities, including direct removal, filling, hydrologic disruption, or other means in jurisdictional waters are regulated by the USACE. The placement of dredged or fill material into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.

Wild and Scenic Rivers Act. The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90–542; 16 USC § 1271 et seq.) to preserve certain rivers with significant natural, cultural, and recreational values in a free-flowing condition. The Act safeguards the special character of these rivers, while also recognizing the potential for their appropriate use and development.

Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (Public law 94-265; Statutes at Large 90 Stat. 331; 16 USC Chapter 38 § 1801 et seq.) establishes a management system for national marine and estuarine fishery resources. This legislation requires that all federal agencies consult the NMFS regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect "essential fish habitat (EFH)." EFH is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Magnuson-Stevens Act states that migratory routes to and from anadromous fish spawning grounds are considered EFH.

The phrase "adversely affect" refers to any impact that reduces the quality or quantity of EFH. Federal activities that occur outside of EFH, but which may have an impact on EFH must also be considered. The Act applies to salmon species, groundfish species, highly migratory species such as tuna, and coastal pelagic species such as anchovies.

Executive Order 11988: Floodplain Management. Executive Order 11988 (42 Federal Register 26951, 3 CFR, 1977 Comp., p. 117) requires federal agencies to avoid to the extent possible the long-term and short-term adverse impacts associated with occupying and modifying flood plains and to avoid direct and indirect support of developing floodplains wherever there is a practicable alternative.

1.6.2 State Requirements

California Endangered Species Act. The California Endangered Species Act (CESA) of 1970 (Fish and Game Code § 2050 et seq., and CCR Title 14, Subsection 670.2, 670.51) prohibits the take of species listed under CESA (14 CCR Subsection 670.2, 670.5). Take is defined as hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill. Under CESA, state agencies are required to consult with the CDFW when preparing CEQA documents. Consultation ensures that proposed projects or actions do not have a negative effect on state-listed species. During consultation, CDFW determines whether take would occur and identifies "reasonable and prudent alternatives" for the project and conservation of special-status species. CDFW can authorize take of state-listed species under Sections 2080.1 and 2081(b) of the California Fish and Game Code in those cases where it is demonstrated that the impacts are minimized and mitigated. Take authorized under section 2081(b) must be minimized and fully mitigated. A CESA permit must be obtained if a project will result in take of listed species, either during construction or over the life of the project. Under CESA, CDFW is responsible for maintaining a list of threatened and endangered species designated under state law (Fish and Game Code § 2070). CDFW also maintains lists of species of special concern, which serve as "watch lists." Pursuant to the requirements of CESA, a state or local agency reviewing a proposed project within its jurisdiction must determine whether the proposed project will have a potentially significant impact upon such species. Project-related impacts to species on the CESA list would be considered significant and would require mitigation. Impacts to species of concern or fully protected species would be considered significant under certain circumstances.

California Environmental Quality Act. The California Environmental Quality Act (CEQA) of 1970 (Subsections 21000–21178) requires that CDFW be consulted during the CEQA review process regarding impacts of proposed projects on special-status species. Special-status species are defined under CEQA Guidelines subsection 15380(b) and (d) as those listed under FESA and CESA and species that are not currently protected by statute or regulation but would be considered rare, threatened, or endangered under these criteria or by the scientific community. Therefore, species considered rare or endangered are addressed in this biological resource evaluation regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species

according to rarity (CNPS 2019). Plants with Rare Plant Ranks 1A, 1B, 2A, or 2B are considered special-status species under CEQA.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in the FESA and the section of the California Fish and Game Code dealing with rare and endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., candidate species) would occur. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agency has an opportunity to designate the species as protected, if warranted.

California Native Plant Protection Act. The California Native Plant Protection Act of 1977 (California Fish and Game Code §§ 1900–1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require the project proponent to notify CDFW at least 10 days in advance of any change in land use, which allows CDFW to salvage listed plants that would otherwise be destroyed.

Nesting birds. California Fish and Game Code Sections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are "Fully Protected" as those that may not be taken or possessed except under specific permit.

California Department of Fish and Wildlife Jurisdiction. The CDFW has regulatory jurisdiction over lakes and streams in California. Activities that divert or obstruct the natural flow of a stream; substantially change its bed, channel, or bank; or use any materials (including vegetation) from the streambed, may require that the project applicant enter into a Streambed Alteration Agreement with the CDFW in accordance with California Fish and Game Code Section 1602.

***Porter-Cologne Water Quality Control Act*.** The Porter-Cologne Water Quality Control Act (CWC § 13000 et. sec.) was established in 1969 and entrusts the SWRCB and nine Regional Water Quality Control Boards (collectively Water Boards) with the responsibility to preserve and enhance all beneficial uses of California's diverse waters. The Act grants the Water Boards authority to establish water quality objectives and regulate point- and nonpoint-source pollution discharge to the State's surface and ground waters. Under the auspices of the United States Environmental Protection Agency, the Water Boards are responsible for certifying, under Section 401 of the federal Clean Water Act, that activities affecting waters of the United States comply California water quality standards. The Porter-Cologne Water Quality Control Act addresses all "waters of the State," which are more broadly defined than waters of the Unites States. Waters of the State include any surface water or groundwater, including saline waters, within the

boundaries of the state. They include artificial as well as natural water bodies and federally jurisdictional and federally non-jurisdictional waters. The Water Boards may issue a Waste Discharge Requirement permit for projects that will affect only federally non-jurisdictional waters of the State.

2.0 Methods

2.1 Desktop Review

As a framework for the evaluation and reconnaissance survey, we obtained a USFWS species list for the Project (USFWS 2020a, Appendix A). In addition, we searched the California Natural Diversity Data Base (CNDDB 2020) and the CNPS Inventory of Rare and Endangered Plants (CNPS 2020) for records of special-status plant and animal species near the Project site. Regional lists of special-status species were compiled using the USFWS list and the results of CNDDB and CNPS database searches confined to the Sanger 7.5-minute United States Geological Survey (USGS) topographic quad, which encompasses the Project site, and the eight surrounding quads (Clovis, Conejo, Malaga, Piedra, Reedley, Round Mountain, Selma, and Wahtoke). A local list of special-status species was compiled using CNDDB and CNPS records from within 5 miles of the Project site. Species that lack a special-status designation by state or federal regulatory agencies or other groups were omitted from the final list. Species for which the Project site does not provide habitat were eliminated from further consideration. We also reviewed aerial imagery from Google Earth (Google 2020) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2020), and relevant literature.

2.2 Reconnaissance Survey

Colibri Associate Scientist Joe Medley conducted a field reconnaissance survey of the Project site on 11 March 2020. The Project site and a 50-foot buffer surrounding the Project site were walked and thoroughly inspected to evaluate and document the potential for the site to support federally or state-protected resources (Figure 3). All plants except those under cultivation or planted in residential areas and all animals (vertebrate wildlife species) observed within the survey area were identified and documented. The survey area was evaluated for the presence of regulated habitats, including lakes, streams, wetlands, and other waters using methods described in the *Wetlands Delineation Manual* and regional supplement (USACE 1987, 2008) and as defined by the CDFW (https://www.wildlife.ca.gov/conservation/lsa).

2.3 Effects Analysis and Significance Criteria

2.3.1 Effects Analysis

Factors considered in evaluating the effects of the Project on special-status species included the (1) presence of designated or proposed critical habitat in the survey area, (2) potential for the survey area to support special-status species, (3) dependence of any such species on specific habitat components that would be removed or modified, (4) the degree of impact to habitat, (5) abundance and distribution of habitat in the region, (6) distribution and population levels of the

species, (7) cumulative effects of the Project and any future activities in the area, and (8) the potential to mitigate any adverse effects.

Factors considered in evaluating the effects of the Project on migratory birds included the potential for the Project to result in (1) mortality of migratory birds or (2) loss of migratory bird nests containing viable eggs or nestlings.

Factors considered in evaluating the effects of the Project on regulated habitats included the (1) presence of features comprising or potentially comprising waters of the United States, Wild and Scenic Rivers, essential fish habitat (EFH), floodplains, and lakes or streams within the survey area, and (2) potential for the Project to impact such habitats.

2.3.2 Significance Criteria

CEQA defines "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in the environment" (Pub. Res. Code § 21068). Under CEQA Guidelines Section 15065, a project's effects on biological resources are deemed significant where the project would do the following:

a) Substantially reduce the habitat of a fish or wildlife species,
b) Cause a fish or wildlife population to drop below self-sustaining levels,
c) Threaten to eliminate a plant or animal community, or
d) Substantially reduce the number or restrict the range of a rare or endangered plant or animal.

In addition to the Section 15065 criteria, Appendix G within the CEQA Guidelines includes six additional impacts to consider when analyzing the effects of a project. Under Appendix G, a project's effects on biological resources are deemed significant where the project would do any of the following:

e) 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;

f) 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;

g) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

h) 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;

i) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

j) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

These criteria were used to determine whether the potential effects of the Project on biological resources qualify as significant.

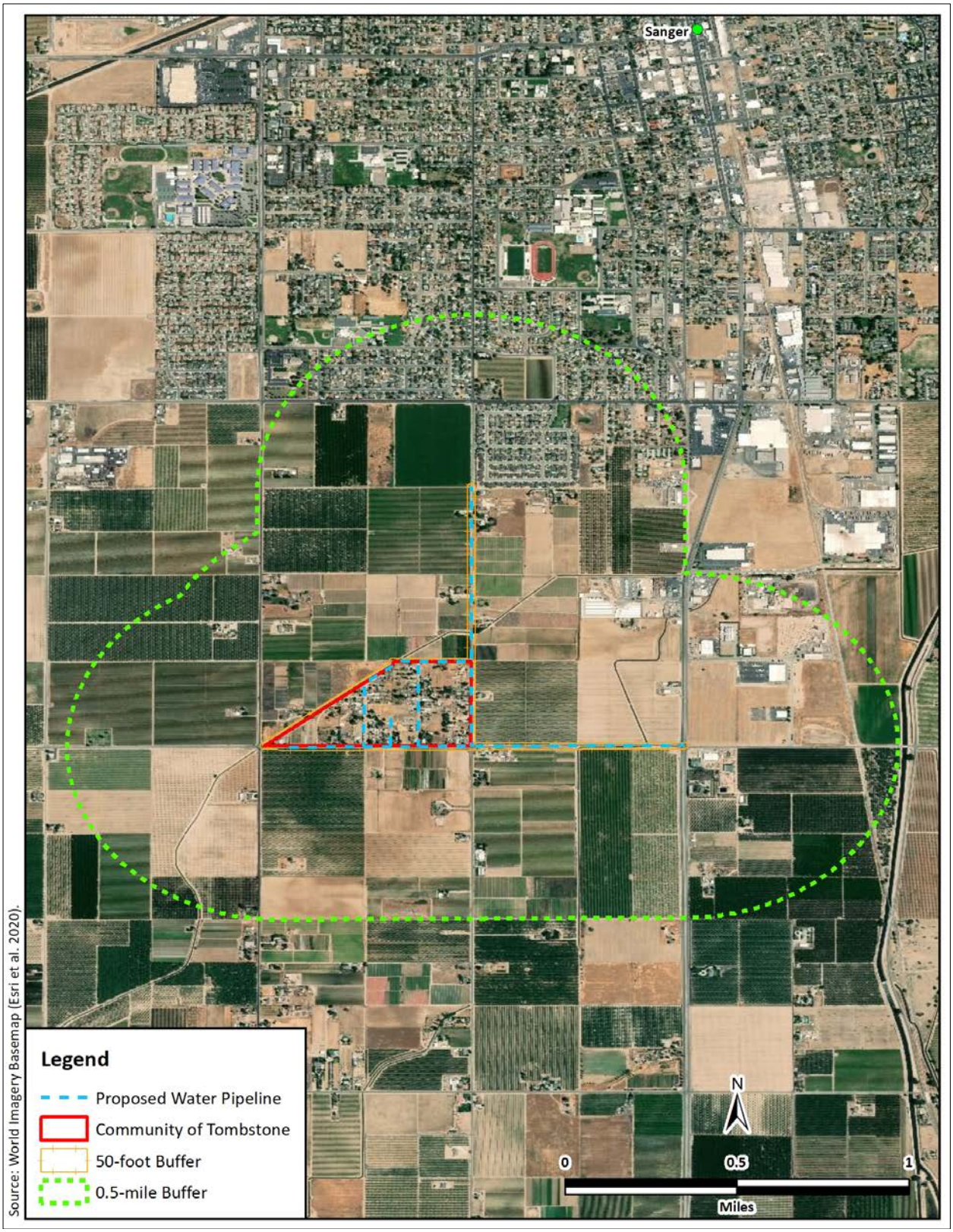

Figure 3. Reconnaissance survey area map.

3.0 Results

3.1 Desktop Review

The USFWS species list for the Project site included 10 species listed as threatened or endangered under the FESA (USFWS 2020a, Table 1, Appendix A). None of those species could occur on or near the Project site due to either a lack of habitat, the Project site being outside the current range of the species, or the presence of development that would otherwise preclude occurrence (Table 1). As identified in the species list, the Project site does not occur in USFWS-designated Critical Habitat for any species (USFWS 2020a, Appendix A).

Searching the CNDDB for records of special-status species from within the Sanger 7.5-minute USGS topographic quad and the eight surrounding quads produced 150 records of 41 species (Table 1, Appendix B). Of those 41 species, 10 are not considered further because state or federal regulatory agencies or special interest groups do not recognize them through special designation (Appendix B). Of the remaining 31 species, four are known from within 5 miles of the Project site (Table 1, Figure 4). Of those four species, none are expected to occur on or near the Project site due to a lack of habitat (Table 1). In addition, Sandford's arrowhead (*Sagittaria* sanfordii) and Swainson's hawk (*Buteo swainsoni*), which were identified outside the 5-mile radius but within the CNDDB 9-quad search, could also occur on or near the Project site (Table 1). All other special-status species are considered absent because the Project site is outside their current known range, the property lacks habitat for them, they were not detected during the reconnaissance survey, or a combination thereof.

Searching the CNPS inventory of rare and endangered plants of California yielded 16 species (CNPS 2019, Appendix C), 10 of which have of a CRPR of 1B (Table 1). One of those species could occur on the Project site based on the presence of habitat. The remaining species are not expected due to the lack of habitat (Table 1).

The Project site is underlain by Atwater sandy loam 0 to 3% slopes, Delhi loamy sand 0 to 3% slopes, Delhi sand 0 to 3% slopes, Exeter loam, Exeter sandy loam, Greenfield sandy loam 0 to 3 % slopes, Hanford fine sandy loam, Hanford sandy loam, and Tujunga loamy sand 0 to 3% slopes (NRCS 2020).

Table 1. Special-status species, their listing status, habitats, and potential to occur on or near the Project site.

Species	Status[1]	Habitat	Potential to Occur[2]
Federally and State-Listed Endangered or Threatened Species			
California jewelflower (*Caulanthus californicus*)	SE, FE, 1B.1	Chenopod scrub, pinyon and juniper woodland, and valley	**None.** Habitat lacking; the Project site consists of developed and disturbed

Species	Status[1]	Habitat	Potential to Occur[2]
		and foothill grassland at 150–3300 feet elevation.	lands; no records from within 5 miles.
Green's tuctoria[3] (*Tuctoria greenei*)	FE, SR, 1B.1	Vernal pools below 3445 feet elevation.	**None**. Habitat lacking; no vernal pools on or near the Project site.
Keck's checkerbloom (*Sidalcea keckii*)	FE, 1B.1	Cismontane woodland and valley and foothill grassland with serpentine and clay soils at 246–2133 feet elevation.	**None.** Habitat lacking; the Project site lacks serpentine and clay soils and is regularly disturbed; no records from within 5 miles.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, SE, 1B.1	Grassland with bare, dark clay soils at 328–2953 feet elevation.	**None**. Habitat lacking; no grassland on the Project site; no records from within 5 miles.
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FT, SE, 1B.1	Vernal pools at or below 2625 feet elevation.	**None**. Habitat lacking; no vernal pools on or near the Project site; no records from within 5 miles.
Succulent owl's clover (*Castilleja campestris* ssp. *succulenta*)	FT, SE 1B.2	Vernal pools with heavy clay soils; elevations lower than 2500 feet.	**None.** Habitat lacking; no vernal pools on or near the Project site; no records from within 5 miles.
Crotch bumble bee (*Bombus crotchii*)	SCT	Open grassland and scrub where it forages on a wide range of floral resources, especially those with open flowers and short corollas; like most bumble bees, it likely nests underground.	**None.** Habitat lacking; no grassland on the Project site. Although this species was historically common in the Central Valley, it is now apparently mostly absent.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Vernal pools; some artificial depressions, ditches, stock ponds, vernal swales, ephemeral drainages,	**None.** Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area; no records from within 5 miles.

Species	Status[1]	Habitat	Potential to Occur[2]
		and seasonal wetlands.	
Valley elderberry longhorn beetle[3] (*Desmocerus californicus dimorphus*)	FT	Elderberry (*Sambucus* sp.) plants having basal stem diameter greater than 1" at ground level.	**None**. The Project site is outside the current known range of this species. No elderberry shrubs found in the survey area.
Delta smelt (*Hypomesus transpacificus*)	FT, SE	Estuarine river channels and tidally influenced sloughs.	**None.** Habitat lacking; no suitable aquatic habitats on the Project site; no records from within 5 miles.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, SE, FP	Upland scrub and sparsely vegetated grassland with small mammal burrows.	**None.** Habitat lacking; the Project site consists of developed and disturbed landcover; no records from within 5 miles.
California red-legged frog (*Rana draytonii*)	FT, SSSC	Creeks, ponds, and marshes for breeding; burrows for upland refuge.	**None.** Habitat lacking; no potential aquatic breeding habitat found in the survey area; no records from within 5 miles.
California tiger salamander (*Ambystoma californiense*)	FT, ST	Vernal pools or seasonal ponds for breeding; small mammal burrows for upland refugia.	**None.** Habitat lacking; no potential aquatic breeding habitat found in the survey area; no records from within 5 miles.
Foothill yellow-legged frog (*Rana boylii*)	SCT, SSSC	Perennial rocky streams and rivers with rocky substrates; open, sunny banks in forests, chaparral, and woodlands.	**None**. Habitat lacking; no perennial streams on the Project site; no records from within 5 miles.
Giant gartersnake (*Thamnophis gigas*)	FT, ST	Marshes, sloughs, drainage canals, irrigation ditches, and slow-moving creeks.	**None.** Habitat lacking; two irrigation ditches adjacent to the Project site are highly disturbed and lack connectivity to known occupied aquatic habitat; Project site is outside known current range; no

Species	Status[1]	Habitat	Potential to Occur[2]
			records from within 5 miles.
Least Bell's vireo (*Vireo bellii pusillus*)	FE, SE	Willow riparian forest supporting a dense, shrubby understory.	**None.** Habitat lacking; no riparian forest in survey area; no records from within 5 miles.
Tricolored blackbird (*Agelaius tricolor*)	ST	Freshwater emergent wetland, prickly terrestrial vegetation, or silage crops for nesting; freshwater emergent wetlands, agricultural fields, irrigated pastures, grassland, and cattle feedlots for foraging.	**None.** Habitat lacking; no suitable land cover types in the survey area; no records from within 5 miles.
Swainson's hawk (*Buteo swainsoni*)	ST	Medium to large trees for nesting with adjacent grasslands, prairie, or annual crop fields for foraging.	**Low.** Potential nest trees in the survey area among residential development; agricultural foraging habitat (alfalfa fields) is adjacent to the survey area; however, no records from within 5 miles.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT, SE	Mature riparian woodland with willow (*Salix*), cottonwood (*Populus*), alder (*Alnus*), box elder (*Acer*), walnut (*Juglans*), or dense mesquite (*Prosopis*).	**None.** Habitat lacking; no suitable riparian woodland tree species present in the survey area; no records from within 5 miles.
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	FE, SE	Sandy, alkaline, saline, and clay soils in upland scrub and grassland.	**None.** Habitat lacking; no potential burrows found in survey area; no records from within 5 miles.
San Joaquin kit fox[3] (*Vulpes macrotis mutica*)	FE, ST	Grassland and upland scrub.	**None.** Habitat lacking; no potential dens found in the survey area; Project site is confined to developed and disturbed areas.

Species	Status[1]	Habitat	Potential to Occur[2]
State Species of Special Concern			
California glossy snake (*Arizona elegans occidentalis*)	SSSC	Arid scrub, rocky washes, grasslands, and chaparral.	**None.** Habitat lacking; Project site is routinely disturbed; no records from within 5 miles.
Coast horned lizard (*Phrynosoma blainvillii*)	SSC	Open, generally sandy areas, washes, and flood plains in a variety of habitats.	**None.** Habitat lacking; Project site is routinely disturbed; no records from within 5 miles.
Northern California legless lizard (*Anniella pulchra*)	SSSC	Moist warm loose soil in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodland, desert scrub, and sandy wash.	**None.** Habitat lacking; no suitable land cover types in the survey area; no records from within 5 miles.
Northwestern pond turtle (*Actinemys marmorata*)	SSSC	Ponds, rivers, marshes, streams, and irrigation ditches, usually with aquatic vegetation. Need basking sites and suitable upland habitat for egg laying.	**None**. Habitat lacking; no suitable aquatic habitat on the Project site; two irrigation ditches are routinely disturbed and lack the aquatic vegetation this species requires; no records from within 5 miles.
Western spadefoot (*Spea hammondii*)	SSSC	Rain pools for breeding and small mammal burrows or other suitable refugia for nonbreeding upland cover.	**None.** Habitat lacking; no rain pools or other potential breeding habitat found in the survey area; no records from within 5 miles.
Burrowing owl (*Athene cunicularia*)	SSSC	Grassland and upland scrub with friable soil; some agricultural or other developed and disturbed areas with ground squirrel burrows.	**None.** Habitat lacking; no suitable burrows found in the survey area; Project site confined to previously disturbed and developed areas; no records from within 5 miles.
American badger (*Taxidea taxus*)	SSSC	Open, dry grassland, woodland, conifer forest, farms, meadows, and desert	**None.** Habitat lacking; no dens or prey excavations found in the survey area;

Species	Status[1]	Habitat	Potential to Occur[2]
		with friable soils and a small mammal prey base.	no records from within 5 miles.
Pallid bat (*Antrozous pallidus*)	SSSC	Arid or semi-arid locations in rocky areas and sparsely vegetated grassland near water. Rock crevices, caves, mine shafts, bridges, buildings, and tree hollows for roosting.	**None**. Habitat lacking; Project site consists of residential and agricultural development; no records from within 5 miles.
California Rare Plants			
Adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*)	4.2	Vernal pools with clay soils at 30–3000 feet elevation.	**None.** Habitat lacking; no records from within 5 miles.
California satintail (*Imperata brevifolia*)	2B.1	Wet springs, meadows, streambanks, and floodplains below 1640 feet elevation.	**None.** The two irrigation ditches in the survey area are channelized and highly disturbed, precluding the occurrence of this species; no records from within 5 miles.
Caper-fruited tropidocarpum (*Tropidocarpum capparideum*)	1B.1	Grassland below 1300 feet elevation.	**None.** Habitat lacking; no records from within 5 miles.
Ewan's larkspur (*Delphinium hansenii* ssp. *ewanianum*)	4.2	Cismontane woodland and valley and foothill grassland at 200–2000 feet elevation.	**None.** Habitat lacking; no records from within 5 miles.
Forked hare-leaf (*Lagophylla dichotoma*)	1B.1	Grassland and woodland openings at 150–1500 feet elevation.	**None.** Habitat lacking; no records from within 5 miles.
Kings River monkeyflower (*Erythranthe acutidens*)	3	Cismontane woodland and lower montane conifer forest at 650–6500 feet elevation.	**None.** Habitat lacking; no suitable land cover types; Project site below known elevation range; no records from within 5 miles.

Species	Status[1]	Habitat	Potential to Occur[2]
Madera leptosiphon (*Leptosiphon serrulatus*)	1B.2	Woodland and chaparral openings at 984–4265 feet elevation.	**None.** Habitat lacking; Project site is below known elevation range; no records from within 5 miles.
Recurved larkspur (*Delphinium recurvatum*)	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grassland at 10–2800 feet elevation.	**None.** Habitat lacking; no records from within 5 miles.
Sanford's arrowhead (*Sagittaria sanfordii*)	1B.2	Ponds and ditches at sea level to 650 feet elevation.	**Low**. Garfield Ditch and Mill Ditch could support this species; however, both ditches are routinely disturbed, and this species was not observed during the reconnaissance survey.
Shevock's copper moss (*Mielichhoferia shevockii*)	1B.2	Cool, humid, shady sites, often on north-facing slopes among rocks.	**None.** Habitat lacking; no records from within 5 miles.
Small-flowered morning-glory (*Convolvulus simulans*)	4.2	Chaparral, coastal scrub, and valley and foothill grassland at 90–2200 feet elevation.	**None.** Habitat lacking; the Project site consists of urban and disturbed lands; no records from within 5 miles.
Spiny-sepaled button-celery[3] (*Eryngium spinosepalum*)	1B.2	Vernal pools, swales, and roadside ditches in valley and foothill grassland at 328–4166 feet elevation.	**None.** Habitat lacking; the Project site consists of urban and disturbed lands.
Streambank spring beauty (*Claytonia parviflora* ssp. *grandiflora*)	4.2	Rocky cismontane woodland at 500–4000 feet elevation.	**None.** Habitat lacking; no suitable land cover types; no records from within 5 miles.
Winter's sunflower (*Helianthus winteri*)	1B.2	Steep, south-facing grassy slopes, rock outcrops, and road cuts at 590–1509 feet elevation.	**None**. Habitat lacking; the Project site is flat and below the known elevation range for this species.

CNDDB (2020), CNPS (2020), USFWS (2020a).

Status[1]	**Potential to Occur[2]**	
FE = Federally listed Endangered	None:	Neither species nor sign observed; conditions unsuitable for occurrence.
FT = Federally listed Threatened	Low:	Neither species nor sign observed; conditions marginal for occurrence.
FP = Fully Protected		
SE = State-listed Endangered		
ST = State-listed Threatened		
SSSC = State Species of Special Concern		

CNPS California Rare Plant Rank[1]:	**Threat Ranks[1]:**
1B – plants rare, threatened, or endangered in California and elsewhere.	0.1 – seriously threatened in California (> 80% of occurrences).
3 – plants about which more information is needed.	0.2 – moderately threatened in California (20-80% of occurrences).
4 – plants have limited distribution in California.	

[3]Known from CNDDB records from within 5 miles of the Project site.

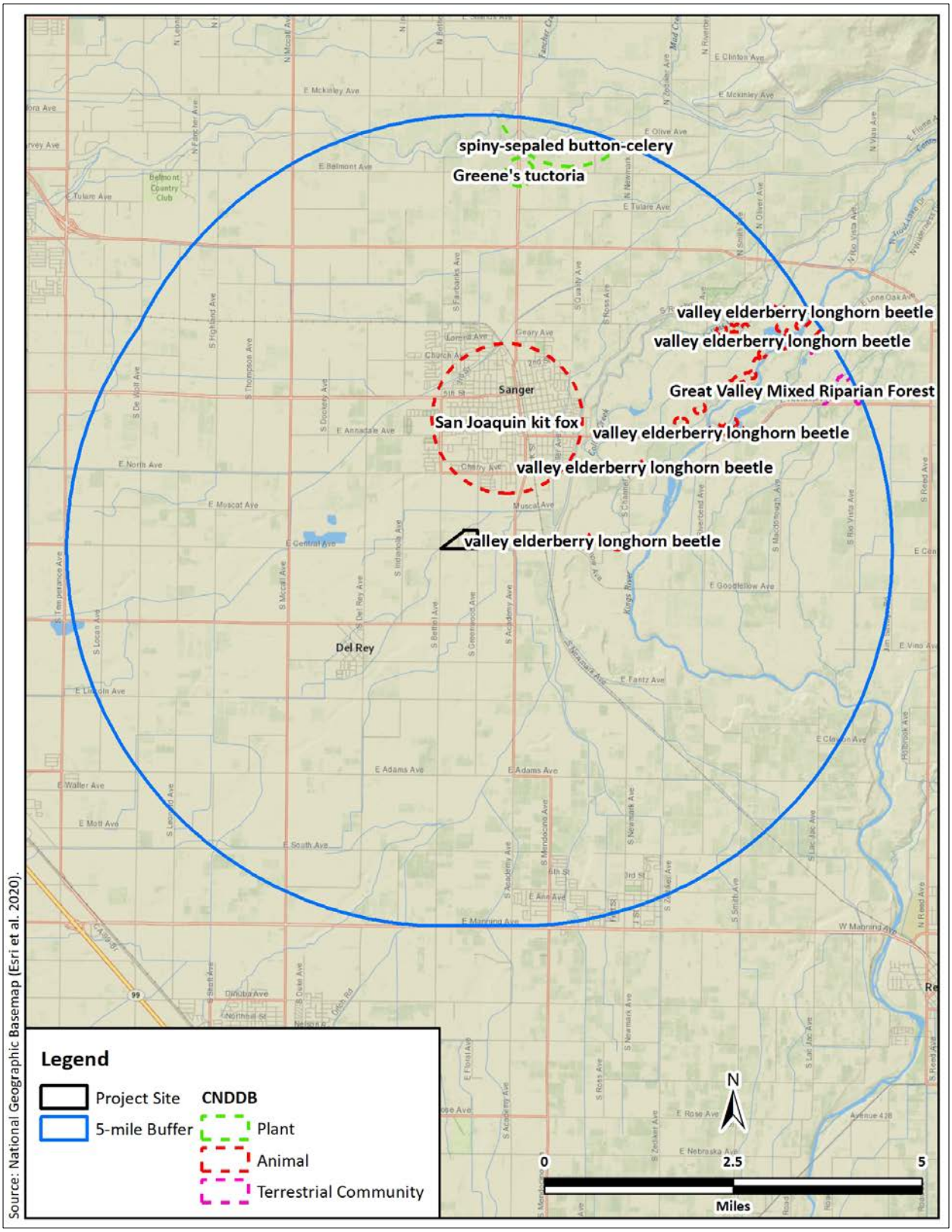

Figure 4. CNDDB occurrence map.

3.2 Reconnaissance Survey

3.2.1 Land Use and Habitats

The Project site is confined to previously disturbed land cover consisting of paved streets and dirt roads (Figures 2, 5, 6 and 7). The Project site is surrounded by residential development, orchards, vineyards, fallow fields, and row crop agriculture (Figures 5 through 8).

The elevation at the Project site is 360 feet above mean sea level.

Figure 5. Photograph showing paved Central Avenue, where new pipeline will be installed, and surrounding vineyards and orchards.

Figure 6. Photograph showing paved Greenwood Avenue, where new pipeline will be installed, and surrounding residential development and orchards.

Figure 7. Photograph showing an unnamed dirt road on the north side of Tombstone where new pipeline will be installed.

Figure 8. Photograph showing paved Cottle Avenue, where new pipeline will be installed.

3.2.2 Plant and Animal Species Observed

The margins of the Project site supported native and nonnative ruderal herbaceous plants including tumbleweed (*Amaranthus albus*), chickweed (*Stellaria media*), Canada horseweed (*Erigeron canadensis*), prickly lettuce (*Lactuca serriola*), and common fiddleneck (*Amsinckia intermedia*). A total of 28 plant species (8 native, 19 nonnative, and 1 unknown) were found during the reconnaissance survey (Table 2). Twenty bird species were also detected (Table 2).

Table 2. Plant and animal species observed during the reconnaissance survey.

Common Name	Scientific Name	Status
Plants		
Family Amaranthaceae		
Tumbleweed	*Amaranthus albus*	Nonnative
Family Asteraceae		
Canada horseweed	*Erigeron canadensis*	Native
Common groundsel	*Senecio vulgaris*	Nonnative
Common sunflower	*Helianthus annuus*	Native
Jersey cudweed	*Psudeonaphalium luteoalbum*	Nonnative
Pineapple weed	*Matricaria discoidea*	Native
Prickly lettuce	*Lactuca serriola*	Nonnative

Spiny sow thistle	*Sonchus asper*	Nonnative
Family Boraginaceae		
Common fiddleneck	*Amsinckia intermedia*	Native
Valley popcorn flower	*Plagiobothrys canescens*	Native
Family Brassicaceae		
Black mustard	*Brassica nigra*	Nonnative
Bog yellow cress	*Rorippa palustris*	Native
London rocket	*Sisymbrium irio*	Nonnative
Shepherd's purse	*Capsella bursa-pastoris*	Nonnative
Wild radish	*Raphanus raphanistrum*	Nonnative
Family Carophyllaceae		
Chickweed	*Stellaria media*	Nonnative
Family Chenopodiaceae		
Lambs quarters	*Chenopodium album*	Nonnative
Family Fabaceae		
Vetch sp.	*Vicia* sp.	Unknown
Family Geraneaceae		
Big heron bill	*Erodium botrys*	Nonnative
Red stemmed filaree	*Erodium cicutarium*	Nonnative
Family Lamiaceae		
Giraffe head	*Lamium amplexicaule*	Nonnative
Family Malvaceae		
Cheeseweed mallow	*Malva parviflora*	Nonnative
Family Onagraceae		
Willow herb	*Epilobium brachycarpum*	Native
Family Poaceae		
Ripgut brome	*Bromus diandrus*	Nonnative
Farmer's foxtail	*Hordeum murinum* ssp. *leporinum*	Nonnative
Hairy crabgrass	*Digitaria sanguinalis*	Nonnative
Family Polygonaceae		
Curly dock	*Rumex crispus*	Nonnative
Family Urticaceae		
Stinging nettle	*Urtica dioica*	Native
Birds		
Family Accipitridae		
Red-shouldered hawk	*Buteo lineatus*	MBTA, CFGC
Red-tailed hawk	*Buteo jamaicensis*	MBTA, CFGC
Family Alaudidae		
Horned lark	*Eremophila alpestris*	MBTA, CFGC
Family Bombycillidae		
Cedar waxwing	*Bombycilla cedrorum*	MBTA, CFGC
Family Charadriidae		

Killdeer	*Charadrius vociferus*	MBTA, CFGC
Family Columbidae		
Eurasian collared-dove	*Streptopelia decaocto*	Nonnative
Mourning dove	*Zenaida macroura*	MBTA, CFGC
Family Corvidae		
American crow	*Corvus brachyrynchos*	MBTA, CFGC
California scrub-jay	*Aphelocoma californica*	MBTA, CFGC
Common raven	*Corvus corax*	MBTA, CFGC
Family Falconidae		
American kestrel	*Falco sparverius*	MBTA, CFGC
Family Fringillidae		
House finch	*Haemorhous mexicanus*	MBTA, CFGC
Lesser goldfinch	*Spinus psaltria*	MBTA, CFGC
Family Hirundinidae		
Cliff swallow	*Petrochelidon pyrrhonota*	MBTA, CFGC
Family Mimidae		
Northern mockingbird	*Mimus polyglottos*	MBTA, CFGC
Family Parulidae		
Yellow-rumped warbler	*Setophaga coronata*	MBTA, CFGC
Family Passerellidae		
Golden-crowned sparrow	*Zonotrichia atricapilla*	MBTA, CFGC
White-crowned sparrow	*Zonotrichia leucophrys*	MBTA, CFGC
Family Picidae		
Northern flicker	*Colaptes auratus*	MBTA, CFGC
Family Sturnidae		
European starling	*Sturnus vulgaris*	Nonnative

MBTA = Protected under the Migratory Bird Treaty Act (16 USC § 703 et seq.); CFGC = Protected under the California Fish and Game Code (FGC §§ 3503 and 3513).

3.2.3 Nesting Birds

Migratory birds could nest on or near the Project site. Such species include, but are not limited to, mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), and northern mockingbird (*Mimus polyglottos*).

3.2.4 Regulated Habitats

Two potentially regulated habitats, Garfield Ditch and Mill Ditch, cross and or are adjacent to the Project site (Figures 2 and 9). Both features are heavily disturbed agricultural ditches that transport irrigation water to farms, support sparsely distributed ruderal vegetation, and evidently undergo regular herbicide treatment. Garfield Ditch crosses the new pipeline alignment along Greenwood Avenue and continues southwest where it parallels the segment of

proposed pipeline that connects Fairbanks Avenue with Cottle Avenue on the northwest side of Tombstone (Figures 2 and 9). Garfield Ditch drains to Fowler Switch Canal. No impacts to this feature are anticipated. Mill Ditch crosses the eastern segment of proposed pipeline along the Central Avenue alignment (Figures 2 and 10). Mill Ditch drains to Fowler Switch Canal via McCall Ditch. No impacts to this feature are anticipated.

No stretch of any Wild and Scenic River are near the Project site; the nearest stretch is associated with the Kings River, approximately 35 miles west-northwest of the Project site (USFWS 2020b).

No marine or estuarine fishery resources or migratory routes to and from anadromous fish spawning grounds were present in the survey area. In addition, no EFH, defined by the Magnuson-Stevens Act as those resources necessary for fish spawning, breeding, feeding, or growth to maturity, were present in the survey area.

The Project site is in flood zone X, an area with a 0.2% annual chance of flood hazard (Federal Emergency Management Agency 2020). The nearest zone A flood hazard area is 1.7 miles east of the Project site, associated with the Kings River.

Figure 9. Photograph showing Garfield Ditch adjacent to an unnamed dirt road where new pipeline will be installed.

Figure 10. Photograph showing Mill Ditch adjacent to Central Avenue where new pipeline will be installed.

3.3 Special-Status Species

Two special-status species could occur on or near the Project site based on the presence of habitat (Table 1). These two species are described below.

Sanford's arrowhead (*Sagittaria sanfordii*) (CRPR 1B.2). Sanford's arrowhead is an aquatic, rhizomatous perennial herb in the family Alismataceae with a CRPR of 1B.2. It is endemic to the Central Valley of California where it occupies ponds and ditches below 984 feet elevation; it flowers May–October (Turner et al. 2012).

Although no CNDDB records for Sanford's arrowhead are known from within 5 miles of the Project site, the 9-quad CNDDB search yielded 13 records (CNDDB 2020). Although Garfield Ditch and Mill Ditch are heavily disturbed and evidently undergo routine herbicide treatment, they could support this species. Due low habitat quality, however, its probability of occurrence is low. And as no impacts to Garfield Ditch and Mill Ditch are expected, no impacts to Sanford's arrowhead are expected.

3.3.2 Swainson's hawk (*Buteo swainsoni*) (ST)

Swainson's hawk is a state-listed as threatened raptor in the family Accipitridae (CDFW 2019). Swainson's hawk is a gregarious, migratory, breeding resident of Central California where it uses open areas including grassland, sparse shrubland, pasture, open woodland, and annual agricultural fields such as grain and alfalfa to forage on small mammals, birds, and reptiles. After breeding, it eats mainly insects, especially grasshoppers (Bechard et al. 2020). Swainson's hawk builds a small to medium-sized nest in medium to large trees near foraging habitat along roadsides, in fields, and on the edge of some urban areas. The nesting season begins in March or April in Central California when this species returns to its breeding grounds from wintering areas in Mexico and Central and South America. Nest building commences within one to two weeks of arrival to the breeding area and lasts about one week (Bechard et al. 2020). One to four eggs are laid and incubated for about 35 days. Young typically fledge in about 38–46 days and tend to leave the nest territory within 10 days of fledging (Bechard et al. 2020). All Swainson's hawks depart for their non-breeding grounds between August and September.

Although no CNDDB records for Swainson's hawk are known from within 5 miles of the Project site, the 9-quad CNDDB search yielded 7 records (CNDDB 2020). Medium to large trees on the Project site could support nesting, and open fallow fields and row crop agriculture nearby could support foraging. For those reasons and because this species is expanding its range in Central California (Battistone et al. 2019), it could occur on or near the Project site. Due to low quality habitat, however, its probability of occurrence is low.

4.0 Environmental Impacts

4.1 Effects Determinations

4.1.1 Critical Habitat

We conclude the Project will have **no effect** on designated or proposed critical habitat as no such habitat has been designated or proposed on or near the Project site.

4.1.2 Special-Status Species

We conclude the Project **may affect but is not likely to adversely affect** the state-listed as threatened Swainson's hawk. The Project is not expected to affect any other special-status species due to the lack of habitat or known occurrence records for those species near the Project site.

4.1.3 Migratory Birds

We conclude the Project **may affect but is not likely to adversely affect** nesting migratory birds.

4.1.4 Regulated Habitats

We conclude the project will have **no effect** on regulated habitats. Although two such regulated habitats were identified in the survey area, no impacts are anticipated.

4.2 Significance Determinations

This Project, which will result in temporary impacts to developed and previously disturbed land, will not: (1) substantially reduce the habitat of a fish or wildlife species (criterion a) as no such habitat is present on the Project site; (2) cause a fish or wildlife population to drop below self-sustaining levels (criterion b) as no such potentially vulnerable population is known from the area; (3) threaten to eliminate a plant or animal community (criterion c) as no such potentially vulnerable communities are known from the area; (4) substantially reduce the number or restrict the range of a rare or endangered plant or animal (criterion d) as no such potentially vulnerable species are known from the area; (5) 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 (criterion f) as no riparian habitat or other sensitive natural community was present in the survey area; (6) have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (criterion g) as no impacts to wetlands will occur;

(7) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (criterion i) as no trees or biologically sensitive areas will be impacted; or (8) conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan (criterion j) as no such plan has been adopted. Thus, these significance criteria are not analyzed further.

The remaining statutorily defined criteria provided the framework for criteria BIO1 and BIO2 below. These criteria are used to assess the impacts to biological resources stemming from the Project and provide the basis for determinations of significance:

- Criterion BIO1: 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 (significance criterion e).

- Criterion BIO2: 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 (significance criterion h).

4.2.1 Direct and Indirect Impacts

4.2.1.1 Potential Impact #1: Have a Substantial Effect on any Special-Status Species (Criterion BIO1)

The Project could adversely effect, either directly or through habitat modifications, several special-status animals that occur or may occur on or near the Project site. Construction activities such as excavating, trenching, or using other heavy equipment that disturbs or harms a special-status species or substantially modifies its habitat could constitute a significant impact. We recommend that Mitigation Measures BIO-1–BIO-4 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

Mitigation Measure BIO-1. Protect nesting Swainson's hawks.

1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August.
2. If it is not possible to schedule work between September and February, a qualified biologist shall conduct a survey for active Swainson's hawk nests within 0.5 miles of the Project site no more than 14 days prior to the start of construction. If an active nest is found within 0.5 miles, and the qualified biologist determines that Project activities would disrupt nesting, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

4.2.1.2 Potential Impact #2: Interfere Substantially with Native Wildlife Movements, Corridors, or Nursery Sites (Criterion BIO2)

The Project could impede the use of nursery sites for native birds protected under the Migratory Bird Treaty Act and California Fish and Game Code. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort is considered take by the CDFW. Loss of fertile eggs or nestlings, or any activities resulting in nest abandonment, could constitute a significant impact if the species is particularly rare in the region. We recommend that the mitigation measure BIO-5 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

Mitigation Measure BIO-3. Protect nesting birds.

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.
2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during Project implementation. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas for nests. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.

4.2.2 Cumulative Impacts

The Project involves installing new water delivery pipeline and associated valves and hydrants to tie the community of Tombstone into the City of Sanger's water to provide Tombstone with a safe and reliable water source. Implementing the Project may facilitate development in similar areas of the community. However, as any such development is expected to occur in areas previously developed for agriculture or other uses, the cumulative effects on biological resources are expected to be negligible.

5.0 Literature Cited

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Appendix A. USFWS list of threatened and endangered species and critical habitats.

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 10, 2020
Consultation Code: 08ESMF00-2020-SLI-1302
Event Code: 08ESMF00-2020-E-04161
Project Name: Tombstone Territory Water Extension Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) 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 Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

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

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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 Tracking Number 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

Consultation Code: 08ESMF00-2020-SLI-1302

Event Code: 08ESMF00-2020-E-04161

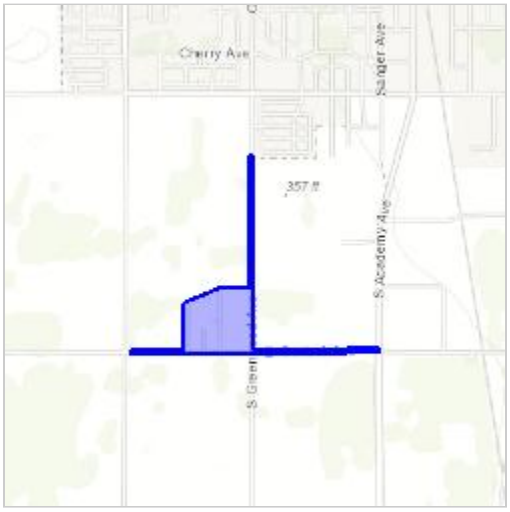
Project Name: Tombstone Territory Water Extension Project

Project Type: WATER SUPPLY / DELIVERY

Project Description: The proposed project will extend the main water line from Sanger, California to the small community of Tombstone less than one mile south. The project will involve installing approximately 2.3 miles of new water distribution main line, hydrants, and valves.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.68315180398574N119.56543947621438W



Counties: Fresno, CA

Endangered Species Act Species

There is a total of 10 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 Fisheries[1], 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.

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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 *Dipodomys nitratoides exilis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/37/office/11420.pdf	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* 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 *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Greene's Tuctoria *Tuctoria greenei* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1573	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix B. CNDDB occurrence records.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Sanger (3611965) OR Clovis (3611976) OR Round Mountain (3611975) OR Piedra (3611974) OR Malaga (3611966) OR Wahtoke (3611964) OR Conejo (3611956) OR Selma (3611955) OR Reedley (3611954))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	0 460	955 S:6	0	0	0	0	1	5	5	1	5	1	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	300 860	1231 S:17	2	4	0	0	3	8	8	9	14	0	3
Anniella pulchra northern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	300 300	375 S:1	0	0	0	0	0	1	1	0	1	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	300 300	420 S:1	0	1	0	0	0	0	0	1	1	0	0
Arizona elegans occidentalis California glossy snake	G5T2 S2	None None	CDFW_SSC-Species of Special Concern	300 300	260 S:1	0	0	0	0	0	1	1	0	1	0	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	325 500	1989 S:4	0	1	0	0	0	3	2	2	4	0	0
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None Candidate Endangered		300 600	234 S:2	0	0	0	0	0	2	2	0	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Bombus morrisoni Morrison bumble bee	G4G5 S1S2	None None	IUCN_VU-Vulnerable	350 350	85 S:1	0	0	0	0	0	1	1	0	1	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	385 480	770 S:14	1	1	0	1	0	11	3	11	14	0	0
Branchinecta mesovallensis midvalley fairy shrimp	G2 S2S3	None None		425 470	128 S:4	0	0	0	0	0	4	0	4	4	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	250 300	2518 S:6	0	1	1	1	0	3	3	3	6	0	0
Calicina macula marbled harvestman	G1 S1	None None		560 560	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Calicina piedra Piedra harvestman	G1 S1	None None		500 500	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Castilleja campestris var. succulenta succulent owl's-clover	G4?T2T3 S2S3	Threatened Endangered	Rare Plant Rank - 1B.2	440 440	95 S:2	0	0	1	0	0	1	1	1	2	0	0
Caulanthus californicus California jewelflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley		67 S:1	0	0	0	0	1	0	1	0	0	0	1
Coccyzus americanus occidentalis western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	300 345	156 S:2	0	0	0	0	2	0	2	0	0	1	1
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	Threatened None		256 400	271 S:13	1	1	1	0	0	10	10	3	13	0	0
Efferia antiochi Antioch efferian robberfly	G1G2 S1S2	None None		300 300	4 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	388 500	1385 S:2	0	0	0	0	0	2	1	1	2	0	0
Eryngium spinosepalum spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2	400 463	108 S:2	0	0	1	0	1	0	1	1	1	1	0
Helianthus winteri Winter's sunflower	G2? S2?	None None	Rare Plant Rank - 1B.2	400 400	55 S:1	0	0	0	0	0	1	0	1	1	0	0
Imperata brevifolia California satintail	G4 S3	None None	Rare Plant Rank - 2B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	300 400	32 S:3	0	0	0	0	0	3	3	0	3	0	0
Lagophylla dichotoma forked hare-leaf	G2 S2	None None	Rare Plant Rank - 1B.1	630 1,100	7 S:3	0	0	0	0	0	3	0	3	3	0	0
Lasiurus cinereus hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority		238 S:1	0	0	0	0	0	1	1	0	1	0	0
Leptosiphon serrulatus Madera leptosiphon	G3 S3	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive		27 S:1	0	0	0	0	0	1	1	0	1	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	400 4,621	438 S:10	0	0	0	0	0	10	3	7	10	0	0
Lytta molesta molestan blister beetle	G2 S2	None None		360 360	17 S:1	0	0	0	0	0	1	1	0	0	1	0
Metapogon hurdi Hurd's metapogon robberfly	G1G2 S1S2	None None		325 325	3 S:1	0	0	0	0	0	1	1	0	0	1	0
Orcuttia inaequalis San Joaquin Valley Orcutt grass	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1	380 380	47 S:1	0	0	0	0	1	0	1	0	0	0	1
Phalacrocorax auritus double-crested cormorant	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	332 332	39 S:1	0	0	0	0	0	1	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	300 300	784 S:1	0	0	0	0	1	0	1	0	0	1	0
Pseudobahia peirsonii San Joaquin adobe sunburst	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	390 495	51 S:7	0	1	4	1	1	0	3	4	6	0	1
Rana boylii foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	400 400	2468 S:1	0	0	0	0	1	0	1	0	0	0	1
Sagittaria sanfordii Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	325 417	126 S:13	0	4	6	2	0	1	2	11	13	0	0
Sidalcea keckii Keck's checkerbloom	G2 S2	Endangered None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	800 800	50 S:1	1	0	0	0	0	0	0	1	1	0	0
Spea hammondii western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	430 861	1275 S:13	0	7	0	0	0	6	0	13	13	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	250 250	592 S:1	0	0	0	0	0	1	1	0	1	0	0
Tropidocarpum capparideum caper-fruited tropidocarpum	G1 S1	None None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive		18 S:1	0	0	0	0	0	1	1	0	1	0	0
Tuctoria greenei Greene's tuctoria	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1	385 405	50 S:3	0	0	0	0	3	0	3	0	0	0	3
Vireo bellii pusillus least Bell's vireo	G5T2 S2	Endangered Endangered	IUCN_NT-Near Threatened NABCI_YWL-Yellow Watch List	345 360	503 S:2	0	0	0	0	2	0	2	0	0	2	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Vulpes macrotis mutica	G4T2	Endangered		365	1018	0	0	0	0	0	2	2	0	2	0	0
San Joaquin kit fox	S2	Threatened		500	S:2											

Appendix C. CNPS plant list.

CNPS California Native Plant Society

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

16 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3611976, 3611975, 3611974, 3611966, 3611965, 3611964, 3611956 3611955 and 3611954;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Castilleja campestris var. succulenta	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	1B.2	S2S3	G4? T2T3
Claytonia parviflora ssp. grandiflora	streambank spring beauty	Montiaceae	annual herb	Feb-May	4.2	S3	G5T3
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	4.2	S3	G4T3
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Erythranthe acutidens	Kings River monkeyflower	Phrymaceae	annual herb	Apr-Jul	3	S2S3	G2G3
Helianthus winteri	Winter’s sunflower	Asteraceae	perennial shrub	Jan-Dec	1B.2	S2?	G2?
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	2B.1	S3	G4
Lagophylla dichotoma	forked hare-leaf	Asteraceae	annual herb	Apr-May	1B.1	S2	G2
Mielichhoferia shevockii	Shevock's copper moss	Mielichhoferiaceae	moss		1B.2	S2	G2
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	Apr-Jun	4.2	S3	G4T3
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
Pseudobahia peirsonii	San Joaquin adobe sunburst	Asteraceae	annual herb	Feb-Apr	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	1B.1	S2	G2
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

Suggested Citation

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Questions and Comments
rareplants@cnps.org

Appendix C

Cultural Resources Report

Historic Properties Inventory for the Tombstone Territory Water Extension Project, Fresno County, California

Carlos van Onna, Ward Stanley, and Jessica Jones

Prepared By

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July 2020
draft

USGS Sanger 7.5-min. quadrangle
20.08-acre APE; intensive pedestrian survey
Keywords: Garfield Ditch, Lone Tree Ditch

MANAGEMENT SUMMARY

Applied EarthWorks, Inc. (Æ) performed a historic properties inventory for the Tombstone Territory Water Extension Project (Project). Tombstone is an unincorporated community south of the city of Sanger in Fresno County, California. The Project involves installing approximately 13,130 linear feet of water main pipeline and associated hydrants and valves to connect the City of Sanger's water distribution system to the community of Tombstone. The Project will be funded by the Clean Water State Revolving Fund, a joint federal-state program. The Project thus requires compliance with Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA).

To meet state and federal standards, Æ conducted a cultural resource study under contract to Crawford & Bowen Planning, Inc. to determine whether cultural resources are present within the Area of Potential Effects (APE). The investigation included: (1) a records search at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS) to identify previously recorded cultural resources and prior studies in the APE and surrounding 0.5-mile radius; (2) a search of the Native American Heritage Commission's (NAHC) Sacred Lands File for known sacred resources and to request contact information for individuals and tribal representatives who may have information about the Project; (3) desktop archival research; and (4) an archaeological and built environment pedestrian survey of the APE.

The SSJVIC reported that four previous investigations have been conducted that overlap the Project APE; however, the only previously recorded resource within the APE is the Lone Tree Channel. The SSJVIC identified six previous investigations and two historical resources within 0.5 mile of the APE—the Southern Pacific Railroad (P-10-003930) and Mill Ditch (P-10-005812), a historic water conveyance feature of the Centerville & Kingsburg Canal system. No archaeological sites or tribal cultural resources were identified in the APE as a result of the NAHC Sacred Lands File search, outreach with Native American representatives, or pedestrian survey. However, the NAHC search did produce a positive result, and Rick Osborne of the Traditional Choinumni Tribe requested archaeological monitoring of all trenching activity in the APE due to the areas sensitivity for potential tribal cultural resources. Æ's assessment of the vertical APE for intact buried deposits revealed that there is moderate sensitivity for the Project to impact buried historic properties within the APE.

Æ's survey of the historical built environment within the APE revealed that two separate canals intersect the Project—the Garfield Ditch at Greenwood Avenue and the Lone Tree Channel at East Central Avenue. As designed, there is no potential for the Project to affect these historical waterways. Consequently, Æ recorded each resource on the appropriate California Department of Parks and Recreation cultural resource record forms but did not formally evaluate the resources for significance and eligibility for listing in the National Register of Historic Places or California Register of Historical Resources. Thus, Æ's study concludes that no historic properties will be affected by the proposed undertaking.

Consistent with state and federal statutes, *Æ* advises that in the event archaeological remains are encountered during Project development or ground-moving activities in any portion of the APE, all work in the vicinity of the find should be halted until a qualified archaeologist can identify the discovery and assess its significance. In addition, if human remains are uncovered during construction, the Fresno County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 requires that the County Coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent, who will be afforded the opportunity to recommend means for treatment of the human remains following protocols in California Public Resources Code 5097.98.

A copy of this report will be transmitted to the SSJVIC for inclusion in the CHRIS statewide database. Field notes and photographs are on file at *Æ*'s office in Fresno, California.

CONTENTS

FIGURES

1
INTRODUCTION

Applied EarthWorks, Inc. (Æ), under contract to Crawford and Bowen Planning, Inc. and on behalf of Self Help Enterprise, conducted a cultural resource inventory for the Tombstone Territory Water Extension Project (Project) in the unincorporated community of Tombstone, Fresno County, California (Figure 1-1). Tombstone lies in the Southwest 1/4 of Section 27, Township 14 South, Range 22 East, Mount Diablo Base Meridian as shown on the U.S. Geological Survey (USGS) Sanger, CA, 7.5-minute topographic quadrangle (Figure 1-2).

The proposed Project involves installing approximately 13,130 linear feet of water main pipeline and associated hydrants and valves to connect the community of Tombstone to the City of Sanger's water distribution system (Figure 1-3). Specifically, a total of 3,986 linear feet of new water pipeline will tie into the city distribution system along Greenwood Avenue just south of its intersection with Lime Avenue and run south to its intersection with Central Avenue. Another 4,978 linear feet of new pipeline will connect to the city distribution system at the intersection of Central Avenue and Academy Avenue and run west along Central Avenue, connecting to the new Greenwood Avenue pipeline, then continuing west to just short of the intersection of Central Avenue and Bethel Avenue. Additional new segments (totaling 4,166 linear feet) will tie into the new Central Avenue and Greenwood Avenue pipelines and run under paved surface streets (Fairbanks Avenue, Tinoco Avenue, and Cottle Avenue) and an unnamed dirt road in the community of Tombstone. A network of hydrants and valves will be installed along the new pipeline alignment, which also will include connection to individual residences.

Self Help Enterprise is seeking funding from the California State Water Resources Control Board (SWRCB) through a Clean Water State Revolving Fund loan. These loans are partially funded by the U. S. Environmental Protection Agency and require compliance and documentation that meets both the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA) of 1966. Both the NHPA (Chapter 36, Code of Federal Regulations [CFR], Part 800.1[a]) and CEQA (Public Resources Code [PRC] 21000[g]) regulations mandate that government agencies consider the impacts of their actions on the environment, including cultural resources.

For the purposes of this report, a cultural resource is defined as a prehistoric or historical archaeological site or a historical building, structure, or object; consistent with 36 CFR 60.4, the term "historical" applies to archaeological artifacts and features as well as buildings, structures, or objects that are 50 years old or older. The importance or significance of a cultural resource depends on whether it qualifies at the federal level for inclusion in the National Register of Historic Places (NRHP) or at the state or local level for inclusion in the California Register of Historical Resources (CRHR). Cultural resources determined eligible for the NRHP are termed "historic properties," while those eligible for the CRHR are called "historical resources" (36 CFR 800.16[l]; California Code of Regulations [CCR] 15064.5). Under both federal and state law, the determination of eligibility is in part based on a set of significance criteria defined in 36 CFR 60.4 and 14 CCR 15064.5(a)(3), respectively.

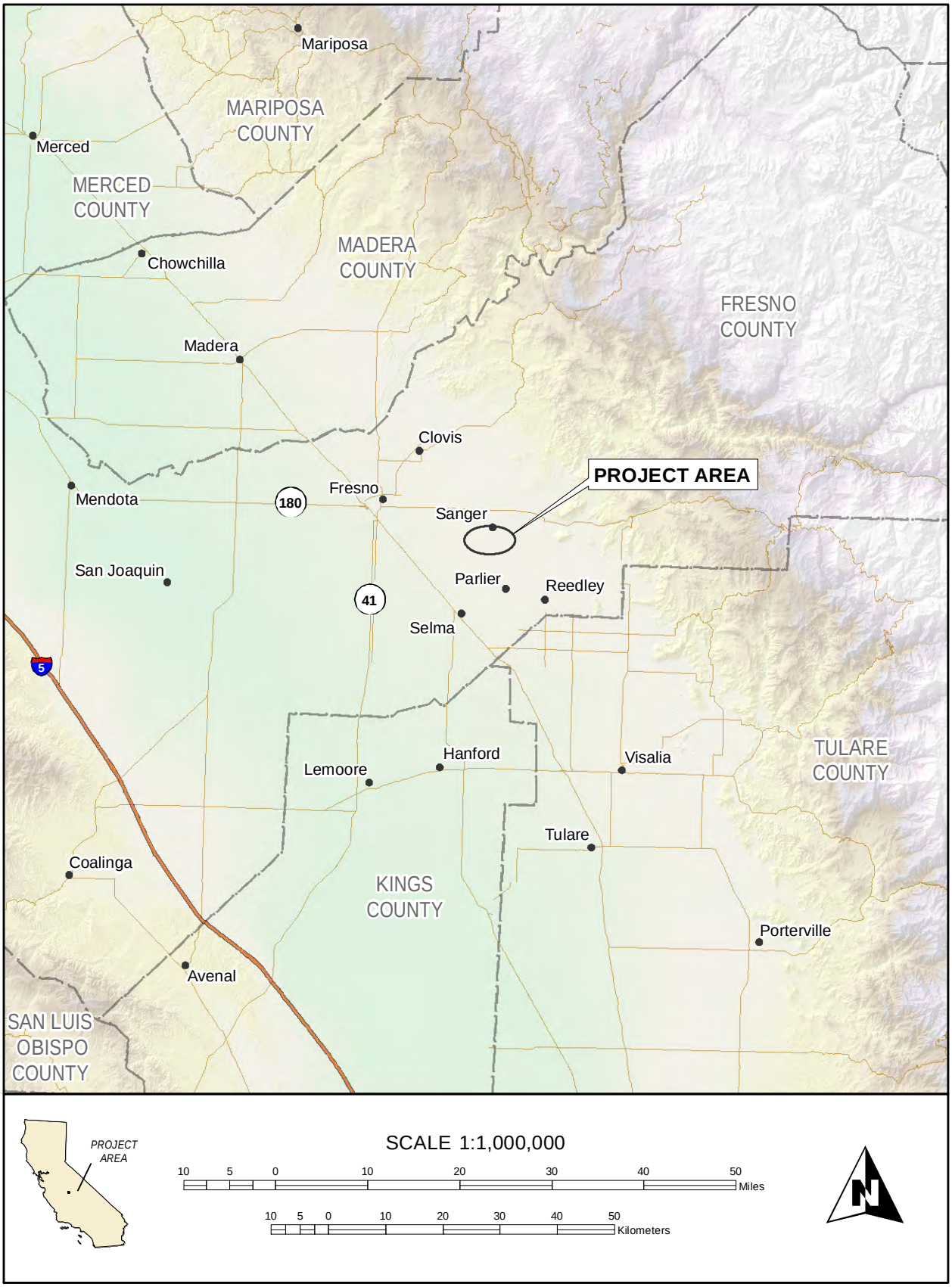

Figure 1-1 Project vicinity in Fresno County, California.

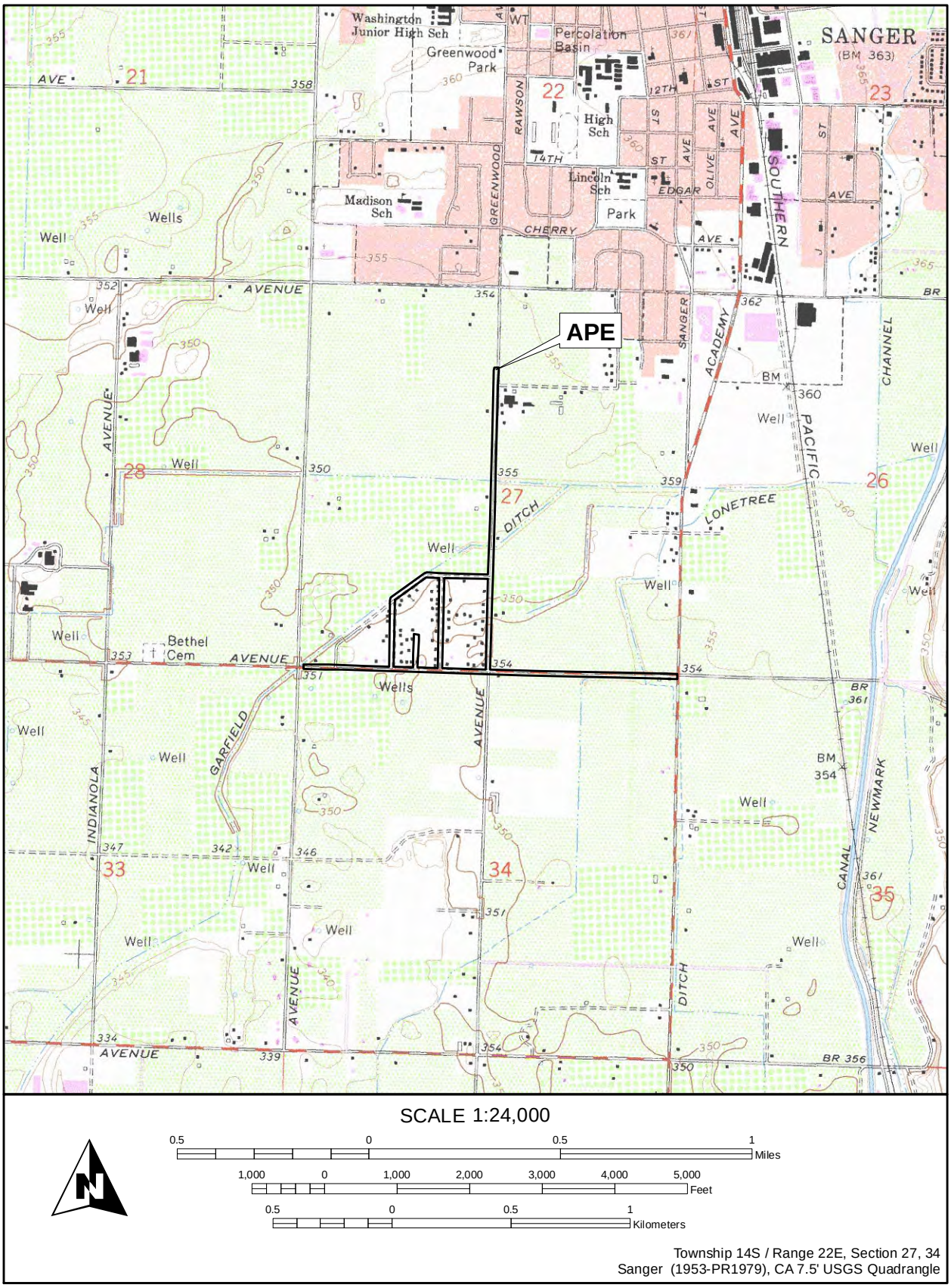

Figure 1-2 Project location on the USGS Sanger, CA, 7.5-minute topographic quadrangle.

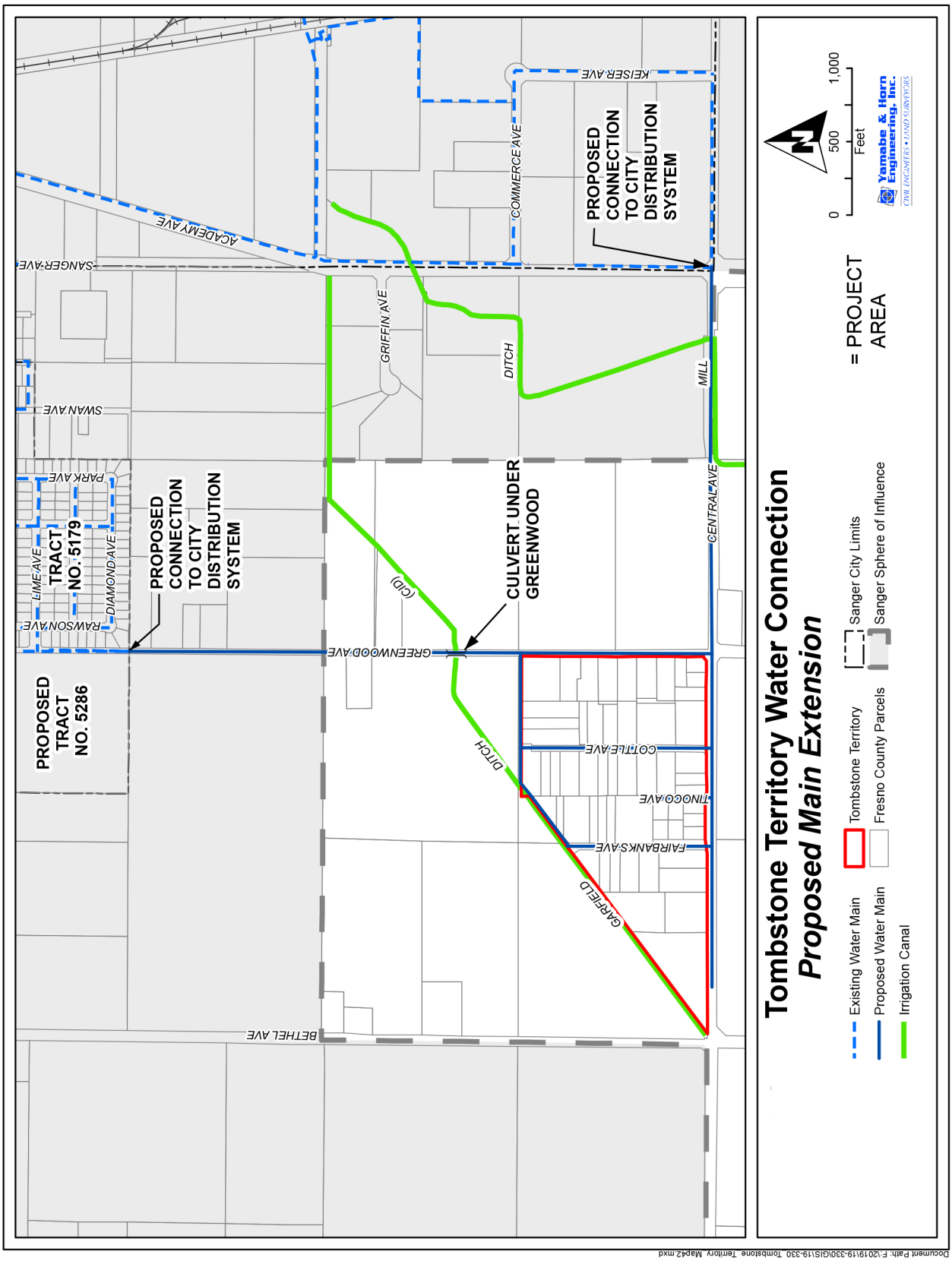

Figure 1-3 Tombstone Territory Water Connections Project design map.

To assist Self Help Enterprise with its compliance efforts, Æ conducted a historic properties inventory for the Project to determine whether cultural resources are present within the Project's Area of Potential Effects (APE). An APE is the three-dimensional geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, should they exist. For this Project, all construction activities will be confined to existing paved and dirt roads and their rights-of-way. The construction trenches are expected to be about 4 feet wide and 5.5 feet deep. Thus, the APE includes a 30-foot-wide corridor centered on the proposed pipeline with a maximum vertical depth below surface of 1.5 feet. The trenches will stay outside the rights-of-way of the Garfield Ditch and Lone Tree Channel. The total APE is 20 acres (Figure 1-4).

Æ's cultural resource investigation sought to identify historic properties/historical resources in the APE that would be adversely impacted by the proposed Project in a manner that would diminish a resource's significance or eligibility for inclusion in the NRHP or CRHR. Æ's cultural resource investigation included a records search at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS) to identify previously recorded cultural resources and prior studies in the APE and surrounding 0.5-mile area; a search of the Native American Heritage Commission's (NAHC) Sacred Lands File to identify places in the APE that are important to tribes and to request contact information for tribal representatives who may have information relevant to the APE; an online archival search of historic-era maps and aerial images of the APE and surrounding vicinity; and an archaeological and built environment pedestrian survey of the APE.

This technical report has been prepared according to California Office of Historic Preservation standards outlined in *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format* (Office of Historic Preservation 2000) and fulfills the requirements for a NHPA Section 106 compliant report as outlined by the SWRCB in *Overview of Section 106 of the National Historic Preservation Act Reporting Process for Drinking Water and Clean Water State Revolving Fund Applicants*, received from the Division of Drinking Water in August 2018.

Æ Principal Archaeologist Mary Baloian, a Registered Professional Archaeologist (RPA 15189), served as Project manager, providing technical and administrative oversight for all aspects of the Project. Baloian meets the Secretary of the Interior's Standards for Professional Qualifications in Archaeology. Carlos van Onna, Æ senior architectural historian, who meets the Secretary of the Interior's Standards for Professional Qualifications in Architectural History, surveyed the APE for historic built environment resources. Æ Staff Archaeologists Wes Stanley, B.A., and Randy Ottenhoff, Ph.D., performed the pedestrian archaeological survey. Staff Archaeologist Jessica Jones contributed sections of this technical report. Æ Geographic Information Systems Technician Flavio Silva, Ph.D., prepared all maps and report graphics. Résumés for key personnel are provided in Appendix A.

Figure 1-4 Project Location (Aerial).

2
NATURAL AND CULTURAL SETTING

2.1 NATURAL SETTING

The Project is in the eastern central periphery of the San Joaquin Valley, the southern half of an elongated trough called the Great Valley. The valley is a 50-mile-wide lowland that extends approximately 500 miles south from the Cascade Range to the Tehachapi Mountains (Norris and Webb 1990:412). Between the Mesozoic and Cenozoic eras, the Great Valley served as a shallow marine embayment containing numerous lakes, primarily within the San Joaquin Valley (Norris and Webb 1990:412). Waters began to diminish around 10 million years ago during the late Pliocene and eventually were cut off from the ocean altogether by the formation of the Coast Ranges, leaving tributaries and small lakes that survived until the historic era (Hill 1984:28; Norris and Webb 1990:380).

Much of the Great Valley rests upon thick strata of alluvial sediments washed down from the Sierra Nevada and Coast Ranges during the Quaternary (Norris and Webb 1990:63). It is this soil that today makes the valley a fertile agricultural region. Below these levels are layers from the Pliocene and older epochs, which consist of both marine (shale and sandstone) and nonmarine (basalt and andesite) materials.

The San Joaquin River is the prominent hydrological feature that drains the southern half of the Great Valley into San Francisco Bay. The tall, steep peaks of the Sierra Nevada effectively block moisture moving eastward from the coast, resulting in higher level of precipitation on the western slopes. Smaller east–west-trending rivers drain the Sierra Nevada range before converging on the San Joaquin River. These rivers would have provided habitat for an abundance of food resources such as aquatic plants, fish, beaver, and other animals hunted prehistorically and historically.

The Project area specifically occupies the Lower Sonoran life zone, marked by prairie grassland communities that cover the plains and low rolling foothills that border the Sierra Nevada. These grasslands are interspersed with narrow bands of riparian woodland that follow the valley stream corridors. The development of agriculture within the Great Valley has resulted in the replacement of native plants and animals with domesticated species. Common native plants would have included valley, blue, and live oak as well as walnut, cottonwood, willow, and tule. The Project vicinity has been intensively farmed for many years and, as such, no area of original grassland remains.

The previously swampy valley floor provided a lush habitat for a variety of animals. Large herds of mule deer, tule elk, and pronghorn once roamed the valley. Historic accounts indicate that, due to their vast numbers, the tule elk and pronghorn were a major food source for the Yokut Indians, explorers, trappers, and others (Clough and Secrest 1984:28; Wallace 1978b:449). Grizzly and black bears as well as and mountain lions also were once prominent valley species (Preston 1981:245–247). Other mammals noted are the valley coyote, bobcat, gray and kit foxes,

and rabbits. The valley's large variety of birds includes American osprey, redwing blackbird, marsh hawk, willow and Nuttall's woodpeckers, western meadowlark, and quail. Water sources supported anadromous and freshwater fish species that include salmon, golden trout, river lamprey eel, and white sturgeon.

The annual rainfall for this area averages about 6–14 inches. Winters are cool and wet with average low temperatures between 40° and 50° Fahrenheit (F); snow is uncommon (Hill 1984:29). Summers are generally hot and dry, with temperatures often exceeding 100°F.

2.2 CULTURAL SETTING

2.2.1 Prehistory

Archaeological studies in the San Joaquin Valley began in the early 1900s with a series of investigations primarily in the Stockton and Kern County areas (Gifford and Schenck 1926; Schenk and Dawson 1929). By the late 1930s, efforts were made to link the more well-known southern and northern valley areas through an exploration of the central San Joaquin Valley. University of California Berkeley's Gordon Hewes surveyed the Central Valley region and discovered 107 sites, most near streams and marshes on the east side of the valley (Moratto 1984:186).

Archaeological investigations in the San Joaquin Valley intensified during the 1960s with the advent of cultural resource management work (Olsen and Payen 1968, 1969; Riddell and Olsen 1969; Treganza 1960). Based on these and other archaeological investigations conducted throughout the valley (Latta 1977; McCarthy 1995; McGuire 1995; Moratto 1988; Price 1992; Roper 2005), it is apparent that the Yokuts occupied most of the San Joaquin Valley over a period extending as long as 2,000 years (Spier 1978; Wallace 1978a, 1978b).

Prehistoric sequences developed from these excavations provide a fairly clear understanding of culture change during the last 2,000–3,000 years; however, archaeological investigations farther south in the Tulare Lake and Buena Vista Lake localities suggested that people occupied the San Joaquin Valley as early as 11,000–12,000 years ago (Fredrickson and Grossman 1977; Riddell and Olsen 1969).

Archaeological evidence suggests that the valley's initial occupants settled in lakeshore and streamside environments utilizing the foothills periodically for seasonally available resources. These early Paleoindian sites are typified by fluted points, stemmed dart points, scrapers, and crescents. As compared with their predecessors, the Archaic groups in the middle and late Holocene utilized a broader resource base, supplementing their subsistence with small game and hard seeds. Handstones, milling slabs, mortars, and pestles are common in Archaic assemblages, as are atlatl dart points. Favorable climatic conditions between 3,000 and 3,500 years ago allowed widespread settlement along the western Sierran slopes. The late Holocene witnessed various technological and social changes, including the adoption of the bow and arrow, expansion of trade, increasing use of acorns, and improved food storage techniques. As populations grew, social relations became more complex. Violence among many Sierran and foothill groups was common as economic stress and social instability became more pronounced during a period of xeric climates between circa A.D. 450 and 1250. New population growth was

subsequently achieved, resulting in part from movement of new Sierran groups. By circa A.D. 1600–1700, most groups had claimed the territories that would identify them ethnographically.

Although no archaeological excavations have taken place in the Project vicinity, local historian and amateur archaeologist Oscar Noren amassed an extensive collection of prehistoric artifacts during his more than 70 years as a Reedley/Kingsburg-area resident. In the early 1930s and 1940s, several noted archaeologists—including Gordon Hewes, William Massey, and Richard Beardsley—visited Noren to examine his collection, parts of which are presently curated at the Fresno Archaeological Society and California State University, Fresno (Noren 1988). Noren himself described his archaeological pursuits as "salvage archaeology" or "rescuing Indian artifacts when exposed by road building equipment, leveling of land by farmers, and other changes of the terrain of the land," but through his careful documentation of these recovered artifact, Noren was able to identify 20 habitation sites in the vicinity of the Kings River near Sanger and Reedley (Noren 1988).

2.2.2 Ethnohistory

The Project lies within area traditionally occupied by the Wet-chi-kit Yokuts, one of the many autonomous tribes that made up the Northern Valley Yokuts. The Northern Valley Yokuts inhabited the marshy regions of the upper half of the San Joaquin Valley (Wallace 1978a). The Yokuts language belongs to the broader Penutian family, which includes a relatively diverse group of languages, including Miwok, Costanoan, Maiduan, and Wintun (Silverstein 1978). Their linguistically related brethren, the Southern Valley Yokuts, lived to the south, and the Miwok occupied areas to the north and east.

The San Joaquin River and its tributaries provided food (fish and waterfowl), riparian plants for building and basket making (Figure 2-1), and avenues of travel for small watercraft. Not surprisingly, Yokuts villages were situated near major waterways and built on low mounds to prevent spring flooding. Ethnographic evidence indicates that these villages were occupied for the majority of the year and abandoned for short periods as the residents left to engage in seasonal resource gathering (McCarthy 1995). The Northern Valley Yokuts were defined by individual autonomous villages (Latta 1949:3) composed of single-family structures (Wallace 1978a). The structures were small and usually built from woven tule mats. Other structures included sweathouses and ceremonial chambers. Most stone artifacts were fashioned from chert, although obsidian was imported from other places (Wallace 1978a). Mortars and pestles were the dominant ground stone tools; bone was used to manufacture awls for making coiled baskets (Figures 2-2 and 2-3). Apparently the Northern Valley Yokuts did not manufacture ceramic items, although given the presence of ceramics in the nearby hills and reportedly at some San Joaquin Valley sites, it is likely that ceramics were brought to the region via trade.

The material culture of the Wet-chi-kit was largely consistent with that of the Yokuts in general, although McCarthy (1995) has pointed out that the tendency to treat all Northern Valley Yokuts people as a whole in the ethnographic literature may mask regional variations. For this reason, the notes of Oscar Noren are a great value in describing the local archaeological and ethnographic record.

Figure 2-1 **Lucy Charlie gathering and processing plant materials near Sanger in 1946 (photo courtesy of Lorrie Planas Beck).**

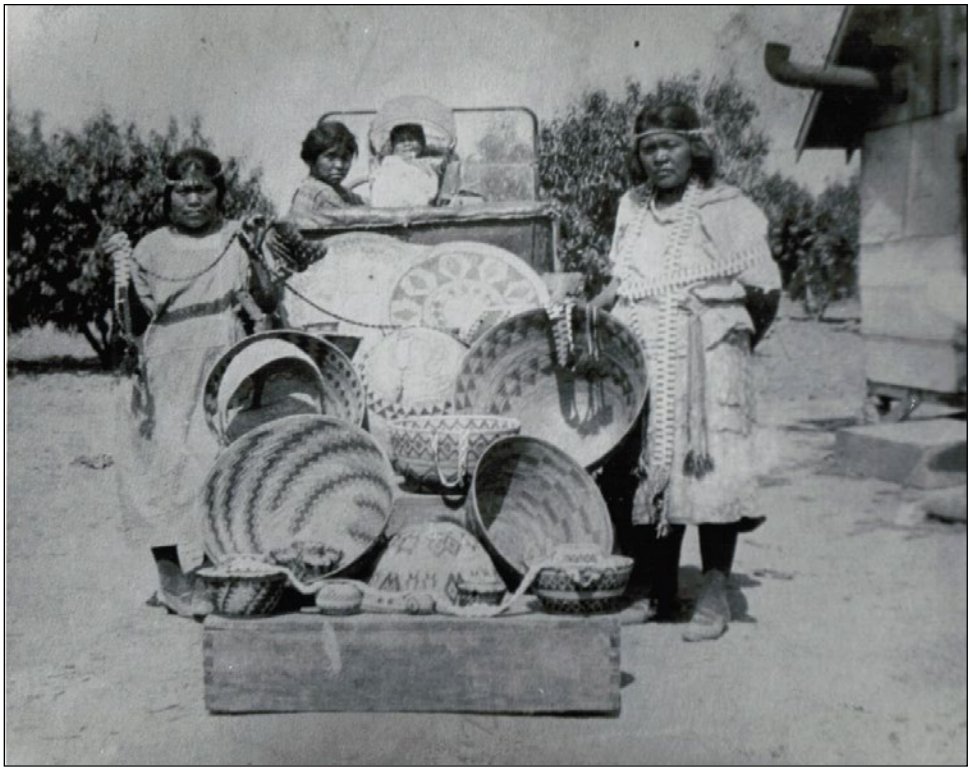

Figure 2-2 **Yokuts women displaying baskets near the Sanger area, circa 1946 (photo courtesy of Lorrie Planas Beck).**

Figure 2-3 Yokuts women displaying basketry at an adobe house near Sanger, circa 1946 (photo courtesy of Lorrie Planas Beck).

Noren (1988) found a variety of artifacts at several habitation sites along the Kings River, including stone gambling balls, beads, and pendants along with such functional items as net weights, arrow shaft straighteners, millings stones, handstones, mortars, and pestles. The presence of *Olivella*, clam shell, and abalone shell from the coast as well as obsidian from the Sierra Nevada indicate that the Wet-chi-kit were part of the regional trade network.

Information gathered on the neighboring Choinumni suggests that the Wet-chi-kit were organized by patrilineages divided by moieties (McCarthy 1995). The patrilineage and moiety to which one belonged determined both one's responsibilities and to which political office one could aspire. Marriage was moiety exogamous, and ritual activities (such as mourning) required interaction between moieties.

Intensive European exploration of Yokuts territory did not take place until the early nineteenth century (Wallace 1978a). As a result of European contact with Native American populations of the San Joaquin Valley, indigenous populations were significantly reduced by disease and settlement patterns were disrupted as a result of recruitment for Missions Soledad, San Luis Obispo, San Antonio de Padua, and San Juan Bautista. However, even more traumatic impacts to the valley's Native American population were caused by a series of parasitic (i.e., malaria) and viral (e.g., influenza) epidemics that began in 1833. The diseases struck with such virulence that by 1846 an estimated 40–75 percent of Native Americans had died during outbreaks in California. By 1850, of the estimated 15,700 people constituting the 15 tribelets of the Southern Valley Yokuts, approximately 3,680 are estimated to have survived into the mid-twentieth century (Cook 1955).

2.2.3 Historical Setting

2.2.3.1 Early Exploration

The first Europeans known to have entered the San Joaquin Valley were Spanish soldiers led by Pedro Fages, who came to the valley through Tejon Pass in 1772 (Wallace 1978a:459). Other Europeans followed in 1806 when Lieutenant Gabriel Moraga led a group of Spanish explorers into the San Joaquin Valley to locate new lands for missions (Clough and Secrest 1984:25–27). The expansion of missions in California had ceased by the early 1820s as a result of Mexico's independence from Spain (Clough and Secrest 1984:26). Fur trappers discovered the California interior soon after and began their forays into the San Joaquin Valley. Jedediah S. Smith may have been the first to enter the area during a fur trapping expedition in 1827. Smith's adventures included encounters with the Yokuts while trapping and camping along the San Joaquin River (Clough and Secrest 1984:27). After Smith's visit, other trappers followed until about 1837 when fur-bearing animals were nearly gone from the valley. These trappers included Kit Carson, Peter Skene Ogden of the Hudson's Bay Company, and Joseph Reddeford Walker.

Compared to the California coastal regions, Euro-Americans settled in the Central Valley relatively late. The Mexican government issued land grants in the Fresno County area on three occasions in the 1840s (Clough and Secrest 1984:32–36). In order to satisfy the conditions of the contract and receive full ownership of the property, the grantee had to fulfill certain residency and improvement requirements; however, this was easier said than done. Early Euro-American efforts to settle the Central Valley often met with resistance from the indigenous tribes, who were probably aware of the harsh treatment given to their coastal brethren by Spanish missionaries. In addition, most regions of the valley were not well suited either for agriculture or cattle ranching and required a certain level of development (e.g., transportation routes, irrigation) before their potential could be realized. As part of the terms of the Treaty of Guadalupe Hidalgo, which formally concluded the Mexican-American War and ceded California to the United States, the claims on grants would be respected by the federal government provided that they complied with Mexican colonization laws. After the war, a series of legal disputes ensued that extended into the 1860s. Testimonies from these cases demonstrated that in only very few instances did the grantee actually reside on the land long enough to satisfy his contractual obligations (Clough and Secrest 1984:32–39). Aside from a small Hispanic presence, located primarily in the western part of the Fresno County area (Clough and Secrest 1984:39–43), it was not until after 1849 and the early stages of the gold rush that Euro-American miners seriously considered establishing permanent residence in the valley.

The gold rush, which is perhaps best-known as a northern California phenomenon, extended to the state's central highlands. Prospectors first established camps at Coarse Gold (presently the town of Coarsegold) and Fine Gold (Clough and Secrest 1984:46). For the speculators that came to the Sierra Nevada and its foothills from the Pacific coast, the Central Valley probably represented little more than a dry stretch of land to be traversed before reaching the gold fields to the east. The first settlements in the valley emerged along the valley's major waterways—the Chowchilla, Fresno, San Joaquin, and Kings rivers—largely to meet the transportation and material needs of the miners. These were untamed and temperamental rivers that were prone to unexpected flooding, not the dry lifeless channels that mark the valley's present-day landscape. These waterways could be crossed only via ferry. Outposts such as Fort Miller, Fort Bishop, and

Campbell's Ferry offered river crossing points, supplies, lodging, and, in the case of the first two, fortification from Indian attacks. It is perhaps telling that the history of the area focuses not on the miners who arrived during the gold rush but rather the entrepreneurs who profited from them.

The momentum of the gold rush could not be sustained, and by the early 1850s most of the miners and the merchants who relied on their patronage began to look to other pursuits. William Mayfield and his family arrived in the valley in 1850 to find their fortune in the deposits of the San Joaquin River. After floods wiped out his gold mining operation, he settled near the future site of Centerville to raise horses and cattle (Clough and Secrest 1984:47–48). Similarly, William Campbell, co-founder of Campbell's Ferry, eventually left the ferry business to become a rancher (Clough and Secrest 1984:53).

2.2.3.2 Agriculture

The Central Valley has long been synonymous with agriculture, but the early settlers in the 1850s could not have imagined the extent and diversity of crops presently covering the valley floor. With the gold rush in decline, most miners descended from the foothills to pursue other professions. The town of Centerville—located along the Kings River in a relatively lush portion of the valley—became an early agricultural and cattle center in the 1850s and 1860s. During this time, farms were generally located near a perennial water source. This constraint on early agriculture kept the valley's two major industries—farming and ranching—in balance. Competition for real estate was minimized since agricultural interests had little reason to expand into pasturelands that were unsuitable for farming. The successful development of irrigation systems led to the agricultural boom as more tracts of land became suitable for crops.

As was the case all over California, the arrival of the railroad, even if still miles away, stimulated commercial agricultural development because it offered the possibility of economically moving heavy products like grain and fruit to distant markets. It also encouraged investors to purchase large tracts of land and dig irrigation ditches, then subdivide the land and sell it to farmers. This practice known as the Colony System was widely used in Fresno County, but only a handful were located on the east side of the county. In contrast to the many colonies surrounding the town of Fresno, Sanger area farms appear to be primarily family-owned operations. For example, the Frantz Colony south of Sanger between the railroad line and the Kings River appears to be owned entirely by the extended family.

The Centerville & Kingsburg Canal, which flows just east of Tombstone, was built in 1878 by an association of farmers interested in irrigating their own land (Adams 1915). However, the canal company became plagued early on by litigation challenging its water rights as well as unstable finances. It was taken over by the Consolidated Canal Company near the turn of the twentieth century. Today it is operated by the Consolidated Irrigation District. This district was organized in 1921 to provide water from the Kings River for irrigation to the surrounding communities of Sanger, Fowler, Kingsburg, Parlier, and Selma.

The ever-increasing expanses of agricultural fields required vast quantities of water for irrigation. By 1920, the rate of water being pumped from the aquifer was greater than the recharge rate. During the 1920s, a state water plan called for the construction of dams, canals, and other water facilities. Because of this plan, the San Joaquin Valley received assistance through the Central Valley Project (CVP) Act of 1933. The CVP was a massive water

conveyance system constructed to alleviate local shortages and balance water supply throughout much of the state (JRP Historical Consulting Services and California Department of Transportation 2000). Construction of the CVP was delayed by World War II, but by the early 1950s the project, which includes the Delta-Mendota Canal, the Madera Canal, the Friant-Kern Canal, and Friant Dam, was functioning as an integrated system.

2.2.3.3 City of Sanger

The filing of the town map with the Fresno County Recorder's Office in March 1888 established the town of Sanger 1 mile north of the APE. The 800 acres deeded to the Southern Pacific Railroad was divided into small parcels, and beginning in May 1888 the Pacific Improvement Company began to auction the land off at an average of $300 a lot (Sanger Herald 1920a). In just 3 years the town had grown to a population of 1,000. In 1891, Sanger had a full complement of businesses and a barley mill and the Farmers Warehouse Company were established on M Street adjacent to the railroad. By 1893, additional warehouses and the Kings River Lumber Company (established in 1889) were also located along the railroad track. The lumber company underwent a corporate reorganization in 1894 and changed its name to the Sanger Lumber Company, and the name changed again in 1905 to the Hume Lumber Company. The Sanger School District was founded in 1889, and the Bank of Sanger and the *Sanger Herald* were founded in 1890. Between 1891 and 1893, four churches were established.

By the turn of the twentieth century, Sanger was a thriving community. Between 1907 and 1916 the population doubled. While farming continued to be the dominant occupation of the many residents living in the outskirts of town, the lumber company was the mainstay of the community and the reason for its substantial growth. The *Sanger Herald* reported: "The Hume [Kings River] Lumber Company had built the largest flume in the world, some 60 miles in length, and there were over 250 men employed here at the mill" Sanger Herald (1920b), making the lumber company the largest employer in the area. The lumber mill burned in 1917 and the local industry never rebounded to its original capacity after it was reconstructed. The mill was closed after the death of its owner in 1926.

Farm, warehouse, and fruit packing labor made up the second largest class of workers in town. Prior to 1910, barley and wheat were the principal crops grown on the local farms. As the twentieth century moved forward and irrigation methods continued to improve, more farmers turned their lands to fruit orchards and vineyards. Even today, Sanger and Fresno County agriculture remains dominated by fruit orchards and vineyards, which are significant contributors to the local economy.

2.2.3.4 Tombstone Territory

A desktop review of archival resources yielded little information regarding the formation of the community of Tombstone (also known as Tombstone Territory). Although the date and nature of its founding is unclear, aerial photographs suggest that community began to coalesce sometime between 1950 and 1957. Prior to the mid-1950s, the land that now encompasses Tombstone was utilized for crop cultivation. Tombstone exists into the present day as an unincorporated rural community with an economy largely driven by agriculture.

3
METHODS

3.1 RECORDS SEARCH

On April 29, 2020, Æ requested a records search from the SSJVIC of the CHRIS at California State University, Bakersfield. The records search encompassed the APE and 0.5-mile surrounding the APE. SSJVIC staff examined archaeological site and survey base maps, reports of previous investigations, cultural resource records, historical General Land Office Maps, the listings of the Historic Properties Directory of the Office of Historic Preservation, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources (Appendix B).

3.2 NATIVE AMERICAN OUTREACH

On April 29, 2020, Æ sent an email to the Native American Heritage Commission (NAHC) requesting a search of its Sacred Lands File to identify places in or near the Project area that may have tribal importance. The NAHC responded on May 1, 2020, with its findings and provided a list of Native American tribes and individuals culturally affiliated with the Project area. A copy of the NAHC response letter and tribal contacts list is included in Appendix C.

3.3 ARCHIVAL RESEARCH

Prior to the pedestrian archaeological and built environment survey, Æ conducted archival research to obtain information on the history of land use and development to identify the potential for historic-era archaeological deposits or historical buildings or structures within the APE. Desktop and online library research focused on historical maps, aerial images, atlases, photographs, written local histories, and manuscripts. Æ reviewed and compiled information from various sources, including:

- General Land Office maps covering years 1854–1891 (https://glorecords.blm.gov/default.aspx);
- U.S. Geological Survey topographic maps spanning 1923–1966 (https://ngmdb.usgs.gov/topoview); and
- Aerial photographs and County atlases spanning 1937–1970, accessed through the Map Aerial Locator Tool (MALT) maintained by California State University, Fresno (http://malt.lib.csufresno.edu/MALT/).

3.4 ARCHAEOLOGICAL SURVEY

On May 30, 2020 and June 22, 2020, Æ Staff Archaeologists Wes Stanley and Randy Ottenhoff conducted an intensive pedestrian archaeological survey of all unpaved portions of the APE that were accessible without encroaching on private property. They conducted the survey using

parallel transects spaced 15–20 meters apart. Areas that included sidewalks, paved roads, and private property were given an opportunistic survey whereby field staff inspected the ground that were accessible and had clear visibility. Although the Project also may include connection to water meters at individual residences, Æ did not survey private homes and yards. A digital camera was used to photograph the environmental setting and ground visibility. Æ recorded locational information using a Trimble Global Positioning System (GPS) unit and field observations on an Æ Survey Field Record form. All original forms and photographs are archived at Æ's office in Fresno, California.

3.5 BUILT ENVIRONMENT SURVEY

On May 29, 2020, Æ Senior Architectural Historian Carlos van Onna conducted a built environment survey of the APE to identify historic-era buildings or structures that may be impacted by the Project. Buildings or structures that are 50 years of age or older (i.e., constructed in or before 1969) within the Project area were photographed and documented on California Department of Parks and Recreation (DPR) 523 series cultural resource record forms (see Appendix D).

4
FINDINGS

4.1 RECORDS SEARCH

The SSJVIC responded to Æ's records search request on May 11, 2020, with an inventory of previous studies conducted within the APE and surrounding 0.5-mile area (Records Search File No. 20-179). The SSJVIC reported one built environment resource within the APE, the Lone Tree Channel (FRE-PRO-005) and two additional resources within 0.5 mile of the APE—the Southern Pacific Railroad (P-10-003930) and Mill Ditch (P-10-005812), a historic water conveyance feature of the Centerville & Kingsburg Canal system). There have been four previous cultural studies within the APE and six studies within 0.5 miles of the APE, the most recent in 2001 (see Appendix B). All previous studies resulted in negative findings.

4.2 NATIVE AMERICAN OUTREACH

The NAHC responded to Æ's request on May 1, 2020, and stated that its search of the Sacred Lands File yielded positive results for the presence of cultural resources within the APE (see Appendix C). The NAHC requested specifically that the Traditional Choinumni Tribe be contacted for more information. They additionally supplied a list of tribal representatives to be contacted for other sources of information regarding known and recorded sites of sacred or spiritual significance in the APE and surrounding 0.5-mile area. The individuals and groups identified included:

- Chairperson David Alvarez of the Traditional Choinumni Tribe;
- Cultural Resources Rick Osborne of the Traditional Choinumni Tribe
- Stan Alec of the Kings River Choinumni Farm Tribe;
- Chairperson Elizabeth D. Kipp of the Big Sandy Rancheria of Western Mono Indians;
- Chairperson Carol Bill of the Cold Springs Rancheria;
- Chairperson Ron Goode of the North Fork Mono Tribe;
- Chairperson Robert Ledger Sr. of the Dumna Wo-Wah Tribal Government;
- Chairperson Leo Sisco of the Santa Rosa Rancheria Tachi Yokut Tribe;
- Tribal Chair Benjamin Charley Jr. of the Dunlap Band of Mono Indians;
- Tribal Secretary Dirk Charley of the Dunlap Band of Mono Indians;
- Chairperson Leanne Walker-Grant of the Table Mountain Rancheria; and
- Resources Director Bob Pennell of the Table Mountain Rancheria.

On May 22, 2020, *Æ* sent a letter describing the Project and the NAHC's search findings to each of the individuals and groups identified in the NAHC response. Follow-up contact by telephone and email was completed on June 19, 2020. When contacted by telephone, Chairperson Leo Sisco of the Santa Rosa Rancheria Tachi-Yokut Tribe and Chairperson Ron Goode of the North Fork Mono Tribe both responded that they had no comments regarding the project. Also on June 19, 2020, Chairperson Robert Ledger Sr. of the Dumna Wo-Wah Tribal Council requested a digital copy of the outreach letter. Rick Osborne of the Traditional Choinumni Tribe responded by email on June 19, 2020, requesting archaeological monitoring of all trenching activity in the APE. A copy of his response is included in Appendix C. No other responses have been received to date.

4.3 ARCHIVAL RESEARCH

To better understand land use in the APE, *Æ* examined historical and modern aerial photography, topographic maps, county atlases, and General Land Office (GLO) plat maps. The land encompassing the APE was first surveyed in 1854 by the GLO. GLO survey maps dated from 1854 to 1891 do not depict any major watercourses or structural development in the APE; however, the Four Corners to Stockton Road is identified less than 1 mile northeast of the APE. The 1891 GLO survey map failed to capture the presence of the Garfield Ditch or Lone Tree Channel, which are clearly visible in an 1891 Fresno County atlas (Thompson 1891). The Garfield Ditch, which forms part of the northeastern boundary of the APE, is present on irrigation maps of the region dated as early as 1885, but the exact date of construction is unclear. The Lone Tree Channel and the city of Sanger, approximately 1 mile north of Tombstone, also are depicted in the 1891 Fresno County atlas. The Lone Tree Channel is said to date to the late 1870s (see Appendix D). The map indicates that the land encompassing the APE was subdivided and privately owned by several individuals.

Although the community of Tombstone, known as Tombstone Territory, is not labeled on the USGS 7.5-minute topographic maps of the area, structures are depicted in the APE on maps dated after 1965. Aerial photographs dated from 1937 to present day suggest that the structures noted on the topographic maps are residences constructed sometime in the early to mid 1950s. Aerial photography also indicates that the APE was largely utilized for crop cultivation prior to 1950. Urban development of Tombstone appears to have peaked in the early 1970s. Modern aerial photography demonstrates that the community has kept its original boundaries into the present day and remains largely rural, with agricultural fields surrounding it in every direction. References for maps and aerial photographs examined are provided in Appendix B.

4.4 ARCHAEOLOGICAL SURVEY FINDINGS

4.4.1 Visibility and Findings

Æ archaeologists intensively surveyed all portions of the APE that were not obstructed by sidewalks, roads, or private residences and examined a total of 17.3 acres, or approximately 87.5 percent of the total APE. The areas not subject to intensive survey make up 13.5 percent (2.7 acres) of the APE (Figure 4-1).

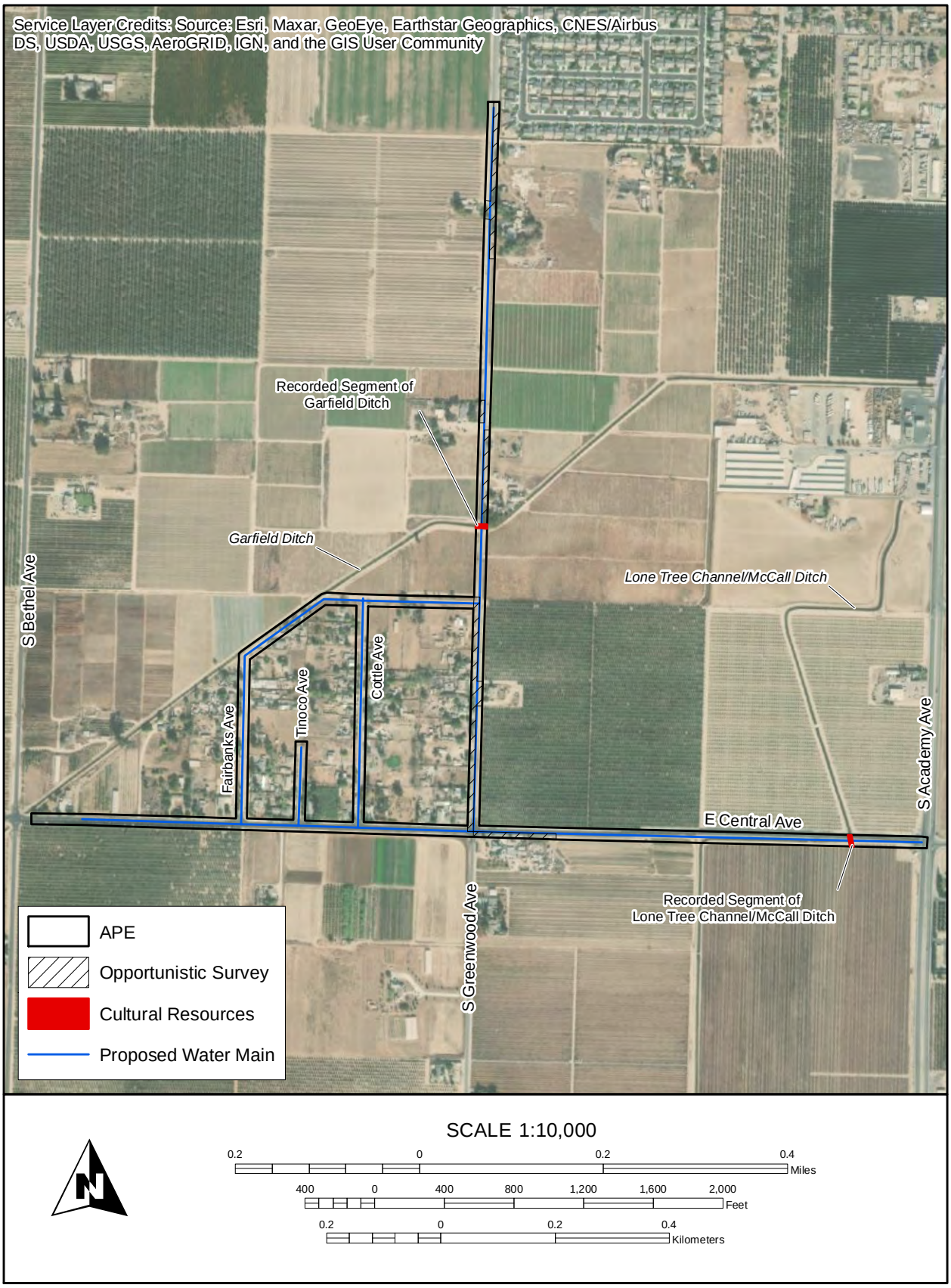

Figure 4-1 Survey coverage and cultural resources within the Project APE.

At the time of survey, ground visibility was generally good and nearly 100 percent open within the areas amenable to survey (Figure 4-2). A small portion of the APE on the east side of South Greenwood Avenue and north of the Garfield Ditch (Figure 4-3) provided only 50 percent ground visibility. Areas that included sidewalks, paved roads, and private property were surveyed opportunistically, that is the archaeologists examined areas that were accessible and had ground visibility (Figure 4-4). No archaeological sites, isolated artifacts, or features were identified during the survey. However, segments of two historical canals intersect the APE. These cultural resources are discussed in Section 4.4.3; DPR cultural resource record forms documenting these built environment resources are included in Appendix D.

Figure 4-2 Excellent ground visibility west of South Greenwood Avenue; view to the north.

4.4.2 Potential for Buried Sites

A large portion of the archaeological record in the Central Valley of California is buried in alluvial fans, floodplains, overbank and lake sediments, and are not visible on the ground surface. Thus, it is essential that this historic properties inventory take into account the sensitivity of the vertical APE to contain intact buried cultural deposits. By understanding changes in the historic landscape and natural hydrology as well as soil age, depositional setting, and environmental conditions, predictions about the potential for the Project to impact historic properties lying below the surface can be made.

Figure 4-3 Fair (50 percent) ground visibility west of South Greenwood Avenue; view to the north.

Figure 4-4 Cottle Avenue showing paved road and private residences; view to the south.

The Project area is on the east side of the San Joaquin Valley on the Kings River alluvial fan, which is part of a series of coalescing fans formed by the major hydrological systems of the Sierra Nevada batholiths. Present fan structure is largely a result of Pleistocene climate and glacial cycles. The Kings River alluvial fan is a stream-dominated fan covering an area of approximately 3,150 square kilometers (Weissmann et al. 2002) and lies in the vicinity of the towns of Sanger, southern Fresno, and Hanford. The fan has a low gradient, and streamflow trends west to southwest. Geologic maps indicated that the underlying sediments of the Project area are Pleistocene nonmarine sediments (Matthews and Burnett 1965), including the Riverbank Formation, which are composed of dissected granitic sand, silt, and clay alluvial fan deposits. Several different soil series are mapped within the Project study area, but the most prominent soil is Tujunga loamy sand. This soil is a moderately deep, well-drained soil formed on floodplains and alluvial fans derived from granitic sources (Soil Survey Staff 1999).

The presence of this dominant soil type along with a series of other loamy sand soils that are less represented, indicates that some on-fan geomorphic processes have occurred since original deposition of the Riverside Formation soil. After the original deposition of sediment underlying the Project area in the middle Pleistocene, on-fan drainage and flooding from the Kings River likely caused some truncation and minor deposition in the area. This process would have left behind old channels, which gradually filled in and resulted in a gently undulating surface prior to modern development. This process ceased when glacial outflow from the last ice age down-cut the current valley where the Kings River is now confined, which effectively cut off this area from new deposition and major transformations. Once confined, the area remained stable through the late Pleistocene and Holocene as indicated by the presence of well-developed soils.

GLO maps dating between 1854 and 1891 depict no natural or historical features that would affect the geomorphology within the APE. However, the maps do show swamp and overflowed lands along the 1855 banks of the Kings River to the east. *Detail Irrigation Map: Centerville and Kingsburgh Sheet* (Hall 1885) depicts both the Garfield Ditch and Lone Tree Channel—which is labeled as the Kingsburg Branch of the Fresno Canal—and it is clear on this irrigation map that these ditches were created from natural channels that were part of the Kings River alluvial fan. The 1891 Fresno County atlas indicates that the APE is subdivided and privately owned (Thompson 1891). Based on aerial photographs dated from 1937 to present, residences appear to have been constructed sometime in the early to mid 1950s and that the APE was largely utilized for crop cultivation prior to that. Urban development of Tombstone appears to have peaked in the early 1970s. Landscape modification is evident in cuts to maintain grade along canals. While the APE is relatively stable from a landscape perspective, active agriculture over the last century has been an ongoing process likely contributing to minor soil loss through erosion and reworking of the upper strata.

The sensitivity for buried prehistoric archaeological sites or intact historical deposits in the APE is moderate. Because historical maps indicate that natural watercourses intersected the APE, this area likely contained a rich and diverse supply of both plant and animal resources attractive to indigenous populations that contrasted greatly with the dry and grassy valley plains to the west. Thus, there is a possibility of uncovering evidence of prehistoric use of the area. The lack of residential development prior to 1950 suggests that the potential to impact buried historic-era features (i.e., trash pits, privies, etc.) is low.

4.4.3 Built Environment Resources

4.4.3.1 Lone Tree Channel

The Lone Tree Channel is a natural channel utilized for conveyance of irrigation water. According to records prepared by JRP Historical Consulting Services for the Highway 180 Rural Project Historical Resources Evaluation Report (see Appendix B), its use dates to the early 1870s when Moses Church was constructing the Fresno Canal. JRP explains that in an effort to build a better connector between the Kings River and Fancher Creek, Moses Church built what was called the "Long Cut" in the Sanger area. In return he promised to deliver water down the Lone Tree Channel to irrigate land to farmers farther south. The Fresno Canal Long Cut appears on the Centerville and Kingsburgh irrigation map (Hall 1885) as does the Lone Tree Channel, although it is labeled as the Kingsburg Branch of the Fresno Canal. By 1891, the channel is shown renamed as the Lone Tree Channel in the Fresno County atlas (Thompson 1891). The 8.3-mile-long channel still carries water. Although it originated as a branch of the Fresno Canal, it is maintained and operated by the Consolidated Irrigation District today.

Æ recorded a 28-foot-long segment of the Lone Tree Channel (Figure 4-5). The segment forms the southernmost part of the Lone Tree Channel before it transitions into McCall Ditch, which continues in southwesterly direction south of Central Avenue. The Lone Tree Channel segment flows through a modern concrete box culvert underneath East Central Avenue. A two-lane paved roadway crosses the box culvert and has metal guardrails on either side. The exact depth of the ditch could not be established because it was largely filled with water at the time it was recorded.

Figure 4-5 Lone Tree Channel; view to the northwest from East Central Avenue.

4.4.3.2 Garfield Ditch

The Garfield Ditch is also a natural channel modified for historical irrigation. The ditch is first visible on the Centerville and Kingsburgh Sheet (Hall 1885). Its exact origin is not clear but, according to the 1885 irrigation map, it appears to branch off the Kingsburg Branch of the Fresno Canal (later called the Lone Tree Channel), or possibly originates from the Fowler Switch Canal, as shown on the 1891 Fresno County atlas (Thompson 1891). In either case, it appears to be part of the Centerville & Kingsburg Canal system (Adams 1915). From its head, the Garfield Ditch flows southwesterly for 1.1 miles, terminating southwest of the community of Del Rey. It is maintained and operated by the Consolidated Irrigation District.

Æ recorded a 30-foot long unlined segment that consists largely of a concrete culvert that carries the ditch underneath South Greenwood Avenue (Figure 4-6). A concrete retaining wall is present on either side of the road.

Figure 4-6 Garfield Ditch at South Greenwood Avenue; view to the west.

5
CONCLUSIONS AND RECOMMENDATIONS

Æ performed a historic properties inventory for the Tombstone Territory Water Extension Project. The project involves installing approximately 13,130 linear feet of water main pipeline and associated hydrants and valves to connect the City of Sanger's water distribution system to the community of Tombstone. The Project will be funded by the Clean Water State Revolving Fund, a joint federal-state program and requires compliance with both Section 106 of the NHPA and the CEQA.

As a subconsultant to Crawford & Bowen Planning, Inc., Æ conducted a historic properties inventory of the APE to determine if historic properties/historical resources are present that could be affected by the proposed Project. Accordingly, Æ performed background research, obtained a records search from the SSJVIC of the CHRIS, requested a search of the NAHC Sacred Lands File, contacted local tribal representatives, assessed the sensitivity of the vertical APE for buried resources, and conducted an intensive pedestrian survey of the APE.

The SSJVIC reported that four previous investigations have been conducted that overlap the Project APE; however, the only previously recorded cultural resources within the APE is the Lone Tree Channel. The SSJVIC identified six previous investigations and two historical resources within 0.5 mile of the APE—the Southern Pacific Railroad (P-10-003930) and Mill Ditch (P-10-005812), a historic water conveyance feature of the Centerville & Kingsburg Canal system. No archaeological sites or tribal cultural resources were identified in the APE as a result of the NAHC Sacred Lands File search, outreach with Native American representatives, or pedestrian survey. However, the NAHC search did produce a positive result, and Rick Osborne of the Traditional Choinumni Tribe requested archaeological monitoring of all trenching activity in the APE due to the sensitivity. Æ's assessment of the vertical APE for intact buried deposits revealed that there is moderate sensitivity for the Project to impact buried historic properties within the APE, which supports the Traditional Choinumni Tribe's request for archaeological monitoring during construction.

Æ's survey of the APE for historical built environment resources revealed that two separate canals intersect the APE—the Garfield Ditch at Greenwood Avenue and the Lone Tree Channel at East Central Avenue. As designed, there is no potential for the Project to affect these historical waterways. Consequently, Æ recorded each resource on the appropriate California DPR cultural resource record forms but did not formally evaluate the resources for significance and eligibility for listing in the National Register of Historic Places or California Register of Historical Resources. Thus, Æ's study concludes that no historic properties will be affected by the proposed undertaking.

Consistent with state and federal statutes and regulations, Æ advises that in the event archaeological remains are encountered during Project development or ground-moving activities within any portion of the APE, all work in the vicinity of the find should be halted until a qualified archaeologist can identify the discovery and assess its significance. In addition, if

human remains are uncovered during construction, the Fresno County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 requires that the county coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent, who will be afforded the opportunity to recommend means for treatment of the human remains following protocols in California Public Resources Code 5097.98.

6
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APPENDIX A

Personnel Qualifications

MARY CLARK BALOIAN

President/Principal Archaeologist

Areas of Expertise

- Cultural resource management
- Prehistoric archaeology
- Project management

Years of Experience

- 30

Education

Ph.D., Anthropology, Southern Methodist University, 2003

M.A., Anthropology, Southern Methodist University, 1995

B.A., Anthropology, University of California, Davis, 1989

Registrations/Certifications

- Registered Professional Archaeologist 15189

Permits/Licensure

- Principal Investigator, California BLM Statewide Cultural Resources Use Permit CA-18-22

Professional Affiliations

- Society for American Archaeology
- Society for California Archaeology
- American Cultural Resource Association
- Association of Environmental Professionals

Professional Experience

2000–	President (2015–), Regional Manager (2012–2014), Assistant Division Manager (2010–2011), Senior Archaeologist (2000–), Applied EarthWorks, Inc., Fresno, California
1998–2001	Adjunct Faculty Member, Fresno City College, Fresno, California
1995–1996	Staff Archaeologist, Applied EarthWorks, Inc., Fresno, California
1994–1995	Staff Archaeologist, INFOTEC Research, Inc., Fresno, California
1992–1994	Teaching Assistant, Southern Methodist University, Dallas, Texas
1989–1991	Archaeological Project Leader, California Department of Transportation, Sacramento

Technical Qualifications

Dr. Clark Baloian has more than 30 years experience in archaeology, history, preservation, and other aspects of cultural resource management. Her areas of expertise include the prehistory of the San Joaquin Valley, Sierra Nevada, and central California coast. Dr. Baloian is proficient in preparing research designs and management plans, designing and implementing field studies, and conducting data and laboratory analyses. She has prepared National Register nominations and other California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA) compliance documents in addition to authoring and editing large comprehensive technical reports. Her analytic skills include lithic and ceramic analyses as well as settlement pattern studies and spatial analysis, which were the foci of her doctoral research. As a Principal Archaeologist for Applied EarthWorks, Dr. Baloian directs professional staff and subcontractors and provides quality assurance for all project work. She administers large, complex, multiyear, multiphase contracts as well as manages smaller cultural resource investigations. In addition to her duties as Principal Archaeologist, Dr. Baloian currently serves as President of Applied EarthWorks, Inc., overseeing the general management, technical staff, and operations of the business.

CARLOS VAN ONNA

Senior Architectural Historian

Areas of Expertise

- Cultural Resource Management
- Architectural History
- Historic Preservation

Years of Experience

- 8

Education

Ph.D. candidate, Architectural History, Utrecht University, 2013–present

M.A., Architectural History and Historic Preservation, Utrecht University, 2010–2011

B.A., Art History, Utrecht University, 2007–2010

Professional Experience

2019–	Senior Architectural Historian, Applied EarthWorks, Inc., Fresno, California
2017–2019	Editor/Translator, SDI Media, Los Angeles, California
2016–2017	Subcontractor, GPA Consulting, Los Angeles, California
2015–2016	Project Manager, City of Amsterdam, The Netherlands
2014–2015	Visiting Scholar, Columbia University, New York
2011–2014	Advisor on Cultural History and Urban Development, City of Amsterdam, The Netherlands
2010–2011	Intern, Amsterdam Centre for Architecture, The Netherlands

Technical Qualifications

Mr. van Onna has been involved in cultural resources management since 2011. His areas of expertise include built environment investigations, preparation of historic resource evaluation reports, and other required documentation for cultural resource management projects. As a Senior Architectural Historian for Applied EarthWorks, Mr. van Onna meets the Secretary of the Interior's professional qualification standards in architectural history. He has prepared technical reports for historical built environment resources to satisfy compliance requirements under the National Historic Preservation Act (NHPA) Section 106 and the California Environmental Quality Act (CEQA), including significance evaluations and eligibility recommendations for inclusion in the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR). Mr. van Onna has previously worked for the City of Amsterdam, The Netherlands, coordinating its Municipal Landmarks Project and completing numerous built environment surveys, studies, and historical significance assessments for environmental impact reports, zoning plans, and other policy documents. At Applied EarthWorks, he provides guidance and assistance to project managers and staff alongside his core tasks as an architectural historian. Additional skills include archival research, architectural photography, editing, and quality assurance. Through his pursuit of a doctoral degree at Utrecht University, he explores the role of historic preservation in urban public spaces in the United States.

APPENDIX B

Records Search Results

*Archaeological site location information is exempt from the Freedom of Information Act (FOIA) and California Public Records Act (CPRA).

California Historical Resources Information System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

5/11/2020

Mary Baloian
Applied EarthWorks, Inc.
1391 W. Shaw Ave., Suite C
Fresno, CA 93711

Re: Tombstone Territory Water Extension Project
Records Search File No.: 20-179

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on the Sanger USGS 7.5' quads. The following reflects the results of the records search for the project area and the 0.5 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☐ custom GIS maps ☒ shapefiles

Resources within project area:	FRE-PRO-005
Resources within 0.5 mile radius:	P-10-003930, 005812
Reports within project area:	FR-00135, 00357, 00641, 01156, 01162
Reports within 0.5 mile radius:	FR-00002, 00004, 00009, 00010, 00620, 01815

Resource Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed

Resource Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed

Resource Digital Database Records: ☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed

Report Digital Database Records: ☒ enclosed ☐ not requested ☐ nothing listed

Resource Record Copies: ☒ enclosed ☐ not requested ☐ nothing listed

Report Copies: ☐ enclosed ☒ not requested ☐ nothing listed

OHP Built Environment Resources Directory: ☒ enclosed ☐ not requested ☐ nothing listed

Archaeological Determinations of Eligibility: ☒ enclosed ☐ not requested ☐ nothing listed

CA Inventory of Historic Resources (1976): ☐ enclosed ☐ not requested ☒ nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see

http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see
http://historicalmaps.arcgis.com/usgs/

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC; please see
http://www.glorecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1 and/or
http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items

Shipwreck Inventory: Not available at SSJVIC; please see
http://www.slc.ca.gov/Info/Shipwrecks.html

Soil Survey Maps: Not available at SSJVIC; please see
http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Celeste M. Thomson Digitally signed by Celeste M. Thomson
Date: 2020.05.11 10:19:11 -07'00'

Celeste M. Thomson
Coordinator

Resource List

SSJVIC Record Search 20-179

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-10-003930	CA-FRE-003109H	Resource Name - Southern Pacific Railroad	Structure	Historic	AH07; AH11	1998 (W.L. Norton, Jones & Stokes); 1999 (S. Hooper, S. Flint, Applied EarthWorks, Inc.); 2002 (Peggy B. Murphy, Three Girls and a Shovel); 2004 (Bryan Larson, Cindy Toffelmier, JRP Historical Consulting); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting); 2010 (Michael Hibma, LSA Associates); 2013 (Randy Baloian, Applied Earthworks, Inc.); 2015 (Randy Baloian, Applied EarthWorks, Inc.); 2015 (Randy Baloian, Applied Earthworks, Inc.); 2016 (J. Tibbet, Applied EarthWorks, Inc.); 2018 (Annie McCausland, Applied EarthWorks, Inc.)	FR-00238, FR-01770, FR-01771, FR-01772, FR-02642, FR-02726, FR-02769, FR-02847, FR-02942
P-10-005812	CA-FRE-003527H	Resource Name - JFR-059; Resource Name - Centerville-Kingsburg Canal System; Resource Name - Mill Ditch; Resource Name - P-10-005812 UPDATE	Structure	Historic	HP20	1991 (JRP Consulting, JRP Consulting); 1995 (Carrie D. Willis, Allen Estes, William Self Associates); 2001 (Tracy Bakic, PAR Environmental Services); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting, LLC.); 2011 (Ric Windmiller, Individual Consultant); 2018 (R. Azpitarte, ASM Affiliates, Inc.)	FR-02915

FRE-PRO-005

LONE TREE CHANNEL
(Ditch/Canal Inventory Forms L-1 and L-2)

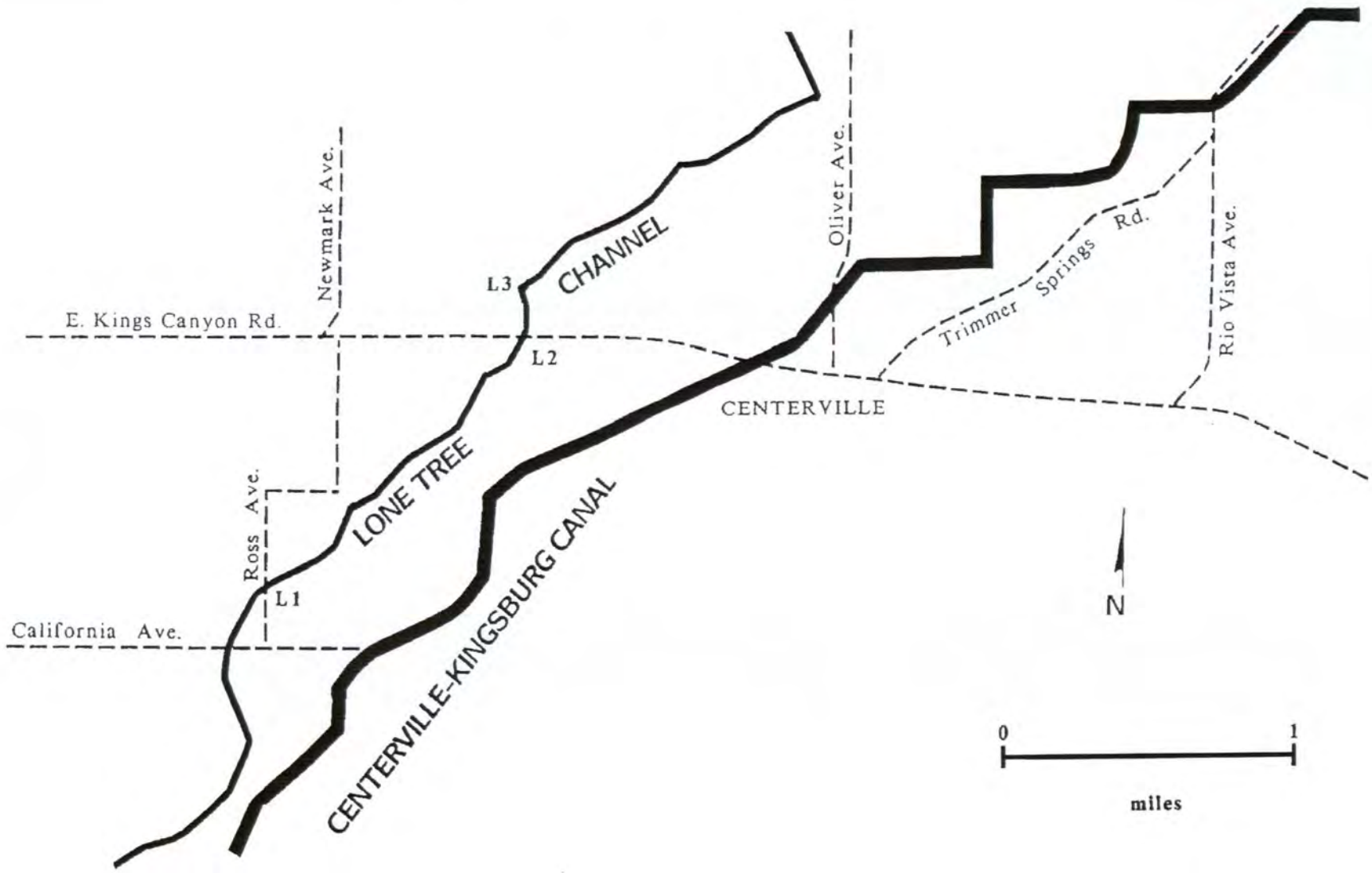
The Lone Tree Channel is, as its name implies, a natural channel utilized for conveyance of irrigation water. Its use dates to the early 1870s, when Moses Church was building the Fresno Canal. In an effort to build a better connector between the Kings River and Fancher Creek, Church bargained with landowners in what is now the Sanger area to dig a connector, called the "Long Cut." In return, Church promised to deliver water down the Lone Tree Channel to irrigate their land. The Lone Tree Channel still carries water. Although it is a branch of the Fresno Canal, the channel is maintained by the Consolidated Irrigation District.

Although a natural drainage when first utilized, the Lone Tree Channel no longer consistently bears the appearance of a natural channel. At points, it meanders like a natural channel; at other points it bears the distinct stamp of modern improvements. It was recorded at three locations over a distance of about one mile and observed at several points along the same distance. In general, it can be observed that it is a low volume canal and that it possesses little continuity in geometrics or material. Rather, it is narrow channel that approximates a natural slough over much of its length within and near the APE. The table below summarizes the recordation data:

POINT	TOP WIDTH	BOTTOM WIDTH	DEPTH	MATERIAL	CONFIGURATION
L-1	25'	18'	4'	Dirt	U
L-2	26'	13'	7'	Rip-Rap	Canted
L-3	26'	13'	7	Dirt	Canted

At L-1, the Lone Tree Channel is a broad, scraped channel, showing signs of indifferent maintenance. Point L-2 represents the crossing with Highway 180. The channel passes under the highway in a concrete culvert, dated 1936. In the immediate vicinity of the highway, the channel is lined with a rip-rap of broken concrete. At Point L-3, the Lone Tree Channel most closely approximates a natural slough, meandering through a field with tangles of vines and brush along its bank.

PIEDRA
SANGER



MAP 5: Lone Tree Channel Recordation Points
HRER 06-Fre-180 64.6/84.0

FRE-180-005

FRE-PRO-005

DITCH/CANAL INVENTORY FORM, HIGHWAY 180 "RURAL" PROJECT LOCATION NO. L1
Developed by JRP Historical Consulting Services

1. **Name of ditch/canal:** Lone Tree Channel

2. **Location for recordation:**
At the Ross Avenue crossing.

3. **Other locations for recording this ditch/canal:** L2, L3.

4. **Structures at or near this location:**
Bridge at Ross Avenue overcrossing; concrete box culvert with typical C.I.D. design.

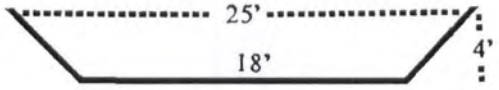
5. **Setting at this location:**
Vineyard on 3 sides, plum orchard on forth.

6. **Integrity considerations for this ditch/canal:**
Integrity to ca. 1920's.

7. **Attributes of conduit at this location:**
Width (in feet) Top: 25' Bottom: 18'
Depth (in feet) 4'
Material Earthen

8. **Date(s) of enclosed photograph(s):**
October 2, 1991

9. **Sketch, in cross-section:**



FRE-PRO-005

DITCH/CANAL INVENTORY FORM, HIGHWAY 180 "RURAL" PROJECT LOCATION NO. L2

Developed by JRP Historical Consulting Services

1. **Name of ditch/canal:** Lone Tree Channel

2. **Location for recordation:**
East of Zediker Avenue at the Highway 180 crossing.

3. **Other locations for recording this ditch/canal:** L1, L3.

4. **Structures at or near this location:**
Bridge at Highway 180 overcrossing.

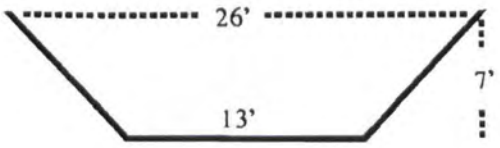
5. **Setting at this location:**
Vineyards surround this area.

6. **Integrity considerations for this ditch/canal:**
Channel lined with broken concrete rip-rap; Armco drainage pipe; bridge dated 1936.

7. **Attributes of conduit at this location:**
Width (in feet) Top: 26' Bottom: 13"
Depth (in feet) 7'
Material

8. **Date(s) of enclosed photograph(s):**
October 2, 1991

9. **Sketch, in cross-section:**



FRE-PRO-005

DITCH/CANAL INVENTORY FORM, HIGHWAY 180 "RURAL" PROJECT LOCATION NO. L3

Developed by JRP Historical Consulting Services

1. **Name of ditch/canal:** Lone Tree Channel

2. **Location for recordation:**
About 300' north of Highway 180.

3. **Other locations for recording this ditch/canal:** L1, L2.

4. **Structures at or near this location:**

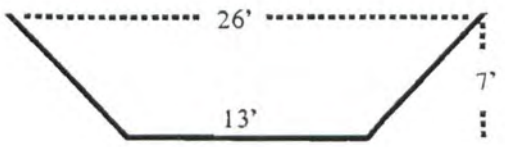
5. **Setting at this location:**
Pasture.

6. **Integrity considerations for this ditch/canal:**
None.

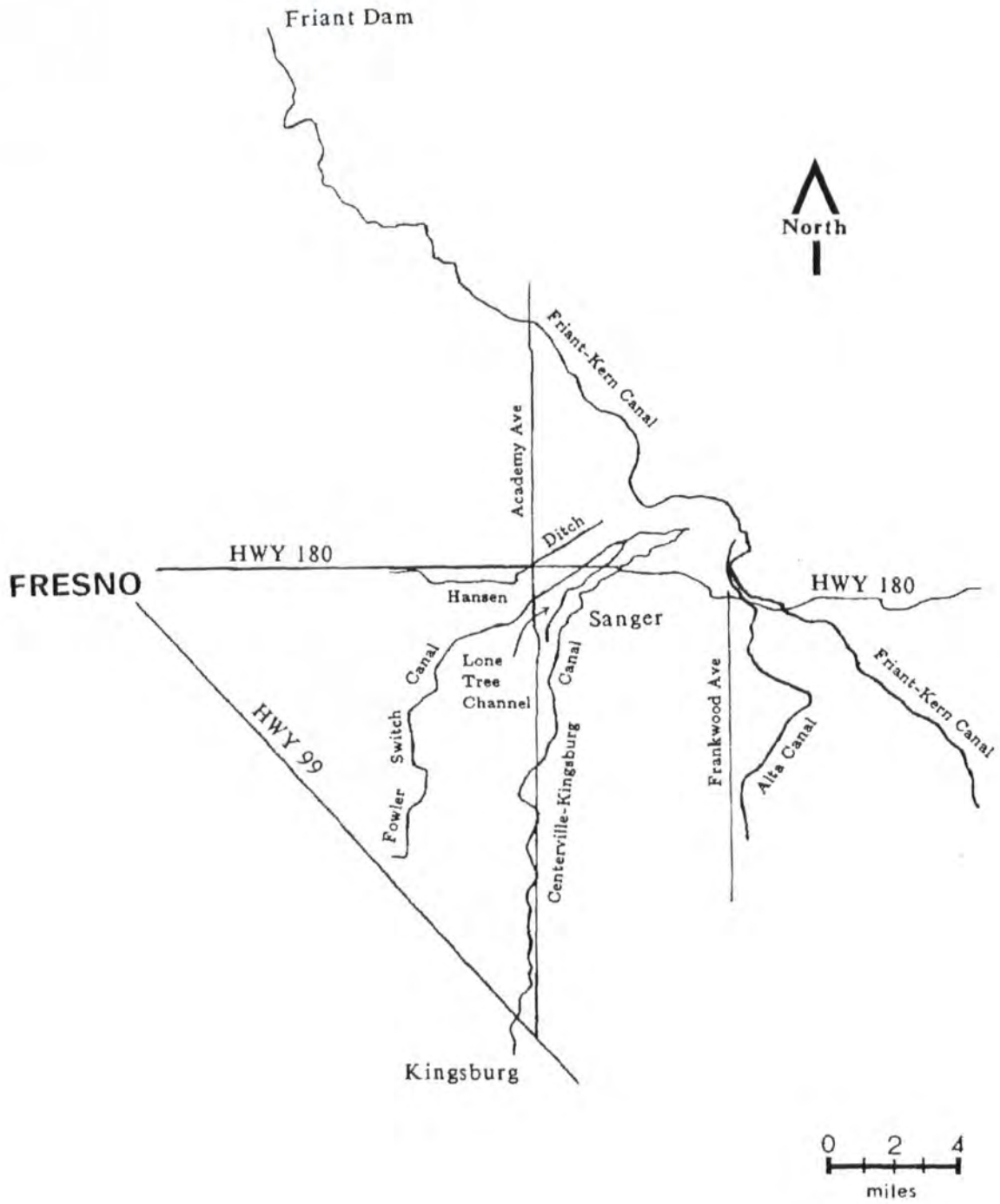
7. **Attributes of conduit at this location:**
Width (in feet) Top: 26' Bottom: 13'
Depth (in feet) 7'
Material Earthen

8. **Date(s) of enclosed photograph(s):**
October 2, 1991

9. **Sketch, in cross-section:**



FRE-PRO-005



MAP 1: General Alignment for Six Canals

HRER 06-Fre-180 64.6/84.0

Report List

SSJVIC Record Search 20-179

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
FR-00002	NADB-R - 1140988	1997	Kus, James S. and Mader, Claudia A.	Negative Archaeological Survey Report for a Proposed Storm Drain Basin ("Basin B") at 2316 Academy Avenue, Sanger, California	James S. Kus and Associates	
FR-00004	NADB-R - 1140987	1997	Kus, James S.	Negative Archaeological Survey Report for a Proposed Expansion of the Municipal Sewer Treatment Plant and Disposal Facility in the Riverbottom of the Kings River	James S. Kus and Associates	
FR-00009	NADB-R - 1140985	1997	Unknown	City of Sanger Cultural Resources Background Summary Report	James S. Kus and Associates	
FR-00010	NADB-R - 1141003	1994	Bissonnette, Linda Dick	City of Sanger Cultural Resources Background Summary Report	Cultural Resources Consulting	
FR-00135	NADB-R - 1140863	1995	Hatoff, Brian, Voss, Barb, Waechter, Sharon, Benté, Vance, and Wee, Stephen	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project.	Woodward-Clyde Consultants	
FR-00357		1981	Crist, Michael K. and Varner, Dudley M.	Archaeological Overview and Locational Analysis of the Fresno Area	California State University, Fresno	10-001014
FR-00620	Submitter - CRF-89-55	1989	Parr, Robert E.	An Archaeological Assessment of the Sanger Biomass-to-Energy Cogeneration Facility, City of Sanger, Fresno County, California	Cultural Resource Facility, California State University, Bakersfield	
FR-00641		1977	Peck, Billy J.	The Distribution of Aboriginal Occupational Sites in Fresno County, California	California State University, Fresno	
FR-01156		1968	Unknown	A Proposal for an Archaeological Element in the Fresno County, General Plan	Committee on Sierra Foothills Public Archaeology	
FR-01162		1990	Stuart, David R.	A Summary of the Present Archaeological Resources of Fresno County	California Department of Parks and Recreation	
FR-01815		2001	Billat, Lorna Beth	Nextel Communications Wireless Telecommunications Service Facility - Fresno, Merced, San Joaquin, and Stanislaus Counties	EarthTouch, LLC.	

SITE-NUMBER.	PRIMARY-NUM	NRS	EVL-DATE	PROGRAM REF.....	EVAL	OTHER NAMES AND NUMBERS.....
FRE-001646	10-001646	6Y	07/30/96	USFS960617X	SGPR	FS# 05-15-54-0429
FRE-001671	10-001671	2S	04/17/85	65007370	KPNP	DRY CREEK ONE
FRE-001680	10-001680	6Y	02/20/86	FERC820607a		PF-TS-4
FRE-001684	10-001684	6Y	10/05/94	FHWA921218B	GRPR	12-22-82-1
FRE-001691	10-001691	2S2	07/01/87	ADOE-10-87-003-00	NDPR	RBF-TS-11
		2	07/01/87	COE841203C		
FRE-001693	10-001693	2S2	07/01/87	ADOE-10-87-004-00	NDPR	RBF-TS-1
		2	07/01/87	COE841203C		
FRE-001734	10-001734	2S2	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0479
FRE-001776H	10-001776	7	06/11/90	USFS900611C	RJPR	FS# 05-15-53-0832
FRE-001807H	10-001807	6Y	06/09/87	USFS870408B		FS# 05-13-51-0019, THE BOO
FRE-001811H	10-001811	6Y	06/09/87	USFS870408A		FS# 05-13-51-0127, STUMP MEADOW LOGGING SITE
FRE-001829H	10-001829	6Y	10/05/94	ADOE-10-94-001-00		RBF-TS IV
		6Y	10/05/94	FHWA921218B	GRPR	
FRE-001835	10-001835	7	06/11/90	USFS900611C	RJPR	FS# 05-15-53-0354
FRE-001842	10-001842	7	06/11/90	USFS900611C	RJPR	FS# 05-15-53-0355
FRE-001849	10-001849	6Y	02/20/86	FERC820607a		FS# 05-15-53-0412, YMCA MEADOW
FRE-001894H	10-001894	6Y2	08/08/11	FERC110708A	ABPR	FS# 05-15-54-0687, KELLER RANCH
		6Y	11/12/97	ADOE-10-97-002-00	CCPR	HKB-1
		6Y	11/12/97	USFS970923C	CCPR	
FRE-001895	10-001895	6Y	02/01/86	FERC820607a		HKB-4
FRE-001963	10-001963	6Y	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0650
FRE-001964/H	10-001964	2S2	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0651, PREHISTORIC IS ELIGIBLE ONLY
FRE-001968	10-001968	6Y	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0655
FRE-001969	10-001969	6Y	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0556
FRE-001970	10-001970	6Y	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0657
FRE-001972	10-001972	6Y	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0659
FRE-001975	10-001975	2S2	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0662
FRE-001976	10-001976	2S2	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0663
FRE-001977	10-001977	6Y	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0664
FRE-001978	10-001978	6Y	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0665
FRE-001979	10-001979	6Y	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0666
FRE-001980	10-001980	2S2	07/02/07	USFS050422A	WEPR	FS# 05-15-54-0667
FRE-001999	10-001999	7	06/11/90	USFS900611C	RJPR	FS# 05-15-53-0006
FRE-002015H	10-002015	6Y	12/28/06	USFS051118G	CFPR	FS# 05-15-53-0422
FRE-002016H	10-002016	6Y	12/28/06	USFS051118G	CFPR	FS# 05-15-53-0423
FRE-002037	10-002037	2	12/14/89	USFS891127J		FS# 05-15-53-0516
FRE-002038H	10-002038	6Y2	06/08/12	USFS120411C	TPPR	FS# 05-15-53-0517, DOWVILLE DAY USE PICNIC AREA
FRE-002039	10-002039	6Y	12/14/89	USFS891127J		FS# 05-15-53-0520
FRE-002183	10-002183	6Y	10/01/96	ADOE-10-96-015-00	GRPR	6-1-1
		6Y	10/01/96	FERC941123A	GRPR	
FRE-002244	10-002244	1S	03/12/03	NPS-03000117-0000	KPNP	BIRDWELL ROCK PETROGYPH SITE, COALARG NO. 1
		3S	11/21/02	10-0015	MLRG	
FRE-002344H	10-002344	6Y	12/21/89	USFS891120A		FS# 05-13-51-0018, HUME LAKE COMM.SAWMILL DUMP
FRE-002345H	10-002345	6Y	12/21/89	USFS891120A		FS# 05-13-51-0215, BABYFACE HUME LK
FRE-002346H	10-002346	6Y	12/21/89	USFS891120A		FS# 05-13-52-0216, DUTCH BOY HUME LK
FRE-002413	10-002413	7	06/11/90	USFS900611C	RJPR	AUBERRY
FRE-002414	10-002414	7	06/11/90	USFS900611C	RJPR	
FRE-002437	10-002437	7	06/11/90	USFS900611C	RJPR	FS# 05-15-53-0769
FRE-002475	10-002475	7J	06/11/90	USFS900611C	RJPR	FS# 05-15-53-0961
FRE-002476	10-002476	7J	06/11/90	USFS900611C	RJPR	FS# 05-15-53-0954
FRE-002484	10-002484	7J	06/11/90	USFS900611C	RJPR	FS# 05-15-53-0935
FRE-002577	10-002577	6Y	10/05/94	FHWA921218B	GRPR	
FRE-002586H	10-002586	6Y	10/05/94	FHWA921218B	GRPR	
FRE-002651		6Y	11/11/09	COE090506A	WEPR	
FRE-002652		6Y	11/11/09	COE090506A	WEPR	
FRE-002653	~~FRE~~-002653	2S2	05/12/09	COE090506A	WEPR	
FRE-002657	10-002657	6Y	10/05/94	FHWA921218B	GRPR	
FRE-002905H	10-002905	6Y	10/05/94	FHWA921218B	GRPR	ACADEMY POST OFFICE SR168-1
FRE-002928H		6Y2	04/11/11	USFS110307A	J2PR	FS# 05-15-53-1040, CAMP 71
FRE-002930H		6Y2	04/11/11	USFS110307A	J2PR	FS# 05-15-53-1048
FRE-003018H	10-003029	6Y	04/03/97	FHWA960805A	GRPR	
FRE-003026H	10-003037	6Y	06/16/98	ADOE-10-98-001-00	JWPR	OILFIELD DUMP
		6Y	06/16/98	FHWA980522B	JWPR	10-3037H
FRE-003088		6Y	06/12/03	ADOE-10-03-001-000	CCPR	
		6Y	06/12/03	FHWA030428A	CCPR	
FRE-003109H		7J	11/11/09	COE090506A	WEPR	SEGMENT OF SAN JOAQUIN VALLEY RAILROAD/POLLASKY GRADE
		6Y	05/12/09	COE090506A	WEPR	
FRE-003136		6Y	09/04/02	ADOE-10-02-001-000	MMPR	SAN JOAQUIN VALLEY RAILROAD TURNTABLE SITE
		6Y	09/04/02	FHWA011206A	MMPR	
FRE-003137		6Y	09/04/02	ADOE-10-02-002-000	MMPR	COMMERCIAL BLDG SITE
		6Y	09/04/02	FHWA011206A	MMPR	

Historical Topographic Maps and Aerial Images Consulted

Date	Name	Author	Reference	Notes
1937	Fresno County Aerial Survey 1937 13-ABI 66-33	Agricultural Adjustment Administration	1937 Fresno County, California, Aerial Survey 1937 13-ABI 66-33, https://digitized.library.fresnostate.edu/digital/collection/aerial/id/835, accessed through Map and Aerial Locator Tool (MALT), Henry Madden Library, California State University, Fresno, May 14, 2020.	Agricultural fields are shown. The Garfield Ditch is shown.
1942	ABI-10B-17	Agricultural Adjustment Administration	1942 Flight ABI-10B-17, http://malt.lib.csufresno.edu/MALT/, accessed May 28, 2020.	Agricultural fields are shown. The Garfield Ditch is shown.
1950	ABI-5G-81	Agricultural Adjustment Administration	1950 Flight ABI-5G-81, Aero Exploration Co. Tulsa, Ok. http://malt.lib.csufresno.edu/MALT/, accessed May 28, 2020.	Agricultural fields are shown. The Garfield Ditch is shown. Two building are shown within the Project area.
1957	ABI-53T-161	Agricultural Adjustment Administration	1957 Flight ABI-53T-161, Cartwright Aerial Surveys. http://malt.lib.csufresno.edu/MALT/, accessed May 28, 2020.	Agricultural fields are shown. The Garfield Ditch is shown. Multiple building or structures are shown.
1957	ABI-54T-64	Agricultural Adjustment Administration	1957 Flight ABI-54T-64, Cartwright Aerial Surveys. http://malt.lib.csufresno.edu/MALT/, accessed May 28, 2020.	Agricultural fields are shown. The Garfield Ditch is shown. Multiple building or structures are shown.
1961	ABI-4BB-280	United States Commodity Stabilization Service	1961 Flight ABI-4BB-280, Aeroflex Corporation, Robinson Aerial Surveys Division. http://malt.lib.csufresno.edu/MALT/, accessed June 2, 2020.	Agricultural fields are shown. The Garfield Ditch is shown. Multiple building or structures are shown.
1965	FRE-1-40	Soil Conservation Service	1965 Flight ABI-54T-64, Cartwright Aerial Surveys. http://malt.lib.csufresno.edu/MALT/, accessed June 2, 2020.	Agricultural fields are shown. The Garfield Ditch is shown. Multiple building or structures are shown.
1967	ABI-6HH-17	Agricultural Stabilization and Conservation Service.	1965 Flight ABI-54T-64, WAC Corp.. http://malt.lib.csufresno.edu/MALT/, accessed June 2, 2020.	Agricultural fields are shown. The Garfield Ditch is shown. Multiple building or structures are shown.
1970	2866-2-138	Commodity Stabilization Service	1970 Flight ABI-54T-64, Cartwright Aerial Surveys. http://malt.lib.csufresno.edu/MALT/, accessed June 2, 2020.	Agricultural fields are shown. The Garfield Ditch is shown. Multiple building or structures are shown.
1854	Township 14 South, Range 22 East	General Land Office	1854 General Land Office Survey Plat, Township 14 South, Range 22 East, Mount Diablo Meridian, DM ID 380329. U.S. Department of the Interior, Bureau of Land Management General Land Office Records, https://glorecords.blm.gov, accessed May 28, 2020.	No anthropogenic evidence is shown in the Project area. The Four Corner's to Stockton road is shown in the northeast corner of section 27.
1867	Township 14 South, Range 22 East	General Land Office	1867 General Land Office Survey Plat, Township 14 South, Range 22 East, Mount Diablo Meridian, DM ID 380331. U.S. Department of the Interior, Bureau of Land Management General Land Office Records, https://glorecords.blm.gov, accessed May 28, 2020.	Section 27 is not shown on this plat map.
1890	Township 14 South, Range 22 East	General Land Office	1890 General Land Office Survey Plat, Township 14 South, Range 22 East, Mount Diablo Meridian, DM ID 380335. U.S. Department of the Interior, Bureau of Land Management General Land Office Records, https://glorecords.blm.gov, accessed May 28, 2020.	No anthropogenic evidence is shown in the Project area. The Four Corner's to Stockton road is not shown in the northeast corner of section 27.

Historical Topographic Maps and Aerial Images Consulted

Date	Name	Author	Reference	Notes
1891	Township 14 South, Range 22 East	General Land Office	1891 General Land Office Survey Plat, Township 14 South, Range 22 East, Mount Diablo Meridian, DM ID 380337. U.S. Department of the Interior, Bureau of Land Management General Land Office Records, https://glorecords.blm.gov, accessed May 28, 2020.	No anthropogenic evidence is shown in the Project area. The Four Corner's to Stockton road is not shown in the northeast corner of section 27.
1923	Sanger, CA 1:31,680	U.S. Geological Survey	1923 Sanger, CA 1:31,680 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed May 29, 2020	Garfield Ditch is shown running southwest to northeast through the Project area.
1947	Sanger, CA 1:24,000	U.S. Geological Survey	1947 Sanger, CA 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed May 29, 2020	Garfield Ditch is shown running southwest to northeast through the Project area. A building or structure is shown on the west side of the Project area.
1946 (1954 Ed)	Selma, CA 1:62,500	U.S. Geological Survey	1946 (1954 Ed) Selma, CA 1:62,500 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed May 29, 2020	Garfield Ditch is shown running southwest to northeast through the Project area. A building or structure is shown on the west side of the Project area.
1965 (1967 Ed)	Sanger, CA 1:24,000	U.S. Geological Survey	1965 (1967 Ed) Sanger, CA 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed May 29, 2020	Multiple buildings and roads are shown in the Project area. Garfield Ditch is still shown in the original alignment as is shown in the 1923 USGS Map.
1966	Fresno, CA 1:250,000	U.S. Geological Survey	1966 Fresno, CA 1:250,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed May 29, 2020	Due to map scale there are details of the project area shown.
1891	*Atlas of Fresno County, California.*	Thompson, Thomas H.	1891 Atlas of Fresno County, California. Page 71, http://www.oac.cdlib.org/, accessed June 3, 2020	Landowners are shown as S.G. Stegall, V. Warner, D.C. Bane, and J.b. Campbell.
1907	*Atlas of Fresno County, California.*	Thompson, Thomas H.	1907 Atlas of Fresno County, California. Page 34, http://www.oac.cdlib.org/, accessed June 3, 2020	Landowners are shown as J. Riner, Ferry, M.L. Dean, P.H. Burnet, A.B. Glougie, A.V. Glougie, A.B. Burnett, G.E. Burnett, V. Warner, G. Jensen.
1909	*Atlas of Fresno County, California.*	Thompson, Thomas H.	1909 Atlas of Fresno County, California. Page 46, http://www.oac.cdlib.org/, accessed June 3, 2020	Landowners are shown as J.W Rine, Peter Elemat Ferry, M.L. Dean, H. Tusooscan, J.J. Edgar, P.H. Burnett, W.E. Bailey, G.E. Burnett, H.L Williams Jr, G. Jensen.
1911	*Atlas of Fresno County, California.*	Thompson, Thomas H.	1911 Atlas of Fresno County, California. Page 46, http://www.oac.cdlib.org/, accessed June 3, 2020	Landowners are shown as Perter Faller, Peter Elemat Ferry, M.L. Dean, H. Tusooscan, J.J. Edgar, P.H. Burnett, ML Dean and B.E. Price, G.E. Burnett, H.L Williams Jr, G.R. Haurk.
1913	*Atlas of Fresno County, California.*	Progressive Map Service	1913 Atlas of Fresno County, California. Page 46, http://www.oac.cdlib.org/, accessed June 3, 2020	Landowners are shown as Perter Faller, Peter Elemat Ferry, M.L. Dean, H. Tusooscan, J.J. Edgar, P.H. Burnett, ML Dean and B.E. Price, G.E. Burnett, H.L Williams Jr, G.R. Haurk.
1920	*Atlas of Fresno County, California.*	Progressive Map Service	1920 Atlas of Fresno County, California. Page 46, http://www.oac.cdlib.org/, accessed June 3, 2020	Landowners are shown as Perter Faller, P & E.T.Ferrer A.M. Dean, H. Anna McLaughlin, J.J. Edgar, P.H. Burnett, Hitusoogian, O.E. Price, C.E. Burnett, Anna E. Williams, C.R. Hawk.

APPENDIX C

Native American Outreach

*Archaeological site location information is exempt from the Freedom of Information Act (FOIA) and California Public Records Act (CPRA).

Native American Outreach Log

Tombstone Territory Water Extension Project

Organization	Name	Position	Letter	E-mail	Phone	Summary of Contact
Native American Heritage Commission	Nancy Gonzalez-Lopez	Staff Services Analyst		05/29/20		NAHC - SLF File is Positive (6/10/2020)
Santa Rosa Rancheria Tachi Yokut Tribe	Leo Sisco	Chairperson	5/22/2020		6/19/2020	RO- The tribe has no comment.
Wuksache Indian Tribe/Eshom Valley Band	Kenneth Woodrow	Chairperson	5/22/2020		6/19/2020	RO- Left a voice message. No return call.
Kings River Choinumni Farm Tribe	Stan Alec	Chairperson	5/22/2020		6/19/2020	RO- Left a voice message. No return call.
Table Mountain Rancheria	Leanne Walker-Grant	Chairperson	5/22/2020		6/19/2020	RO- Left a voice message. No return call.
Table Mountain Rancheria	Bob Pennell	Cultural Resouces Director	5/22/2020		6/19/2020	RO- Left a voice message. No return call.
Big Sandy Rancheria	Elizabeth D. Kipp	Chairperson	5/22/2020		6/19/2020	RO- Left a voice message. No return call.
Cold Springs Rancheria of Mono Indians	Carol Bill	Chairperson	5/22/2020		6/19/2020	RO- The receptionist ask if I could call back on Monday
Dumna Wo-Wah Tribal Government	Robert Ledger Sr.	Tribal Chairperson	5/22/2020	6/19/2020	6/19/2020	RO- Tribe requested a copy of the letter to be emailed for further review.
North Fork Mono Tribe	Ron Goode	Chairperson	5/22/2020		6/19/2020	RO- The tribe has no concerns with this project.
Traditional Choinumni Tribe	Rick Osborne	Cultural Resources	5/22/2020	6/19/2020	6/19/2020	RO- The tribe is requesting an archaeological monitor be present during all trenching and deep earthmoving activity. The area is sensitive below ground for artifacts. Sent an email copy of our letter and map mailed on 5-22-2020.
Traditional Choinumni Tribe	David Alvarez	Chairperson	5/22/2020		6/19/2020	RO- Left a voice message. No return call.
Dunlap Band of Mono Indians	Benjamin Charley, Jr.	Tribal Chairperson	N/A			Per the request of the Dunlap Mono Tribe, no letter was sent requesting information because the project falls outside their traditional territory of interest.
Dunlap Band of Mono Indians	Dirk Charley	Tribal Secretary	N/A			Per the request of the Dunlap Mono Tribe, no letter was sent requesting information because the project falls outside their traditional territory of interest.

EXAMPLE

Applied EARTHWORKS Inc.

1391 W. Shaw Ave., Suite C
Fresno, CA 93711-3600
O: (559) 229-1856 | F: (559) 229-2019

May 22, 2020

Mr. Rick Osborne
Cultural Resources
Traditional Choinumni Tribe
2415 E. Houston Ave.
Fresno, CA 93720

RE: Tombstone Territory Water Extension Project, Fresno County, California.

Dear Mr. Rick Osborne,

Applied EarthWorks, Inc. (Æ) is providing cultural resource services to Crawford & Bowen Planning, Inc. in support of a water extension project (Project) in the unincorporated community of Tombstone, Fresno County, California. The Project will include several linear feet of 12-inch pipeline between proposed Well #18 and Tombstone, and several linear feet of 8-inch pipeline from the City of Sanger transmission main through Tombstone and eastward along Central Avenue to Academy. The Project is subject to the requirements of the California Environmental Quality Act and Section 106 of the National Historic Preservation Act of 1966.

The project area lies within Townships 14 South, Range 22 East, Sections 26, 27, 28, 33, 34, and 35 of the Sanger, CA USGS quadrangle (see attached map). A search of the Native American Heritage Commission's (NAHC) Sacred Lands File was completed on May 1, 2020. **The NAHC reported positive results in the Project area**. The NAHC provided your contact information as someone who may have specific information regarding known and recorded sites, sacred areas, or sensitive locations in the Project area.

A record search from the Southern San Joaquin Valley Information Center (SSJVIC) has been performed for the Project, and no previously recorded cultural resources have been recorded within the project area.

If you have information on sacred or special sites in the area, or if you wish to request formal consultation pursuant to Public Resources Code section 21080.3.1, please call or send a letter to my attention using the address in the header. Pursuant to state and federal laws protecting the confidentiality of archaeological sites and tribal cultural resources, all confidential information will be protected from release to the general public (Pub. Resources Code § 21082.3[c][1]; NHPA Section 304). I can be reached at (559) 229-1856 X 111 or by email at mbaloian@appliedearthworks.com.

Sincerely,

Mary Baloian

Mary Baloian, Ph.D., RPA 15189
Principal Archaeologist

encl.: Project Map

NATIVE AMERICAN HERITAGE COMMISSION

May 1, 2020

Mary Baloian
Applied EarthWorks Inc.

Via Email to: Mbaloian@appliedearthworks.com
Cc: davealvarez@sbcglobal.net

Re: Tombstone Territory Water Extension Project, Fresno County

Dear Ms. Baloian:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the Traditional Choinumni Tribe on the attached list for more information. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Cultural Resources Analyst

Attachment

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Native American Heritage Commission
Native American Contacts List
May 1, 2020

Big Sandy Rancheria of Western Mono Indians
Elizabeth D. Kipp, Chairperson
PO. Box 337
Auberry ,CA 93602
lkipp@bsrnation.com
(559) 374-0066
(559) 374-0055
Western Mono

Cold Springs Rancheria
Carol Bill, Chairperson
P.O. Box 209
Tollhouse ,CA 93667
coldsprgstribe@netptc.net
(559) 855-5043
(559) 855-4445 Fax
Mono

Dumna Wo-Wah Tribal Goverment
Robert Ledger Sr., Chairperson
2191 West Pico Ave.
Fresno ,CA 93705
ledgerrobert@ymail.com
(559) 540-6346
Dumna/Foothill Yokuts
Mono

Dunlap Band of Mono Indians
Benjamin Charley Jr., Tribal Chair
P.O. Box 14
Dunlap ,CA 93621
ben.charley@yahoo.com
(760) 258-5244
Mono

Dunlap Band of Mono Indians
Dirk Charley, Tribal Secretary
5509 E. McKenzie Avenue
Fresno ,CA 93727
dcharley2016@gmail.com
(559) 554-5433
Mono

Kings River Choinumni Farm Tribe
Stan Alec
3515 East Fedora Avenue
Fresno ,CA 93726
(559) 647-3227 Cell
Foothill Yokuts
Choinumni

North Fork Mono Tribe
Ron Goode, Chairperson
13396 Tollhouse Road
Clovis ,CA 93619
rwgoode911@hotmail.com
(559) 299-3729 Home
(559) 355-1774 - cell
Mono

Santa Rosa Rancheria Tachi Yokut Tribe
Leo Sisco, Chairperson
P.O. Box 8
Lemoore ,CA 93245
(559) 924-1278
(559) 924-3583 Fax
Tache
Tachi
Yokut

Table Mountain Rancheria
Leanne Walker-Grant, Chairperson
P.O. Box 410
Friant ,CA 93626
rpennell@tmr.org
(559) 822-2587
(559) 822-2693 Fax
Yokuts

Table Mountain Rancheria
Bob Pennell, Cultural Resources Director
P.O. Box 410
Friant ,CA 93626
rpennell@tmr.org
(559) 325-0351
(559) 325-0394 Fax
Yokuts

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans Tribes for the proposed:
Tombstone Territory Water Extension Project, Fresno County.

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Native American Heritage Commission
Native American Contacts List
May 1, 2020

Traditional Choinumni Tribe
David Alvarez, Chairperson
2415 E. Houston Avenue
Fresno ,CA 93720
davealvarez@sbcglobal.net
(559) 217-0396 Cell

Choinumni

Traditional Choinumni Tribe
Rick Osborne, Cultural Resources
2415 E. Houston Avenue
Fresno ,CA 93720
(559) 324-8764
lemek@att.net

Choinumni

Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas ,CA 93906
kwood8934@aol.com
(831) 443-9702

Foothill Yokuts
Mono
Wuksache

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans Tribes for the proposed:
Tombstone Territory Water Extension Project, Fresno County.

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EXAMPLE

Applied EARTHWORKS Inc.

1391 W. Shaw Ave., Suite C
Fresno, CA 93711-3600
O: (559) 229-1856 | F: (559) 229-2019

May 22, 2020

Mr. David Alvarez
Chairperson
Traditional Choinumni Tribe
2415 E. Houston Ave.
Fresno, CA 93720

RE: Tombstone Territory Water Extension Project, Fresno County, California.

Dear Chairperson David Alvarez,

Applied EarthWorks, Inc. (Æ) is providing cultural resource services to Crawford & Bowen Planning, Inc. in support of a water extension project (Project) in the unincorporated community of Tombstone, Fresno County, California. The Project will include several linear feet of 12-inch pipeline between proposed Well #18 and Tombstone, and several linear feet of 8-inch pipeline from the City of Sanger transmission main through Tombstone and eastward along Central Avenue to Academy. The Project is subject to the requirements of the California Environmental Quality Act and Section 106 of the National Historic Preservation Act of 1966.

The project area lies within Townships 14 South, Range 22 East, Sections 26, 27, 28, 33, 34, and 35 of the Sanger, CA USGS quadrangle (see attached map). A search of the Native American Heritage Commission's (NAHC) Sacred Lands File was completed on May 1, 2020. **The NAHC reported positive results in the Project area**. The NAHC provided your contact information as someone who may have specific information regarding known and recorded sites, sacred areas, or sensitive locations in the Project area.

A record search from the Southern San Joaquin Valley Information Center (SSJVIC) has been performed for the Project, and no previously recorded cultural resources have been recorded within the project area.

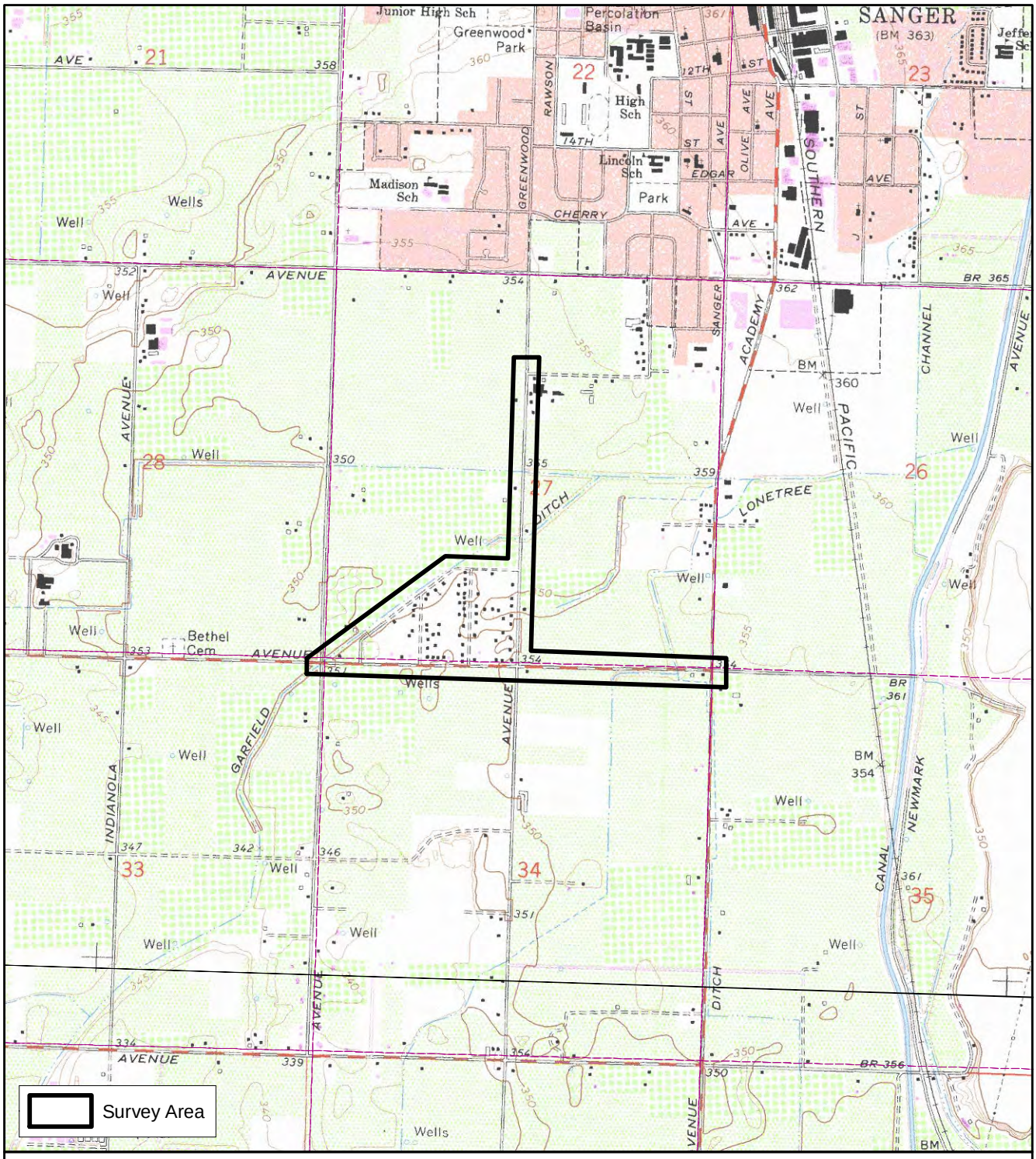
If you have information on sacred or special sites in the area, or if you wish to request formal consultation pursuant to Public Resources Code section 21080.3.1, please call or send a letter to my attention using the address in the header. Pursuant to state and federal laws protecting the confidentiality of archaeological sites and tribal cultural resources, all confidential information will be protected from release to the general public (Pub. Resources Code § 21082.3[c][1]; NHPA Section 304). I can be reached at (559) 229-1856 X 111 or by email at mbaloian@appliedearthworks.com.

Sincerely,

Mary Baloian

Mary Baloian, Ph.D., RPA 15189
Principal Archaeologist

encl.: Project Map



SCALE 1:24,000

0.5 0 0.5 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 Feet

0.5 0 0.5 1 Kilometers

Township 14S / Range 22E, Section 26, 27, 28, 33, 34, 35
Sanger (1978-PR1981), CA 7.5' USGS Quadrangle

NAHC Location Map for the *Tombstone Territory Water Extension Project - AE4176.*

APPENDIX D

Cultural Resource Records

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**
PRIMARY RECORD
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 Resource Name or # Garfield Ditch (AE-4176-001)

P1. Other Identifier:

*__P2. Location: a. County:__ Fresno ☐ **Not for Publication** ☒ **Unrestricted**

b. USGS 7.5′ Quad: Sanger, CA **Date:** 1978 (1981) T14S, R22E; Sec. 27, 33 M.D. **B.M.**
T, R; Sec. 4, 5, 7, 8

c. Address: N/A

d. UTM: NAD 1983, Zone 11S; **Head:** 271586 **mE /** 4062966 **mN**
Terminus: 265597 **mE /** 4059119 **mN**

e. Other Locational Data:

***P3a. Description:** Garfield Ditch, a natural channel modified for historical irrigation, is first visible on the Centerville and Kingsburgh Sheet of Hall's 1885 irrigation map. It appears to receive its water supply from the Lone Tree Channel just southeast of the intersection between South Academy and Muscat avenues. From there, the Garfield Ditch flows in a southwesterly direction for approximately 1.1 miles, terminating southwest of Del Rey.

***P3b. Resource Attributes:** HP20. Canal/Aqueduct

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

***P5a. Photograph or Drawing:**

P5b. Description of Photo: Garfield Ditch, culvert under South Greenwood Avenue, facing northeast.

***P6. Date Constructed/Age and Sources:**
☐ Prehistoric ☒ Historic ☐ Both

***P7. Owner and Address:**
Consolidated Irrigation District
2255 Chandler Street
Selma, CA 93662

***P8. Recorded By:**
Carlos van Onna
Applied EarthWorks, Inc.
1391 W. Shaw Ave., Suite C
Fresno, CA 93711

***P9. Date Recorded:** 5/29/2020

***P10. Survey Type:** ☒ Intensive
☐ Reconnaissance ☐ Other
Describe:

***P11. Report Citation:** van Onna, Carlos, Ward Stanley, and Jessica Jones
2020 *Historic Properties Inventory for the Tombstone Territory Water Extension Project, Fresno County, California*. Applied EarthWorks, Inc., Fresno, California. Prepared for Crawford & Bowen Planning, Inc., Visalia, California.

***Attachments:** ☐ NONE ☒ Location Map ☐ Sketch Map ☐ Continuation Sheet
☐ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record
☐ Photograph Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record
☐ Other (list):

LINEAR FEATURE RECORD

 Resource Name or #: Garfield Ditch (AE-4176-001)

L1. Historic and/or Common Name: Garfield Ditch

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:**

b. Location of point or segment: The recorded segment is at the ditch's intersection with South Greenwood Avenue, approximately 1,750 feet north of Central Avenue.
UTM: NAD 1983, Zone 11S; 270770 **mE /** 4062715 **mN**

L3. Description: The recorded 30-foot segment consists largely of a concrete culvert that carries the ditch underneath South Greenwood Avenue. A concrete retaining wall is present on either side of the road.

L4. Dimensions:

a. Top Width: 20 feet
b. Bottom Width: 8 feet
c. Height or Depth: 6 feet
d. Length of Segment: 30 feet

L4e. Sketch or Cross Section ☐ attached **Facing:** ☒ none

L5. Associated Resources:

L6. Setting: The recorded segment is surrounded by agricultural fields.

L7. Integrity Considerations: The recorded segment and culvert as well as the adjacent unpiped sections of the ditch appear to be unobstructed and well maintained. At the time of recordation, the channel was filled to half its capacity.

L8a. Photo, Map, or Drawing:

L8b. Description of Photo, Map, or Drawing: Garfield Ditch from South Greenwood Avenue, facing west.

L9. Remarks:

L10. Form Prepared By: Carlos van Onna
Applied EarthWorks, Inc.,
1391 W. Shaw Ave., Suite C,
Fresno, CA 93711

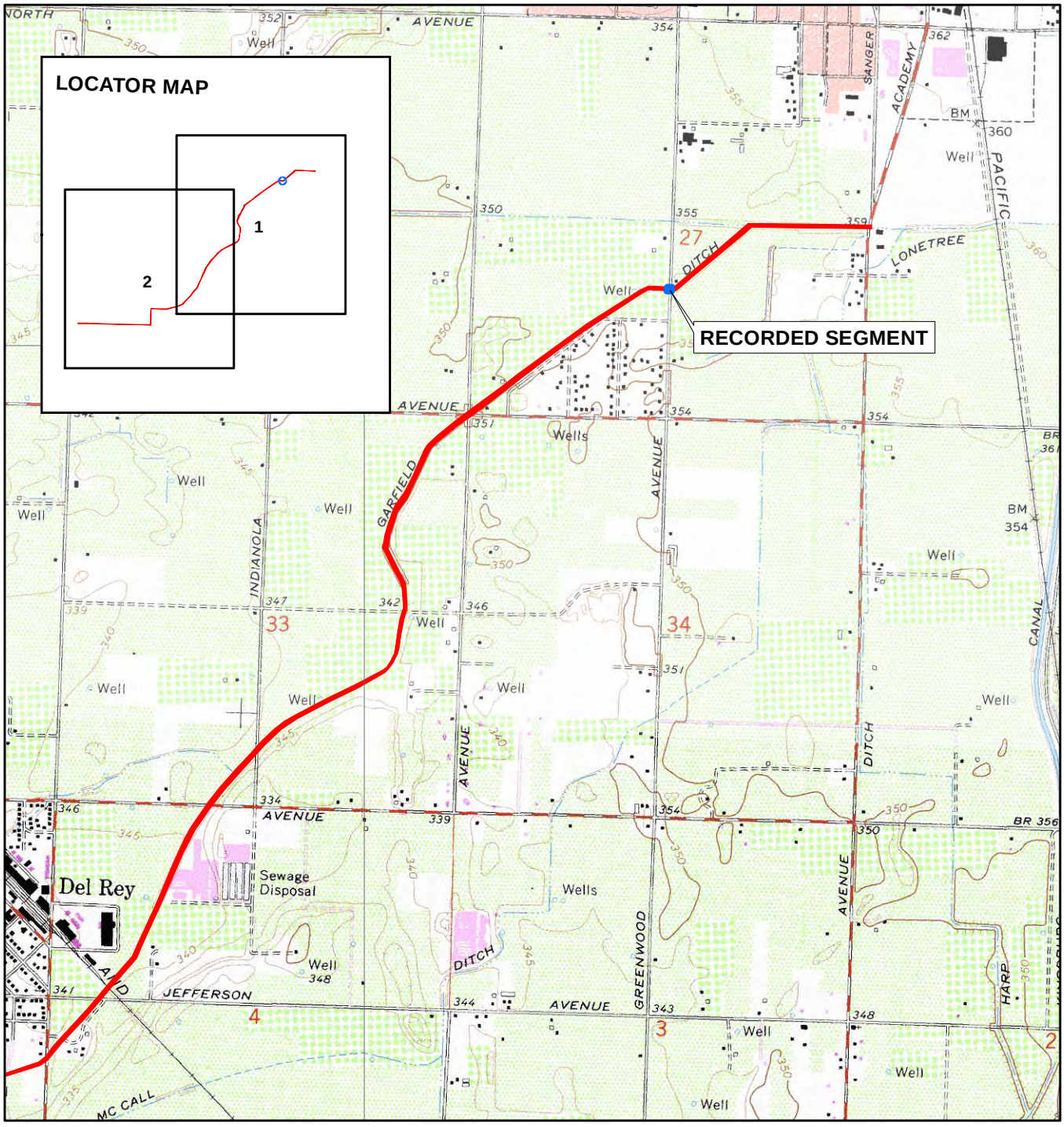
L11. Date: 5/29/2020

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HRI#
Trinomial

Page 3 **of** 4 **Resource Name or #:** Garfield Ditch **Scale:** 1:24,000

Map Name: Sanger, CA, USGS 7.5' quadrangle **Date:** 1978 (1981)



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

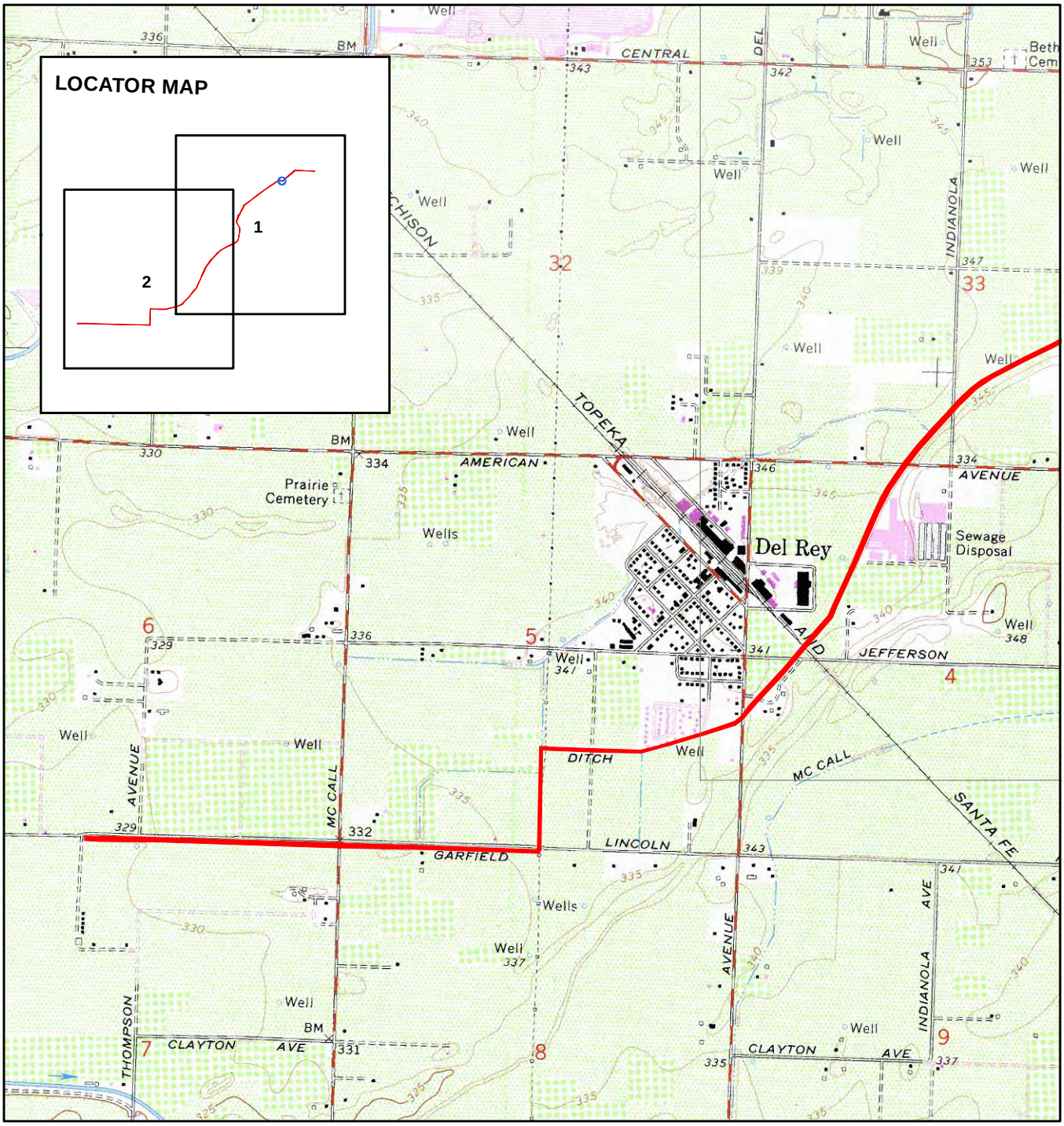
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 4 **of** 4 **Resource Name or #:** Garfield Ditch **Scale:** 1:24,000

Map Name: Sanger, CA, USGS 7.5' quadrangle **Date:** 1978 (1981)



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**
PRIMARY RECORD
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 Resource Name or # Lone Tree Channel

P1. Other Identifier: FRE-PRO-005

***P2. Location: a. County:** Fresno ☐ **Not for Publication** ☒ **Unrestricted**

b. USGS 7.5′ Quad: Piedra, CA **Date:** T, R; SW ¼ **of** Sec. 32 M.D. **B.M.**
Wahtoke, CA **Date:** T, R; NW ¼ **of** Sec. 5
Sanger, CA **Date:** 1978 (1981) T14S, R22E; Sec. 5–7, 12–14, 23, 26, 27

c. Address: N/A

d. UTM: NAD 1983, Zone 11S; **Head:** 277415 **mE /** 4070943 **mN**
Terminus: 271410 **mE /** 4062161 **mN**

e. Other Locational Data:

***P3a. Description:** The Lone Tree Channel is a natural channel utilized for conveyance of irrigation water. Its use dates to the early 1870s when Moses Church was constructing the Fresno Canal. In an effort to build a better connector between the Kings River and Fancher Creek, Moses Church built what was called the "Long Cut" in the Sanger area. In return he promised to deliver water down the Lone Tree Channel to irrigate land for farmers farther south. The Lone Tree Channel appears on Hall's 1885 *Detail Irrigation Map: Centerville and Kingsburgh Sheet*, although it is labeled as the Kingsburg Branch of the Fresno Canal. It is depicted as the Lone Tree Channel in the 1891 Thompson *Atlas of Fresno County*. The 8.3-mile-long channel still carries water.

***P3b. Resource Attributes:** HP20. Canal/Aqueduct

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

***P5a. Photograph or Drawing:**

P5b. Description of Photo: Lone Tree Channel/McCall Ditch at East Central Avenue, facing northwest.

***P6. Date Constructed/Age and Sources:** ☐ Prehistoric ☒ Historic ☐ Both

***P7. Owner and Address:**
Consolidated Irrigation District
2255 Chandler Street
Selma, CA 93662

***P8. Recorded By:**
Carlos van Onna
Applied EarthWorks, Inc.
1391 W. Shaw Ave., Suite C
Fresno, CA 93711

***P9. Date Recorded:** 5/29/2020

***P10. Survey Type:** ☒ Intensive ☐ Reconnaissance ☐ Other
Describe:

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☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record
☐ Photograph Record ☐ Other (list):

L1. Historic and/or Common Name: Lone Tree Channel

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:**

b. Location of point or segment: The segment is at the Lone Tree Channel's intersection with East Central Avenue, approximately 415 feet west of South Academy Avenue.
UTM: NAD 1983, Zone 11S; 271407 **mE /** 4062171 **mN**

L3. Description: The 28-foot-long recorded channel segment flows through a modern concrete box culvert underneath East Central Avenue. A two-lane paved roadway is situated atop the box culvert and has metal guardrails on either side. The exact depth of the ditch could not be established because it was largely filled with water at the time of recordation.

L4. Dimensions:
- **a. Top Width:** 25 feet
- **b. Bottom Width:** 14 feet
- **c. Height or Depth:** Unknown
- **d. Length of Segment:** 28 feet

L4e. Sketch or Cross Section ☐ attached **Facing:** ☒ none

L5. Associated Resources:

L6. Setting: The segment is surrounded by orchards and vineyards in a rural area south of Sanger.

L7. Integrity Considerations: The culvert and bridge are modern and well maintained.

L8a. Photo, Map, or Drawing:

L8b. Description of Photo, Map, or Drawing: East Central Avenue crossing over Lone Tree Channel, facing southwest.

L9. Remarks:

L10. Form Prepared By: Carlos van Onna
Applied EarthWorks, Inc.,
1391 W. Shaw Ave., Suite C,
Fresno, CA 93711

L11. Date: 6/22/2020

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

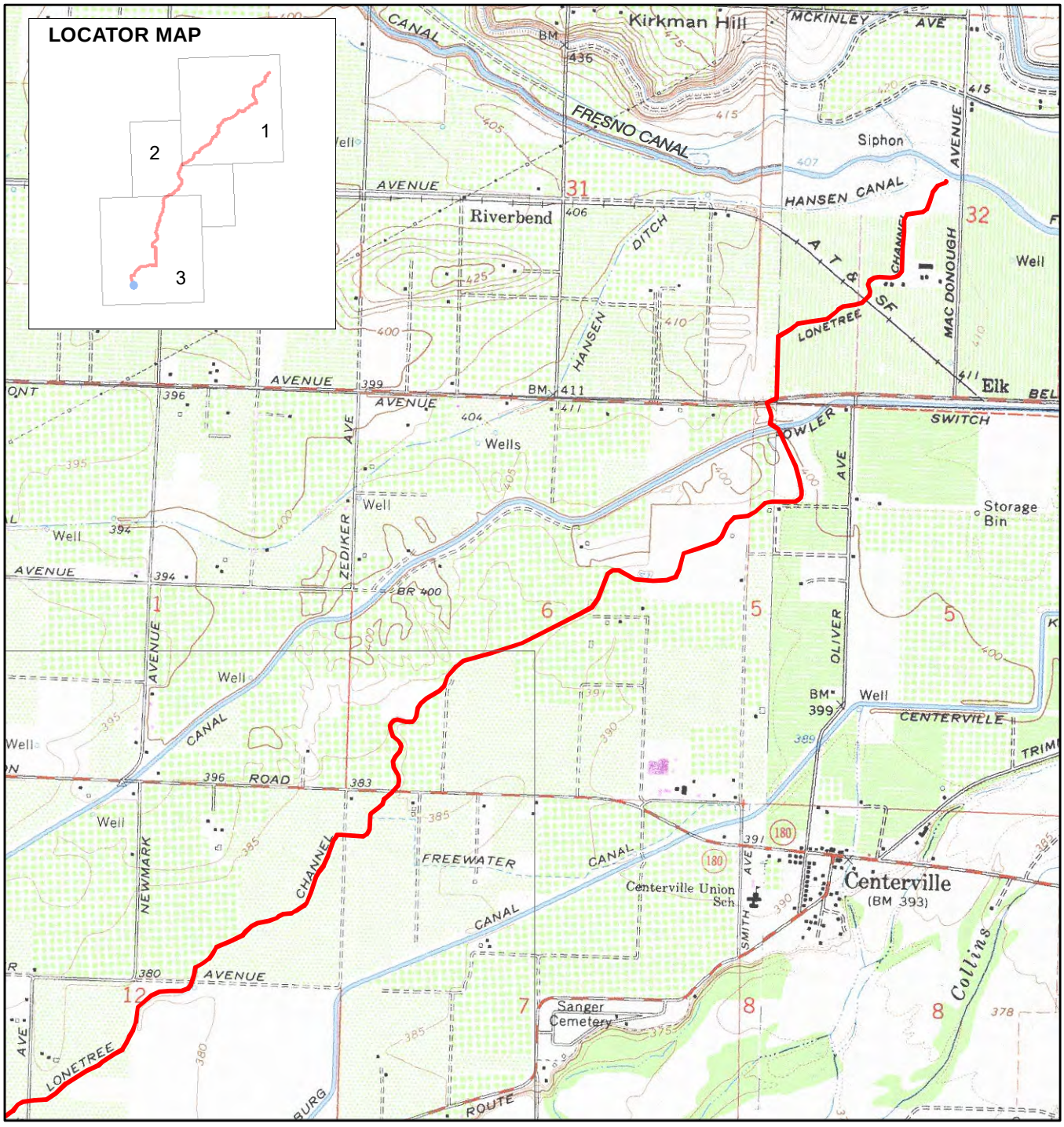
Primary #
HRI#
Trinomial

Resource Name or #: Lone Tree Channel

Scale: 1:24,000

Map Name: Piedra, Wahtoke, Sanger, CA, 7.5' quadrangles

Date: Multiple



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

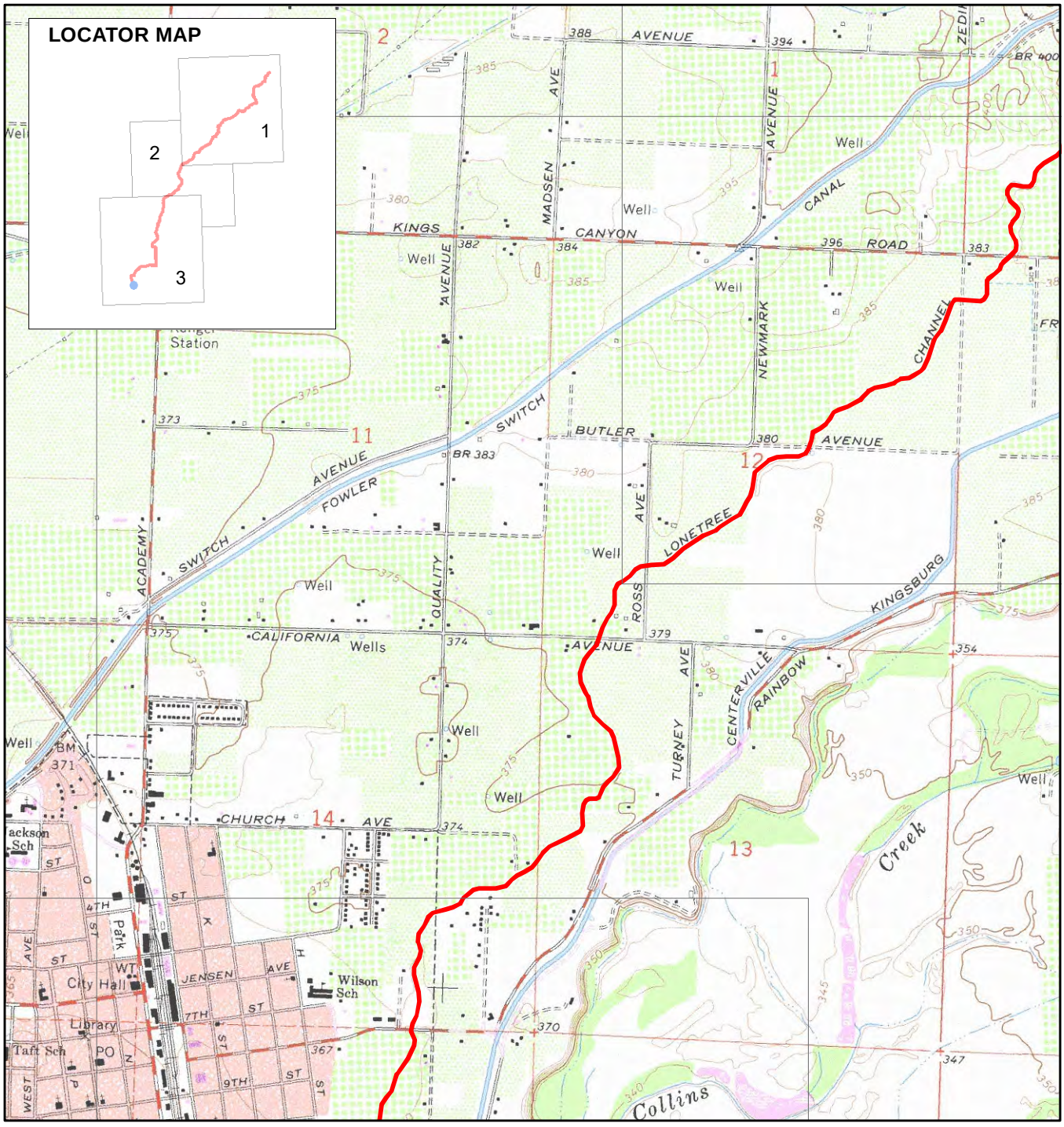
Primary #
HRI#
Trinomial

Resource Name or #: Lone Tree Channel

Scale: 1:24,000

Map Name: Sanger, CA 7.5' quadrangle

Date: 1978 (1981)



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

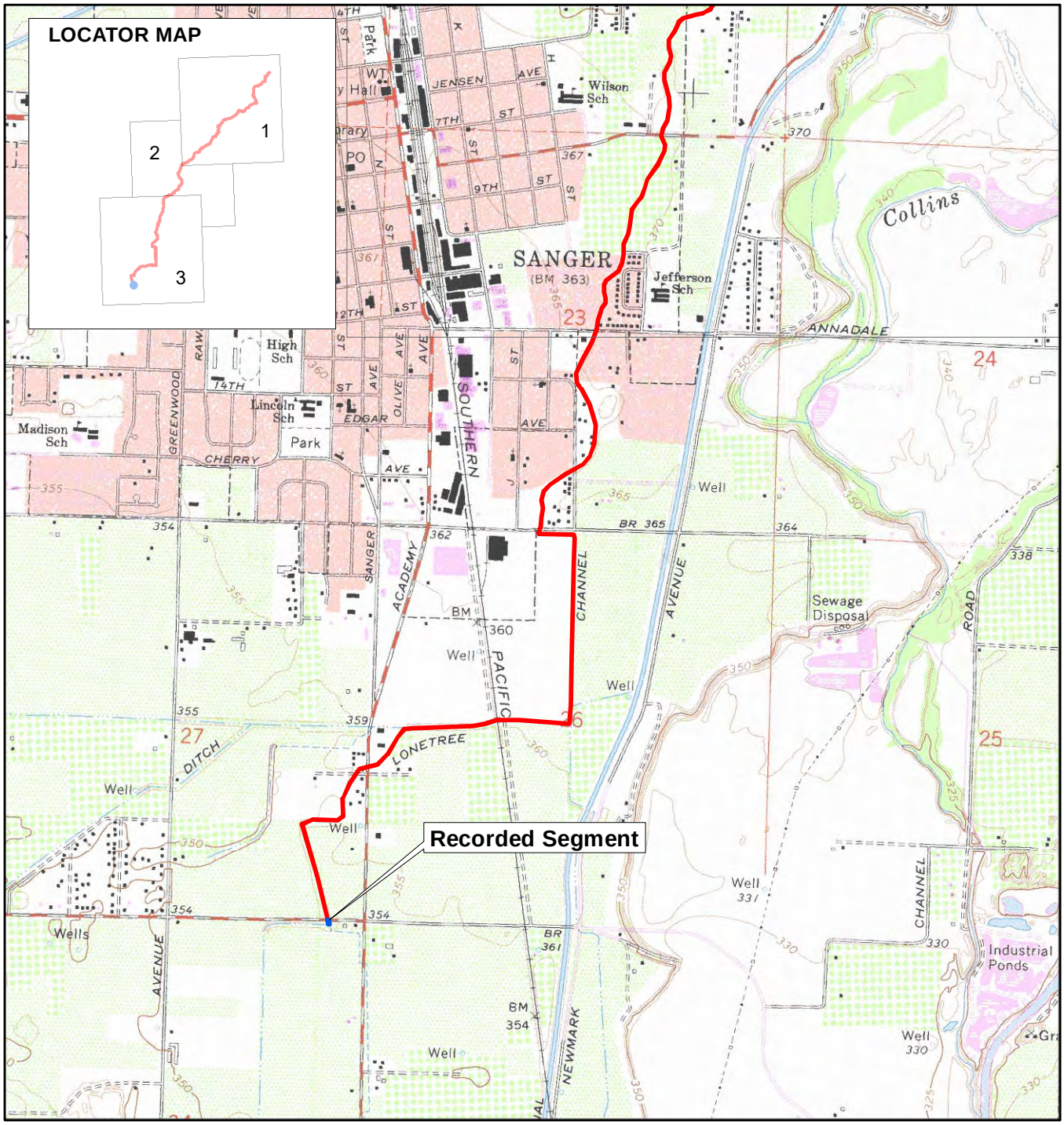
Primary #
HRI#
Trinomial

Resource Name or #: Lone Tree Channel

Scale: 1:24,000

Map Name: Sanger, CA 7.5' quadrangle

Date: 1978 (1982)



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TRUE NORTH