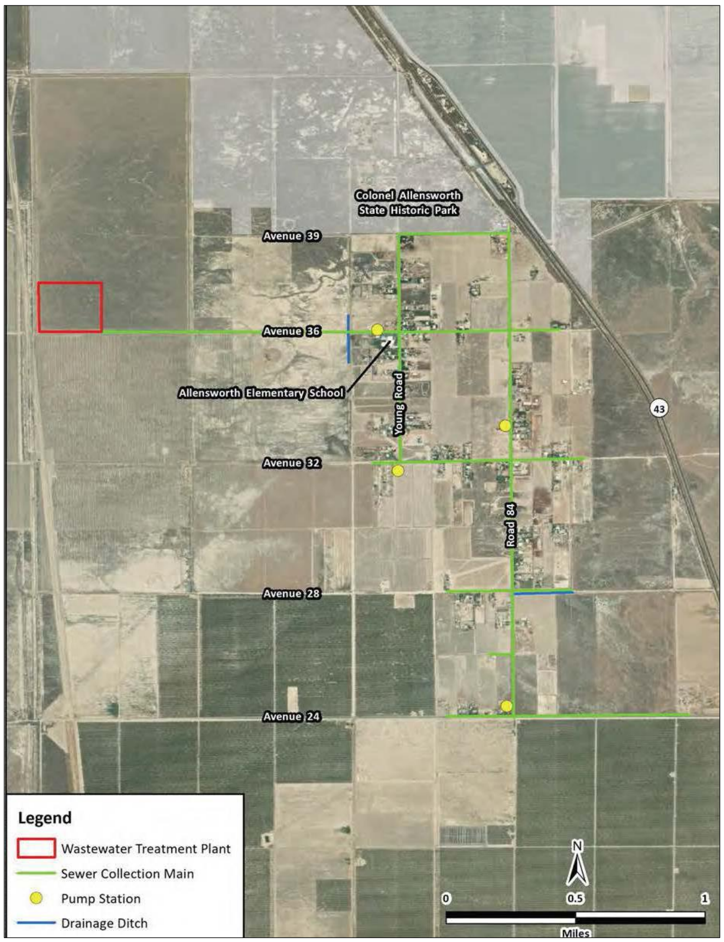

MITIGATED NEGATIVE DECLARATION

Allensworth CSD – Septic to Sewer Project

February 2023

PREPARED FOR:

Allensworth Community Services District
3336 Road 84
Earlimart, CA 93219

PREPARED BY:

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

Initial Study/Mitigated Negative Declaration

Allensworth Community Services District – Septic to Sewer Project

Prepared for:

Allensworth Community Services District
3336 Road 84
Earlimart, CA 93219

Contact: Nathalia Guerro
Phone: 661-849-3894

Prepared by:

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Contact: Travis Crawford, AICP
(559) 840-4414

February 2023

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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 packaged wastewater treatment plant (WWTP) on approximately 20 acres, installing approximately 5.5 miles of sewer pipelines and installing four pump stations. Wastewater generated by users in the Project Area is currently disposed using on-site septic systems. The proposed Project intends to discontinue the use of the septic systems by constructing a new community wastewater disposal system. Refer to Chapter Two – Project Description for more information.

The Allensworth Community Services District (CSD) 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 with Clean Water State Revolving Fund (CWSRF) funds administered through the California State Water Resources Control Board (Water Board). One requirement of CWSRF funding is that the CSD 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 (for topics such as air, biology, cultural, etc.). In addition to this Mitigated Negative Declaration, the CSD is preparing 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 Project Background

Allensworth is a small rural community located in southwestern Tulare County, bounded by Avenue 24 to the south and Highway 43 to the east. Allensworth was founded in 1908 and is located where what used to be the southeastern edge of the ancestral Tulare Lake. The community is currently provided potable water by the Allensworth Community Services District (CSD) which was established in 1981. The CSD's sole source for potable water are two groundwater wells. The CSD service area encompasses approximately 804 acres consisting of approximately 150 occupied households (including the ACSD community center), Allensworth Elementary School, a church, and the Colonel Allensworth State Historic Park (CASHP). Although the CASHP is located within the ACSD service area, the CASHP is on their own septic system and is not interested in connecting to the community sewer system at this. ACSD owns and operates a community wide water system which is currently serving approximately 521 customers.

Currently, the CSD residences, Allensworth Elementary School, Church and Community Center are all on individual private septic tanks. There are growing concerns about groundwater contamination caused by inadequate wastewater treatment and disposal observed by the community's septic tanks. Some of the residences do not have septic systems and therefore, discharge raw wastewater directly into the ground.

The CSD is underlaid by hardpan, impervious clay layers. For this reason, during winter months, the community often experiences septic system overflows and flooding. The groundwater table remains high even during drought conditions, leaving the CSD with minor wastewater disposal capabilities, via leach fields, during the summer months and even less during the winter months. It is typical for the CSD residence to encounter foul odors and unhygienic conditions throughout the community due their inability to effectively disposal of their septic effluent. The State Water Resources Control Board adopted the Onsite Wastewater Treatment Systems (OWTS) Policy in July 2012. The OWTS Policy established new requirements that affect the regulation and management of septic systems. The requirements of the OWTS policy are expected to increase the long-term costs of operating and maintaining individual septic systems.[1]

The CSD is considered a Severely Disadvantaged Community (SDAC). According to the 2019 U.S. Census American Community Survey, ACSD Median Household Income (MHI) was $33,214, which is 44% of the Median Income for the State of California. The Project is being partially funded by the Clean Water State Revolving Fund (CWSRF) as described in Chapter One - Introduction.

2.2 Location

Allensworth is a census designated place (CDP) encompassing 3.1 square miles of land approximately three miles north of the Tulare-Kern County line, west of State Route 43 (See Figure 1). The proposed Project will consist of work at various locations, which is generally bounded by Avenue 24 to the south, State Route 43 to the east, Colonel Allensworth State Historical Park to the north, and Road 72 to the west. The proposed new WWTP will be located on approximately 20 acres along Avenue 36, just west of the Community. The sewer pipelines will be installed along Avenue 36, Young Road, Road 84, Avenue 24, Avenue 28 and Avenue 32. See Figure 2 for the specific location of the Project components.

2.3 Setting and Surrounding Land Use

The Project site consists of paved streets, residential front yards with and without planted lawns, paved and unpaved parking lots, undeveloped portions of private property, open undeveloped lots and dirt road right of ways.

[1] ASM Consulting Engineers – *Allensworth CSD Septic to Sewer System Feasibility Study* (Sept. 2021), page 1.

Figure 1 – Regional Location Map

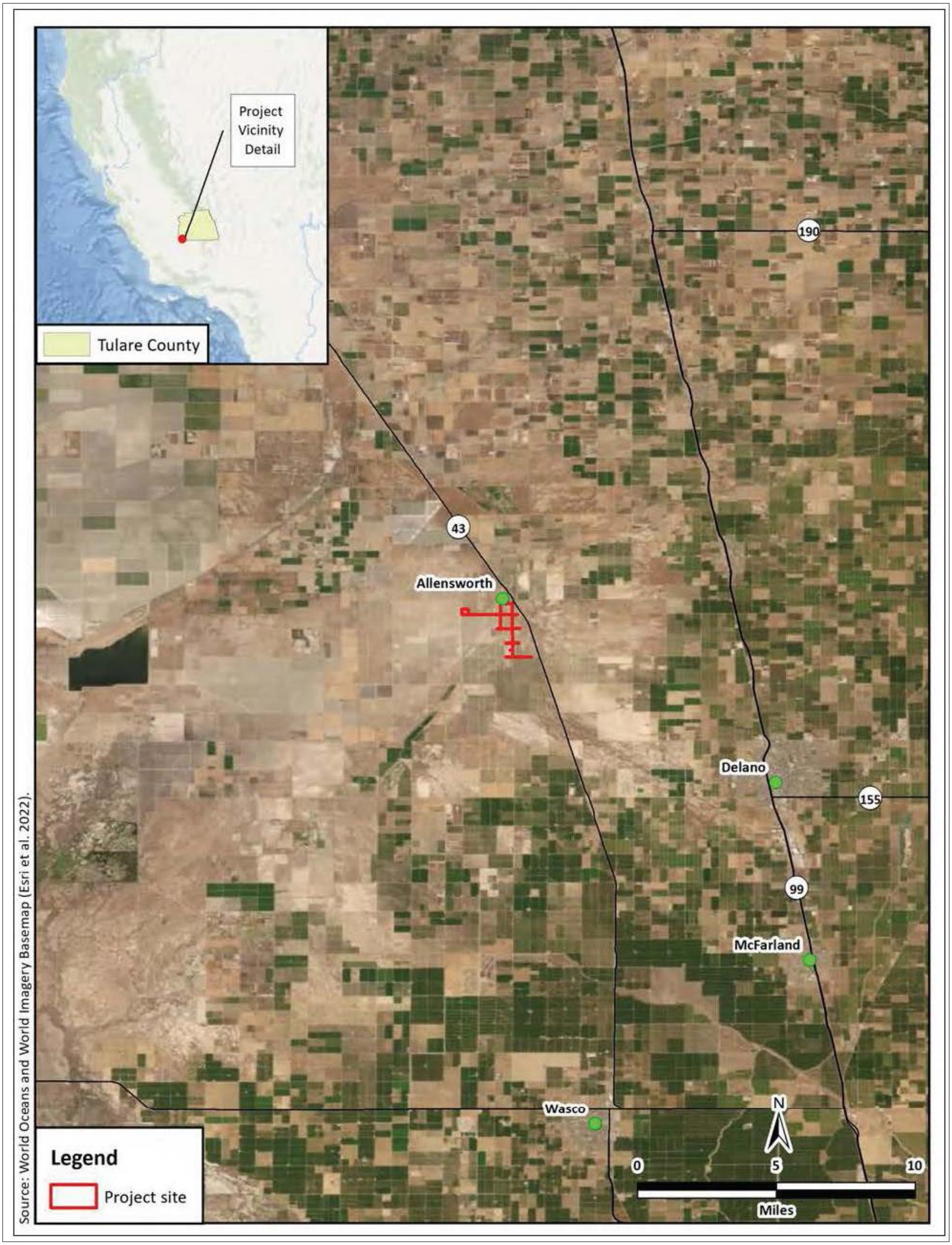
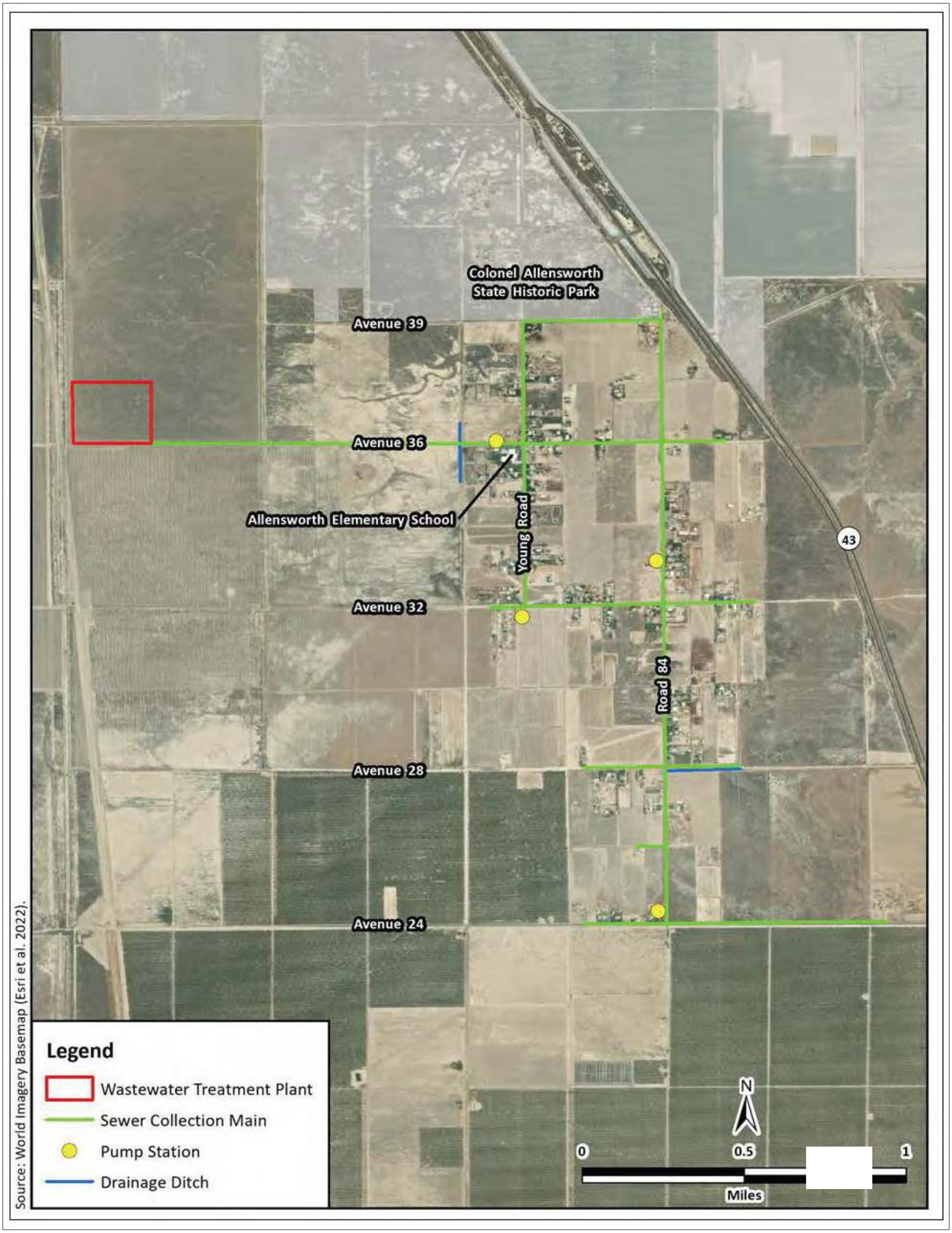


Figure 2 – Project Site Map



2.4 Project Description

AM Consulting Engineers, Inc. prepared the *Allensworth CSD – Septic to Sewer System Feasibility Study* (September 2021) to address the needed sewer improvements for the CSD. Please refer to that document in Appendix A for specific project characteristics. A summary of Project activities is included herein.

The CSD proposes to replace existing septic systems within the CSD with a new community sewer system to convey wastewater to a centralized location. This Project will involve construction and operation of the following components:

1. **Packaged WWTP**: This component consists of a Septic Tank Effluent Pumping (STEP) sewer system which pumps wastewater from individual septic tanks to a centralized WWTP. The WWTP will be designed to have a build out treatment capacity of 65,000 gallons per day (GPD). Approximately two acres of land would be sufficient to house the centralized treatment units and an additional 13 acres (five acres storage area and eight acres effluent reclamation) for the disposal of the treated water. It should be noted that the environmental surveys and analysis assumed a larger 20 acre site for the WWTP. The size of the evaporation/ percolation ponds required for disposal is determined from Water balance calculations as shown in Table 4-6 of Appendix A.

   This system would consist of a 35,000-gallon flow equalization tank, a primary treatment system consisting of five 20,000-gallon Xerxes fiberglass tanks, and five AdvanTex Treatment units for secondary treatment before the wastewater is sent to disposal ponds. This system also includes a pumping package to provide sufficient head for the treatment system. A 35,000-gallon Pre-Anoxic tank is installed to facilitate recirculation of the wastewater from the AdvanTex units and provide nitrate removal. Wastewater disposal is carried out via evaporation ponds and effluent reclamation area. The maximum wastewater generation for the CSD is approximately 65,000 GPD.

2. **6" Gravity Sewer Pipelines**: The Project will require approximately 29,360 (~5.5 miles) of 6" pipelines that will be installed along Avenue 36, Young Road, Road 84, Avenue 24, Avenue 28 and Avenue 32 as depicted in Figure 2. These pipelines will connect to existing households via 1" service laterals.

3. **Pump Stations**: The Project will require four (4) Pump Stations that will be installed generally along Avenue 36 (west of Young Road), along Avenue 32 at Young Road, along Road 84 (north of Avenue 32) and at the northwest corner of Avenue 24 and Road 84 as shown in Figure 2.

Project Schedule

Construction is expected to begin in June 2026 with an estimated construction schedule of 12 months.

2.5 Objectives

The primary objectives of the proposed Project are as follows:

- To provide adequate and safe sewer services to its customers.
- To prevent system failures and potential contamination associated with the septic systems currently within the Project Area.
- To replace existing septic systems within the CSD with a new community sewer system with the most cost-effective methods available that meet the CSD'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 Allensworth CSD.
- Regional Water Quality Control Board approval.
- State Water Board approval.

Chapter 3

IMPACT ANALYSIS

Initial Study Checklist

3.1 Environmental Checklist Form

Project title:

Allensworth CSD – Septic to Sewer Project

Lead agency name and address:

Allensworth Community Services District
3336 Road 84
Earlimart, CA 93219

Contact person and phone number:

Nathalia Guerro, (661) 849-3894

Project location:

See Section 2.1

Project sponsor's name/address:

Allensworth Community Services District
3336 Road 84
Earlimart, CA 93219

General plan designation:

Various, area-wide sewer connection project

Zoning:

Various, area-wide sewer connection project

Description of project:

See Section 2.3

Surrounding land uses/setting:

See Section 2.2

Other public agencies whose approval or consultation is required (e.g., permits, financing approval, participation agreements):

See Section 2.5

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 Native American Heritage Commission was contacted, requesting a contact list of applicable Native American Tribes, which was provided. Letters were provided to the listed Tribes, notifying them of the Project and requesting consultation, if desired. See Section 3.17 – 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.

Travis Crawford, AICP	2/8/2023
	Date

Crawford & Bowen Planning, Inc.

Environmental Consultant for the Allensworth CSD

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

Less Than Significant 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, Coastal Range, and foothills are the primary natural and visual resources in the proposed Project region. Views of the mountains and hills are afforded only during clear conditions due to poor air quality in the valley. Distant views of the mountains and hills would largely be unaffected by the development of the Project because of the nature of the Project, distance and limited visibility of these features from the Project site. The Project will not impact views of a protected scenic vista or resource from surrounding vantage points.

The proposed Project would not damage any trees, rock outcroppings or historic buildings within a State scenic highway corridor. Therefore, there is a ***less than significant impact.***

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 the installation of a sewer collection system and packaged WWTP that will replace existing septic systems. Improvements consist of the installation of approximately five miles of underground pipelines, at-grade manholes, pump stations and sewer connections within the CSD. The Project also includes construction of a new packaged WWTP as described in Chapter Two – Project Description. Views of surrounding areas associated with the pipelines will not be impacted by the Project, since all of the finished work will be below grade or at-grade. The proposed packaged WWTP will be constructed on a currently vacant field to the west of the CSD that has been periodically disked and dryland farmed. Much of the WWTP site will consist of the evaporation ponds (at or below grade). However, there are several above ground structures that will be installed on the site consisting of a 35,000 gallon equalization tank, five 20,000 gallon Xerxes fiberglass tanks, and five AdvanTex Treatment units. These structures will be low level structures that will be surrounded with fencing. There are no residences or businesses adjacent to the site, however, the WWTP will be viewable from travelers on surrounding roadways. Implementation of the proposed Project will alter the visual character of the Project site from a vacant field to a WWTP development. Although this land use conversion could be perceived by some as a negative aesthetic impact in comparison with the Project site's current pastoral appearance, based upon the subjective nature of aesthetics, the CSD does not anticipate that the development of the proposed Project will create a visually degraded character or quality to the Project site or to the properties near and around the Project site.

Construction activities will be seen by the residences and businesses within the immediate vicinity and by vehicles driving in the CSD; however, construction activities will be temporary.

As such, the proposed Project will not substantially degrade the existing visual character or quality of the area or its surroundings and will not conflict with applicable zoning and regulations governing scenic quality. The impact will be ***less than significant***.

Mitigation Measures: None are required.

d. <u>Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?</u>

Less Than Significant Impact. Currently the sources of light in the project area are from building lights and vehicles traveling along surrounding roads. The Project will introduce new lighting for security lighting at the WWTP. Additional night lighting sources on the Project site, especially any unshielded light, could result in spillover light that could impact surrounding adjacent uses. The CSD will require lighting systems to be shielded to direct light to ground surfaces and orient light away from adjacent properties. Accordingly, the proposed Project would not create substantial new sources of light or glare. There is a ***less than significant impact.***

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 proposed Project involves the installation of a sewer collection system and new packaged WWTP that will replace an existing septic system. The pipeline and associated infrastructure will largely occur within the existing right of way and will be installed underground. The Project areas where the pipelines will occur are characterized as Urban / Built up by the Department of Conservation's Farmland Mapping & Monitoring Program (FMMP). The area associated with the proposed WWTP is characterized as Nonagricultural and Natural Vegetation by the FMMP.[1] There are no farmlands on or adjacent to the site and no Williamson Act parcels will be affected. No conversion of forestland, as defined under Public Resource Code or General Code, as referenced above, would occur as a result of the proposed Project.

All improvements will take place within an area that is built up with rural and urban uses or is otherwise not characterized as farmland. As such, the proposed Project does not have the potential to result in the conversion of Farmland to non-agricultural uses or forestland uses to non-forestland. There is ***no impact***.

Mitigation Measures: None are required.

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[1] https://databasin.org/maps/new/#datasets=461df03776ce4f5ab3d738f0ee740c14 (Accessed Dec. 2022).

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 San Joaquin Valley Air Basin (SJVAB) is designated nonattainment of state and federal health based air quality standards for ozone and $PM_{2.5}$. The SJVAB is designated nonattainment of state PM_{10}.[2] To meet Federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

[2] San Joaquin Valley Air Pollution Control District. Ambient Air Quality Standards & Valley Attainment Status. http://www.valleyair.org/aqinfo/attainment.htm. Accessed December 2017.

- 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.

As discussed below, predicted 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. Additionally, the Project would comply with all applicable rules and regulations.

The nonattainment pollutants for the SJVAPCD are ozone, PM_{10} and $PM_{2.5}$. Therefore, the pollutants of concern for this impact are ozone precursors, regional PM_{10}, and $PM_{2.5}$. Ozone is a regional pollutant formed by chemical reaction in the atmosphere, and the Project's incremental increase in ozone precursor generation is used to determine the potential air quality impacts, as set forth in the GAMAQI. The annual significance thresholds to be used for the Project emissions are as follows[3]:

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 proposed WWTP and sewer collection system will generate minimal emissions once it is constructed. The estimated annual construction emissions are shown below. The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, Version 9.0.0 was utilized to

[3] 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 October 2021.

estimate emissions generated from Project construction. Modeling results are summarized in Table 1 and the full Road Construction Emissions Model output files are provided in Appendix B.

Table 1
Proposed Project Construction Emissions

Pollutant/ Precursor	Construction Emissions (tpy)	Threshold/ Exceed?
CO	3.15	100/**N**
NOx	2.78	10/**N**
ROG	0.36	10/**N**
SOx	0.01	27/**N**
PM_{10}	0.69	15/**N**
$PM_{2.5}$	0.29	15/**N**
CO_2e	814.52	n/a

As shown in Table 1, construction emissions would be below the SJVAPCD's threshold for annual construction emissions. However, the SJVAPCD has implemented Regulation VIII measures for dust control related to construction projects, which are applicable to the Project and will be enforced by the CSD and the CSD's contractor.

The nearest sensitive receptors to the proposed Project site are the residential houses located along the proposed pipeline alignments. Construction would take place within the vicinity of sensitive receptors, however, construction emissions would be below SJVAPCD thresholds and be temporary in nature. Therefore, the relatively small amount of emissions generated and the short duration of the construction period would not expose sensitive receptors to substantial pollutant concentrations.

Because the Project will not exceed any established air emission thresholds, does not result in a cumulatively considerable net increase of any criteria pollutant, and does not significantly impact sensitive receptors, the impact is determined to be ***less than significant.***

Mitigation Measures: None are required.

d. <u>Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?</u>

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 new source of odors from the Project since all sewer disposal will occur via underground pipelines. 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. <u>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?</u>

b. <u>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?</u>

Less Than Significant Impact With Mitigation. A Biological Resource Evaluation (BRE) was prepared for the proposed Project in August 2022 by Colibri Ecological Consulting, LLC (CEC). The BRE is included as Appendix C. 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, multiple field surveys were conducted as described herein. The results of the BRE are summarized as follows:

Environmental Setting

The Project site consisted of a 20-acre parcel for a wastewater treatment facility, a sewer pipeline pathway, and four pump stations. The wastewater treatment facility parcel supported an inactive and barren agricultural field. This parcel has been periodically disked and dryland farmed since at least 1994. The proposed sewer pipeline pathway was in the barren shoulder of paved roads bordering rural residential areas, agricultural fields, and fallow fields (Figures 6 and 7 of Appendix C). The four proposed pump station locations were in residential yards and small fallow fields (e.g., Figures 8–10 of Appendix C) in a rural residential area. Two drainage ditches crossed the Project site at Road 84 between Avenue 24 and Avenue 32 (Figure 11 of Appendix C) and at Avenue 36 immediately west of Allensworth Elementary School (Figures 2 and 12 of Appendix C). The Project site bordered the southern edge of Colonel Allensworth State Historic Park. Small mammal burrows were scarce, with only two found in the survey area. Those were within 50 feet of the pipeline pathway between the wastewater treatment site and Allensworth Elementary School (Figure 13 of Appendix C).

Desktop Review

The USFWS species list for the Project site included nine species listed as threatened or endangered under the FESA. Two of those species, San Joaquin kit fox (*Vulpes macrotis mutica* – FE, ST) and Tipton kangaroo rat (*Dipodomys nitratoides nitratoides* FE, SE), could occur on or near the Project site. Of the seven remaining species, none could occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, or (3) the presence of development that would otherwise preclude occurrence (Table 1 of Appendix C). As identified in the species list, the Project site does not occur in USFWS-designated or proposed critical habitat for any species.

Searching the CNDDB for records of special-status species from the Allensworth 7.5-minute USGS topographic quadrangle and the eight surrounding quadrangles produced 403 records of 46 species. Of those 46 species, 10 were not considered further because they are not CEQA-recognized as special-status species by state or federal regulatory agencies or public interest groups. Of the remaining 36 species, 23 are known from within 5 miles of the Project site. Of those species only three, Swainson's hawk (*Buteo swainsoni* – ST), San Joaquin kit fox, and Tipton kangaroo rat could occur on or near the Project site.

Searching the CNPS Inventory of Rare and Endangered Plants of California yielded 18 taxa (CNPS 2022, Appendix C), all which have a CRPR of 1. None of those species are expected to occur on or near the Project site due to the lack of habitat.

The Project site is underlain by Nahrub silt loam, Gareck-Garces association, and Kimberlina fine sandy loam, with 0 to 2 percent slopes (NRCS 2022). The Project site is at an elevation of 198– 212 feet above mean sea level[4].

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[4] Biological Resource Evaluation – Allensworth Septic to Sewer (Aug 2021), page 13.

Reconnaissance Survey

Colibri Senior Scientist Joshua Reece conducted a field reconnaissance survey of the Project site on 11 August 2022. 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 area to support state- or federally protected resources. The survey area also included a 0.5-mile buffer around the Project site to evaluate the potential occurrence of nesting special-status raptors (Figure 3 of Appendix C). The 0.5-mile buffer was surveyed by driving public roads and identifying the presence of large trees or other potentially suitable substrates for nesting raptors as well as open areas that could provide foraging habitat. The main survey area, including the Project site and surrounding 50- foot buffer, was evaluated for the presence of regulated habitats, including lakes, streams, 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) and under the Porter-Cologne Water Quality Control Act. All plants except those planted for cultivation or landscaping and all animals (vertebrate wildlife species) observed in the survey area were identified and documented.

Effects Determinations

Critical Habitat

The BRE concludes the Project will have no effect on critical habitat as no critical habitat has been designated or proposed in the survey area.

Special-Status Species

As identified in the BRE, the Project may affect but is not likely to adversely affect the federally listed as endangered and state listed as threatened San Joaquin kit fox, Tipton kangaroo rat and 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.

Migratory Birds

The BRE concludes the Project may affect but is not likely to adversely affect nesting migratory birds.

Regulated Habitats

The BRE concludes the Project will have **no effect** on regulated habitats. Two drainage ditches were present on the Project site, but impacts to these features are not anticipated. If impacts to these features are unavoidable, consultation with the CDFW and the SWRCB shall be required.

Direct and Indirect Impacts

The Project could adversely affect, either directly or through habitat modifications, three 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. Therefore, Mitigation Measures BIO1–BIO3 (below) will be included as a condition of Project approval.

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 construction between September and February, a qualified biologist shall conduct surveys for Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (SWTAC 2000, Appendix D). These methods require six surveys, three in each of the two survey periods, prior to project initiation. Surveys shall be conducted within a minimum 0.5-mile radius around the Project site.
3. If an active Swainson's hawk nest is found within 0.5 miles of the Project site, and the qualified biologist determines that Project activities would disrupt the nesting birds, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

BIO – 2 Protect San Joaquin Kit Fox

1. To protect San Joaquin kit fox, a qualified biologist shall conduct a preconstruction survey to identify potential dens (burrows larger than 4 inches in diameter) in suitable land cover types. If potential San Joaquin kit fox dens are present, their disturbance and destruction shall be avoided. If occupied or potentially occupied San Joaquin kit fox dens are adjacent to the work area, exclusion zones shall be implemented following USFWS procedures. Exclusion zones shall be determined based on the type of den and current use: Potential Den—50 feet; Known Den—100 feet; Natal or Pupping Den—to be determined on a case-by-case basis in coordination with USFWS and CDFW. All pipes greater than 4 inches in diameter stored on the construction site shall be capped, and exit ramps shall be installed in trenches and other excavations to avoid direct mortality. When possible, construction shall be conducted outside of the breeding season from October 1 to November 30. U.S.

Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior or During Ground Disturbance (USFWS 2011) shall also be followed.

BIO – 3 Protect Tipton Kangaroo Rat

1. To protect Tipton kangaroo rat, a qualified biologist shall establish an exclusion zone of 50 feet around all suitable burrows. If construction activities must occur within the exclusion zone, a qualified biologist holding a federal recovery permit and state scientific collecting permit and memorandum of understanding for Tipton kangaroo rat shall conduct pre-construction live-trapping surveys to determine the presence of Tipton kangaroo rat following the survey methods identified in *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats* (USFWS 2013, Appendix F). Trapping should be conducted for a minimum of five consecutive nights. If trapping confirms the presence of Tipton kangaroo rat, the Project applicant will need to obtain an incidental take permit from the CDFW and a biological opinion and incidental take statement from the USFWS.

c. <u>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?</u>

No Impact. No wetlands 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. <u>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?</u>

Less Than Significant with Mitigation. 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 has the potential to impede the use of nursery sites for native birds protected under the Migratory Bird Treaty Act (MBTA). 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 can be considered take under the MBTA. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region. Construction activities such as excavating, trenching, and grading that disturb a nesting bird in the Project site or immediately adjacent to the construction zone could constitute a significant effect. Therefore, Mitigation Measure BIO-4 (below) be included in the conditions of approval to reduce the potential effect to a less-than-significant level.

Mitigation Measures:

BIO – 4 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. <u>Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</u>

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

No Impact. There are no local policies or ordinances that the Project will conflict with. 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

The Project is subject to CEQA, which holds municipal and state agencies accountable for impacts to the cultural environment. If a project has the potential to cause substantial adverse change in the characteristics of an important cultural resource, known as a "historical resource" under CEQA—either through demolition, destruction, relocation, alteration, or other means—then the project is judged to have a significant impact on the environment (CEQA Guidelines, Section 15064.5[b]). Given that the project will involve ground-disturbing activities and demolition, it has the potential to impact historical resources, if present, within the Project area.

In addition, because the proposed Project will be funded through the State Water Resources Control Board's Clean Water State Revolving Fund, a joint federal-state program, it is federal undertaking per Title 36, Code of Federal Regulations, Section 800.16(y) subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (Title 54, U.S. Code, Section 306108). As such, the lead federal agency must consider whether a project will have an adverse effect on historic properties (i.e., resources that are eligible for inclusion on the National Register of Historic Places) within the Project Area of Potential Effects (APE).

Human Remains

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper and dignified treatment of the remains and associated grave artifacts.

Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals and associated deposits. The Society of Vertebrate Paleontology has identified vertebrate fossils, their taphonomic and associated environmental indicators, and fossiliferous deposits as significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant resources.

CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature (CEQA Appendix G(v)(c)). If an impact is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) §15126.4 (a)(1)). California Public Resources Code §5097.5 (see above) also applies to paleontological resources.

Methodology

The proposed Project involves the installation of a sewer collection system and new packaged WWTP that will replace an existing septic system. To meet State and federal requirements, the CSD retained ASM Affiliates, Inc. (ASM) to conduct background research, complete a records search, request a search of the Native American Heritage Commission's Sacred Lands File and reach out to appropriate Native American contacts, conduct a cultural resources survey, and prepare a technical report, dated December 2022. The *Class III Inventory/Phase I Survey for the Allensworth Community Services District Alternative 4 Project* (Cultural Study) is included as Appendix D. The results of the Cultural Study are summarized herein and were used to support the determinations made in this CEQA document.

<u>Area of Potential Effect (APE)</u>

The Area of Potential Effect (APE) for the project was defined as the area of all potential ground surface disturbance, which includes staging, work and lay-down areas. The horizontal APE is approximately 5 miles (mi) of pipeline route and 20-acres (ac) for facility construction. With a 50- feet (ft) survey corridor for the pipeline, this represents a total of approximately 122.5-ac for the horizontal APE. The vertical APE was defined as the maximum depth of subsurface disturbance, in this case the maximum depth of excavation for the sewer line and facility foundations, or 10-ft.

Native American Outreach

A Sacred Lands File Request was submitted to the Native American Heritage Commission (NAHC) who provided a list of applicable Native American Tribes. Outreach letters and follow-up emails were sent to the tribal organizations on the NAHC contact list (Confidential Appendix). One response, from the Santa Rosa Rancheria – Tachi Yokut Tribe, was received. They requested environmental awareness training for the Project construction staff, archaeological monitoring and the completion of a curation agreement prior to Project start, to ensure that any discovered artifacts would be properly archived following the construction. Based on the results of the IC and NAHC records searches, the tribal outreach, the review of historical maps, and the Meyer et al. (2010) geoarchaeological sensitivity model, the APE appears to have low to moderate archaeological sensitivity.

Records Search and Site-Specific Research

In order to determine whether the Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known within it, an archival records search was conducted by the staff of the Southern San Joaquin Valley Information Center (IC) on 12 July 2022. The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the APE; (ii) if the APE had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the surrounding region was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest. The Native American Heritage Commission (NAHC) Sacred Lands files were also searched to determine whether tribal cultural resources are present.

According to the IC records search (Confidential Appendix), four previous archaeological surveys had covered small portions of the study area, and no cultural resources were identified as a result of those studies. Additionally, seven previous archaeological surveys had been completed within 0.5-mi of the study area resulting in the recordation of three cultural resources within that outer radius.

Three previously recorded resources have been identified within 0.5-mi of the Project APE. Resource P-54-004052 is a historic district consisting of about 15 square blocks of the original Allensworth town site founded in 1908. This resource was added to the National Register of Historic Places in 1974. It is present 0.5-mi north of the project area. Resource P-54-004347 is a historic refuse scatter that appears to date to the early Twentieth Century (McIntosh & Tuck 2006). This resource is located north of the project APE. Resource P-54-005317 is the historic Allensworth Cemetery. Use of this cemetery dates to as early as 1911 (Thompson 2017) and it is located south of the Project APE.

Based on the records search results, the study area appeared to have low to moderate archaeological and tribal cultural resources sensitivity.[5]

Pedestrian Survey

An intensive Class III inventory/Phase I survey of the Kerman Sewer Improvement Project APE was conducted in November 2022 by ASM Associate Archaeologist/Crew Chief Robert Azpitarte, B.A., assisted by Margarita Medina Lemus, B.A., ASM Assistant Archaeologists. The field methods employed included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone) where applicable; the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation Instructions for Recording Historic Resources and the BLM 8100 Manual, using DPR 523 forms. Parallel survey transects spaced at 15-m intervals were employed for the inventory. A 50-ft buffer surrounding the pipeline APE was also surveyed, where this was possible given private property access restrictions.

The Project APE primarily included dirt and paved roads, and open undeveloped fields at the locations of the pump stations and WWTP. Ground surface visibility overall was excellent.

No cultural resources of any kind were observed in the APE.[6]

Effects Determinations

a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Less than Significant Impact with Mitigation. As described in the Cultural Study, there are no cultural or historical resources that are known to occur on the Project site or in the Project area. This determination

[5] *Class III Inventory/Phase I Survey – Allensworth CSD Alternative 4 Project*, ASM Affiliates, Inc., (Dec. 2022), Page 21.

[6] Ibid, page 23.

is based on the records search, background historical research, Native American outreach and a pedestrian survey that was conducted for the Project.

Unidentified cultural or historical resources could be uncovered during proposed Project construction which could result in a potentially significant impact; however, implementation of Mitigation Measure CUL-1 would ensure that significant impacts remain ***less than significant with mitigation incorporation.***

Mitigation Measures:

CUL – 1 In the event that archaeological remains are encountered at any time during development or ground-moving activities within the entire Project area, all work in the vicinity of the find should be halted until a qualified archaeologist can assess the discovery and take appropriate actions as necessary.

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

Less than Significant Impact with Mitigation. The possibility exists that subsurface construction activities may encounter undiscovered archaeological resources. This would be a potentially significant impact. Implementation of Mitigation Measure CUL-1 would require inadvertently discovery practices to be implemented should previously undiscovered archeological resources be located. As such, impacts to undiscovered archeological resources would be ***less than significant with mitigation incorporation.***

Mitigation Measures: None are required.

c. <u>Disturb any human remains, including those interred outside of formal cemeteries?</u>

Less than Significant Impact. Although unlikely given the highly disturbed nature of the site and the records search did not indicate the presence of such resources, subsurface construction activities associated with the proposed Project could potentially disturb previously undiscovered human burial sites. Accordingly, this is a potentially significant impact. The California Health and Safety Code Section 7050.5 states that if human remains are discovered on-site, no further disturbance shall occur until the Tulare County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. The NAHC shall identify the person or persons it believes to be the "most likely descendant" (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.

Although considered unlikely subsurface construction activities could cause a potentially significant impact to previously undiscovered human burial sites, however compliance with regulations would reduce this impact to ***less than significant***.

Mitigation Measures: None are required.

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

b. <u>Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?</u>

Less Than Significant Impact. The proposed Project involves the installation of a sewer collection system and a new packaged WWTP that will replace an existing septic system. 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 such as lumber and glass. 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 CSD 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 be minimal, as the pipelines do not require energy once they are installed. Operational energy would also be consumed during the WWTP processing and during each vehicle trip associated with the proposed use for maintenance or otherwise.

As discussed in Impact XVII – Transportation/Traffic, the proposed Project would not generate on-going daily vehicle trips, other than for maintenance. 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 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. Expose people or structures to 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.

Less Than Significant Impact. The Allensworth CSD is located in a seismically active area and there is potential for seismic activity in the Project area. The major faults in the area are San Andreas Fault, Garlock Fault, White Wolf fault, Breckenridge-Kern Canyon fault, Sierra Nevada and Pond-Poso Fault. As such, the Project Area could be subjected to strong ground shaking during an earthquake on a nearby fault. However, the proposed Project does not include the installation of any habitable structures. The Project will be required to adhere to all relevant building codes, including the California Building Code (CBC) requirements. Adherence to local and State regulations would result in a l***ess than significant impact.***

Mitigation Measures: None are required.

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

Less than Significant Impact. Given the highly seismic character of the area, moderate to severe groundshaking associated with earthquakes on the nearby faults can be expected within all of the Project Area. However, the Project is not proposing any habitable structures that would be subject to risk of injury from strong seismic ground shaking or liquefaction. In addition, the site is relatively flat, which precludes the risk of landslides. The Project will be required to adhere to all relevant building codes, including the California Building Code (CBC) requirements. Adherence to local and State regulations would result in a l***ess than significant impact.***

Mitigation Measures: None are required.

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

Less than Significant Impact. The proposed Project site has relatively flat topography and does not include any Project features that would result in substantial soil erosion or loss of topsoil. Most of the project components will be located below grade. Once construction is completed, the pipeline trenches will be returned to pre-construction conditions and will not result in soil erosion greater than existing conditions. Therefore, the impact is ***less than significant***.

Mitigation Measures: None are required.

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?

Less than Significant Impact. As described in Impact VI (aii-aiv), the potential for landslides, liquefaction, settlement or other seismically related hazards is less than significant. As such, the Project will not be constructed on unstable soil and any impacts will be ***less than significant.***

Mitigation Measures: None are required.

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. As described above, the potential for hazards from landslide and liquefaction in the Project area is less than significant. Therefore, the potential for liquefaction induced lateral spreading is also less than significant. Causes of soil instability include, but are not limited to, withdrawal of groundwater, pumping of oil and gas from underground, liquefaction, and hydro-compaction.[7] The proposed Project does not include the on-site withdrawal of groundwater and the Project site is not located in an area that has been subjected to activities that might cause soil instability. Because the Project site has not been subject to activities that may cause soil instability, the risk of subsidence or collapse is expected to be low. 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?

Less Than Significant Impact. The Project itself is a sewer collection system and packaged WWTP project that will replace an existing septic system in the Project Area. Once the Project is constructed, use of the septic systems will be discontinued and all sewer will flow to the CSD's sewer system. No septic tanks or alternative waste water disposal systems are included in the proposed Project. The project has been designed to work with the soil types in the CSD. Therefore, there would be a ***less than significant 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. Paleontological resources are the fossilized remains of plants and animals and associated deposits. The Society of Vertebrate Paleontology has identified vertebrate fossils, their taphonomic and associated environmental indicators, and fossiliferous deposits as

[7] USGS. California Water Science Center. Land Subsidence: Cause & Effect. https://ca.water.usgs.gov/land_subsidence/california-subsidence-cause-effect.html. Accessed December 2022.

significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant resources.

CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature (CEQA Appendix G(v)(c)). If an impact is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) §15126.4 (a)(1)). California Public Resources Code §5097.5 (see above) also applies to paleontological resources.

There are no unique geological features or known fossil-bearing sediments in the vicinity of the proposed Project site. However, there remains the possibility for previously unknown, buried paleontological resources or unique geological sites to be uncovered during subsurface construction activities. Implementation of Mitigation Measure CUL-1 (See Section V – Cultural Resources) would require inadvertently discovery practices to be implemented should previously undiscovered paleontological resources be located. As such, impacts to undiscovered paleontological resources would be ***less than significant.***

Mitigation Measures: Implement Mitigation Measure CUL – 1.

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

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

Less than Significant Impact. The proposed Project would generate exhaust-related GHG emissions during construction resulting from construction equipment operation, material haul and delivery trucks, and by trips by construction worker vehicles. Construction-related GHG emissions would occur for approximately 12 months and would cease following completion of the Project. The proposed Project is not a land-use development project that would generate vehicle trips and is not a roadway capacity increasing project that could carry additional VMT. Therefore, the proposed Project would not result in a net increase in operational GHG emissions. As such, the proposed Project would not interfere or obstruct implementation of an applicable GHG emissions reduction plan. The proposed Project would be consistent with all applicable local plans, policies, and regulations for reducing GHG emissions. Any impacts related to GHG emissions would be ***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. While trenching, 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 involve transport, storage, use or disposal of hazardous materials. Water treatment chemicals may be utilized at the proposed new packaged WWTP treatment site. Small quantities of petroleum products, thinners, and paints would also likely be used on-site. 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 areas at the WWTP will be built and operated in compliance with the minimum requirements of the Uniform Fire Code and the California Fire Code. Additionally, the WWTP will be constructed in compliance with the California Building Code, which requires design features to resist forces generated by a major earthquake with limited architectural or structural damage and to provide adequate fire protection that precludes accidental releases of hazardous chemicals due to fire. The proposed WWTP is also subject to review and approval by the Regional Water Quality Control Board

(RWQCB). Since the Project is intended to improve the existing deteriorated septic system, it is assumed to have a positive impact by reducing the number of septic breaks/leaks or other issues that may result in the release of hazardous 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?

Less Than Significant Impact. The nearest school to the Project Area is Allensworth Elementary School, located on Young Road within the CSD. As previously described, long-term operation of the proposed Project would involve little or no hazardous materials (see previous responses). Once operational, the pipelines are sealed and will not emit hazardous materials. The proposed WWTP is located more than ¼ mile from the school. Since the Project is intended to improve the existing deteriorated septic system, it is assumed to have a positive impact by reducing the number of septic breaks/leaks or other issues that may result in the release of hazardous materials. Therefore, there is a ***less than significant impact.***

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. The proposed Project site is not located on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5.[8] As such, there is ***no impact.***

Mitigation Measures: None are required.

[8] California Department of Toxic Substance Control. EnviroStor. https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=allensworth Accessed December 2022.

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?

Less Than Significant Impact. There are no airports or airstrips within two miles of the Project. Therefore, the Project has ***no impact*** on any 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. Pipeline installation will be temporary in nature and will not cause any road closures that could interfere with any adopted emergency response or evacuation plan. Construction schedules pertaining to pipelines within roadways will be coordinated with police/fire/emergency services. Adequate emergency access will be maintained at all times. As such, any impacts will be ***less than significant***.

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 or other habitable structures will be constructed. 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 proposed Project involves the installation of a new packaged WWTP and sewer collection system that will replace existing septic systems currently in use in the Project Area.

Currently, the CSD residences, Allensworth Elementary School, Church and Community Center are all on individual private septic tanks. There are growing concerns about groundwater contamination caused by inadequate wastewater treatment and disposal observed by the community's septic tanks. Some of the residences do not have septic systems and therefore, discharge raw wastewater directly into the ground. The CSD's system is regulated by Tulare County, which has been granted primacy by the California State Water Resources Control Board Division of Drinking Water.

The CSD is underlaid by hardpan, impervious clay layers. For this reason, during winter months, the community often experiences septic system overflows and flooding. The groundwater table remains high even during drought conditions, leaving the CSD with minor wastewater disposal capabilities, via leach fields, during the summer months and even less during the winter months. It is typical for the CSD residence to encounter foul odors and unhygienic conditions throughout the community due their inability to effectively disposal of their septic effluent. The State Water Resources Control Board adopted the Onsite Wastewater Treatment Systems (OWTS) Policy in July 2012. The OWTS Policy established new requirements that affect the regulation and management of septic systems. The requirements of the

OWTS policy are expected to increase the long-term costs of operating and maintaining individual septic systems.[9]

The proposed Project is intended to provide a Project Area-wide sewer collection system and packaged WWTP that will eliminate the existing on-site septic systems with the intent to reduce the risk of contamination currently occurring from septic system failures.

Construction

Excavation, removal of vegetation cover, and soil-impacting activities associated with construction of the Project could temporarily increase runoff, erosion, and sedimentation. Construction activities also could result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas.

Three general sources of potential short-term construction-related stormwater pollution associated with the proposed Project are: 1) the handling, storage, and disposal of construction materials containing pollutants; 2) the maintenance and operation of construction equipment; and 3) earth moving activities which, when not controlled, may generate soil erosion and transportation, via storm runoff or mechanical equipment. Generally, routine safety precautions for handling and storing construction materials may effectively mitigate the potential pollution of stormwater by these materials. These same types of common sense, "good housekeeping" procedures can be extended to non-hazardous stormwater pollutants such as sawdust and other solid wastes.

Poorly maintained vehicles and heavy equipment leaking fuel, oil, antifreeze, or other fluids on the construction site are also common sources of stormwater pollution and soil contamination. In addition, grading activities can greatly increase erosion processes. Two general strategies are recommended to prevent construction silt from entering local storm drains. First, erosion control procedures should be implemented for those areas that must be exposed. Secondly, the area should be secured to control offsite migration of pollutants. These best management practices (BMPs) would be required in the Storm Water Pollution Prevention Plan (SWPPP) to be prepared prior to commencement of Project construction activities. When properly designed and implemented, these "good-housekeeping" practices are expected to reduce short-term construction-related impacts to less than significant.

In accordance with the National Pollutant Discharge Elimination System (NPDES) Stormwater Program, the Project will be required to comply with existing regulatory requirements to prepare a Storm Water Pollution Prevention Plan (SWPPP) designed to control erosion and the loss of topsoil to the extent

[9] ASM Consulting Engineers – *Allensworth CSD Septic to Sewer System Feasibility Study* (Sept. 2021), page 1.

practicable using BMPs that the RWQCB has deemed effective in controlling erosion, sedimentation, runoff during construction activities. The specific controls are subject to the review and approval by the RWQCB and are an existing regulatory requirement. Preparation of a SWPPP is a regulatory requirement of the Project and thus is not listed as a mitigation measure. Compliance with the NPDES and SWPPP would ensure that the proposed Project would have a less than significant impact relative to this topic.

Operation

The proposed Project includes the construction and operation of a new packaged WWTP. Wastewater that currently is disposed of in septic tanks in the CSD will be collected via the proposed pipelines and processed at the packaged WWTP. The WWTP design and implementation will be performed under the regulatory requirements of the County of Tulare, the State Water Resources Control Board, and the Regional Water Quality Control Board. Compliance with such regulations will ensure that water quality and waste discharge standards are met. The wastewater characteristics will be typical of urban development (residential homes, school and church) and will not result in any additional water releases that could potentially impact groundwater or water quality. Because the Project will allow for discontinued use of individual septic systems, the Project will likely have a beneficial impact on water quality because of the elimination of existing leaking or damaged septic systems and pipelines that currently exist. Compliance with the regulatory requirements of the County of Tulare, the State Water Resources Control Board, and the Regional Water Quality Control Board would result in a ***less than significant impact***.

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 the installation of a new packaged WWTP and sewer collection system that will replace existing septic systems currently in use in the Project Area. The Project will not use additional groundwater beyond what is already being used in the Project Area. Additionally, the proposed Project will not significantly interfere with groundwater recharge as it will not introduce significant new impermeable surfaces. As such, any impacts to groundwater supplies will be ***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 conversion from septic systems to a sewer collection system will introduce a minimal amount of new non-permeable surfaces. The pipelines and other improvements will be installed within the existing road right-of-way, or other easements and will not alter any existing drainage patterns. All areas where the improvements are made will be restored to pre-construction conditions. There are no waterways in the immediate vicinity of the proposed Project. Any impacts would be ***less than significant.***

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. The proposed Project involves the installation of a sewer collection system and packaged WWTP that will replace an existing septic system within the Project Area. The proposed Project pipelines are located largely within the existing streetscape within the CSD as presented in Figure 2 in Chapter Two – Project Description. The construction of the sewer lines and appurtenances would not cause any land use changes in the surrounding vicinity nor would it divide an established community. Once construction is completed, disturbed ground around the pipelines will be restored to pre-construction conditions. The packaged WWTP would be located on approximately 20 acres of vacant non-FMMP designated land. This area is not surrounded by any urban uses and thus would not cause an established community to divide. The proposed Project involves improvements to the existing sewer infrastructure system and does not conflict with any land use plans, policies or regulations. ***No impacts*** would occur as a result of Project implementation.

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. <u>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?</u>

b. <u>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?</u>

No Impact. The proposed Project involves the installation of a sewer collection system that will replace an existing septic system within the Project Area. Construction will take place within the existing streetscape and on a vacant field and not in an area with known mineral resources. 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. <u>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?</u>

b. <u>Generation of excessive groundborne vibration or groundborne noise levels?</u>

Less than Significant Impact. The nearest sensitive receptors to the proposed Project would be the residences along the existing pipeline alignment, as presented in Figure 2. Project construction would involve temporary, short-term noise sources including site preparation and installation of the pipeline and site cleanup work is expected to last for approximately 18 months. Construction-related short-term, temporary noise levels would be higher than existing ambient noise levels in the Project area, but is temporary and would not occur after construction is completed.

Operations-related noise would be similar to existing conditions. The pipelines themselves do not emit noise, nor do the related improvements such as the manholes. The proposed packaged WWTP would be located in an area without adjacent residences or businesses. As such, any on-going noise impacts to sensitive receptors would be less than significant.

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.

The County of Tulare provides regulations for hours of construction. Construction and demolition activities (excluding emergency work and activities that would result in a safety concern to the public or construction workers) shall be limited to between the hours of 7:00 a.m. and 7:00 p.m. Construction and demolition activities shall be prohibited on Sundays and federal holidays. Adherence to the County's Noise Ordinance will result in less than significant impacts associated with this topic.

Vibration

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.

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.

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?

Less Than Significant Impact. As there are no airports or airstrips in the vicinity, there is ***no impact***.

Mitigation Measures: None are required.

[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.

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. <u>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)?</u>

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

Less Than Significant Impact. There are no new homes or businesses associated with the proposed Project, nor would Project implementation displace people or housing. The proposed Project is needed to improve existing sewer infrastructure. 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?

No Impact. The proposed Project would improve the existing Project Area sewer system. The proposed Project would not directly or indirectly induce population growth and the County's fire suppression services would continue to provide service to the site. There is ***no impact.***

Police Protection?

No Impact. The proposed Project would improve the existing Project Area sewer system. The proposed Project would not directly or indirectly induce population growth and the County Sheriff's Department would continue to provide service to the site. There is ***no impact.***

Schools, Parks, Other Public Facilities?

No Impact. The proposed Project would not increase the number of residents in the CSD, as the Project does not include residential units. Because the demand for schools, parks, and other public facilities is driven by population, the proposed Project would not increase demand for those services. As such, the proposed Project would result in ***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 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

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
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. <u>Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?</u>

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

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

d. <u>Result in inadequate emergency access?</u>

Less Than Significant Impact. The proposed Project would not cause a substantial increase in traffic, reduce the existing level of service, create any additional congestion at any intersections, or be inconsistent with CEQA Guidelines Section 15064.3. Once constructed, the new WWTP, pipelines and appurtenances will not generate any substantial additional daily traffic (beyond routine maintenance traffic trips) and as such, level of service standards would not be exceeded. There are no components of the proposed Project that would increase hazards due to a geometric design feature. As traffic due to construction activities would be temporary in nature, the proposed Project would not cause a substantial increase in traffic or result in inadequate emergency access. Construction schedules pertaining to pipelines within roadways will be coordinated with police/fire/emergency services. Adequate emergency access will be maintained at all times.

Once installed, the new WWTP and pipelines would not generate significant additional traffic trips per day, other than as needed for periodic maintenance. 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.

A Sacred Lands File Request was submitted to the Native American Heritage Commission (NAHC) who provided a list of applicable Native American Tribes. Outreach letters and follow-up emails were sent to the tribal organizations on the NAHC contact list (Confidential Appendix). One response, from the Santa Rosa Rancheria – Tachi Yokut Tribe, was received. They requested environmental awareness training for the Project construction staff, archaeological monitoring and the completion of a curation agreement prior to Project start, to ensure that any discovered artifacts would be properly archived following the construction. Based on the results of the IC and NAHC records searches, the tribal outreach, the review of historical maps, and the Meyer et al. (2010) geoarchaeological sensitivity model, the APE appears to have low to moderate archaeological sensitivity.

The CSD will follow up with the Santa Rosa Rancheria – Tachi Yokut Tribe as applicable prior to any ground disturbing activities. 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. The proposed Project involves the installation of a new packaged WWTP and sewer collection system that will replace existing septic systems currently in use in the Project Area.

Currently, the CSD residences, Allensworth Elementary School, Church and Community Center are all on individual private septic tanks. There are growing concerns about groundwater contamination caused by inadequate wastewater treatment and disposal observed by the community's septic tanks. Some of the residences do not have septic systems and therefore, discharge raw wastewater directly into the ground. The CSD's system is regulated by Tulare County, which has been granted primacy by the California State Water Resources Control Board Division of Drinking Water.

The CSD is underlaid by hardpan, impervious clay layers. For this reason, during winter months, the community often experiences septic system overflows and flooding. The groundwater table remains high even during drought conditions, leaving the CSD with minor wastewater disposal capabilities, via leach fields, during the summer months and even less during the winter months. It is typical for the CSD residence to encounter foul odors and unhygienic conditions throughout the community due their inability to effectively disposal of their septic effluent. The State Water Resources Control Board adopted the Onsite Wastewater Treatment Systems (OWTS) Policy in July 2012. The OWTS Policy established new requirements that affect the regulation and management of septic systems. The requirements of the OWTS policy are expected to increase the long-term costs of operating and maintaining individual septic systems.[11]

The proposed Project is intended to provide a Project Area-wide sewer collection system and packaged WWTP that will eliminate the existing on-site septic systems with the intent to reduce the risk of contamination currently occurring from septic system failures. Wastewater that currently is disposed of in septic tanks in the CSD will be collected via the proposed pipelines and processed at the packaged WWTP. Wastewater disposal is carried out via evaporation ponds and effluent reclamation area. The maximum wastewater generation for the ACSD is approximately 65,000 gpd. The size of the evaporation/ percolation ponds required for disposal is determined from Water balance calculations as shown in Table 4-6 of Appendix A. The WWTP design and implementation will be performed under the regulatory

[11] ASM Consulting Engineers – *Allensworth CSD Septic to Sewer System Feasibility Study* (Sept. 2021), page 1.

requirements of the County of Tulare, the State Water Resources Control Board, and the Regional Water Quality Control Board. Compliance with such regulations will ensure that water quality and waste discharge standards are met. The wastewater characteristics will be typical of urban development (residential homes, school and church) and will not result in any additional water releases that could potentially impact groundwater or water quality. Because the Project will allow for discontinued use of individual septic systems, the Project will likely have a beneficial impact on water quality because of the elimination of existing leaking or damaged septic systems and pipelines that currently exist. Compliance with the regulatory requirements of the County of Tulare, the State Water Resources Control Board, and the Regional Water Quality Control Board would result in a ***less than significant impact***.

Mitigation Measures: As previously disclosed, the Project itself is the construction of a packaged WWTP and sewer collection system to replace existing septic systems. Since the Project is a "new" wastewater system, the mitigation measures identified within this CEQA document are being implemented to reduce any environmental impacts to a less than significant level (See Chapter Four – Mitigation Monitoring and Reporting Program for the applicable mitigation measures).

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

No Impact. The proposed Project includes the construction of a sewer collection system to replace existing septic systems. No new water supplies would be required as a result of this Project. There is ***no impact.***

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. See Response XIX (a) above. The maximum wastewater generation for the ACSD is approximately 65,000 gpd. The size of the evaporation/ percolation ponds required for disposal is determined from Water balance calculations as shown in Table 4-6 of Appendix A. Compliance with the regulatory requirements of the County of Tulare, the State Water Resources Control Board, and the Regional Water Quality Control Board would result in a ***less than significant 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 Project will not generate waste on an on-going basis and will comply with all federal, state and local statutes and regulations related to solid waste. 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. <u>Substantially impair an adopted emergency response plan or emergency evacuation plan?</u>

b. <u>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?</u>

c. <u>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?</u>

d. <u>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?</u>

Less Than Significant Impact. The proposed Project is located in areas that have been developed with urban uses/agricultural and there are no areas within or adjacent to the Project Area that have a significant wildfire risk. The Project will include a new packaged WWTP, underground pipelines and minor related improvements. There is no increased risk or on-going risk of wildfire beyond existing conditions associated with the Project.

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 Allensworth CSD – Septic to Sewer 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 CSD 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)
Biological Resources				
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 construction between September and February, a qualified biologist shall conduct surveys for Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (SWTAC 2000, Appendix D). These methods require six surveys, three in each of the two survey periods, prior to project initiation. Surveys shall be conducted within a minimum 0.5-mile radius around the Project site. 3. If an active Swainson's hawk nest is found within 0.5 miles of the Project site, and the qualified biologist determines that Project activities would disrupt the nesting birds, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.	Allensworth CSD	Prior to and/or during construction	Allensworth CSD and construction contractor	
BIO – 2 Protect San Joaquin Kit Fox 1. To protect San Joaquin kit fox, a qualified biologist shall conduct a preconstruction	Allensworth CSD	Prior to and/or during construction	Allensworth CSD and construction contractor	

	Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
	survey to identify potential dens (burrows larger than 4 inches in diameter) in suitable land cover types. If potential San Joaquin kit fox dens are present, their disturbance and destruction shall be avoided. If occupied or potentially occupied San Joaquin kit fox dens are adjacent to the work area, exclusion zones shall be implemented following USFWS procedures. Exclusion zones shall be determined based on the type of den and current use: Potential Den—50 feet; Known Den—100 feet; Natal or Pupping Den—to be determined on a case-by-case basis in coordination with USFWS and CDFW. All pipes greater than 4 inches in diameter stored on the construction site shall be capped, and exit ramps shall be installed in trenches and other excavations to avoid direct mortality. When possible, construction shall be conducted outside of the breeding season from October 1 to November 30. U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior or During Ground Disturbance (USFWS 2011) shall also be followed.				
BIO – 3	**Protect Tipton Kangaroo Rat** 1. To protect Tipton kangaroo rat, a qualified biologist shall establish an exclusion zone of 50 feet around all suitable burrows. If construction activities must occur within the exclusion zone, a qualified biologist holding	Allensworth CSD	Prior to and/or during construction	Allensworth CSD and construction contractor	

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
a federal recovery permit and state scientific collecting permit and memorandum of understanding for Tipton kangaroo rat shall conduct pre-construction live-trapping surveys to determine the presence of Tipton kangaroo rat following the survey methods identified in *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats* (USFWS 2013, Appendix F). Trapping should be conducted for a minimum of five consecutive nights. If trapping confirms the presence of Tipton kangaroo rat, the Project applicant will need to obtain an incidental take permit from the CDFW and a biological opinion and incidental take statement from the USFWS.				
BIO - 4: 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	Allensworth CSD	Prior to and/or during construction	Allensworth CSD and construction contractor	

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
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 Resources				
CUL - 1 Protect undiscovered cultural resources. In the event that archaeological remains are encountered at any time during development or ground-moving activities within the entire Project area, all work in the vicinity of the find should be halted until a qualified archaeologist can assess the discovery and take appropriate actions as necessary.	Allensworth CSD	Prior to and/or during construction	Allensworth CSD and construction contractor	

Chapter 5

PREPARERS

LIST OF PREPARERS

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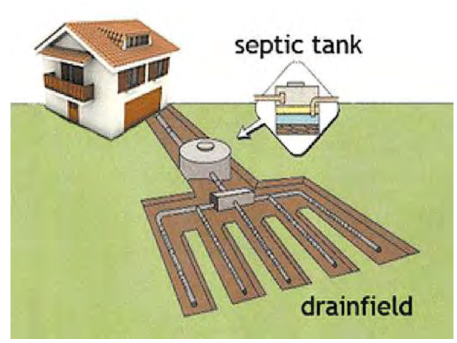
Appendices

Appendix A

Allensworth CSD – Septic to Sewer Feasibility Study

ALLENSWORTH
COMMUNITY SERVICES DISTRICT



SEPTIC TO SEWER SYSTEM FEASIBILITY STUDY

September 2022

Prepared by:

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ABBREVIATIONS

ACS	American Community Survey
ACSD	Allensworth Community Services District
Bgs	Below Ground Surface
BOD_5	Biochemical Oxygen Demand
CCR	California Code of Regulations
CDP	Census Designated Place
CGC	California Governing Code
District	District of Earlimart
CSD	Community Services District
CWSRF	Clean Water State Revolving Fund
DDW	Division of Drinking Water
DER	Department of Environmental Resources
DFA	Division of Financial Assistance
DWSRF	Drinking Water State Revolving Fund
eAR	electronic Annual Report
FEMA	Federal Emergency Management Agency
Gal	Gallons
gpcd	Gallons per Capita Day
gpd	Gallons per Day
gpm	Gallons per Minute
HP	Horsepower
kWh	Kilowatt Hour
LAFCO	Local Agency Formation Commission
LAMP	Local Area Management Plan
MCL	Maximum Contaminant Level
MDB&M	Mount Diablo Base and Meridian
MDD	Maximum Daily Demand

MHI	Median Household Income
MND	Mitigated Negative Declaration
O&M	Operation and Maintenance
OWTS	Onsite Wastewater Treatment System
RWQCB	Regional Water Quality Control Board
SCWS	Small Community Water System
SDAC	Severely Disadvantaged Community
STEP	Septic Tank Effluent Pumping
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
TMF	Technical, Managerial, and Financial
US EPA	United States Environmental Protection Agency
WWTP	Wastewater Treatment Plant
WDRs	Waste Discharge Requirements
WSA	Water Service Agreement
Well 1	East Well
Well 2	West Well

CHAPTER 1 Introduction

1.1. Purpose of Study

The purpose of this Septic to Sewer Feasibility Study (Study) is to evaluate feasible alternatives to improve the individual on-site septic systems currently installed at the Allensworth Community Services District (ACSD). This Study is intended to determine the most feasible alternative to collect, treat and dispose of wastewater generated within ACSD.

This Study includes an overview of the existing on-site wastewater treatment systems (OWTS) and an evaluation of four feasible alternatives. The Study also includes opinions of probable construction cost and operation and maintenance (O&M) costs for each alternative.

1.2. Background

Allensworth is a small rural community located in southwestern Tulare County in Sections 9 & 16, Township 24 South, Range 24 East, M.D.B. & M. ACSD is bounded by Avenue 24 to the south and Highway 43 to the east. Figure 1-1 contains an aerial photo showing the boundaries of ACSD in relation to Earlimart and Alpaugh Community Services Districts.

Allensworth was founded in 1908 and is located where what used to be the southeastern edge of the ancestral Tulare Lake. The community is currently provided potable water by the ACSD which was established in 1981. ACSD sole source for potable water are two groundwater wells. ACSD service area encompasses approximately 804 acres consisting of approximately 144 occupied households including the ACSD community center, Allensworth Elementary School, and the community church. ACSD owns and operates a community wide water system which is currently serving approximately 531 customers.

Currently, the ACSD residences, Allensworth Elementary School, Church and Community Center are all on individual private septic tanks. There are growing concerns about groundwater contamination caused by inadequate wastewater treatment and disposal observed by the community's septic tanks. Some of the residences do not have septic systems and therefore, discharge raw wastewater directly into the ground. ACSD is underlaid by hardpan, impervious clay layers. For this reason, during winter months, the community often experiences septic system overflows and flooding. The groundwater table remains high even during drought conditions, leaving the ACSD with minor wastewater disposal capabilities, via leach fields, during the summer months and even less during the winter months. It is typical for the ACSD residence to encounter foul odors and unhygienic conditions throughout the community due their inability to effectively disposal of their septic effluent. The State Water Resources Control Board adopted the Onsite Wastewater Treatment Systems (OWTS) Policy in July 2012. The OWTS Policy established new requirements that affect the regulation and management of septic systems. The requirements of the OWTS policy are expected to increase the long-term costs of operating and maintaining individual septic systems.

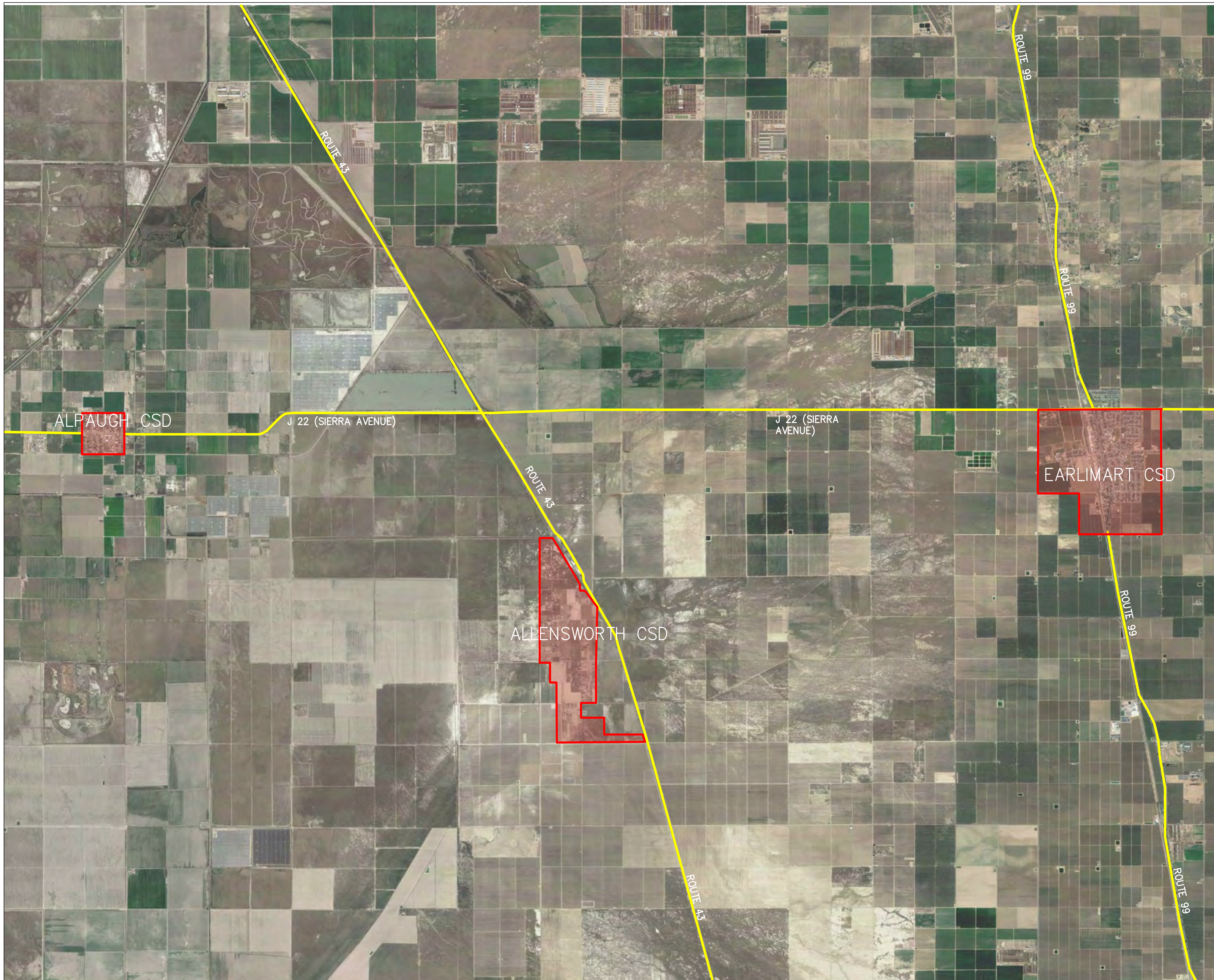
ACSD is considered a Severely Disadvantaged Community (SDAC). According to the 2019 U.S. Census American Community Survey, ACSD Median Household Income (MHI) was $45,156, which is 57% of the Median Income for the State of California.

ACSD is conducting this study to evaluate the feasibility of providing a community sewer collection and treatment system to all parcels in the service area. The goal is to protect the underlying groundwater and to provide a sustainable and affordable way to provide sewer service to the community. Several Alternatives are further investigated in this Study. The Alternatives being considered are:

1. Alternative I: Septic systems Upgrade,
2. Alternative II: Consolidate wastewater with the nearby Earlimart Public Utility District,
3. Alternative III: Construction of a STEP sewer collection system with a centralized wastewater treatment facility, and
4. Alternative IV: Construction of a community sewer collection network with a centralized wastewater treatment facility
5. Alternative V: No project

This planning study will conduct a feasibility analysis of potential sewer collection and treatment system alternatives and determine any improvements required to provide sewer service to the community under a preferred alternative.

Figure 1-1 Study Location



ALLENSWORTH CSD

PRELIMINARY ENGINEERING REPORT

LEGEND

MAJOR ROADWAYS

CITY LIMITS

NORTH

SCALE IN FEET

0 6,750 FT

FIGURE 1-1
ALLENSWORTH CSD
VICINITY MAP

CHAPTER 2 EXISTING FACILITIES

2.1. Study Area Location and Setting

The town of Allensworth is located in the southern San Joaquin Valley approximately 3 miles north of the Tulare-Kern County Line. It is a semi-arid climate surrounded by agricultural land uses. The Allensworth Ecological Reserve is to the east, directly adjacent to the community and the State Historic Park is located to the north. In addition, the Pixley National Wildlife Refuge is just north of the ACSD.

Allensworth is a census designated place (CDP) encompassing 3.1 square miles of land at an elevation of 213 feet above sea level. Figure 2-1 displays the ACSD service area boundary.

The District's system is regulated by the Tulare County, which has been granted primacy by the California State Water Resources Control Board Division of Drinking Water (SWRCB-DDW). The Tulare County Department of Health and the SWRCB-DDW is responsible for the administration and enforcement of the Safe Drinking Water Act involving systems in Tulare County with fewer than 200 connections.

ACSD is located approximately 11 miles west of the Earlimart Public Utility District (EPUD). It is largely bounded by agricultural uses and agricultural residences. In addition to the residential connections, ACSD serves a school, church, and a community center. Land use trend in Allensworth is expected to remain primarily agricultural, and not anticipated to change in the near future.

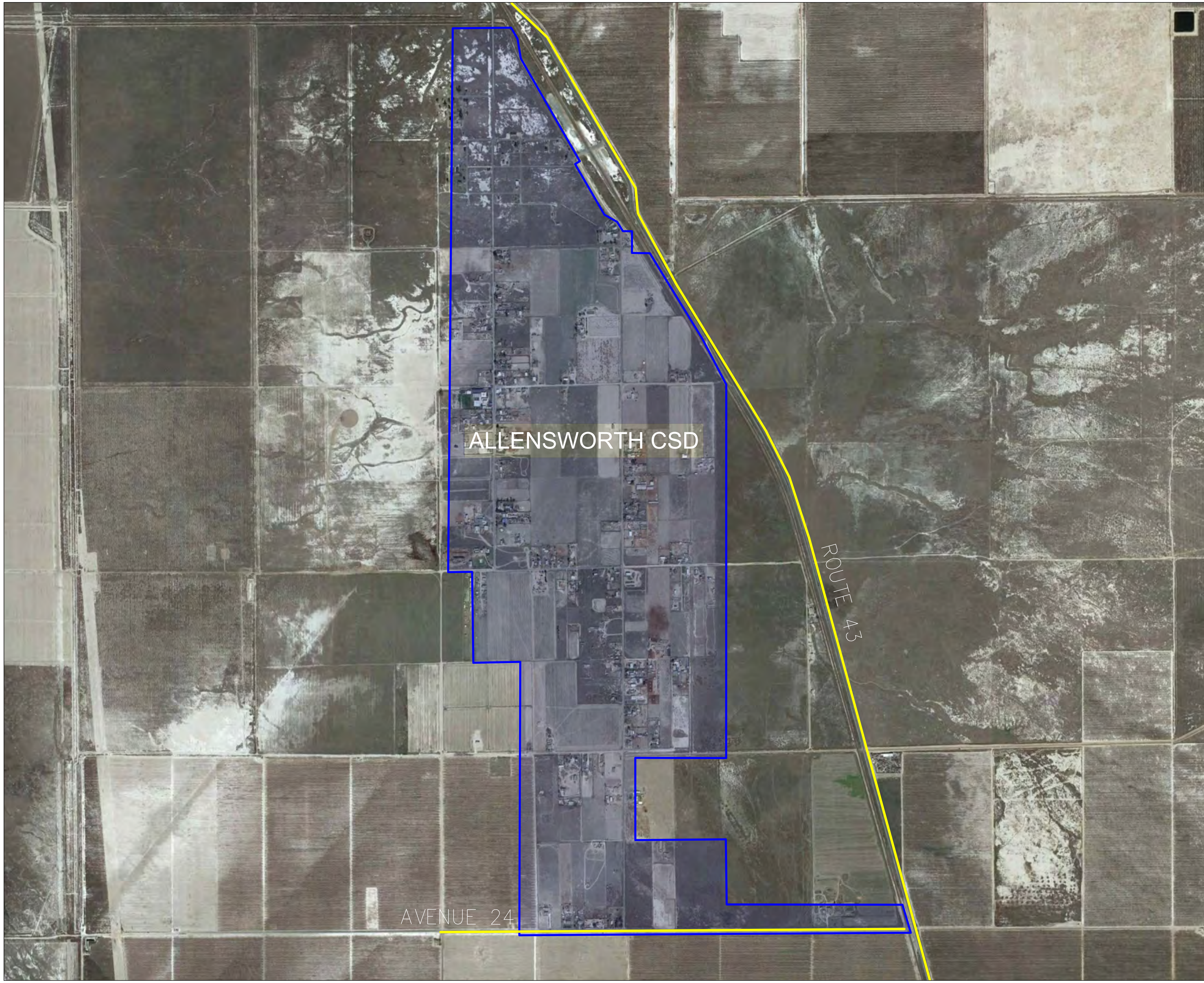
The ACSD service area and vicinity does not contain any watercourses, ponds, springs, or elevated ground such as ridges and knolls. The Allensworth State Park is a location of Historic significance. There is also no evidence of endangered plants or animals within the ACSD service area. Alluvial fans formed by the Kern and Kings River are the largest geomorphic features in the Allensworth area.

Surface geology in the study area is generally flat, as a result of the alluvial fan formation. The study area surface soil consists mostly of silty sand to depths of 6 and 12 inches. These soils are disturbed, have low strength characteristics and are highly compressible when saturated. Below the loose surface soil, approximately 2 to 3 feet of medium dense to dense silty sand or sandy silt may be encountered. Two permeability tests performed on soil samples collected from 10 feet below site grade revealed the soil type low permeability clayey sand. Boring log results from a 2020 geotechnical survey of a project site in Allensworth show that silty clays were encountered between 8 and 12 feet below the site grade in the area.

Granular soils generally have a relative consistency of medium dense to very dense, while the fine-grained soils generally have a relative consistency of very stiff to hard. Soils such as gravel and sand are ideal for leach fields because they allow the wastewater to seep through the soil more rapidly than clay. Evaporation ponds are preferred in areas with high density clayey sands that restrict fast seepage of wastewater into the ground.

Topography in the ACSD service area is generally gently sloping toward the north of the district. The ACSD service area lies within a Federal Emergency Management Agency (FEMA) designated flood plain. More specifically, the ACSD lies within a Zone AO flood designation (Map Number 06107C2250E, dated June 16, 2009), indicating areas of 1 percent shallow flooding from sheet flow on sloping terrain.

Figure 2-1 Allensworth Community Layout



ALLENSWORTH CSD

PRELIMINARY ENGINEERING REPORT

LEGEND

MAJOR ROADWAYS

DISTRICT BOUNDARY

SCALE IN FEET

0 1,500 FT

FIGURE 2-1
ALLENSWORTH CSD
BOUNDARY MAP

2.2. Population Growth

According to the 2010 Census, the ACSD had a population of 471 people. The population grew to 531 per the 2020 Census estimates. This represents an average annual growth rate of approximately 1.21 percent from the years of 2010 to 2020. Table 2-1 provides a population projection for the ACSD through 2040 using a growth rate of 1.21%.

Table 2-1 ACSD Population Projection

Year	Population
2020	531
2025	564
2030	599
2035	636
2040	675

2.3. Service Connections

As of 2020, there are 141 residential water connections serving 531 residents of the community. There are 3 commercial connections including the Allensworth Elementary School District, the community center and the church. These service connection estimates are obtained from ACSD's existing customer database for water service connections. From the population estimates and existing service connections, the average household size in Allensworth is estimated to be 3.76 (531 residents/ 141 residential service connections). Table 2-2 provides a service connection projection for ACSD through 2040 by assuming a household size of 3.76.

Table 2-2 ACSD Service Connection Projection

Year	Residential	Commercial	Total
2020	141	3	144
2025	150	4	154
2030	159	4	163
2035	169	4	173
2040	179	5	184

ACSD is projected to serve an additional 40 service connections by 2040 as per current growth trends. These connections are projected to be mostly residential connections with two additional commercial connection anticipated in the next 20 years. No industrial connections are anticipated at this point.

Total service connections of 144 is used in this report to arrive at construction costs and monthly O&M costs for providing sewer service to the residents of Allensworth.

2.4. Sewer & Septic

Properties within ACSD rely on individual septic systems as the primary treatment and disposal method for their wastewater. Wastewater is disposed of in individual leach fields or seepage pits where it percolates through the soil. The high groundwater table in the region causes a saturation of the drain fields and often results in septic system overflows which lead to unhealthy living conditions. ACSD currently has no sanitary sewer collection system or wastewater treatment facility in the community, or immediately adjacent to it.

The current individual septic tank/leach field system approach to providing wastewater treatment and disposal service presents a difficult situation for ACSD residents, most of whom are economically disadvantaged. Staying with the individual septic tank/leach field systems keeps near-term costs low but may have costly changes in the future due to increasing stringent regulations. Additionally, there may be significant future costs associated with staying with individual septic tank/leach field systems: individually replacing systems failing simply from age and decay or replacing systems in mass because of groundwater contamination and/or changes in regulations. Moving away from individual septic tank/leach field systems is infeasible economically for the community without major grant funding.

2.5. Collection System

ACSD does not have a community sewer collection system. ACSD residents utilize individual parcel septic tanks and on-site leach fields, or seepage pits as described above. Therefore, there is no existing collection system for the area other than the on-site drains from structures to the septic tank locations.

2.6. Wastewater Treatment and Effluent Disposal Facilities

Allensworth residents utilize individual septic tanks and on-site leach fields/seepage pits. The septic tanks facilitate anaerobic breakdown of organics in the sewage and accumulate solids in the septic tank that must be periodically removed and disposed of at a permitted septage receiving facility. Common durations between septic tank pumping range from three years to seven years, with an approximate five-year average.

Modern septic system standards call for septic tanks to be sized based on the building service and anticipated sewage load. For residential homes, tanks are most often sized based on the number of bedrooms in the house, with the expectation that bedrooms reflect the population and wastewater generation that may be produced and discharged to the septic system. Table 2-3 displays the minimum septic tank capacity required for residential homes in California, according to the 2016 California Plumbing Code, based on the number of rooms in the residence.

Table 2-3 Capacity of Septic Tanks in California

Single Family Dwellings	Multiple Dwellings Units or Apartments	Minimum Septic Tank Capacity
Number of Bedrooms	Number of Bedrooms	Gallons
1 or 2	-	750
3	-	1000
4	2 units	1200
5 or 6	3	1500
-	4	2000
-	5	2250

Table 2-3 Capacity of Septic Tanks in California

Single Family Dwellings	Multiple Dwellings Units or Apartments	Minimum Septic Tank Capacity
Number of Bedrooms	**Number of Bedrooms**	**Gallons**
-	6	2500
-	7	2750
-	8	3000
-	9	3250
-	10	3500

The sizes of the existing septic tanks in ACSD are unknown and probably vary, but it is known that many of them were installed in 1987. Thirty-five years ago, it was common to install 500- to 800-gallon septic tanks and it is therefore possible that the existing ACSD septic tanks do not meet current design standards. Effluent Disposal areas are sized based on the results of soil percolation, soil mantle data (water percolation rates into the soil and the geomorphology of the near surface soils) and the expected flow produced per residence. Details of the percolation, mantle data, and the existing leach fields in Allensworth are unknown as of the writing of this report. As the criteria for leach fields/seepage pits have become more stringent over time, it is possible that some of the existing leach fields do not meet current design criteria.

For the purpose of this study, the wastewater flows produced from each residence will be estimated using the population of the community and a peak wastewater generation factor of 100 gallons per capita day (gpcd). Average per capita wastewater generation factor for a residential user is estimated to be 60 gpcd. This estimate was obtained from wastewater system manufacturers and align with the typical wastewater production numbers seen in California's central valley. Table 2-4 shows the wastewater production for the ACSD for a 20-year period through 2040.

Table 2-4 Projected Wastewater Production

	2020	2025	2030	2035	2040
Projected Service Area Population	531	564	599	636	675
Projected Average Demand (MGD)	31,860	33,840	35,940	38,160	40,500
Projected Peak Demand (MGD)	53,100	56,400	59,900	63,600	67,500

Based on the projections shown in table 2-4, peak wastewater flow of 67,500 gallons per day is estimated in 2040. For the purpose of this report, the centralized treatment systems are designed for a peak capacity of 67,500 gallons per day.

2.7. Condition of Existing Wastewater Facilities

A parcel-specific survey of the septic tank conditions was conducted, and the findings can be found in Appendix A of this study. The conditions of the existing individual septic tanks and leach fields/seepage pits are unknown at this time because they must be individually dug up and examined. Some of the existing facilities could be nearing the end of their useful life or may have sizing deficiencies. Concrete tanks could be experiencing internal or external corrosion, there could be pipe connection leaks or breaks, and the leach fields could be binding the soils. These conditions could result in degradation or contamination of groundwater over time or surfacing of septic system effluent. The known problems manifesting in the ACSD service area are low seepage due to the underlaying clay layer, as well as the lack of any wastewater treatment infrastructure in some of the residences. The ACSD board members have noted that the lack of safe and sanitary disposal of wastewater in the community has rendered the groundwater in Allensworth unfit for domestic use. It should be noted that only 20 percent of the responders to the septic tank survey have reported problems with their individual parcel septic tank/leach systems. However, 80% of the responders showed preference for a public sewer system over a septic tank system. The survey responses are provided in Appendix A.

2.8. Existing Potable Water Facilities

ACSD owns and operates the community's water system which currently serves single family residential households, a community center, a school, and a community church for a total of 144 active water service connections.

ACSD water supply consists of two groundwater wells: the east well (Well 1) and the west well (Well 2). Allensworth has high concentrations of Arsenic in the well water and has received notices of violation for MCL exceedance. In addition to that, the water produced by the wells is showing increasing concentrations Nitrate (as N) in the past few years.

2.9. Operation and Management of Existing Facilities

ACSD receives potable water from the two wells located 3 miles east of Allensworth. Because there is presently no community wastewater collection, treatment, or disposal system, sewer service is not currently provided by ACSD. The existing septic systems are private and their service, mostly periodic septic pumping, is provided by property owners or their designees. Any communitywide wastewater collection and treatment facilities will be provided by ACSD. If installed, ACSD services would be expanded to also maintain and operate the sewer facilities.

2.10. Financing Status of Existing Facilities

ACSD's source of revenue is derived from connection fees and monthly water service charges. Table2-4 displays the current average water rates structure for the ACSD.

Table 2-5 ACSD Water Rates

Active Connections	Inactive Connections
$47	$10

CHAPTER 3 NEED FOR THE PROJECT

3.1. Project Need

This section describes the need for improvements to Allensworth's current wastewater treatment and disposal method. The ultimate goal is to provide ACSD with feasible wastewater treatment and disposal facilities that protect public health, preserve groundwater resources, prevent nuisance odors, septic system overflows, preserve the surrounding environment, and foster community prosperity in a manner affordable for the severely disadvantaged community.

The ACSD is a severely disadvantaged community that has been faced with many hardships while trying to comply with growing septic system regulations, such as the Local Agency Management Plan (LAMP) and OWTS policies. The need for this project is driven by several factors, including, but is not limited to, the following:

1. Existing septic systems are over 35 years old.
2. Residents can smell foul odors throughout the community caused by failing septic systems.
3. Surfacing of septic effluent from seepage pits and leach fields can be observed. Especially during the winter months while the groundwater table is at a yearly high.
4. Some of the septic tanks within the community are installed half-way above ground due to the high water table. For example, the Allensworth CSD School.
5. High nitrate concentrations in the groundwater due to untreated sewage released to the environment.
6. Due to the high nitrate concentration in the surrounding groundwater, the Districts primary potable water source are two groundwater wells constructed approximately 2 miles away east of the community.
7. Eliminate the potential for community exposure to surfacing septic system effluent.
8. Reduce the potential for further degradation of groundwater.
9. Compliance with Tulare County LAMP and the OWTS Policy.

The following factors adversely affect the health, sanitation, security, environment, and community prosperity for the ACSD:

1. Inefficient septic tank leaching/seeping can result in surfacing of septic tank effluent, which can be a health, safety, and environmental hazard.
2. Old septic systems are subject to failure due to corrosion, pipe cracking, and clogs, which can result in surfacing of sewage or potential contamination of groundwater, which would be detrimental to the public health, security, and prosperity of the community.
3. Small individual lots can have insufficient space to replace on-site systems to newer accepted design standards when the old systems ultimately fail.
4. Reliance on on-site septic systems limits the ability of the community to attract higher density residential developments. This lack of growth may affect the economic security and long-term prosperity of the community.

CHAPTER 4 ALTERNATIVES CONSIDERED

4.1. Introduction

The following feasible wastewater treatment and collection alternatives are evaluated in this Study:

1. Alternative I: Septic systems Upgrade,
2. Alternative II: Consolidate wastewater with the nearby Earlimart Public Utility District,
3. Alternative III: Construction of a STEP sewer collection system with a centralized wastewater treatment facility, and
4. Alternative IV: Construction of a community sewer collection network with a centralized wastewater treatment facility

4.2. Alternative I – Septic Systems Upgrade

This alternative considers the upgrade of existing onsite septic systems. It is known that most of the septic systems in Allensworth were installed around 1987-88. Therefore, the septic tanks have been operating for approximately 35 years and are approaching the end of their service life.

For this alternative, conventional septic systems will be replaced with new advanced OWTSs and disposal fields (leach fields). Retrofitting houses with ultra-low flush toilets and other water conserving plumbing devices may also be recommended to reduce the volume of wastewater. The specific siting and design criteria for each alternative technology would have to be in accordance with currently adopted standards of the County and RWQCB or based on criteria developed and agreed upon by both agencies specifically for this Project.

This alternative would provide for replacement and upgrade of all existing septic systems in the Study Area. Septic systems would need to be upgraded to a minimum set of standards or determined to be in compliance with a minimum performance standard that would assure proper functioning and elimination of public health and water quality concerns. The current standards for Tulare County and the Regional Water Quality Control Board (RWQCB) would apply, with the possibility of adopting certain local modifications with concurrence by both of these agencies. In general, all applicable siting criteria (i.e., soil depth, percolation, groundwater, etc.) would be considered to the greatest extent possible in evaluating and designing septic system upgrades.

This alternative will include a monitoring system to oversee the OWTS's functionality. More specifically, a programmable logic unit would be incorporated into each OWTS to control the systems pump and provide alarm functions.

The primary shortcoming of this alternative is the heavy reliance on advanced OWTSs and the substantial variances to normal siting and design standards. The septic system upgrade efforts would largely eliminate the public health hazards and water quality threat from septic systems. Existing substandard or marginally operating systems would be eliminated in favor of advanced treatment units, including new leach fields.

Potential negative aspects of this plan would be that upgrades and replacements would be required in the future after the life expectancy of the new OWTS's are reached. This alternative represents a substantial improvement in reliability over existing conditions through the proposed implementation of advanced OWTS's.

4.2.1. Description of Proposed OWTS

A conventional onsite treatment system consists of a septic tank followed by a leach field. Wastewater flows from a residence into a buried tank. Under anaerobic conditions in the tank, most of the nitrogen remains in ammonia and organic form and is discharged with the septic tank effluent. Septic tanks typically discharge to leach fields, which provide some further treatment by filtering the septic tank effluent.

The solids that accumulate in the septic tank need to be removed periodically, depending on the specific application and wastewater characteristics. Solids removal is usually conducted by a licensed septic hauler using a septic pumping and hauling truck. The septic hauler removes the settled sludge, liquid contents, and scum layer. The liquid and solid contents from the septic tank are typically hauled to a wastewater treatment facility for treatment.

Septic tank and leach field discharges contain elevated nitrogen concentrations and supplementary treatment technologies must be added to reduce nitrogen in the septic tank effluent. Regulatory agencies have adopted a maximum contaminant level (MCL) of 10 mg/l for total nitrogen in wastewater that percolates into an aquifer used to supply drinking water. The MCL is consistent with the drinking water MCL and is intended to protect the beneficial uses of the groundwater. The following technologies are commercially available to reduce nitrogen to less than 10 mg/l.

4.2.2. Trickling Biofilters (Attached Growth Aerobic Treatment Systems)

The fundamental components of the trickling biofilter system are (1) a medium upon which a microbial community (biofilm) develops, (2) a container or lined excavated pit to house the medium, (3) a system for applying the water to be treated to the medium, and (4) a system for collection and distribution of the treated water. The water to be treated is applied, periodically, in small doses to the medium. Trickling biofilters can be operated in single pass of multi-pass configurations. Some biofilters require a separate aerobic pre-treatment while others are housed in the same unit.

Examples of commercially available trickling biofilters able to provide total nitrogen levels below 10 mg/L include Orenco's AdvanTex series septic tanks. More information about these systems and how they operate is included in Appendix B.

4.2.3. Suspended Growth Aerobic Treatment Systems

Suspended growth OWTS consists of a tank with a suspension of wastewater and treatment organisms in an aerated tank. The suspended growth process can be used for onsite wastewater treatment, generally requiring the addition of an air pump to deliver oxygen to the system and provide mixing energy. Suspended growth treatment systems can be secondary only (require supplemental primary treatment) or combined primary and secondary treatment processes. Designs typically consist of aeration, clarification, and sludge return processes. Some systems operate under an extended aeration mode for enhanced constituent transformation.

Examples of aerobic treatment system able to provide total nitrogen levels below 10 mg/L are Norweco's Singulair TNT, Orenco Advantex AXMax, and Presby AES systems. More information about these systems and how they operate is included in Appendix B.

4.2.4. Reliability

Typically, advanced OWTS technologies rely on biological treatment. Wastewater must contain low levels of toxic substances for the system to function properly. Public education about the types of chemicals and toxic substances that could damage the biology of the advanced OWTS will be required to improve the performance of this alternative.

The advanced OWTS requires consistent levels of nutrients. If a household is vacant for part of the year, the microbes will die during this period, and it will take some time to reestablish its microbial communities after the flows start up again. This is not considered to be an issue for Allensworth.

4.2.5. Disposal

There are two commonly used options for disposal of advanced OWTS effluent: leach fields and subsurface irrigation. The existing OWTS in the ACSD use leach fields as the primary method of disposal. If leach fields are utilized, their size is dependent on the percolation rate of the soil. Once the percolation rate has been determined, an appropriate wastewater loading rate can be established and the leach field can be sized. In order to use leach fields, the percolation rate is required to be within the range of 1 to 120 minutes per inch.

For this Study, each parcel will continue using leach fields as the primary disposal method for their effluent wastewater. Since the advanced OWTS will be designed to reduce the total nitrogen concentration in the effluent to less than 10 mg/l, it would not require additional nitrogen reduction through subsurface irrigation.

4.2.6. Monitoring and Control Systems

Monitoring of process operation and performance is necessary. Most advanced OWTS are complex and automated monitoring and control systems are critical. System controls are necessary for controlling pumps, alarms, and other process equipment. Most manufacturers of onsite wastewater treatment systems provide basic control and alarm systems to alert the system owner of a malfunction.

4.2.7. Footprint Requirements

Installing advanced OWTS will require extensive ground disturbance within each individual lot. It is assumed that most septic systems are beyond their service life and will be replaced to ensure no leakage. Advanced treatment steps would require additional excavation adjacent to the septic tanks to install a suspended growth system or an intermittent attached growth filter.

For effluent disposal, direct discharge to the groundwater via leach fields will be used. New leach fields may need to be built to ensure proper disposal of the effluent.

4.2.8. Groundwater Contamination

The groundwater underlying the ACSD is contaminated with nitrates. The recognized beneficial uses of the groundwater underlying the ACSD include municipal supply. If an onsite system was to be permitted, the effluent nitrogen limits would need to be protective of the recognized beneficial uses. In the Waste Discharge Requirements (WDRs) issued for recent projects, the Regional Water Quality Control Board has established effluent limits at 10 mg/L to be protective of groundwater.

4.2.9. Capital Costs

The cost of an advanced OWTS depends on the selected supplementary treatment technology manufacturer and how the effluent is disposed. Equipment costs vary among manufacturers. During the preparation of this Study, quotes were requested from reputable manufacturers. After evaluation, the Orenco AdvanTex AX20-RT OWTS was selected to be implemented at all of the residential households, and the AdvanTex AX40-RT was selected to be incorporated into both the Church and the Elementary School for the purpose of cost estimation. The full estimate received from Orenco can be found in Appendix C of this report. The life expectancy of the leach fields is approximately half that of individual septic system depending on the volume of waste that is discharged and the soil properties. For this reason, it is recommended to simultaneously replace the existing leach fields with the septic systems. Typical leach fields cost approximately $10,000 construction and installation. A cost of $10,000 per connection has been included in this alternative to remove/dispose of the existing septic systems and construct a new sewer lateral out of each property. New laterals must be replaced simultaneously with the septic systems upgrades.

Table 4-1 shows the estimated costs to remove the existing septic systems, furnish and install new septic tanks, the Orenco AdvanTex AX20-RT/AX40-RT advanced OWTS, and new leach fields. Only developed parcels are used in this estimate. Undeveloped parcels will not require the installation of an OWTS. Only active connections are used for the purpose of estimating costs in this report. If the number of active connections change between the time of preparation of this report and the construction, the individual service charge estimates will vary.

Table 4-1 Alternative I: Capital Construction Costs

Item	Description	Quantity	Unit	Unit Cost	Total
1	Advantex AX20-RT with Installation	141	LS	$3,939,836	$3,939,836
2	Advantex AX40-RT with Installation	3			
3	Prelos Tank - 1,500 Gal with Installation	141			
4	Xerexes Tank - 6,000 Gal with Installation	3			
5	Vericomm Control Panel	141			
6	TCOM Control Panel	3			
7	Delivery	1	LS	$172,000	$172,000
8	New Leach Field with Installation	144	EA	$10,000	$1,440,000
9	Existing Septic Tank Destroy/Removal, New Sewer Lateral Addition	144	EA	$10,000	$1,440,000
				Subtotal	**$6,991,836**
Contingency		10%	of subtotal		$699,184
Engineering, Environmental, Construction Adm. (25%)		25%	of subtotal		$1,747,959
				Total	**$9,438,979**
				Total Construction Cost per Active Connection [1]	**$65,548**

Note:
[1] $9,438,979 /144 Active Connections = $65,548 per Active Connection

According to Table 4-1, the cost to furnish and install new septic tanks, advanced OWTS, and leach fields in all of the developed and active parcels within ACSD Service Area would be approximately $9,438,979, or $65,548 per connection.

4.2.10. O&M Costs

According to Orenco, the new AdvanTex AX20/40-RT has been designed to passively vent to drastically reduce the electrical cost to run each unit. Orenco estimates the monthly electrical cost to be approximately $5 per month to power each Orenco treatment unit. That cost would be paid by individual property owners but is included here as part of the overall operational cost of this alternative.

Annual operation and maintenance costs for Alternative I are summarized in Table 4-2. O&M costs were estimated based on administration costs, annual O&M costs for the OWTS, capital reserve and debt servicing. Administrative costs of $5,000 per annum include the costs associated to produce and mail monthly bills. The annual OWTS Operations/Maintenance costs were developed based on the energy costs to run each unit, filter cleaning, and miscellaneous maintenance on each unit and solids pumping which must occur, at a minimum, every 5 years. The annual OWTS Operations/Maintenance costs include the approximately $100 per year for pumping of accumulated solids (estimated to be approximately $500 every 5 years), maintenance agreements which are estimated at $400 per household per year, and electricity costs incurred by the resident. A capital reserve is included in this report to fund the replacement of short-lived assets. According to Orenco, the short-lived assets associated with the OWTS's are the treatment unit's influent pump and 4 floats which control various alarms. These short-lived assets are expected to last approximately 20 years. The influent pump costs approximately $2,250 to purchase and install, while each float cost approximately $250 to purchase and install. The total cost of $2,500 has been distributed across the 20-year life span and multiplied by 144 to fund the replacement of all OWTS short lived assets (i.e., $16,200). Per the draft Intended Use Plan for 2022-23, the maximum grant funding per residential connection is $45,000, which would amount to $6,480,000 for 144 connections. The capital costs beyond the maximum construction grant funding of $45,000 per connection must be obtained in the form of a loan at an interest rate of 1%. The debt service toward the repayment of the loan over a 30-year period is also added to the monthly expense incurred by the customer. Table 4-2 provides a summary of annual costs associated with this alternative. It assumed that the O&M costs would be equally shared by the 144 active connections.

Table 4-2 Alternative I: Annual O&M Costs

Item Description	Total Cost
Administration	$5,000
OWTS Operation/Maintenance	$80,640
Capital Reserve	$16,200
Debt Service	$114,655
Total Annual O&M Cost	**$216,495**
Total Annual O&M Cost per Active Connection (1)	**$1,503**
Sewer Rate per Month (2)	**$125**

Note:
(1) $ 216,495/ 144 Active connections = $1,503
(2) $ 1,503 / 12 Months = $125

4.2.11. Project Funding

Allensworth is a severely disadvantaged community and for this reason, has obtained grant funding to complete this Study. If this Study is accepted by the community, then a construction grant will be awarded to complete the construction of the proposed improvements. If the capital expenditure is greater than the maximum grant funding ($45,000 per connection for construction or $60,000 per connection for a good cause), ACSD will need to obtain a 30-year construction loan for the remaining amount and make monthly payments towards it in the form of debt service.

4.2.12. Regulatory Concerns and Permitting Issues

The installation of advanced OWTS can perform as intended if the individual systems are adequately maintained at all times. Regulatory agencies will require assurance that ACSD will perform the required maintenance on each OWTS on a regular basis. Without those assurances obtaining a permit for this alternative may be challenging.

4.3. Alternative II: Consolidate Wastewater with Earlimart

Alternative II includes the construction of a community sewer collection system, a pump station, and a force main to discharge into Earlimart Public Utility District's Wastewater Treatment Plant (WWTP) for ultimate treatment and disposal.

The community sewer collection would consist of a network of conventional gravity sewer mains and manholes. Wastewater will flow by gravity from the individual properties into the sewer mains and ultimately into the pump station for distribution. An 8.3-mile-long force main will be constructed to convey flows from the pump station to the headworks of the Earlimart WWTP. The discharge directly into the headworks of the Plant was selected based on ACSD's location in relation to Earlimart.

The sewer collection system will require approximately 29,360 feet of gravity collection mains and 70 manholes. Manholes will be placed strategically based on Tulare County standards. According to County standards, spacing between manholes cannot exceed 500 ft and if possible, will be placed at equal distances around the collection system. For this reason, majority of the manholes will be placed every 390 feet. The gravity sewer collection system will convey the sewage from the entire ACSD to a pump station located north of the intersection of Young's Rd and Avenue 36. A new 4" force main will convey the sewage from Allensworth sewer collection system lift station to Earlimart's WWTP for ultimate treatment and disposal. A preliminary layout of the proposed gravity sewer collection system is shown in Figure 4-1. A detail of the force main connecting to Earlimart is shown in Figure 4-2.

The force main, to connect Allensworth with Earlimart, will utilize mostly conventional pipe trenching methods. This method of construction will require obtaining right-of-way permits. Directional drilling or trenchless construction (i.e. bore and jack) will be required to pass under major traffic routes, railroad, or a major canal. The force main will be installed to maintain a minimum cover of at least 3 feet following the natural contouring of the ground.

Discharging to the Earlimart WWTP will require a startup connection fee and a monthly discharge fee based on the metered flows discharged into the system. Alternative II is consistent with RWQCB policies that encourage consolidation with a larger utility whenever feasible. This alternative would require that the ACSD authority expand their services to include sewer service in order to remain independent from Earlimart.

ALLENSWORTH CSD
PRELIMINARY ENGINEERING REPORT

LEGEND

- COLLECTION MAIN
- SERVICE LATERALS
- DISTRICT BOUNDARY
- PUMP STATION

NORTH

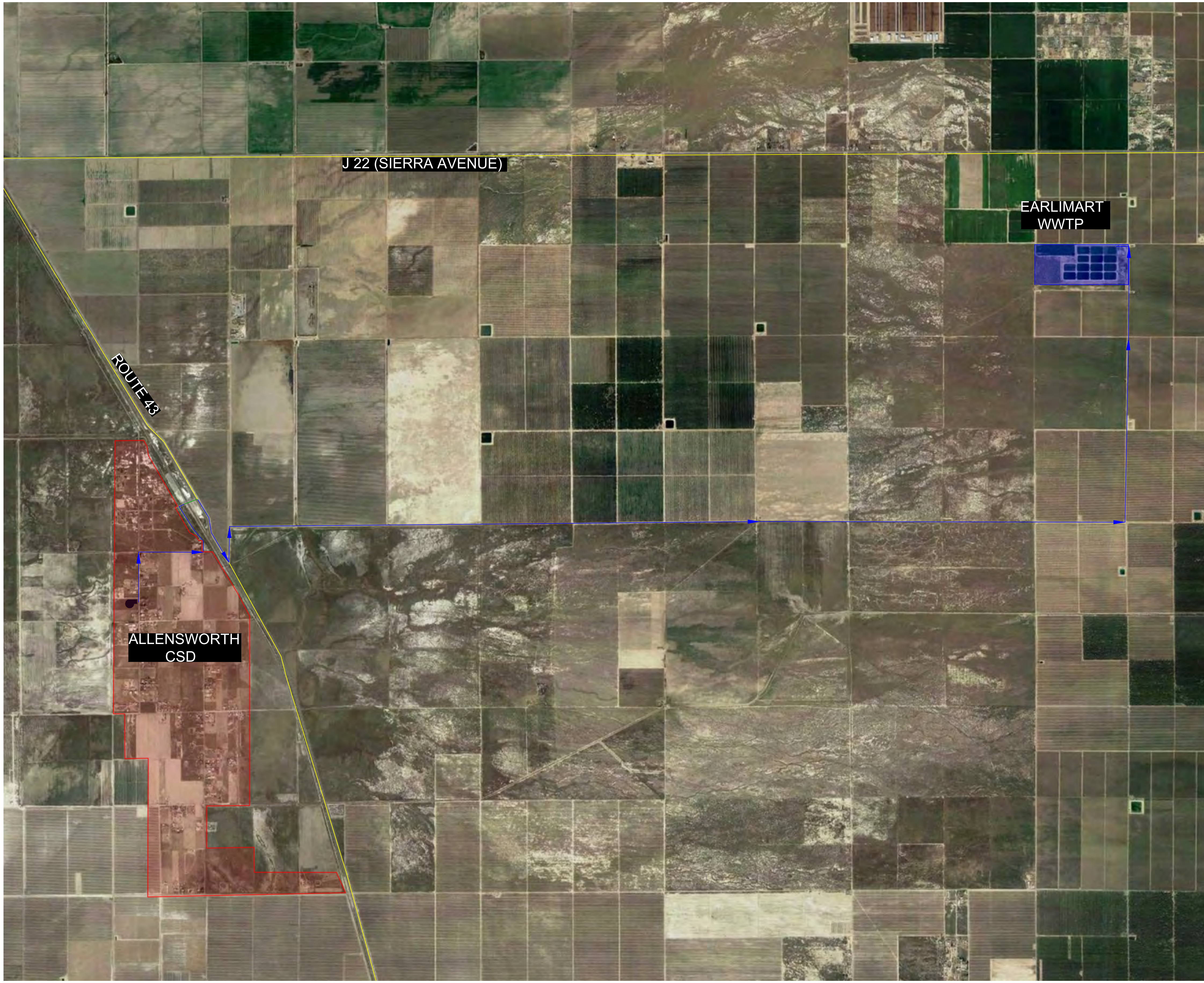
SCALE IN FEET

0 1,500 FT

FIGURE 4-1
ALLENSWORTH CSD
SEWER COLLECTION LAYOUT

ALLENSWORTH CSD

PRELIMINARY ENGINEERING REPORT



LEGEND

- MAJOR ROADWAYS
- CITY LIMITS
- FORCE MAIN PATH
- BORE AND JACK LENGTH

NORTH

SCALE IN FEET

0 3,000 FT

FIGURE 4-2
ALLENSWORTH CSD
FORCE MAIN CONNECTION TO
EARLIMART WWTP

4.3.2. Reliability

Consolidation with the nearby Earlimart Public Utility District would be the most reliable alternative. New sewer collection systems, if adequately designed and constructed, require little maintenance and are very reliable. Annually, sewer collection systems may require cleaning, via hydro flushing, to remove grease and other materials that accumulate on the walls of the pipes. A pump station would be required to pump wastewater from the ACSD to the discharge point at the headworks of the wastewater plant. The pump station would be powered by electricity from either the grid or from a standby generator during power outages. At a minimum, the pump station would have one pump to accommodate peaks flows and a redundant pump in case of mechanical failure. Instrumentation and controls to enable remote monitoring of the facility and a building to house the electrical and mechanical equipment will also be installed.

4.3.3. Capital Costs

Capital costs for consolidation with the Earlimart Public Utility District include startup connection fees imposed by Earlimart, construction of the gravity collection system with the prescribed manholes and lift stations, a pump station and a force main to transport the waste to the Wastewater treatment plant. Existing customers of Earlimart pay a sewer connection fee of $4,600 per residence. Assuming the same would extend to Allensworth's customers, a startup connection fee of $4600 per residence is considered. The estimated cost for the 6-inch gravity sewer collection system is approximately $110 per linear foot (LF) under unpaved roads and $180 per linear foot for a paved road, and $7,000 per manhole. The estimated cost for the force main that delivers sewer to Earlimart is approximately $90 LF for an unpaved road and $150 LF for a paved road. The estimated cost to furnish and install a pump station is approximately $150,000. Land acquisition costs for constructing four lift stations and obtaining pipeline easements are estimated at $240,000. A cost of $1,000,000 has been assumed to construct needed improvements to the existing Earlimart WWTP to be able to accommodate the additional flows generated by the ACSD. A cost of $10,000 per connection has been included in this alternative to remove/dispose of the existing septic systems and construct a new sewer lateral out of each property. New laterals must be replaced simultaneously with the sewer systems upgrades. Estimated capital costs for this Alternative are shown in Table 4-3.

4.3.4. Project Funding

Allensworth is a severely disadvantaged community and for this reason, has obtained grant funding to complete this Study. If this Study is accepted by the community, then a construction grant will be awarded to complete the construction of the proposed improvements. The latest Draft Intended use Plan (IUP) for Clean Water State Revolving Fund (CWSRF) grant allows a maximum grant funding of up to $125,000 per service connection with no maximum cap on the funding amount for a SDAC for a septic to sewer or a consolidation project. If the capital expenditure is greater than the maximum grant funding, ACSD will need to obtain a 30-year construction loan for the remaining amount and make monthly payments towards it in the form of debt service. Since the per connection fee is less than the maximum allowable funding of $125,000, debt service is eliminated for this project.

Table 4-3 Alternative II: Capital Construction Costs

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	6" Gravity Sewer Collection, paved road	23,120	LF	$180	$4,161,600
2	6" Gravity Sewer Collection, unpaved road	6,240	LF	$110	$686,400
3	4" Force Main, paved road	10,300	LF	$150	$1,545,000
4	4" Force Main, unpaved road	33,700	LF	$90	$3,033,000
5	Manholes	70	EA	$7,000	$490,000
6	Lift Stations	4	EA	$150,000	$600,000
7	Connection Fee	144	EA	$4,600	$662,400
8	Existing Septic Tank Destroy/Removal, New Sewer Lateral Addition	144	EA	$10,000	$1,440,000
9	Land Acquisition				
	9.1. Lift station sites	4000	sqft	$2	$8,000
	9.2. Pipeline Easements	12	acres	$20,000	$232,000
10	Capital Improvements at Earlimart WWTP	1	LS	$1,000,000	$1,000,000
				Subtotal	**$13,858,400**
Contingency		10%	of Subtotal		$1,385,840
Engineering, Environmental, Construction Adm. (25%)		25%	of Subtotal		$3,464,600
				Total	**$18,708,840**
				Total Construction Cost per Active Connection [1]	**$114,078**

Note:
[1] $18,708,840 / 144 Active Connections = $114,078 per Active Connection

4.3.5. O&M Costs

Annual O&M costs in this alternative will include administrative costs, preventive/corrective maintenance on the sewer collection system, preventive/corrective maintenance to the lift stations, a monthly discharge fee charged by Earlimart, a capital reserve to fund the replacement of short-lived assets and debt servicing. Administrative costs include the costs associated to produce and mail monthly bills. Under this alternative, the sewer collection system would be operated/maintained by ACSD until reaching Earlimart WWTP for treatment. Preventive/corrective maintenance on the collection system include the costs required to hydro flush the gravity collection system and a reserve to fund the replacement of valves, pipelines and other aspects of the force main and gravity system that can unexpectedly fail at any time. A cost of $1000 has been included in this section to fund yearly hydro flushing and a cost of $200,000 has been distributed across 20 years to fund the replacement of various parts of the collection system. Preventive/corrective maintenance to the lift stations include annual cleaning, flushing and regulatory maintenance. This fee also includes the costs to employ a preventive maintenance/ on-call personnel for one hour every week to check the lift stations and components of the sewer collection system, energy costs to operate the lift stations, and replacement costs. This section includes a $10,000 annual cost to replace the short-lived assets of four pumps, totaling to $100,000, after 10 years. A monthly discharge fee would be paid to Earlimart Public Utilities District (PUD) for treatment and disposal of the community's wastewater. The discharge fee is approximately $28.50 per month per residence. A capital reserve has been included in this section to fund the replacement of the lift stations after their live expectancy of approximately 15 years. This section includes a $10,000 annual capital reserve to replace the collection system valves, manholes and other equipment totaling to $500,000 after 50 years. As with the case of Alternative I, a debt service fee is included in the monthly expense.

The total O&M costs are divided by the number of users in the system to determine the total annual cost per active connection. For Alternative II, it is assumed that the annual O&M costs will be shared among developed parcels. Table 4-4 displays the annual operation and maintenance fees associated with Alternative II.

Table 4-4 Alternative II: Annual O&M Costs

Item	Cost	
Administrative Costs	$	5,000
Sewer Collection System	$	11,000
Lift Stations	$	25,000
Annual Discharge Fee to EPUD	$	49,248
Capital Reserve	$	10,000
Debt Service	$	27,466
Total Annual O&M Cost	**$**	**127,714**
Total Annual O&M Cost per Active Connection (1)	**$**	**887**
Sewer Rate per Month (2)	**$**	**74**

Note:
(1) $127,714 / 144 Active connections = $887
(2) $887 / 12 Months = $74

4.3.6. Disposal

Alternative II does not require any wastewater disposal methods. Raw wastewater will be discharged into the headworks of the Earlimart WWTP, which will be responsible for treatment and disposal of the raw wastewater. Earlimart currently disposes of their treated effluent into percolation ponds.

4.3.7. Earlimart Wastewater Treatment Facility Treatment and Disposal Capacity

Earlimart WWTP consists of bar screen, an aerated grit chamber, two communitors in parallel, a clarigester, and oxidation ponds. Effluent from the oxidation ponds is stored in three retention ponds that have a total surface area of 20 acres. Recent construction of an additional oxidation pond has brought the plant's capacity up to 1.24 mgd. The effluent is discharged to retention ponds to let the water evaporate and percolate to the ground. The permit limits the effluent BOD_5 discharged for on-site disposal to 40 mg/L on a 30-day average.

Table 4-5 Earlimart WWTP Treatment and Disposal Capacity

Discharge Type	Amount	Units
On-site Percolation Ponds	1.24	mgd

4.3.8. Community Issues/Environmental Impacts

Construction of a community sewer collection system will likely produce temporary disruptions on traffic. Alternative II will likely encounter the following environmental issues which will carefully be addressed in the Mitigated Negative Declaration (MND):

- Roadway disruptions during construction of force mains. Traffic will likely be rerouted and access to individual homes constrained for short periods. Careful noticing will be required.
- Lift stations and a standby power facility may require visual mitigation depending upon location.
- Odor control facilities may be required at the pump station.
- Permitting and regulatory requirements for crossing canals and waterways may be required.

4.3.9. Contractual Issues

The ACSD will enter into a sewer service agreement with the Earlimart Public Utility District (EPUD) to accept the discharge of wastewater generated from the community. The excess treatment capacity that Earlimart currently supports has already been allocated for anticipated development within the EPUD service area, so EPUD may be unwilling to extend services to Allensworth CSD in its current form. At the time of this report, EPUD has been approached with a request for information on their willingness to consolidate with the ACSD, and a permission to conduct a capacity assessment of the Earlimart WWTP to support additional flows from Allensworth CSD. The EPUD board granted the ACSD permission to conduct a technical evaluation of the Earlimart WWTP if the consolidation alternative was determined to be feasible. However, their willingness to consolidate is low at this point due to the distance between Earlimart and Allensworth, and the limited capacity of their interceptors. For the purpose of this study, a conservative estimate of $1,000,000 has been included in this Alternative to construct needed improvements to increase the Earlimart WWTP's capacity.

4.4. Alternative III: Construct a STEP Sewer System with a Combined Treatment Facility

This alternative consists of constructing a Septic Tank Effluent Pumping (STEP) sewer system which pumps wastewater from individual septic tanks to a centralized WWTP in low-pressure, small diameter pipes for treatment and disposal. The sewer collection system would consist of a combination of 2", 3" and 4" diameter PVC pipes transporting sewer under pressure from each residence to the centralized treatment facility. The centralized treatment facility will be designed to have a build out treatment capacity of 65,000 gpd.

4.4.1. Treatment Technologies

There are multiple alternative treatment processes that can be used to treat domestic wastewater generated from a small community. Most of the WWTPs that have been created for small communities use package wastewater treatment facilities because of the simplicity and reliability associated with the units. Orenco offers advanced wastewater treatment systems that are perfect for rural environments that require advanced treatment and disposal capable of meeting standards set by regulatory agencies.

The STEP system would include placement of a Orenco's 1,500-gallon Prelos Tank and a pumping package at each of the 144 parcels including residential, the community center, the Church and the Elementary School. The Prelos Tank serves the purpose of a septic tank and facilitates solid-liquid separation in the tank. The pumping package includes a low-hp pump, float switches and a high-level alarm, and the main control panel. The Prelos tank and pumping package will be located on the homeowner's property and the control panel will be mounted outside near the system. The system would operate automatically and would be equipped with an alarm to alert the homeowner of any failures.

The Prelos tanks located on individual properties are designed to collect wastewater, segregate settleable and floatable solids, and to accumulate and store solids for periodic pump-outs. This tank provides primary treatment of the raw sewage where TSS removal of >90% can be expected. The primary-treated liquids from each property are then pumped to the combined treatment facility in small diameter pipes under low pressure. This pressurized sewer system transports and discharges wastewater into the Orenco treatment systems for treatment and ultimate disposal.

Orenco offers many different sized advanced treatment units based on the population of the region and the purpose of the treatment unit. The AdvanTex AX-Max Treatment System would be recommended for this treatment facility. The AdvanTex AX-Max is a packaged WWTP that performs wastewater treatment using a special textile media on which naturally occurring microorganisms can populate. Orenco offers these packaged treatment units in sizes varying from 14 to 42 feet long and approximately 7 to 8 feet wide depending on the treatment capacity required. The AdvanTex AX-Max 42 and 35-foot-long treatment units are recommended for this alternative due to the estimated 2040 population of the ACSD, and the area of textile required for treatment. The proposed AdvanTex units are equipped to reduce the effluent BOD and TSS to 30mg/L or less and Total Nitrogen to 10 mg/L or less before disposing it. The dimensions and specifications of the proposed Prelos tanks and the AdvanTex units are given in Appendix D. Wastewater disposal will be carried out via evaporation of the treated sewage within the clay storage ponds and evaporation/percolation within the effluent reclamation area. The area required for effluent disposal was determined based on water balance calculations as shown Table 4-6. The storage volume was determined to be 26.5 acre-feet from water balance calculations shown in Appendix F of this report.

Table 4-6 Required effluent disposal area

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	0.068
Irrigation Efficiency, %	65%
Treatment Pond Area, Acres	0.00
Storage Pond Area, Acres	5.00
Effluent Reclamation Area, Acres	8.00
Percolation Rate, inch/day	0.000

As Allensworth consists of primarily sandy loam or sandy clay, percolation is assumed to be 0.00 inches/day for the purpose of calculating the effluent disposal area, which will consist of a 26.5 acre-feet storage pond (5 acres surface area), and an effluent reclamation area of 8 acres.

4.4.2. Siting

It is estimated that approximately 2 acres of land would be sufficient to house the centralized treatment units, and an additional 13 acres (5 acres storage area and 8 acres effluent reclamation) for the disposal of the treated water. The treatment plant's optimal placement would be within the ACSD service area to avoid high land acquisition costs related to purchasing farmland from the surrounding region. Due to the general topography of the area, the preferred location for the WWTP would be on the parcels of land located in the northern part of the community. Based on these criteria, the parcels of land located west of Young Rd and north of Avenue 36 would be the preferred locations to house the wastewater treatment facility. Figure 4-1 shows the potential location of the WWTP. At the time of the study, Angiola

The Allensworth Board had mentioned that land is available on the northwest corner of the community, and that the required acreage of land would be provided to ACSD at no cost. The only requirement is the ACSD utilize the land for wastewater treatment infrastructure. If the ACSD is unable to come to an agreement with the landowner or if the land is currently unavailable, the treatment facility would need to be relocated to a nearby vacant lot.

Additionally, the individual 1,500-gallon Prelos septic tanks will be located in homeowner's properties and ACSD will need to obtain easements to access the property to maintain the STEP system.

4.4.3. Capital Costs

Capital costs for this alternative include the construction of approximately 29,360 LF of 4" pressurized sewer mains with manholes for servicing, the purchase and installation of five Orenco AX-Max treatment units, 144 units of 1,500-gallon Prelos septic tanks for all individual properties, community center, the School and the Church, the construction of a 26.5 acre-feet storage pond and an 8-acre effluent reclamation area, the construction of a small operations building for the treatment facility and the removal and disposal of the existing septic systems.

The costs associated with the construction of the small diameter sewer collection system include the costs of pressurized sewer mains and manholes. The cost of an advanced wastewater treatment unit depends on the selected supplementary treatment technology manufacturer and how the effluent is disposed. During the preparation for this Study, a quote was requested from Orenco to determine the costs associated to furnish and install five AdvanTex AX-Max wastewater treatment units and 144 Prelos septic tanks. This estimate can be found in Appendix D of this report.

A cost of $10,000 per connection has been included in this alternative to remove/dispose of the existing septic systems and to construct a new sewer laterals out of each property. New laterals must be replaced simultaneously with the sewer systems upgrades. The estimated cost to construct the effluent disposal ponds include excavation and filling costs for the storage pond, and grading costs for the reclamation area. These costs include the startup and permitting fees. Land acquisition costs have not been considered in this cost since land is available at no cost to ACSD for the construction of a wastewater treatment facility. A total cost of $572,000 has been estimated for the construction of wastewater disposal ponds. Table 4-7 displays the estimated capital costs to construct this alternative.

Table 4-7 Alternative III: Capital Construction Costs

Item	Description	Quantity	Unit	Unit Cost	Total
1	4" pressured Sewer Collection, paved road	23,120	LF	$150	$3,468,000
2	4" pressured Sewer Collection, unpaved road	6,240	LF	$90	$561,600
3	Manholes	70	EA	$7,000	$490,000
4	Orenco AdvanTex AX-Max300, 42' long	2	LS	$1,981,343	$1,981,343
5	Orenco AdvanTex AX-Max250, 35' long	2			
6	Orenco AdvanTex AX-Max200, 35' long, with Pumps	1			
7	TCOM Control Panel	1			
8	Control Building, 8'x8'	1			
9	Startup of Treatment System	1			
10	Prelos 1500P, 1,500 gal	141	LS	$2,432,998	$2,432,998
11	Prelos 1500G, 1,500 gal	3			
12	1" Service connection	144			
13	Misc. Piping	144			
14	Delivery	1	LS	$124,150	$124,150
15	Existing Septic Tank Destroy/Removal, New Sewer Lateral Addition	144	EA	$10,000	$1,440,000
16	Storage pond excavation	48,800	CY	$12	$585,600
17	Pond perimeter fill	2,400	CY	$15	$36,000
18	Reclamation area grading	8	acre	$8,000	$64,000
Subtotal					**$11,183,691**
Contingency			10%	of Subtotal	$1,118,369
Engineering, Environmental, Construction Adm. (25%)			25%	of Subtotal	$2,795,923
Total					**15,097,983**
Total Construction Cost per Active Connection (1)					**$104,847**
Note:					
(1) $15,097,983 /144 Active Connections = $104,847 per Active Connection					

4.4.4. O&M Costs

O&M costs for this alternative will include administrative costs as described in Alternatives I and II, preventive/corrective maintenance of the pressured sewer collection system, annual O&M costs associated with the Individual Prelos tanks and the centralized treatment facility, a capital reserve to fund the replacement of short-lived assets, and a debt service fee to pay toward the loan taken to cover the capital costs incurred over and above the maximum grant funding.

Maintenance of the sewer collection system requires costly equipment such as a vacuum truck and a hydro flusher. The table below includes the maintenance costs associated with hiring a contract worker to perform required maintenance on the system and to fund the replacement of various valves, pipelines and other aspects of the pressured sewer system. A cost of $1,000 has been included in this section to fund yearly clean-out of the pressured sewer system.

The O&M costs for the treatment facility will include labor, energy, cleaning, pumping of both the AdvanTex AX-Max units and the individual Prelos septic tanks and general repairs. In terms of labor, the centralized wastewater treatment unit will require a part time operator that will perform compliance testing and operate the facility. A capital reserve has been included in this alternative to fund the replacement of short-lived assets for both the AdvanTex AX-Max and the individual Prelos septic tanks. Short lived assets for both include the replacement of pumps, floats, and valves. Table 4-8 contains the estimated annual costs associated with Alternative III.

Table 4-8 Alternative III: Annual O&M Costs

Item Description	Total Cost
Administrative Costs	$5,000
Prelos System	
Solids Pump out costs	$14,400
Operations & Maintenance	$28,800
Short lived assets	$20,000
AX Max Treatment System	
Solids Pump out costs	$667
Operation	$21,000
Short lived assets	$10,000
Operations & Maintenance	$10,000
Pressured Sewer system	
Maintenance and Repairs	$5,000
Debt Service	
Debt Service	$0
Total	**$114,867**
Total Annual per Property	**$798**
Total Sewer Rate per Month	**$66**

4.4.5. Disposal

Treated effluent from the ACSD wastewater treatment unit will be disposed of via evaporation/percolation ponds and reclamation area. As the underlaying soil has predominately clay characteristics, a percolation rate of zero has been incorporated into the preliminary design for the evaporation pond. The treated wastewater will be collected in a 26.5 acre-feet storage pond during the winter months and applied onto an 8-acre reclamation area for evaporation during the summer months.

4.4.6. Community Issues/Environmental Impacts

Constructing a STEP system will divide the operations and maintenance between homeowner properties and the central location. Multiple new easements need to be obtained, and homeowner permission will be required each time any maintenance or repair need arises.

Constructing a centralized community wastewater treatment facility will require cooperation with the residents near the recommended location. The recommended location of the treatment unit may provoke opposition from neighbors who fear aesthetic impacts from the plant. If this problem arises, the AdvanTex AX-Max can be partially buried to reduce the footprint of the unit within the community. Additionally, odor control and impacts from maintenance personnel and sludge hauling truck traffic must be carefully considered.

4.5. Alternative IV: Construct a Community Sewer Collection System with a Centralized Wastewater Treatment System

This alternative consists of constructing a community sewer collection system to convey wastewater to a centralized location and a 65,000 gpd WWTP for treatment and disposal of the wastewater. The sewer collection system would have a similar scope as the one proposed for Alternative II. The sewer collection system would require approximately 29,360 feet of gravity collection mains and 70 manholes. Figure 4-3 shows the preliminary layout of the sewer collection system for Alternative IV and the proposed location of the centralized WWTP.

4.5.1. Treatment Technologies

The packaged WWTP would have a similar scope as the one proposed in Alternative III, except that in Alternative IV the primary treatment is provided by five 20,000-gallon Xerxes fiberglass tanks installed at the WWTP location instead of the individual Prelos tanks provided in the Alternative III.

The proposed system in this Alternative would consist of a 6-inch gravity sewer collection system collecting wastewater from households via 1” service laterals, a 35,000-gallon flow equalization tank, a primary treatment system consisting of five 20,000-gallon Xerxes fiberglass tanks, and five AdvanTex Treatment units for secondary treatment before the wastewater is sent to disposal ponds. This alternative also includes a pumping package to provide sufficient head for the treatment system. A 35,000-gallon Pre-Anoxic tank is installed to facilitate recirculation of the wastewater from the AdvanTex units and provide nitrate removal.

Monitoring of process operation and performance of the treatment units would be necessary. System controls are necessary for controlling pumps, alarms, and other process equipment. This alternative will utilize a TCOM control system to monitor the performance and process operations of the centralized treatment units. A control building (8 feet by 8 feet) provided on site will house the system controls.

Wastewater disposal is carried out via evaporation ponds and effluent reclamation area. The maximum wastewater generation for the ACSD is approximately 67,500 gpd. The size of the evaporation/percolation ponds required for disposal is determined from Water balance calculations as shown in Table 4-6. Figure 4-4 displays the potential treatment plant layout of Alternative IV.

A part time operator would be trained by the packaged system manufacturers in operating the system. Typical operational requirements would include routine maintenance, lab sampling, cleaning of filters and equipment. On-site requirements would include a reliable power supply and a water connection.

The Basin Plan designates the Municipal beneficial use of the underlying groundwater because it is used for potable water purposes. In order to protect the beneficial use, the wastewater going to the reclamation pond would be required to have 10 mg/l or less of total nitrogen. The proposed system with the Pre-Anoxic tank is specifically chosen to facilitate total nitrogen removal in the treatment process.

4.5.2. Siting

It is estimated that approximately 2 acres of land would be sufficient to house the centralized treatment units, and an additional 13 acres (5 acres storage area and 8 acres effluent reclamation) for the disposal of the treated water. The treatment plant's optimal placement would be within the ACSD service area to avoid high land acquisition costs related to purchasing farmland from the surrounding region. Due to the general topography of the area, the preferred location for the WWTP would be on the parcels of land located in the northern part of the community. Based on these criteria, the parcels of land located west of Young Rd and north of Avenue 36 would be the preferred locations to house the wastewater treatment facility. The Allensworth Board had mentioned that land is available on the northwest corner of the community, and that the required acreage of land would be provided to ACSD at no cost for the construction of wastewater treatment facilities. If the ACSD is unable to come to an agreement with the landowner or if the land is currently unavailable, the treatment facility would need to be relocated to a nearby vacant lot and the required acreage of land would need to be purchased.

4.5.3. Disposal

Treated effluent from the ACSD wastewater treatment unit will be disposed of through evaporation/percolation of the treated wastewater in effluent reclamation ponds. The treated wastewater will be collected in a 26.5 acre-feet storage pond during the winter months and applied onto an 8-acre reclamation area for evaporation during the summer months.

4.5.4. Capital Costs

Capital costs for this alternative include the construction of 29,360 LF of gravity sewer mains, the purchase and installation of five Orenco AX-Max treatment units, five 20,000-gallon Xerxes fiberglass tanks, the two 35,000-gallon Xerxes tanks for flow equalization and Pre-Anoxic treatment, and the construction of a 26.5 acre-feet storage pond (5 acre surface area) and an 8-acre effluent reclamation area.

The costs associated with the construction of the collection system are similar to those used in Alternative II and include the costs of gravity sewer mains and manholes. The cost of an advanced wastewater treatment unit depends on the selected supplementary treatment technology manufacturer and how the effluent is disposed. During the preparation for this Study, a quote was requested from Orenco to determine the costs associated to furnish and install five AdvanTex AX-Max wastewater treatment units and the required Xerxes fiberglass tanks septic tanks. This estimate can be found in Appendix E of this report. A cost of $10,000 per connection has been included in this alternative to remove/dispose of the existing septic systems and construct a new sewer lateral out of each property. New laterals must be replaced simultaneously with the sewer system upgrades. The estimated cost to construct the effluent disposal ponds include excavation and filling costs for the storage pond, and grading costs for the reclamation area. These costs include the startup and permitting fees. Land acquisition costs have not been considered in this cost since land is available at no cost to ACSD for the construction of a wastewater treatment facility. Table 4-9 displays the estimated capital costs to construct this alternative.

ALLENSWORTH CSD
PRELIMINARY ENGINEERING REPORT

LEGEND

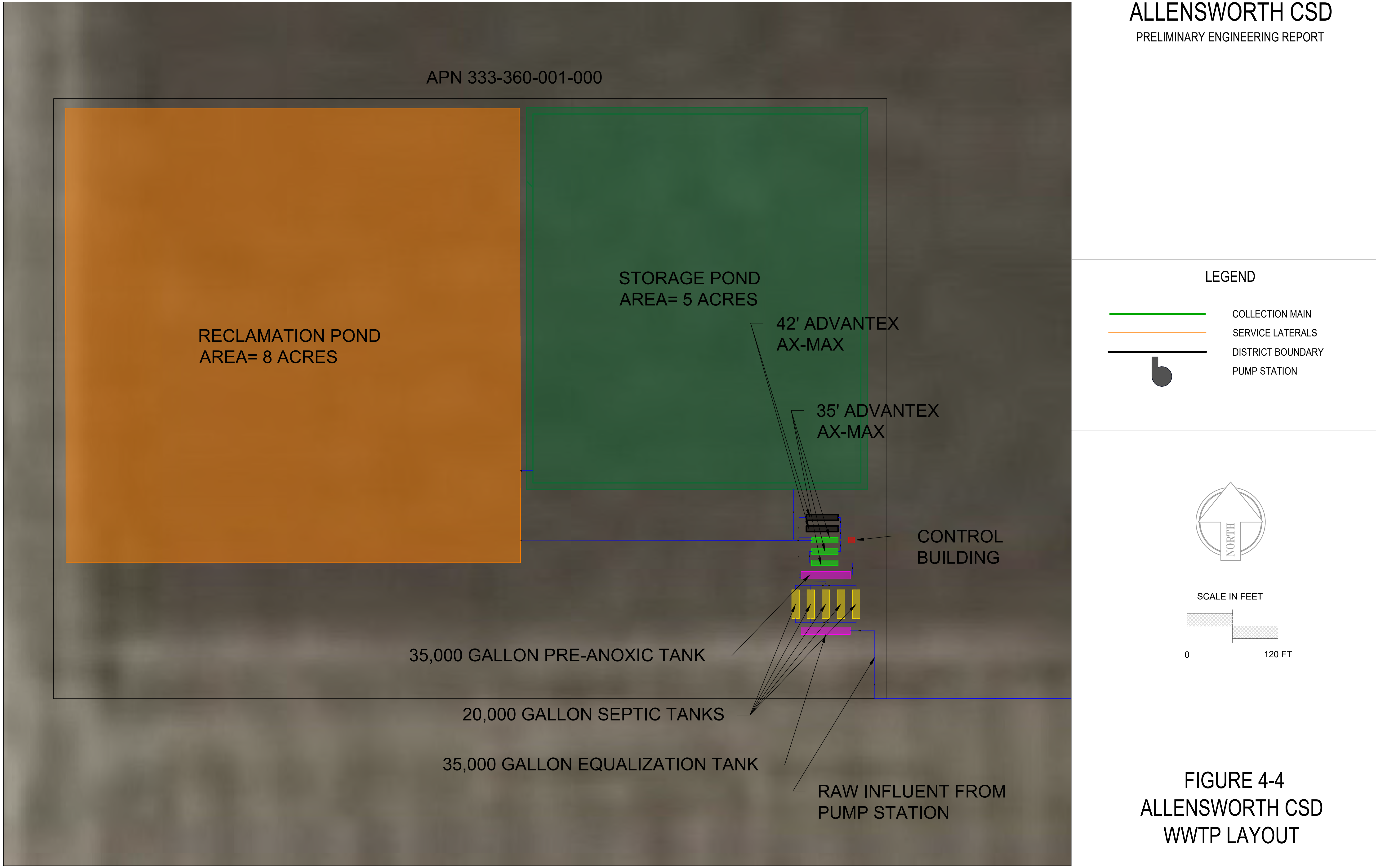
COLLECTION MAIN
SERVICE LATERALS
DISTRICT BOUNDARY
PUMP STATION

NORTH

SCALE IN FEET

0 1,500 FT

FIGURE 4-3
ALLENSWORTH CSD SEWER COLLECTION LAYOUT AND WWTP LOCATION



ALLENSWORTH CSD

PRELIMINARY ENGINEERING REPORT

FIGURE 4-4
ALLENSWORTH CSD
WWTP LAYOUT

Table 4-9 Alternative IV: Capital Construction Costs

Item	Description	Quantity	Unit	Unit Cost	Total
1	6" Gravity Sewer Collection, paved road	23,120	LF	$180	$4,161,600
2	6" Gravity Sewer Collection, unpaved road	6,240	LF	$110	$686,400
3	Manholes	70	EA	$7,000	$490,000
4	Lift Station	4	EA	$150,000	$600,000
5	4" force main to WWTP, unpaved road	4,000	LF	$90	$360,000
6	Orenco AdvanTex AX-Max300, 42' long	2	LS	$1,981,343	$1,981,343
7	Orenco AdvanTex AX-Max250, 35' long	2			
8	Orenco AdvanTex AX-Max200, 35' long, with Pumps	1			
9	TCOM Control Panel	1			
10	Control Building, 8'x8'	1			
11	Startup of Treatment System	1			
12	Xerxes Fiberglass Septic Tank, 20,000 gal	5	LS	$2,259,306	$2,259,306
13	Xerxes Fiberglass Pre-anoxic Tank, 35,000 gal	1			
14	Xerxes Fiberglass Equalization Tank, 35,000 gal	1			
15	Pumping package, 50gpm, Duplex with PVU	5			
16	Pumping package, 75 gpm, quadplex with Flow Inducer tower	1			
17	Misc. Piping	1			
18	Delivery	1	LS	$59,800	$59,800
19	Existing Septic Tank Destroy/Removal, New Sewer Lateral Addition	144	EA	$10,000	$1,440,000
20	Storage pond excavation	48,800	CY	$12	$585,600
21	Pond perimeter fill	2,400	CY	$15	$36,000
22	Reclamation area grading	8	acre	$8,000	$64,000
Subtotal					**$12,724,049**
Contingency		10%	of Subtotal		$1,272,405
Engineering, Environmental, Construction Adm. (25%)		25%	of Subtotal		$3,181,012
Total					**$17,177,466**
Total Construction Cost per Active Connection [1]					**$119,288**

Note:
[1] $17,177,466/144 Active Connections = $119,288 per Active Connection

4.5.5. O&M Costs

O&M costs for this alternative will include administrative costs, as described in Alternatives I, II, and III, preventive/corrective maintenance of the sewer collection system, annual O&M costs associated with the centralized treatment facility, a capital reserve to fund the replacement of short-lived assets and a debt service fee.

Maintenance of the sewer collection system requires costly equipment such as a vacuum truck and a hydro flusher. The table below includes the maintenance costs associated with contracting someone to perform these costly maintenance actions and funding the replacement of various valves, pipelines and other aspects of the sewer collection system. A cost of $1000 has been included in this section to fund yearly hydro flushing and a cost of $200,000 has been distributed across 20 years to fund the replacement of various parts of the collection system.

The O&M costs for the treatment facility will include labor, energy, cleaning, pumping of both the AdvanTex AX-Max units and the Xerxes septic tanks and general repairs. In terms of labor, the centralized wastewater treatment unit will require a part time operator. To make the treatment unit more sustainable, Orenco has developed a way to operate the AdvanTex AX-Max using less than 2 kWh per 1000 gallons of wastewater treated. A cost of 5 percent of the equipment cost of the centralized treatment facility is estimated to fund the annual O&M costs. A capital reserve has been included in this alternative to fund the replacement of short-lived assets for both the AdvanTex AX-Max and the Xerxes septic tanks. Short lived assets for both include the replacement of pumps, floats, and valves. Table 4-10 contains the estimated annual costs associated with Alternative IV.

Table 4-10 Alternative IV: Annual O&M Costs

Item Description	Total Cost
Administrative Costs	$5,000
Xerxes System (20,000 gal)	
Pump out costs	$5,000
Maintenance	$6,000
Equipment repair and replacement	$2,000
AX Max Treatment System	
Pump out costs	$667
Operation	$26,000
Short lived assets	$10,000
Preventative and reactive maintenance	$10,000
Sewer Collection system	
Maintenance and repairs	$11,000
Debt Service	
Debt Service	$0
Total	**$75,667**
Total Annual per Property	**$525**
Total Sewer Rate per Month	**$44**
Note: (1) $75,667 / 144 Active connections = $525 (2) $525 / 12 Months = $44	

4.5.6. Community Issues/Environmental Impacts

Constructing a centralized community wastewater treatment facility will require cooperation with the residents near the recommended location. The recommended site has to be large enough to house both the wastewater treatment units and the new disposal ponds. The recommended location of the treatment unit may provoke opposition from neighbors who fear aesthetic impacts from the plant. If this problem arises, the AdvanTex AX-Max can be partially buried to reduce the footprint of the unit within the community. Additionally, odor control and impacts from maintenance personnel and sludge hauling truck traffic must be carefully considered.

4.6. Alternative V: No Project

This alternative evaluates the feasibility of continuing with the existing conditions. Currently, Allensworth residents experience surfacing effluent from seepage pits and leach fields. During winter months, high water table causes poor drainage of septic and leads to foul odors and unsanitary conditions. The existing septic tanks do not meet the current OWTS standards provided in Table 2-3. Failed septic tanks will lead to groundwater pollution and public health concerns from exposure to untreated sewer.

According to a community survey conducted as a part of project outreach, all the attendees supported the construction of a public sewer system to replace their existing septic tanks and expressed concern about groundwater contamination. The four alternatives discussed above provide required treatment to prevent groundwater pollution from failed septic systems as opposed to a No Project alternative. Since this alternative does not address the groundwater contamination concerns of the residents of Allensworth and does not address the ongoing problem of septic seepages in winter months, the No Project alternative is not being considered further.

4.7. Summary

Table 4-11 provides a summary of the capital construction and O&M costs of the four alternatives that were found to be feasible. Table 4-12 provides a summary of advantages and disadvantages of the three alternatives.

Table 4-11 Summary of Alternatives: Total Costs

	Alternative I	Alternative II	Alternative III	Alternative IV
Capital Costs				
Capital Construction	$9,438,979	$18,708,840	$15,097,983	$17,177,466
Capital Costs per Active Connection	$65,548	$114,078	$104,847	$119,288
Operation and Maintenance Costs				
Annual O&M Costs	$216,495	$127,714	$114,867	$75,667
Annual O&M Costs per Active Connection	$1,503	$887	$798	$525
Monthly O&M Costs per Active Connection	$125	$74	$66	$44

Table 4-12 Summary of Alternatives: Advantages and Disadvantages

	Advantages	Disadvantages
Alternative I	●Avoid costly and disruptive construction of a community-wide collection system ● Homeowners can maintain their independence from a community system.	● Onsite systems require constant oversight for operation and maintenance. ● Small lot sizes could pose an impediment to adding treatment onsite and/or limit construction of new leach fields. ● The RWQCB may not be willing to permit onsite systems.
Alternative II	● Use of a municipal wastewater system provides greater flexibility in utilizing and protecting the community's groundwater supply. ● Overall operation and maintenance of the system is provided to ensure routine maintenance is being performed.	● Extensive infrastructure is required for the new sewer collection system, pumping station, and force mains. ● The cost to construct the sewer system that will transport the wastewater from the community to Earlimart will have high capital and maintenance costs.
Alternative III	● Use of a STEP system with a municipal wastewater system proves to be advantageous where the natural slope does not support gravity collection ● Individual tanks allow problems to be isolated to individual users so issues can be corrected in comparison to multiple gravity sewer connections. ● A problem with one STEP pump tank will not affect neighboring users like a plugged gravity main	● Multiple easements would be required on homeowner properties to house the primary septic tanks. ● Extensive infrastructure and land are required for the new sewer collection system. ● ACSD operators may need to seek prior approval from homeowners each time to perform any repair/maintenance service which may prove to be a hassle in case of emergencies.
Alternative IV	● Use of a municipal wastewater system provides greater flexibility in utilizing and protecting the community's groundwater supply. ● Overall operation and maintenance of the system is provided to ensure routine maintenance is being performed. ● Beneficial reuse can be used in the future for agriculture in the area to benefit farmers and landowners.	● Extensive infrastructure is required for the new sewer collection system. ● Extensive amount of land is required to construct the wastewater treatment unit and the disposal ponds. ● Nearby residents my disapprove of the construction of the treatment unit.

CHAPTER 5 ALTERNATIVE EVALUATION

5.1. Alternative Comparison

The four alternatives presented in this Study are considered to be the most feasible alternatives to provide the ACSD with proper wastewater treatment and disposal that meets current standards and regulations. This Chapter provides an evaluation of all four alternatives and provides a recommendation based on the findings of the comparison. The evaluation criteria used to evaluate the alternatives includes reliability, complexity, and lifecycle costs.

5.1.1. Reliability

Reliability refers to the ability of a particular alternative to provide reliable wastewater treatment and disposal in terms of quantity and quality. The new advanced OWTS proposed for Alternative I would be designed and constructed to treat the municipal wastewater generated from the ACSD to standards set by governing agencies. Alternative I would produce effluent with a total nitrogen concentration below the required 10 mg/l MCL. The groundwater quality would be tested and would be expected to be in compliance with the total nitrogen MCL.

Alternative II will provide the community with a sewer collection system that would be monitored by the new wastewater department to ensure constant inspections and maintenance are completed in a timely manner. The District of Earlimart would provide proper treatment and disposal of the wastewater generated from the ACSD. This alternative would provide the community with the most reliable means of wastewater treatment and disposal.

Alternative III with its STEP system will provide a reliable means of treating and disposing wastewater within the ACSD boundary. Having septic systems on homeowner properties and pumping the liquid sewer to a combine treatment facility helps isolate problems to individual properties and lowers the risk of sewer plugging. The combined treatment facility with the proposed AdvanTex systems is proven to lower total nitrogen to government agency standards. The homeowners may need to be educated about identifying and informing ACSD of any sewer problem they may encounter to improve reliability of this alternative.

Alternative IV will provide a level of reliability comparable to that of Alternative III, with all the treatment components housed at a central location. Alternative IV would provide treatment of the community's wastewater within the community's boundary using trusted and tested treatment and disposal methods. Just like Alternative I and III, Alternative IV would reduce the concentration of total nitrogen within the treated wastewater effluent below the 10 mg/l MCL. The disposal area for this alternative may need to be relocated in the future to ensure proper wastewater disposal throughout the reclamation area, after the useful life, to ensure maximize reliability.

5.1.2. Complexity

Complexity refers to operational requirements of each alternative. The ACSD is a small community with limited resources. Construction of new advanced OWTS would be simple to construct but difficult to maintain. Coordination with each individual homeowner would need to be incorporated into the operation and maintenance scope to ensure the new treatment systems are continuously functioning at optimal performance. New monitoring systems would be equipped to each OWTS and monitored by the homeowner.

Alternative II will require minimal maintenance per year. The only maintenance that would be required for the sewer system would be annual pumping and removal of scum from within the sewer pipelines and pumping station. To conduct this yearly maintenance on the sewer collection system and pumping station, costly equipment such as a vacuum truck and a hydro flusher would be required. To reduce the cost of the maintenance, this yearly maintenance would be outsourced to a reliable entity.

Alternative III would require complex operational requirements along with coordination with the homeowners. A part-time operator would be required to operate the wastewater treatment unit. The operator would be taught by Orenco how to operate the units free of charge. The operator would have lifetime access to Orenco's technical support in cases where problems arise that were not part of the training. The unit would need to be continuously monitored to ensure the unit is functioning properly and the media on the Textile does not reach breakthrough. Having septic tanks on individual parcels pumping out wastewater to the combined facility will require complex control systems and any repairs to the electric panels may require trained technicians. Additionally, ACSD will need to obtain permissions to enter homeowner properties whenever any repair or maintenance needs arise on the Prelos septic tanks.

Similar to Alternative III, Alternative IV would require complex operational requirements. A part-time operator would be required to operate the wastewater treatment unit. The operator would be taught by Orenco how to operate the unit and would have lifetime access to Orenco's technical support in cases where problems arise that were not part of the training. Both the Xerxes septic systems and the AdvanTex treatment units would need to be continuously monitored to ensure the unit is functioning properly and the media does not reach breakthrough. The disposal ponds would require monitoring to ensure that the wastewater storage is not overflowing or pooling in the evaporation pond. This alternative would transition the responsibility of monitoring and maintaining the treatment system completely to ACSD.

5.1.3. Scope for Expansion

Scope for expansion refers to the ease of extending sewer services to future residents of ACSD. For Alternative I of upgrading sewer systems, future scope does not apply as the newer residential septic systems will be built to code and comply with the latest leaching standards set by governing agencies. Alternative II allows very easy sewer access to future residents since new homes/developments would require adding a service lateral and paying the connection fee to Earlimart WWTP to get sewer services. Alternative III would require future residents to purchase Arenco's Prelos septic system with pumping package at their own expense to be connected to the centralized treatment system. Alternative IV would provide ease of expansion to future residents comparable to that of Alternative II since it would involve addition of a service later and a base fee to discharge water into the centralized wastewater treatment system operated by ACSD.

5.1.4. Environmental and Climate Change Considerations

Land subsidence is common in the central valley of California due to a reduction in subsurface pressure caused by groundwater pumping. In parts of the Central Valley, subsidence in excess of 20 feet has occurred in the past 20 years. Allensworth is listed as an area of concern for land subsidence and is experiencing the impacts of ground sinking. A recent study conducted by high-speed rail authority concluded that some central valley areas may sink another 20 feet by 2036. Increased frequency of droughts due to the changing climate results in increased groundwater pumping and exacerbates this phenomenon. Land subsidence leads to severe damages to underground infrastructure like sewer pipes and may lead to increased flooding in some areas.

Untreated sewer is a major source of groundwater pollution in Allensworth. Since domestic consumption is a known beneficial use of Allensworth's groundwater, contamination of drinking water sources due to sewer spills is a critical public health concern.

Each alternative addresses the priority of protecting environmental and public health by providing effective treatment of water. Alternative I of upgrading septic systems would benefit only the existing households but not any future residents. This would provide inadequate treatment and would not address the issue of contamination in the long-term. Alternative III also shares the limitation of Alternative I in its capacity to serve future residents because every new development would require a septic pumping system. The other two alternatives would continue to provide environmental protection by preventing the untreated wastewater of current and future residents from contaminating the groundwater.

Alternative I would require minimal energy to operate the septic systems. Alternative II of consolidation would require pumping the collected sewer uphill to Earlimart, which would require high power consumption. Alternative III of pressured sewer system would also result in high power consumption to pump the sewage from individual homes to a centralized treatment plant comparable to pumping to Earlimart. Finally, Alternative IV would have gravity fed lines and minimal power requirement at the centralized WWTP. Additionally, Alternative III and IV would hold the treated wastewater in storage and reclamation ponds that can eventually be used for targeted groundwater recharge.

Vulnerability assessment of the upgrade project shows that upgraded septic systems are also susceptible to flooding and groundwater contamination during winter months when the water table is high. The sewer collection systems would be susceptible damages due to land sinking. Mitigation methods could include using the treated water for groundwater recharge, using advanced control panels to detect sewer leaks, and treating the wastewater to acceptable nitrogen removal standards.

5.1.5. Planning Priorities

Projects approved by the SWRCB must address the state planning priorities in Section 65041.1 of the Government Code. These priorities are intended to promote equity, strengthen the economy, protect the environment, and promote public health and safety in the state.

Alternatives I and III do not promote efficient development patterns since the upgrades would be limited to existing users only and wouldn't extend to future development. Alternatives II and IV encourage infill development and provide efficient development patterns since the currently empty parcels of land along the main roads of Allensworth can be easily connected to sewer service. Additionally, construction of a centralized sewer system within the community would provide new avenues for development and a possibility of consolidating nearby small communities in the future. It also provides an opportunity for future use of reclaimed water for purposes like recreation or landscape development.

5.1.6. Lifecycle Cost

Lifecycle cost refers to the sum of the capital construction costs and recurring O&M costs over the full life span of the feasible alternatives presented. Capital construction costs for Alternative I include the cost of new Orenco AdvanTex AX20-RT/AX40-RT advanced OWTS, replacement of the existing septic systems, and construction of new leach fields that meet current standards on each parcel. Initial costs for Alternative II include those associated with construction of a 29,360-foot-long gravity sewer system, a pump station, and a 44,000-foot-long force main that will deliver the wastewater from the ACSD to Earlimart WWTP. Capital construction costs for Alternative III include the cost of installing 144 Prelos Septic Tanks, constructing a 29,360-foot-long pressured sewer collection system, furnishing/installing new Orenco AdvanTex AX-Max centralized wastewater treatment units and constructing adequately sized wastewater disposal ponds. Capital costs the final Alternative IV include construction of a 29,360 feet long gravity collection system, Xerxes septic tanks and Pre-Anoxic tanks, the AdvanTex treatment units, and the disposal ponds at the WWTP site.

Annual O&M costs refer to the recurring cost to operate and maintain each of the feasible alternatives presented. Typical recurring O&M costs are labor, equipment repairs, sampling, electricity, reporting, and a capital improvement reserve. The operation and maintenance costs for Alternative I were estimated based on administration costs, annual O&M costs for the OWTS, a capital reserve and debt service fees. O&M costs for Alternative II include administrative costs, preventive/corrective maintenance on the sewer collection system, preventive/corrective maintenance to the pump station, a monthly discharge fee charged by the Earlimart, a capital reserve to fund the replacement of short-lived assets, and a debt service to pay toward the construction loan. The O&M costs for Alternative III include administrative costs, preventive/corrective maintenance of the pressured sewer collection system, annual O&M costs associated with the individual septic tanks and the combined treatment facility, a capital reserve to fund the replacement of short-lived assets and a debt service fee. The O&M costs for the Alternative IV include administrative costs, preventive/corrective maintenance on the gravity collection system, operational expenses associated with the primary and secondary treatment units, a capital reserve fee for the replacement of short-lived assets and a debt service fee to pay toward the construction loan for the capital expenses incurred beyond the maximum grant amount.

Table 5-1 shows a comparison of the lifecycle cost for all feasible alternatives presented. The comparison is made for a 20-year and 30-year life and uses a 2.5 percent discount rate. The lifecycle costs are expressed in 2021 US dollars.

Table 5-1 Lifecycle Costs Comparison

	Alternative I	Alternative II	Alternative III	Alternative IV
Capital Construction	$9,438,979	$18,708,840	$15,097,983	$17,177,466
O&M Cost (20-yr)	$3,304,902	$1,990,958	$1,790,675	$1,179,580
O&M Cost (30-yr)	$4,437,222	$2,673,096	$2,404,193	$1,583,725
20-yr Lifecycle	**$12,743,881**	**$20,699,798**	**$16,888,658**	**$18,357,046**
30-yr Lifecycle	**$13,876,201**	**$21,381,936**	**$17,502,176**	**$18,761,192**

The lowest lifecycle cost to construct one of the feasible alternatives and maintain treatment and disposal of the ACSD wastewater for 20 years is Alternative I. For a 20-year lifecycle, Alternative II is approximately 62 percent higher than Alternative I, Alternative III is approximately 32 percent higher than Alternative I, and Alternative IV is 44 percent higher than Alternative I.

The lowest lifecycle cost to construct one of the treatment Alternatives and maintain treatment and disposal of the community's wastewater for 30 years is also Alternative I. For a 30-year lifecycle, Alternative II is approximately 54 percent higher, Alternative III is approximately 26 percent higher and Alternative IV is 35 percent higher than Alternative I for total costs.

5.2. Recommended Alternative

Alternative IV of constructing a sewer collection system and a centralized wastewater treatment system within Allensworth is recommended based on the evaluation and comparison of alternatives presented in this Study. Alternative IV is recommended for the following reasons:

- It will provide supplemental treatment for the wastewater generated from the ACSD utilizing only a part time operator that will be trained by treatment system manufacturers free of charge.
- Maintenance can be performed easily at a centralized location.
- It will provide the ACSD with a reliable treatment method that meets current standards and regulations set by governing agencies.
- Will divert the treatment from the growing and stringent regulations for the use of septic systems to a more permanent treatment method.
- Although Alternative IV is less cost-effective than Alternative I, construction of a centralized wastewater treatment system is a more reliable option to treat and dispose sewer flows and would further permit future ACSD residents to be connected to the sewer system with ease.
- It would transition the responsibility of maintaining the treatment systems from individual homeowner to the ACSD.
- A centralized treatment system would provide the residents of Allensworth a flexibility to use the treated water for recreational/recharge purposes in the future.
- A centralized treatment system would provide an opportunity for energy efficiency by consolidating treatment operations to a central location with a possibility of future solar power generation on-site.

5.3. Funding the Recommended Alternative

The current Draft Intended Use Plan (IUP) for FY 2022-23 limits grant funding for severely disadvantaged and disadvantaged small communities to $125,000 per connection for septic-to-sewer projects. Additionally, there is a provision, pending deputy director approval, that will allow a maximum of $175,000 per connection for a good cause in extremely rare cases. A good cause is determined on a case-by-case basis and is centered on the number of connects served by the proposed improvements, positive impact the proposed improvements would have of the community and the cost required to fund the proposed improvements. As seen in Table 5-1, the recommended alternative, Alternative IV, for the construction of a centralized wastewater treatment facility coupled with a gravity sanitary sewer collection system has related capital construction costs that are within the maximum allowable grant funding, according to the FY 2022-23 IUP. The construction project would be eligible for 100% capital funding, which would eliminate the burden of debt service from the monthly sewer charges that residents would be required to pay.

5.4. Next Steps

The recommended next step towards implementing Alternative IV would be to seek approval from ACSD's Board of Directors to implement the recommended alternative. Once approved, the preparation of environmental and financial packages would be completed, and a construction application would be submitted. Following the submission of the construction application, outreach with the residents of Allensworth would be essential to inform them about the project and potential health and environmental advantages of implementing the project. Ultimately, ACSD would receive grant funding to complete the construction of the sewer collection system and the centralized WWTP.

In the meantime, the ACSD should continue monitoring and utilizing their individual septic tanks. If an abundance of septic systems begin to fail, the governing agency should implement the recommended alternative as quickly as possible to avoid costly charges and contamination of the groundwater.

5.5. Project Schedule

Approval of the CWSRF construction application is expected 12 to 15 months after submission to the SWRCB. After Approval, the project engineer can begin the project design. Once the plans and specifications and construction documents have been prepared, bidding can begin, followed by construction. Construction time is expected to be one year. A project schedule is provided in Table 5-2 below.

Table 5-2 Proposed Project Schedule

Task	Estimated Date
Environmental Documents	October 2022
Sewer Rate Study	January 2023
Fiscal Sustainability and Debt Management Plan	January 2023
Report of Waste Discharge	March 2023
LAFCo Application	March 2023
Preliminary Design	September 2023
CWSRF construction Application	September 2023
CWSRF Application Review	January 2025
Final Project Design	December 2025
Bidding	March 2026
Construction Begins	June 2026
Construction Ends	June 2027

Appendix A –

ACSD Existing Septic System Survey

ALLENSWORTH CSD SEPTIC TO SEWER WORKSHOP

DATE: 01/29/2022 10am – 12pm

SIGN-IN SHEET

ATTENDEE	ADDRESS	SIGNATURE
1. Emmanuel Soto	Selfhelp Visalia	Emmanuel [illegible]
2. Kathleen Williams	2983 C RD 84	Kathleen Williams
3. Josette (Josephine) Pierro	2981 Rd 84	Josephine Pierro
4 Perla E Espinoza	8555 A Av 32	[illegible]
Salud 8558 32		
5. Cecelia Pope Harden	814 N. Gem St Tulare CA	Cecelia Pope Harden
6. Emmett Harden	11	emmettharden @gmail

1 Is your current septic system working properly?

- [x] Yes
- [ ] No

2 Are you concerned about septic system failure and groundwater pollution?

- [x] Yes
- [ ] No

3 Would you support the construction of a community sewer system and a wastewater treatment plant to replace your current septic system?

- [x] Yes
- [ ] No

4 How much do you spend annually on your septic system?

$________

1

Is your current septic system working properly?

- ☐ Yes
- ☒ No

2

Are you concerned about septic system failure and groundwater pollution?

- ☒ Yes
- ☐ No

3

Would you support the construction of a community sewer system and a wastewater treatment plant to replace your current septic system?

- ☒ Yes
- ☐ No

4

How much do you spend annually on your septic system?

$ Not sure

1. Is your current septic system working properly?
   - [x] Yes
   - [ ] No

2. Are you concerned about septic system failure and groundwater pollution?
   - [x] Yes
   - [ ] No

3. Would you support the construction of a community sewer system and a wastewater treatment plant to replace your current septic system?
   - [x] Yes
   - [ ] No

4. How much do you spend annually on your septic system?

   $ ~~612.00~~ $51.00 montly

siguiente cuestionario y ... nosotros por teléfono al +1 (661) 849-3894 o por ...

1

¿Su sistema séptico actual funciona correctamente?

- [x] Sí
- [ ] No

2

¿Le preocupan las fallas del sistema séptico y la contaminación de las aguas subterráneas?

- [x] Sí
- [ ] No

3

¿Apoyaría la construcción de un sistema de alcantarillado comunitario y una planta de tratamiento de aguas residuales para reemplazar su sistema séptico actual?

- [x] Sí
- [ ] No

4

¿Cuánto gasta anualmente en su sistema séptico?

$ 500

1

¿Su sistema séptico actual funciona correctamente?

- [x] Sí
- [ ] No

2

¿Le preocupan las fallas del sistema séptico y la contaminación de las aguas subterráneas?

- [x] Sí
- [ ] No

3

¿Apoyaría la construcción de un sistema de alcantarillado comunitario y una planta de tratamiento de aguas residuales para reemplazar su sistema séptico actual?

- [x] Sí
- [ ] No

4

¿Cuánto gasta anualmente en su sistema séptico?

$ 0

1

¿Su sistema séptico actual funciona correctamente?

☑ Sí
☐ No

2

¿Le preocupan las fallas del sistema séptico y la contaminación de las aguas subterráneas?

☑ Sí
☐ No

3

¿Apoyaría la construcción de un sistema de alcantarillado comunitario y una planta de tratamiento de aguas residuales para reemplazar su sistema séptico actual?

☑ Sí
☐ No

4

¿Cuánto gasta anualmente en su sistema séptico?

$ 0

1

Is your current septic system working properly?

- [x] Yes
- [ ] No

2

Are you concerned about septic system failure and groundwater pollution?

- [x] Yes
- [ ] No

3

Would you support the construction of a community sewer system and a wastewater treatment plant to replace your current septic system?

- [x] Yes
- [ ] No

4

How much do you spend annually on your septic system?

$__________

Allensworth Community Services District

SURVEY OF SEPTIC TANK SYSTEM PERFORMANCE

1.) Street Address: 3605 Young Road

2.) Name (optional): Dennis Hutson

3.) Number of people in house? 1 # of bathrooms? ________

4.) Do you: own this house? ☐ rent? ☒ # of years living @ this house? 1

5.) Where does the septic tank water go to?

Leach line ☒ Seepage pit/dry well ☐ Both ☐ Don't know ☐

6.) How many homes/trailers are served by system? 0

7.) Has the septic disposal system ever given you any problems? Yes ☐ No ☒

If yes, please describe (smells, pooling in the yard):

8.) How many times was the septic tank pumped in the last three years? Don't Know Average Cost? ________

Pumping dates? ________ Receipts? (check mark) Yes ☐ No ☒

Name(s) of Pumping service(s) used: ________

9.) Where does your greywater (wash, sink and/or laundry water) go to?

Septic tank ☒ Yard ☐ Other: ________

10.) Have the leach fields or seepage pits ever been repaired or replaced?

Yes ☐ No ☐ Don't know

If yes: Why? ________ When? ________

What was done? ________ Cost? $________

Have you had problems with the septic system since this work? Yes ☐ No ☒

11.) Which would you prefer?

public sewers ☒ **septic tank system** ☐

Date: 7/28/2018

Questions? Call Seamus, Self Help Enterprises (559) 802-1694

Distrito de Servicios Comunitarios de Allensworth

ENCUESTA DEL FUNCIONAMIENTO DE SISTEMAS DE TANQUES SEPTICOS

1.) Dirección de la casa: 3616 Young

2.) Nombre (opcional)__________

3.) ¿Número de personas en la casa? 4 Numero de Baños? 2

4.) Usted: Es dueño de casa? ☐ ¿Renta? ☒ # años viviendo en esta casa? ______

5.) ¿A dónde se va el agua del tanque séptico?
Línea de filtración ☐ Poso de filtración/Poso seco ☒ Los dos ☐ No sé ☐

6.) ¿Cuántos hogares/trailas están conectados al tanque? 1

7.) ¿Ha tenido problemas con el funcionamiento de tanque séptico? (marque uno) Sí ☐ No ☐
Si marcó "Si" por favor explique (olores, inundación en la yarda)

Sólo el costo de limpiarlo

8.) ¿Cuantas veces has vaciado el tanque séptico en los últimos tres años? ______ $ 350
Costos promedios ______
¿Fechas de limpiezas? ______ Ud tiene recibos? ☐ Sí ☐ No

Nombre(s) de la compañía que limpió: ______

Hace un año

9.) A donde se va su agua gris (lavabo, cocina y/o agua de lavar)? (marque o escriba)

Tanque séptico ☐ yarda ☐ otro: ______

10.) ¿Ha sido reparada o reemplazada la línea de filtración o el poso de filtración alguna vez?

Sí ☐ No ☐

Si "Si": Por qué? ______ Cuando? ______

¿Que fue hecho? ______ Cuánto cuesta? $______

¿Ha tenido problemas con el sistema después que se hizo este trabajo? Sí ☐ No ☐

11.) ¿Cuáles servicios prefiere? (Circule uno)

sistema de drenaje público **sistemas de tanques sépticos privados**

Fecha: 7/28/18 Preguntas? Comuníquese con Seamus, Self-Help Enterprises (559) 802-1694

Distrito de Servicios Comunitarios de Allensworth

ENCUESTA DEL FUNCIONAMIENTO DE SISTEMAS DE TANQUES SEPTICOS

1.) Dirección de la casa: 2922 Rd. 84

2.) Nombre (opcional)______________________

3.) ¿Número de personas en la casa? 8 Numero de Baños? 2

4.) Usted: Es dueño de casa? ☐ ¿Renta? ☒ # años viviendo en esta casa? ________

5.) ¿A dónde se va el agua del tanque séptico?

Línea de filtración ☐ Poso de filtración/Poso seco ☐ Los dos ☐ No sé ☒

6.) ¿Cuántos hogares/trailas están conectados al tanque? 3

7.) ¿Ha tenido problemas con el funcionamiento de tanque séptico? (marque uno) Sí ☐ No ☐

Si marcó "Si" por favor explique (olores, inundación en la yarda)

No

8.) ¿Cuantas veces has vaciado el tanque séptico en los últimos tres años? Si, hace 2 años

Costos promedios no sabe

¿Fechas de limpiezas? ____________________ Ud tiene recibos? ☐ Sí ☐ No

Nombre(s) de la compañía que limpió: ________________________

9.) A donde se va su agua gris (lavabo, cocina y/o agua de lavar)? (marque o escriba)

Tanque séptico ☐ yarda ☐ otro: ________________________

10.) ¿Ha sido reparada o reemplazada la línea de filtración o el poso de filtración alguna vez?

Sí ☐ No ☐

Si "Si": Por qué? ____________________ Cuando? ________________________

¿Que fue hecho? ________________________ Cuánto cuesta? $______________

¿Ha tenido problemas con el sistema después que se hizo este trabajo? Sí ☐ No ☐

11.) ¿Cuáles servicios prefiere? (Circule uno)

sistema de drenaje público **sistemas de tanques sépticos privados**

Fecha: ______________ Preguntas? Comuníquese con Seamus, Self-Help Enterprises (559) 802-1694

Distrito de Servicios Comunitarios de Allensworth

ENCUESTA DEL FUNCIONAMIENTO DE SISTEMAS DE TANQUES SEPTICOS

1.) Dirección de la casa: 8513 Av. 32

2.) Nombre (opcional)____________

3.) ¿Número de personas en la casa? 5 Numero de Baños? 2

4.) Usted: Es dueño de casa? ☐ ¿Renta? ☒ # años viviendo en esta casa? ______

5.) ¿A dónde se va el agua del tanque séptico?
Línea de filtración ☒ Poso de filtración/Poso seco ☐ Los dos ☐ No sé ☐

6.) ¿Cuántos hogares/trailas están conectados al tanque? 1

7.) ¿Ha tenido problemas con el funcionamiento de tanque séptico? (marque uno) Sí ☐ No ☐
Si marcó "Si" por favor explique (olores, inundación en la yarda)

No

8.) ¿Cuantas veces has vaciado el tanque séptico en los últimos tres años? No 6 años en casa
Costos promedios __________
¿Fechas de limpiezas? __________ Ud tiene recibos? ☐ Sí ☐ No
Nombre(s) de la compañía que limpió: __________

9.) A donde se va su agua gris (lavabo, cocina y/o agua de lavar)? (marque o escriba)

Tanque séptico ☐ yarda ☐ otro: __________

10.) ¿Ha sido reparada o reemplazada la línea de filtración o el poso de filtración alguna vez?

Sí ☐ No ☐

Si "Si": Por qué? __________ Cuando? __________

¿Que fue hecho? __________ Cuánto cuesta? $__________

¿Ha tenido problemas con el sistema después que se hizo este trabajo? Sí ☐ No ☐

11.) ¿Cuáles servicios prefiere? (Circule uno)

sistema de drenaje público **sistemas de tanques sépticos privados**

Fecha: __________ Preguntas? Comuníquese con Seamus, Self-Help Enterprises (559) 802-1694

Distrito de Servicios Comunitarios de Allensworth

ENCUESTA DEL FUNCIONAMIENTO DE SISTEMAS DE TANQUES SEPTICOS

1.) Dirección de la casa: 2910 Rd. 84

2.) Nombre (opcional)________________________

3.) ¿Número de personas en la casa? 6 Numero de Baños? 2

4.) Usted: Es dueño de casa? ☐ ¿Renta? ☒ # años viviendo en esta casa? ________

5.) ¿A dónde se va el agua del tanque séptico?

Línea de filtración ☒ Poso de filtración/Poso seco ☐ Los dos ☐ No sé ☐

6.) ¿Cuántos hogares/trailas están conectados al tanque? 1

7.) ¿Ha tenido problemas con el funcionamiento de tanque séptico? (marque uno) Sí ☐ No ☐

Si marcó "Si" por favor explique (olores, inundación en la yarda)

No

8.) ¿Cuantas veces has vaciado el tanque séptico en los últimos tres años? 1

Costos promedios 200

¿Fechas de limpiezas? __________________ Ud tiene recibos? ☐ Sí ☐ No

Nombre(s) de la compañía que limpió: ________________________

9.) A donde se va su agua gris (lavabo, cocina y/o agua de lavar)? (marque o escriba)

Tanque séptico ☐ yarda ☐ otro: ________________________

10.) ¿Ha sido reparada o reemplazada la línea de filtración o el poso de filtración alguna vez?

Sí ☐ No ☐

Si "Si": Por qué? ______________________ Cuando? ________________________

¿Que fue hecho? ___________________________ Cuánto cuesta? $________________

¿Ha tenido problemas con el sistema después que se hizo este trabajo? Sí ☐ No ☐

11.) ¿Cuáles servicios prefiere? (Circule uno)

sistema de drenaje público **sistemas de tanques sépticos privados**

Fecha: ______________ Preguntas? Comuníquese con Seamus, Self-Help Enterprises (559) 802-1694

Appendix B – Brochures

AdvanTex® Treatment Systems

AX-RT

Manufactured by **Orenco Systems®, Inc.**

A number of vacation homes along beautiful Smith Mountain Lake in Virginia treat their wastewater – and protect the lake – with AdvanTex® AX-RT Treatment Systems.

Dependable, Affordable Treatment For Residential & Small Commercial Wastewater

Applications:

- 1-6 bedroom homes (subject to local regulations)
- Small commercial properties
- New construction, repairs
- Tight lots, other site constraints
- Poor soils, shallow bury
- Stringent permit requirements
- Nitrogen reduction, disinfection
- Surface discharge

Orenco® SYSTEMS

814 Airway Avenue, Sutherlin, Oregon, USA 97479

Toll-Free: 800-348-9843 • +1-541-459-4449 • www.orenco.com

AdvanTex® – AX-RT Treatment System

Dependable, Affordable Wastewater Treatment, Anywhere!

The AdvanTex® AX-RT Wastewater Treatment System is the latest residential (and small commercial) treatment system in Orenco's AdvanTex line.

AdvanTex systems consistently produce clear, high-quality effluent ... effluent that meets the most stringent permit limits and is ideal for subsurface irrigation and other water-saving uses.[1] That's one reason why AdvanTex won the Water Environment Federation's "2011 Innovative Technology Award." It also won for its low power costs and low operating & maintenance costs. Plus AdvanTex is easy to install, too. Here's why:

Pre-Plumbed Treatment System Saves On Excavation, Installation, O&M

The AX-RT is a compact, "plug and play" wastewater treatment system. It can be shallowly buried and installed right behind a septic tank, as easily as a septic tank.

The AX-RT unit includes the following functional areas of the treatment process:

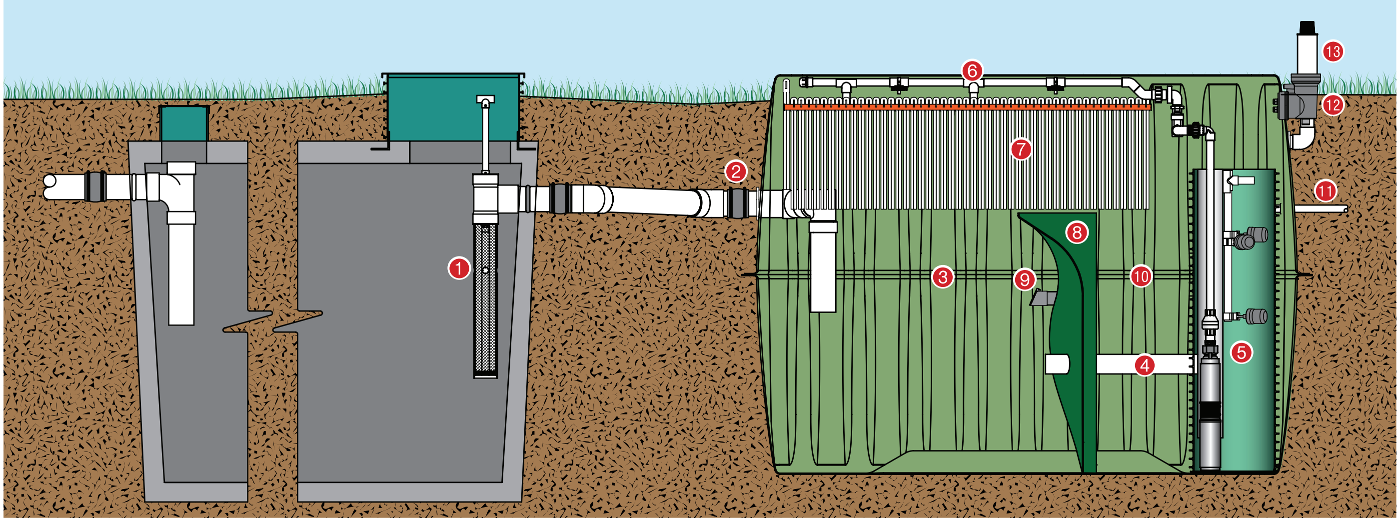
1. Textile media for advanced treatment
2. Recirculation/blending chamber
3. Gravity or pump discharge to final dispersal
4. Optional Orenco UV unit when disinfection is required

This compact design fits on small lots and reduces costs for excavation and installation. That means property owners can buy AdvanTex quality at a competitive price.

*Since 2003, 116 AdvanTex Treatment Systems have been installed in Sunset Bay, a lakefront subdivision in northeast Tennessee, and 23 of these have been AX-RTs. According to **Arthur Helms, Helms Construction**, the RT's are "a lot easier to install. This one only has a few connections, so you can't hardly screw it up." Even better, Helms says that the RT "saves about 8 hours labor and saves on fittings ... I make more money with the RT. I can do it and go on to the next one."*

Components

1. *Biotube® effluent filter*
2. *Inlet*
3. *Treatment tank – recirc/blend chamber*
4. *Recirc transfer line*
5. *Recirc pumping system (discharge pumping system not visible)*
6. *Manifold and spin nozzles*
7. *Textile treatment media*
8. *Tank baffle*
9. *Recirc return valve*
10. *Treatment tank – recirc/filtrate chamber*
11. *Outlet*
12. *Splice box*
13. *Passive air vent*
14. *Control panel (not shown)*



The AX-RT is a completely prepackaged "plug & play" wastewater treatment system that can be quickly installed right behind an existing (or new) watertight septic tank.

AdvanTex® – AX-RT Treatment System

Low Power Costs, Low Maintenance Costs

No blowers! The AX-RT is passively vented and uses only $2-$3 per month in electricity.[2] Other products can use anywhere from two to five times more![3] AX-RT customers also have low lifetime costs. The AX-RT is designed to be easily maintained with an annual service call, thanks to its accessible, cleanable filters and media. And the AX-RT's high-quality, high-head pumps last 20 years or more![4]

***Homeowner Nancy Smith** was the first person to receive a $400 cash incentive from Energy Trust of Oregon for buying an energy-efficient wastewater system: an AX-RT. Smith's drainfield failed the day before Thanksgiving and she immediately started researching replacement systems. "My determining factor was the electric use," said Smith. "Incomes are going down, expenses are going up … I have to know going forward what things are going to cost." Smith chose the AX-RT because the annual cost for electricity runs less than $40; other systems can run as high as $200 or more.[5]*

Consistent, Reliable Performance

Stringent testing programs consistently show that AdvanTex Treatment Systems produce effluent with BOD_5/TSS at or below 10 mg/L and nitrogen reduction of 60-70+%.[6] In fact, the Maryland Department of the Environment has rated AdvanTex as tops among all "Best Available Technologies" for nitrogen-reduction.[7]

[1] NSF® International Standard 40 Evaluation Report, April 2002 (evaluation performed by NovaTec Consultants, Inc.)

[2] Assumes electricity costs of $0.10 per kWh and 3-4 occupants

[3] Maryland's "Bay Restoration Fund Ranking Documentation," http://www.mde.state.md.us/programs/Water/BayRestorationFund/OnsiteDisposalSystems/Documents/BAT%20Ranking%20Document%202016.pdf

[4] Elkton, Oregon

[5] Maryland's "Bay Restoration Fund Ranking Documentation," http://www.mde.state.md.us/programs/Water/BayRestorationFund/OnsiteDisposalSystems/Documents/BAT%20Ranking%20Document%202016.pdf

[6] NSF® International Standard 40 Evaluation Report, April 2002 (evaluation performed by NovaTec Consultants, Inc.)

[7] http://www.mde.state.md.us/programs/Water/BayRestorationFund/OnsiteDisposalSystems/Pages/water/cbwrf/osds/brf_bat.aspx

The AdvanTex Advantage:

- Reliable, reputable
- Clear, reusable effluent
- No blower; minimal odor
- Complete "plug & play" package
- Easy to install and maintain
- Energy-efficient
- Competitively priced
- For 1-6 bedroom homes

Textile Treatment Media

Spin nozzles microdose wastewater effluent onto highly absorbent textile filters at regular intervals, optimizing treatment.

Ultraviolet Disinfection

Adding our optional UV unit reduces bacteria by 99.999%,[8] allowing wastewater reuse for irrigation, toilet flushing, etc. (subject to local regulations). It uses no chemicals and has no moving parts. The UV unit is protected in its own chamber inside the AX-RT and just needs a lamp replacement yearly.

Smart Controls

The AX-RT comes standard with Orenco's VeriComm™ remote telemetry control panel and monitoring system. That means service providers can oversee the system from office or home. (Non-telemetry "smart" controls also available.)

[8] Report prepared by NSF® International, March 2015

AdvanTex® – AX-RT Treatment System

Carefully Engineered by Orenco

Orenco Systems has been researching, designing, manufacturing, and selling leading-edge products for decentralized wastewater treatment systems since 1981. The company has grown to become an industry leader, with about 300 employees and more than 300 points of distribution in North America, Australasia, Europe, Africa, and Southwest Asia. Our systems have been installed in about 70 countries around the world.

AdvanTex® Treatment System AXN Models meet the requirements of NSF-ANSI Standard 40 for Class I Systems.

Powered by Franklin Electric

Use the AX-RT for Applications Like These ...

Small Lots

In 2011, Mike Madson, a septic system installer in Oregon, replaced a failing system along the beautiful North Umpqua River with an AX-RT. "That particular situation was really, really confining," says Madson. "There was a high bank to the river about 25 feet away and roots everywhere; we had to get things in there in compact fashion. We even had to add a drainfield to the site; the old one was bootlegged in, cedar trees had grown into it, and the leach line was plugged up." The AX-RT incorporates the recirc and discharge processes right within the RT unit, so its smaller footprint made this installation possible.

Nitrogen Reduction

Bob Johnson of Atlantic Solutions has sold (and services) more than 325 AX-RTs, mostly for Maryland's aggressive nutrient-reduction program. The state requires Total Nitrogen of less than 20 mg/L to protect the Chesapeake Bay. After a year of testing 12 RTs under Maryland's BAT (Best Available Technologies) Program, Johnson reports that TN averaged just 14.6 mg/L, while BOD_5/TSS averaged <5 mg/L.[9] Says Johnson, "When you look at life cycle costs and percent of nitrogen reduction, the AX-RT costs less than other technologies for every pound of nitrogen removed."

Strict Permit Limits

Photo courtesy of Kevin Davidson

A North Carolina homeowner had a conventional septic system with a drainfield that dispersed into poor soils. When the drainfield failed, the lot was too small to put in a new one, and sewer service wasn't available. The concerned homeowner contacted Kevin Davidson, an engineer with Agri-Waste Technology. He suggested the installation of an AdvanTex AX20-RT unit with UV disinfection. This treatment combination was designed to meet permit limits (< 30 mg/L BOD_5 and TSS; < 200 cfu/mL fecal coliform) without requiring a new drainfield.

Davidson was able to use the existing septic tank, and the RT's configuration further reduced costs by eliminating the need for a discharge tank, separate UV basin, and several risers and lids. On the O&M side, he appreciated having the UV sensors integrated into the control panel, especially the one that allows service providers to know the bulb is working without having to pull it out. Said Davidson, "I think the RT is the best unit when you look at aesthetics, installation cost, ability to treat waste, and support from Orenco. Compared to other technologies, I would grade Orenco at the top."

[9] *http://www.mde.state.md.us/programs/Water/BayRestorationFund/OnsiteDisposalSystems/Pages/water/cbwrf/osds/brf_bat.aspx*

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ABR-ATX-AXRT-1
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Orenco Systems®, Inc.

AdvanTex® Treatment Systems

AX-Max™

Manufactured by **Orenco Systems®, Inc.**

This full-sized AdvanTex® AX-Max™ wastewater system was installed at a 50-site campground in the LaPine State Park, LaPine, Oregon, to handle design flows of 7,500 gpd (28.4 m^3/day).

Decentralized Wastewater Treatment for Commercial Properties and Communities

Applications:

- Municipal systems
- Subdivisions, apartments
- Golf course developments, resorts
- Manufactured home parks
- Parks, RV parks, campgrounds
- Schools, churches, businesses
- Rest areas, truck stops

Orenco® SYSTEMS

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AdvanTex® AX-Max™ Treatment System

Reliable, Energy-Efficient Wastewater Treatment Everywhere!

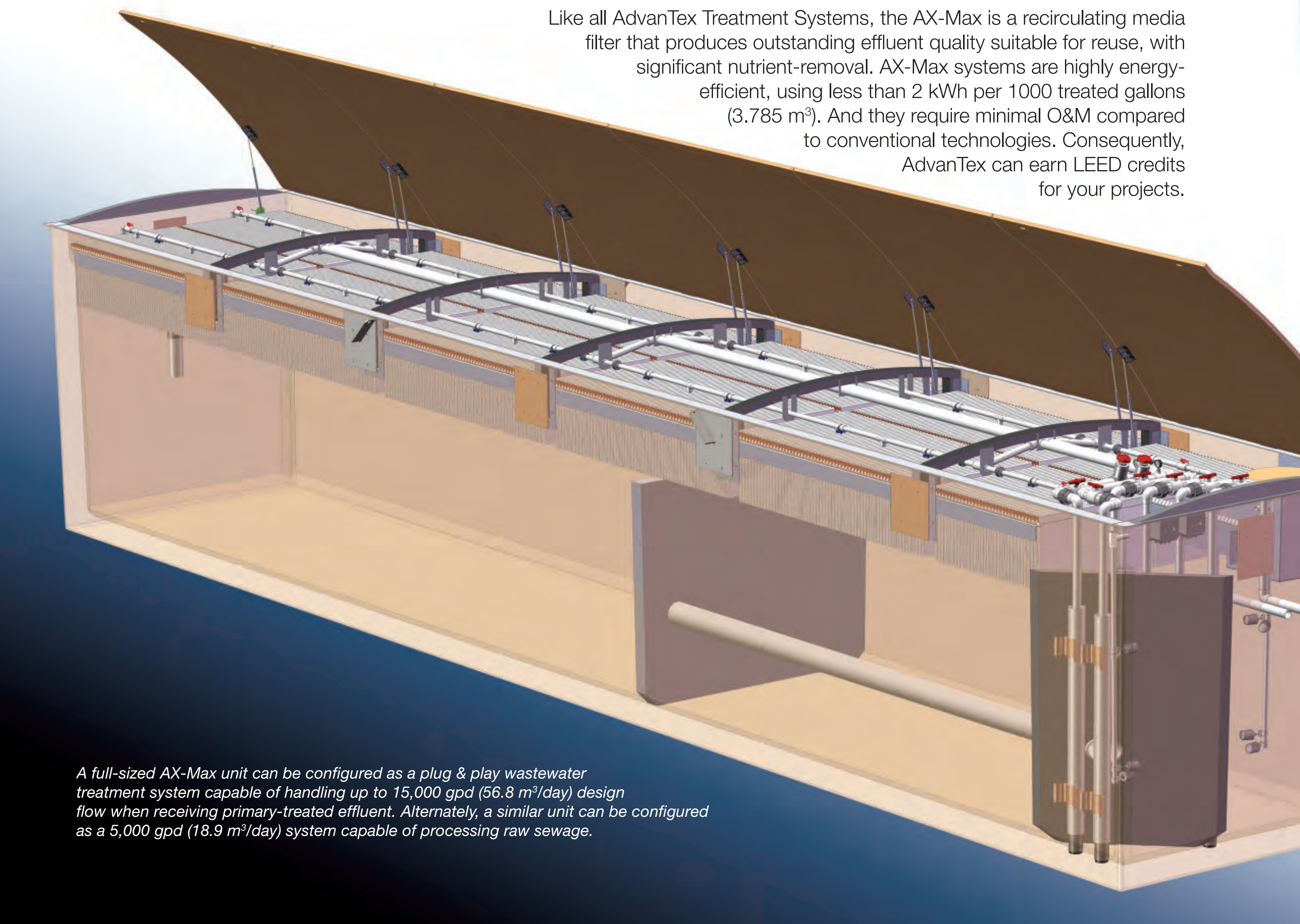
The Yakama Nations Housing Authority in Washington state added five AdvanTex® AX-Max units (background) to its ten AdvanTex AX-100 units, increasing the capacity of its wastewater system by 50%. Photo courtesy of Fextex Systems, Inc.

For more than 15 years, Orenco's AdvanTex® Treatment Systems have been providing reliable, energy-efficient wastewater treatment inside and outside the urban core. AdvanTex textile filter technology has been winning awards and coming out on top in field trials and demo projects, all over the world.

Orenco's newest product in the AdvanTex line is the AX-Max™: a completely-integrated, fully-plumbed, and compact wastewater treatment plant that's ideal for commercial properties and communities. It's also ideal for projects with strict discharge limits, limited budgets, and part-time operators.

A Sustainable Solution for Wastewater Treatment

Like all AdvanTex Treatment Systems, the AX-Max is a recirculating media filter that produces outstanding effluent quality suitable for reuse, with significant nutrient-removal. AX-Max systems are highly energy-efficient, using less than 2 kWh per 1000 treated gallons (3.785 m^3). And they require minimal O&M compared to conventional technologies. Consequently, AdvanTex can earn LEED credits for your projects.



A full-sized AX-Max unit can be configured as a plug & play wastewater treatment system capable of handling up to 15,000 gpd (56.8 m^3/day) design flow when receiving primary-treated effluent. Alternately, a similar unit can be configured as a 5,000 gpd (18.9 m^3/day) system capable of processing raw sewage.

AdvanTex® AX-Max™ Treatment System

Units range from 14'-42' in length.
This 21' unit is ideal for lower flows.

Set, Plumb, Wire, and Go

The AX-Max is pre-plumbed and easy to install, so AX-Max projects can meet the tightest deadlines. The entire system — including treatment, recirculation, and discharge — is built inside an insulated fiberglass tank that ranges from 14-42 feet (4.3-12.8 m) in length. AX-Max units can be installed above-ground — for maximum versatility in temporary or variable-flow situations — or in-ground. They can also be installed individually or in multi-tank arrays, treating up to 1 MGD (3,800 m^3/day).

For Every Climate and Condition

AX-Max systems provide excellent treatment anywhere, and they have been installed all over the world. For example, AX-Max systems have been installed at Malibu's famous beach parks and New Zealand's Glendhu Bay campground. Several more were installed in Soyo, Africa, to serve a new hospital and school. Other AX-Max systems have been installed on top of Alaska's frozen tundra and St. Lucia's volcanic rock. Still more have been installed in mining camps from Alberta to Texas and, in the Midwest, at a U.S. Department of Defense demo site.

Benefits

- Containerized, fully-plumbed
- Capable of meeting stringent permit limits
  ~ Reuse-quality effluent
  ~ Significant reductions in ammonia, total nitrogen
- Compact and versatile
- Above-ground or in-ground installation
- Easy to set
- Simple to operate
- Low energy usage: <2 kWh per 1000 treated gal. (<2 kWh per 3.785 m^3)*

** When treating domestic waste*

Textile Treatment Media

The treatment medium is a uniform, engineered textile. AdvanTex textile is easy to clean and allows loading rates as high as 50 gpd/ft² (2000 L/day/m²) with primary-treated influent.

Effluent Distribution

High-quality, low-horsepower pumps micro-dose the treatment media at regular intervals, and proprietary spin nozzles efficiently distribute the effluent, optimizing treatment.

Telemetry Controls

Orenco's telemetry-enabled control panels use a dedicated phone line or ethernet connection, ensuring 24/7 monitoring and real-time remote control.

AdvanTex® AX-Max™ Treatment System

Carefully Engineered by Orenco

Orenco Systems has been researching, designing, manufacturing, and selling leading-edge products for small-scale wastewater treatment systems since 1981. The company has grown to become an industry leader, with about 300 employees and 300 points of distribution in North America, Australasia, Europe, Africa, and Southwest Asia. Our systems have been installed in more than 70 countries around the world.

Orenco maintains an environmental lab and employs dozens of civil, electrical, mechanical, and manufacturing engineers, as well as wastewater treatment system operators. Orenco's technologies are based on sound scientific principles of chemistry, biology, mechanical structure, and hydraulics. As a result, our research appears in numerous publications and our engineers are regularly asked to give workshops and trainings.

Powered by Franklin Electric

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Project Summary

Installation photos courtesy of BioSolutions, Inc.

Point Dume State Beach and Preserve, Southern California

In spring, 2011, Los Angeles County needed to quickly upgrade restrooms at Malibu's Point Dume State Beach in time for the long — and busy — Memorial Day weekend. The county's engineer specified three AX-Max units, one for each restroom, and all three were installed in a matter of days. The small footprint of this configuration saved the county valuable space for visitor parking. After disinfection, the treated effluent is dispersed right into the sand. Point Dume is part of a large-scale upgrade of L.A. County beach parks, virtually all of which include AdvanTex Treatment Systems of various sizes and configurations.

Fully Supported by Orenco

AdvanTex Treatment Systems are part of a comprehensive program that includes ...

- Designer, installer, and operator training
- Design assistance, technical specifications, and plan reviews
- Installation and operation manuals
- Lifetime technical support

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Appendix C –
Alternative I (Orenco Individual Septic Systems) Cost Estimate

Cost Estimating Worksheet

Project: Allensworth CSD
Location:
Notes: Option 1a - Individual Systems with 1,500gal Tank and AdvanTex AX20RT Unit — 5/4/2021

GP	Qty	Item	Description		Sale Price
1			**Individual Residential Treatment Systems**	**$**	**2,245,776.00**
	183	Prelos1500G	Orenco 1,500gal Prelos Package, Gravity		
	183	AX20RT/10	Orenco AdvanTex AX20RT unit		
	183	VCOMAX20B1	Vericomm Control Panel		
		Notes:	*Each lot would consist of a 1,500gal Prelos Processing Tank followed by an Orenco AdvanTex AX20RT Treatment Unit*		
2			**System for Church**	**$**	**54,600.00**
	1	X6000S/EQ	6,000gal Xerxes Fiberglass Tank, Septic and Flow EQ Chamber		
	1	AX40RT	Orenco AdvanTex AX40RT Treatment Unit		
	1	TCOM-C	TCOM Telemetry Control Panel		
		Notes:	*Assumes 3,000gpd Peak Flow, metering out 500gpd over 7 days*		
3			**System for School**	**$**	**54,600.00**
	1	X6000S/EQ	6,000gal Xerxes Fiberglass Tank, Septic and Flow EQ Chamber		
	1	AX40RT	Orenco AdvanTex AX40RT Treatment Unit		
	1	TCOM-C	TCOM Telemetry Control Panel		
		Notes:	*Assumes 2,000gpd Peak Flow, 1,000gpd Average Flow*		
4			**Delivery**	**$**	**171,600.00**
	30	Xdelivery	Delivery of Individual Prelos Tank		
	18	Xdelivery	Delivery of Individual AX20RT Treatment Unit		
	1	Xdelivery	Delivery of Unit for Church		
	1	Xdelivery	Delivery of Unit for School		
			Subtotal, All Materials (tax not included)	**$**	**2,526,576.00**

**** This is a preliminary cost estimate only, based off plans and specifications that exist at the date listed above. This should not be considered a final price, nor materials list. PACE Supply will produce a final quote once final plans and specifications have been received, and that document will supersede anything listed on this document.*

Appendix D –

Alternative III (Orenco STEP Treatment System) Cost Estimate

Cost Estimating Worksheet

Project: Allensworth CSD
Location:
Notes: Option 2a - Individual On-Lot Collection going to Combined Treatment System 5/4/2021

GP	Qty	Item	Description	Sale Price
1			**Individual Collection Systems**	**$ 1,052,275.00**
	183	Prelos1500P	Orenco 1,500gal Prelos Package, with Pumping Package	
	2	Prelos1500G	Orenco 1,500gal Prelos Package, Gravity (for church and school)	
	185	SC100	1" Service Connection (ball, check, access port)	
	1	Misc. Piping	Misc. Collection System Piping	
		Notes:	*Each lot would consist of a 1,500gal Prelos Processing Tank, collecting wastewater, and sending it to a central treatment facility*	
2			**Central Treatment System - 67,500 gpd Peak Flow**	**$ 767,962.50**
	1	AXMAX200-35	AdvanTex AXMAX200-35 Unit, With Pumps	
	2	AXMAX250-35	AdvanTex AXMAX250-35 Unit	
	2	AXMAX300-42	AdvanTex AXMAX300-42 Unit	
	1	TCOM-C	TCOM Telemetry Control Panel	
	1	CB0808	Control Building, 8'x8'	
	1	Startup	Startup of Treatment System	
		Notes:		
3			**Delivery**	**$ 124,150.00**
	31	Xdelivery	Delivery of Individual Prelos Tanks, Bundled Shipment	
	6	Xdelivery	Delivery of Central Treatment Facility	
			Subtotal, All Materials (tax not included)	**$ 1,944,387.50**

**** This is a preliminary cost estimate only, based off plans and specifications that exist at the date listed above. This should not be considered a final price, nor materials list. PACE Supply will produce a final quote once final plans and specifications have been received, and that document will supersede anything listed on this document.*

Appendix E –

Alternative IV (Orenco Centralized Treatment) Cost Estimate

Cost Estimating Worksheet

Project: Allensworth CSD
Location:
Notes: Option 3 - Clustered Collection Tanks and Central Treatment Facility

5/4/2021

GP	Qty	Item	Description		Sale Price
1			**Central Collection Septic Tanks**	**$**	**875,700.00**
	5	T20000XS	Xerxes Fiberglass Septic Tank, 20,000gal		
	1	T35000PA	Xerxes Fiberglass Pre-Anoxic Tank, 35,000gal		
	1	T35000EQ	Xerxes Fiberglass Equalization Tank, 35,000gal		
	5	PP50DPVU	Pumping Package, 50gpm, Duplex with PVU		
	1	PP75QFI	Pumping Package, 75gpm, Quadplex with Flow Inducer Tower		
	1	Misc. Piping	Misc. Collection System Piping		
		Notes:	*Provides 170,000gal of Total Tank Volume, includes septic, pre-anoxic, and flow equalization*		
2			**Central Treatment System - 67,500gpd Peak Flow**	**$**	**767,962.50**
	1	AXMAX200-35	AdvanTex AXMAX200-35 Unit, With Pumps		
	2	AXMAX250-35	AdvanTex AXMAX250-35 Unit		
	2	AXMAX300-42	AdvanTex AXMAX300-42 Unit		
	1	TCOM-C	TCOM Telemetry Control Panel		
	1	CB0808	Control Building, 8'x8'		
	1	Startup	Startup of Treatment System		
		Notes:			
3			**Delivery**	**$**	**59,800.00**
	7	Xdelivery	Delivery of Tanks		
	6	Xdelivery	Delivery of Central Treatment Facility		
			Subtotal, All Materials (tax not included)	**$**	**1,703,462.50**

**** This is a preliminary cost estimate only, based off plans and specifications that exist at the date listed above. This should not be considered a final price, nor materials list. PACE Supply will produce a final quote once final plans and specifications have been received, and that document will supersede anything listed on this document.*

Appendix F –

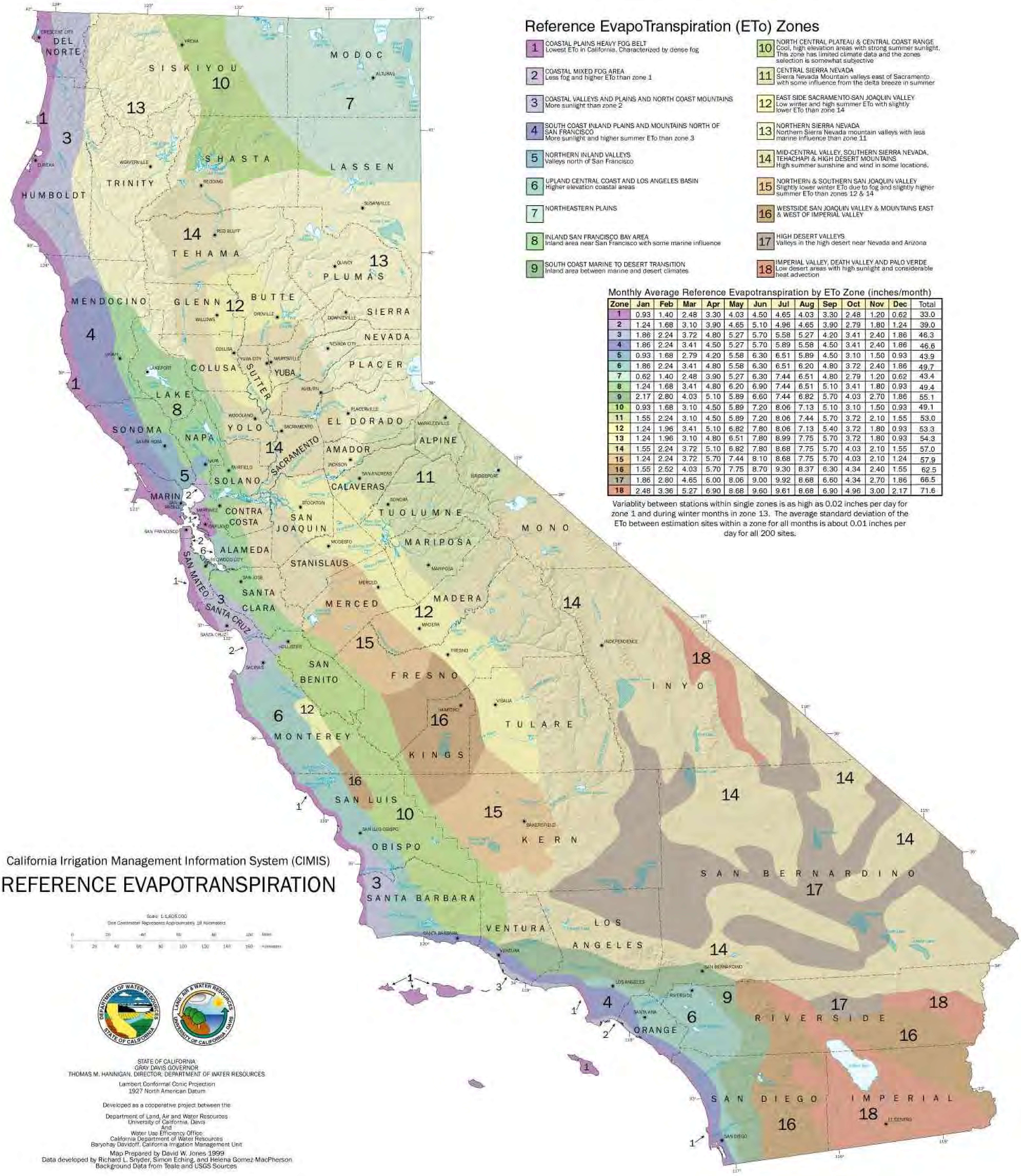
Water Balance Calculations for Storage Volume

ALLENSWORTH
Water Balance Calculations

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	0.065
Irrigation Efficiency, %	70%
Treatment Pond Area, Acres	0.00
Storage Pond Area, Acres	5.00
Effluent Reclamation Area, Acres	8
Percolation Rate, inch/day	0.000

Month	Sewage Flow		Evaporation (acre-ft)		Percolation Ponds Precipitation (acre-feet)(1)	Irrigation Disposal Area (acre-feet)(3)	Pond Percolation (Acre-ft)(4)	Balance (Acre-feet)	
	(MGD)	(acre-feet)	Treatment Ponds	Storage Ponds				Monthly (5)	Cumulative(6)
October	0.07	6.2	0.0	2.0	0.5	4.1	0.0	0.6	0.6
November	0.07	6.0	0.0	1.1	1.2	1.9	0.0	4.2	4.8
December	0.07	6.2	0.0	0.7	1.6	0.8	0.0	6.3	11.1
January	0.07	6.2	0.0	0.7	2.1	0.4	0.0	7.2	18.3
February	0.07	5.6	0.0	1.2	1.9	1.5	0.0	4.8	23.1
March	0.07	6.2	0.0	1.8	1.7	3.1	0.0	2.9	26.0
April	0.07	6.0	0.0	2.6	0.9	5.2	0.0	-0.9	25.1
May	0.07	6.2	0.0	3.6	0.4	7.4	0.0	-4.4	20.8
June	0.07	6.0	0.0	4.0	0.1	8.3	0.0	-6.2	14.6
July	0.07	6.2	0.0	4.3	0.0	8.9	0.0	-6.9	7.6
August	0.07	6.2	0.0	3.8	0.0	8.0	0.0	-5.6	2.0
September	0.07	6.0	0.0	2.9	0.1	6.0	0.0	-2.8	0.0
		72.8	0.0	28.7	10.6	55.5	0.0		

(1) Water contribution by rainfall over the pond surface areas
(2) Effluent Disponsl area will consist of a 18 acre property.
(3) Irrigation requirements based on ET values for Zone 16 of the San Joaquin Valley.
(4) Percolation assumes a rate of 0.1 nch per day.
(5) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(6) Cummulative
Note: Reference precipitation and evapotranspiration data are included in this Appendix.



Reference EvapoTranspiration (ETo) Zones

1 COASTAL PLAINS HEAVY FOG BELT
Lowest ETo in California. Characterized by dense fog

2 COASTAL MIXED FOG AREA
Less fog and higher ETo than zone 1

3 COASTAL VALLEYS AND PLAINS AND NORTH COAST MOUNTAINS
More sunlight than zone 2

4 SOUTH COAST INLAND PLAINS AND MOUNTAINS NORTH OF SAN FRANCISCO
More sunlight and higher summer ETo than zone 3

5 NORTHERN INLAND VALLEYS
Valleys north of San Francisco

6 UPLAND CENTRAL COAST AND LOS ANGELES BASIN
Higher elevation coastal areas

7 NORTHEASTERN PLAINS

8 INLAND SAN FRANCISCO BAY AREA
Inland area near San Francisco with some marine influence

9 SOUTH COAST MARINE TO DESERT TRANSITION
Inland area between marine and desert climates

10 NORTH CENTRAL PLATEAU & CENTRAL COAST RANGE
Cool, high elevation areas with strong summer sunlight. This zone has limited climate data and the zones selection is somewhat subjective

11 CENTRAL SIERRA NEVADA
Sierra Nevada Mountain valleys east of Sacramento with some influence from the delta breeze in summer

12 EAST SIDE SACRAMENTO-SAN JOAQUIN VALLEY
Low winter and high summer ETo with slightly lower ETo than zone 14

13 NORTHERN SIERRA NEVADA
Northern Sierra Nevada mountain valleys with less marine influence than zone 11

14 MID-CENTRAL VALLEY, SOUTHERN SIERRA NEVADA, TEHACHAPI & HIGH DESERT MOUNTAINS
High summer sunshine and wind in some locations.

15 NORTHERN & SOUTHERN SAN JOAQUIN VALLEY
Slightly lower winter ETo due to fog and slightly higher summer ETo than zones 12 & 14

16 WESTSIDE SAN JOAQUIN VALLEY & MOUNTAINS EAST & WEST OF IMPERIAL VALLEY

17 HIGH DESERT VALLEYS
Valleys in the high desert near Nevada and Arizona

18 IMPERIAL VALLEY, DEATH VALLEY AND PALO VERDE
Low desert areas with high sunlight and considerable heat advection

Monthly Average Reference Evapotranspiration by ETo Zone (inches/month)

Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	0.93	1.40	2.48	3.30	4.03	4.50	4.65	4.03	3.30	2.48	1.20	0.62	33.0
2	1.24	1.68	3.10	3.90	4.65	5.10	4.96	4.65	3.90	2.79	1.80	1.24	39.0
3	1.86	2.24	3.72	4.80	5.27	5.70	5.58	5.27	4.20	3.41	2.40	1.86	46.3
4	1.86	2.24	3.41	4.50	5.27	5.70	5.89	5.58	4.50	3.41	2.40	1.86	46.6
5	0.93	1.68	2.79	4.20	5.58	6.30	6.51	5.89	4.50	3.10	1.50	0.93	43.9
6	1.86	2.24	3.41	4.80	5.58	6.30	6.51	6.20	4.80	3.72	2.40	1.86	49.7
7	0.62	1.40	2.48	3.90	5.27	6.30	7.44	6.51	4.80	2.79	1.20	0.62	43.4
8	1.24	1.68	3.41	4.80	6.20	6.90	7.44	6.51	5.10	3.41	1.80	0.93	49.4
9	2.17	2.80	4.03	5.10	5.89	6.60	7.44	6.82	5.70	4.03	2.70	1.86	55.1
10	0.93	1.68	3.10	4.50	5.89	7.20	8.06	7.13	5.10	3.10	1.50	0.93	49.1
11	1.55	2.24	3.10	4.50	5.89	7.20	8.06	7.44	5.70	3.72	2.10	1.55	53.0
12	1.24	1.96	3.41	5.10	6.82	7.80	8.06	7.13	5.40	3.72	1.80	0.93	53.3
13	1.24	1.96	3.10	4.80	6.51	7.80	8.99	7.75	5.70	3.72	1.80	0.93	54.3
14	1.55	2.24	3.72	5.10	6.82	7.80	8.68	7.75	5.70	4.03	2.10	1.55	57.0
15	1.24	2.24	3.72	5.70	7.44	8.10	8.68	7.75	5.70	4.03	2.10	1.24	57.9
16	1.55	2.52	4.03	5.70	7.75	8.70	9.30	8.37	6.30	4.34	2.40	1.55	62.5
17	1.86	2.80	4.65	6.00	8.06	9.00	9.92	8.68	6.60	4.34	2.70	1.86	66.5
18	2.48	3.36	5.27	6.90	8.68	9.60	9.61	8.68	6.90	4.96	3.00	2.17	71.6

Variablity between stations within single zones is as high as 0.02 inches per day for zone 1 and during winter months in zone 13. The average standard deviation of the ETo between estimation sites within a zone for all months is about 0.01 inches per day for all 200 sites.

California Irrigation Management Information System (CIMIS)

REFERENCE EVAPOTRANSPIRATION

STATE OF CALIFORNIA
GRAY DAVIS GOVERNOR
THOMAS M. HANNIGAN, DIRECTOR, DEPARTMENT OF WATER RESOURCES

Lambert Conformal Conic Projection
1927 North American Datum

Developed as a cooperative project between the

Department of Land, Air and Water Resources
University of California, Davis
And
Water Use Efficiency Office
California Department of Water Resources
Baryohay Davidoff, California Irrigation Management Unit

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Data developed by Richard L. Snyder, Simon Eching, and Helena Gomez-MacPherson
Background Data from Teale and USGS Sources

Appendix B

Air Emission Output Files

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Allensworth CSD Septic to Sewer Project

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0
Other Non-Asphalt Surfaces	18.00	Acre	18.00	784,080.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.7 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2024

Utility Company

CO2 Intensity (lb/MWhr) 0 **CH4 Intensity (lb/MWhr)** 0 **N2O Intensity (lb/MWhr)** 0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - The Project consists of construction of a sewer system, consisting of a wastewater treatment plant and sewer pipelines. This CalEEMod analysis is carried out only for the wastewater treatment plan. Air quality emissions analysis for the construction of sewer pipelines is carried out separately.

Land Use - Land Use - Asphalt Surface is used to represent the centralized treatment units. Remaining Project area used for storage and reclamation is represented by Non-Asphalt Surfaces

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3438	2.7828	3.1506	8.7800e-003	0.5855	0.1050	0.6905	0.2001	0.0981	0.2982	0.0000	799.2425	799.2425	0.0982	0.0431	814.5256
2024	0.3623	1.3564	1.7997	5.2000e-003	0.2434	0.0462	0.2895	0.0660	0.0434	0.1094	0.0000	476.4136	476.4136	0.0450	0.0289	486.1348
Maximum	**0.3623**	**2.7828**	**3.1506**	**8.7800e-003**	**0.5855**	**0.1050**	**0.6905**	**0.2001**	**0.0981**	**0.2982**	**0.0000**	**799.2425**	**799.2425**	**0.0982**	**0.0431**	**814.5256**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3438	2.7828	3.1506	8.7800e-003	0.5855	0.1050	0.6905	0.2001	0.0981	0.2982	0.0000	799.2421	799.2421	0.0982	0.0431	814.5252
2024	0.3623	1.3564	1.7997	5.2000e-003	0.2434	0.0462	0.2895	0.0660	0.0434	0.1094	0.0000	476.4134	476.4134	0.0450	0.0289	486.1346
Maximum	**0.3623**	**2.7828**	**3.1506**	**8.7800e-003**	**0.5855**	**0.1050**	**0.6905**	**0.2001**	**0.0981**	**0.2982**	**0.0000**	**799.2421**	**799.2421**	**0.0982**	**0.0431**	**814.5252**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2023	4-30-2023	1.0022	1.0022
2	5-1-2023	7-31-2023	0.7955	0.7955
3	8-1-2023	10-31-2023	0.8000	0.8000
4	11-1-2023	1-31-2024	0.7952	0.7952
5	2-1-2024	4-30-2024	0.7472	0.7472
6	5-1-2024	7-31-2024	0.6174	0.6174
7	8-1-2024	9-30-2024	0.0926	0.0926
		Highest	1.0022	1.0022

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0745	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0745**	**0.0000**	**1.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0745	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0745**	**0.0000**	**1.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2023	2/28/2023	5	20	
2	Site Preparation	Site Preparation	3/1/2023	3/14/2023	5	10	
3	Grading	Grading	3/15/2023	4/25/2023	5	30	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	4/26/2023	6/18/2024	5	300	
5	Paving	Paving	6/19/2024	7/16/2024	5	20	
6	Architectural Coating	Architectural Coating	7/17/2024	8/13/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 20

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 52,272 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	366.00	143.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	73.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**		**9.9800e-003**	**9.9800e-003**		**9.2800e-003**	**9.2800e-003**	**0.0000**	**33.9921**	**33.9921**	**9.5200e-003**	**0.0000**	**34.2301**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.2000e-004	3.7300e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9711	0.9711	3.0000e-005	3.0000e-005	0.9803
Total	**4.7000e-004**	**3.2000e-004**	**3.7300e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9711**	**0.9711**	**3.0000e-005**	**3.0000e-005**	**0.9803**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**		**9.9800e-003**	**9.9800e-003**		**9.2800e-003**	**9.2800e-003**	**0.0000**	**33.9920**	**33.9920**	**9.5200e-003**	**0.0000**	**34.2300**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.2000e-004	3.7300e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9711	0.9711	3.0000e-005	3.0000e-005	0.9803
Total	**4.7000e-004**	**3.2000e-004**	**3.7300e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9711**	**0.9711**	**3.0000e-005**	**3.0000e-005**	**0.9803**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5827	0.5827	2.0000e-005	2.0000e-005	0.5882
Total	**2.8000e-004**	**1.9000e-004**	**2.2400e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5827**	**0.5827**	**2.0000e-005**	**2.0000e-005**	**0.5882**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.2400e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5827	0.5827	2.0000e-005	2.0000e-005	0.5882
Total	**2.8000e-004**	**1.9000e-004**	**2.2400e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5827**	**0.5827**	**2.0000e-005**	**2.0000e-005**	**0.5882**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0498	0.5177	0.4208	9.3000e-004		0.0214	0.0214		0.0197	0.0197	0.0000	81.8028	81.8028	0.0265	0.0000	82.4642
Total	**0.0498**	**0.5177**	**0.4208**	**9.3000e-004**	**0.1381**	**0.0214**	**0.1594**	**0.0548**	**0.0197**	**0.0745**	**0.0000**	**81.8028**	**81.8028**	**0.0265**	**0.0000**	**82.4642**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	6.3000e-004	7.4700e-003	2.0000e-005	2.4000e-003	1.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9422	1.9422	6.0000e-005	6.0000e-005	1.9606
Total	**9.4000e-004**	**6.3000e-004**	**7.4700e-003**	**2.0000e-005**	**2.4000e-003**	**1.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.9422**	**1.9422**	**6.0000e-005**	**6.0000e-005**	**1.9606**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0498	0.5177	0.4208	9.3000e-004		0.0214	0.0214		0.0197	0.0197	0.0000	81.8027	81.8027	0.0265	0.0000	82.4641
Total	**0.0498**	**0.5177**	**0.4208**	**9.3000e-004**	**0.1381**	**0.0214**	**0.1594**	**0.0548**	**0.0197**	**0.0745**	**0.0000**	**81.8027**	**81.8027**	**0.0265**	**0.0000**	**82.4641**

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	6.3000e-004	7.4700e-003	2.0000e-005	2.4000e-003	1.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9422	1.9422	6.0000e-005	6.0000e-005	1.9606
Total	**9.4000e-004**	**6.3000e-004**	**7.4700e-003**	**2.0000e-005**	**2.4000e-003**	**1.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.9422**	**1.9422**	**6.0000e-005**	**6.0000e-005**	**1.9606**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1400	1.2803	1.4457	2.4000e-003		0.0623	0.0623		0.0586	0.0586	0.0000	206.3062	206.3062	0.0491	0.0000	207.5332
Total	**0.1400**	**1.2803**	**1.4457**	**2.4000e-003**		**0.0623**	**0.0623**		**0.0586**	**0.0586**	**0.0000**	**206.3062**	**206.3062**	**0.0491**	**0.0000**	**207.5332**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0140	0.5626	0.1723	2.5700e-003	0.0844	3.6400e-003	0.0880	0.0244	3.4800e-003	0.0279	0.0000	246.0341	246.0341	1.0500e-003	0.0368	257.0302
Worker	0.1023	0.0686	0.8107	2.2700e-003	0.2604	1.3800e-003	0.2618	0.0692	1.2700e-003	0.0705	0.0000	210.8859	210.8859	6.5600e-003	6.1400e-003	212.8783
Total	**0.1163**	**0.6312**	**0.9830**	**4.8400e-003**	**0.3448**	**5.0200e-003**	**0.3498**	**0.0936**	**4.7500e-003**	**0.0984**	**0.0000**	**456.9201**	**456.9201**	**7.6100e-003**	**0.0430**	**469.9085**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1400	1.2803	1.4457	2.4000e-003		0.0623	0.0623		0.0586	0.0586	0.0000	206.3060	206.3060	0.0491	0.0000	207.5329
Total	**0.1400**	**1.2803**	**1.4457**	**2.4000e-003**		**0.0623**	**0.0623**		**0.0586**	**0.0586**	**0.0000**	**206.3060**	**206.3060**	**0.0491**	**0.0000**	**207.5329**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0140	0.5626	0.1723	2.5700e-003	0.0844	3.6400e-003	0.0880	0.0244	3.4800e-003	0.0279	0.0000	246.0341	246.0341	1.0500e-003	0.0368	257.0302
Worker	0.1023	0.0686	0.8107	2.2700e-003	0.2604	1.3800e-003	0.2618	0.0692	1.2700e-003	0.0705	0.0000	210.8859	210.8859	6.5600e-003	6.1400e-003	212.8783
Total	**0.1163**	**0.6312**	**0.9830**	**4.8400e-003**	**0.3448**	**5.0200e-003**	**0.3498**	**0.0936**	**4.7500e-003**	**0.0984**	**0.0000**	**456.9201**	**456.9201**	**7.6100e-003**	**0.0430**	**469.9085**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0898	0.8201	0.9862	1.6400e-003		0.0374	0.0374		0.0352	0.0352	0.0000	141.4280	141.4280	0.0334	0.0000	142.2641
Total	**0.0898**	**0.8201**	**0.9862**	**1.6400e-003**		**0.0374**	**0.0374**		**0.0352**	**0.0352**	**0.0000**	**141.4280**	**141.4280**	**0.0334**	**0.0000**	**142.2641**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.3700e-003	0.3859	0.1152	1.7300e-003	0.0578	2.5100e-003	0.0604	0.0167	2.4000e-003	0.0191	0.0000	165.9358	165.9358	6.9000e-004	0.0248	173.3477
Worker	0.0646	0.0414	0.5137	1.5100e-003	0.1785	9.0000e-004	0.1794	0.0474	8.3000e-004	0.0483	0.0000	140.9158	140.9158	4.0500e-003	3.8800e-003	142.1739
Total	**0.0740**	**0.4273**	**0.6289**	**3.2400e-003**	**0.2363**	**3.4100e-003**	**0.2398**	**0.0642**	**3.2300e-003**	**0.0674**	**0.0000**	**306.8516**	**306.8516**	**4.7400e-003**	**0.0287**	**315.5215**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0898	0.8201	0.9862	1.6400e-003		0.0374	0.0374		0.0352	0.0352	0.0000	141.4278	141.4278	0.0334	0.0000	142.2639
Total	**0.0898**	**0.8201**	**0.9862**	**1.6400e-003**		**0.0374**	**0.0374**		**0.0352**	**0.0352**	**0.0000**	**141.4278**	**141.4278**	**0.0334**	**0.0000**	**142.2639**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.3700e-003	0.3859	0.1152	1.7300e-003	0.0578	2.5100e-003	0.0604	0.0167	2.4000e-003	0.0191	0.0000	165.9358	165.9358	6.9000e-004	0.0248	173.3477
Worker	0.0646	0.0414	0.5137	1.5100e-003	0.1785	9.0000e-004	0.1794	0.0474	8.3000e-004	0.0483	0.0000	140.9158	140.9158	4.0500e-003	3.8800e-003	142.1739
Total	**0.0740**	**0.4273**	**0.6289**	**3.2400e-003**	**0.2363**	**3.4100e-003**	**0.2398**	**0.0642**	**3.2300e-003**	**0.0674**	**0.0000**	**306.8516**	**306.8516**	**4.7400e-003**	**0.0287**	**315.5215**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0125**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.8000e-004	3.4500e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9468	0.9468	3.0000e-005	3.0000e-005	0.9552
Total	**4.3000e-004**	**2.8000e-004**	**3.4500e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9468**	**0.9468**	**3.0000e-005**	**3.0000e-005**	**0.9552**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0125**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.8000e-004	3.4500e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9468	0.9468	3.0000e-005	3.0000e-005	0.9552
Total	**4.3000e-004**	**2.8000e-004**	**3.4500e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9468**	**0.9468**	**3.0000e-005**	**3.0000e-005**	**0.9552**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.1835**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1100e-003	1.3500e-003	0.0168	5.0000e-005	5.8400e-003	3.0000e-005	5.8700e-003	1.5500e-003	3.0000e-005	1.5800e-003	0.0000	4.6076	4.6076	1.3000e-004	1.3000e-004	4.6487
Total	**2.1100e-003**	**1.3500e-003**	**0.0168**	**5.0000e-005**	**5.8400e-003**	**3.0000e-005**	**5.8700e-003**	**1.5500e-003**	**3.0000e-005**	**1.5800e-003**	**0.0000**	**4.6076**	**4.6076**	**1.3000e-004**	**1.3000e-004**	**4.6487**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.1835**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1100e-003	1.3500e-003	0.0168	5.0000e-005	5.8400e-003	3.0000e-005	5.8700e-003	1.5500e-003	3.0000e-005	1.5800e-003	0.0000	4.6076	4.6076	1.3000e-004	1.3000e-004	4.6487
Total	**2.1100e-003**	**1.3500e-003**	**0.0168**	**5.0000e-005**	**5.8400e-003**	**3.0000e-005**	**5.8700e-003**	**1.5500e-003**	**3.0000e-005**	**1.5800e-003**	**0.0000**	**4.6076**	**4.6076**	**1.3000e-004**	**1.3000e-004**	**4.6487**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Other Non-Asphalt Surfaces	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0745	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Unmitigated	0.0745	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0182					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0563					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Total	**0.0745**	**0.0000**	**1.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0182					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0563					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Total	**0.0745**	**0.0000**	**1.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C

Biological Resource Evaluation

BIOLOGICAL RESOURCE EVALUATION

August 2022

ALLENSWORTH SEPTIC TO SEWER PROJECT
ALLENSWORTH, TULARE COUNTY, CALIFORNIA

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Executive Summary

The Allensworth Community Services District proposes a septic to sewer project in Allensworth, Tulare County, California. The proposed project (Project) will involve constructing a wastewater treatment facility and installing four pump stations and new sewer lines at various locations throughout Allensworth. The wastewater treatment facility will be installed on a 20-acre parcel west of Road 76, north of Avenue 36, and south of Avenue 39. Four pump stations and approximately 6.3 miles of new sewer lines will be installed in an area west of State Route 43, south of Avenue 39, and north of Avenue 24.

This Project will be funded by the Clean Water State Revolving Fund (CWSRF). The CWSRF is a state and federal partnership that offers low cost financing for a wide variety of water quality projects. It is administered by the State of California and is partially funded by the United States Environmental Protection Agency (EPA). Therefore, the Project must not only meet environmental documentation and review requirements under the California Environmental Quality Act (CEQA) but must meet federal cross-cutting requirements as well.

To evaluate whether the Project may affect biological resources under CEQA and federal cross-cutting purview, we (1) obtained official lists from the United States Fish and Wildlife Service and the California Department of Fish and Wildlife of special-status species and designated and proposed critical habitat, (2) reviewed other relevant background information such as satellite imagery and topographic maps, and (3) conducted a field reconnaissance survey of the Project site.

This biological resource evaluation summarizes existing biological conditions on the Project site, the potential for special-status species and regulated habitats to occur on or near the Project site, the potential impacts of the Project on biological resources and regulated habitats, and measures to reduce those potential impacts to a less-than-significant level under CEQA.

We concluded the Project will not affect regulated habitats but could affect three special-status species: the state listed as threatened Swainson's hawk (*Buteo swainsoni*), the federally listed as endangered and state listed as threatened San Joaquin kit fox (*Vulpes macrotis mutica*), and the state and federally listed as endangered Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*). The Project could also impact nesting migratory birds. However, effects 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
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWSRF	Clean 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	State Fully Protected
FT	Federally listed as Threatened
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Association
NRCS	Natural Resources Conservation Science
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 Allensworth Community Services District proposes to install a new wastewater treatment facility, four pump stations, and new sewer lines at various locations throughout Allensworth in Tulare County, California. The proposed project (Project) will be funded by the Clean Water State Revolving Fund (CWSRF). The CWSRF is a state and federal partnership that offers low cost financing for a wide variety of water quality projects. It is administered by the State of California and partially funded by the United States Environmental Protection Agency (EPA). Due to this federal nexus, issuing funds from the CWSRF constitutes a federal action, one that requires that the EPA determine whether the proposed action may affect federally protected resources. The Project must therefore comply with requirements of both the California Environmental Quality Act (CEQA) and certain federal environmental laws and regulations.

The purpose of this biological resource evaluation is to assess whether the Project will affect state- or federally protected resources pursuant to CEQA and federal cross-cutting regulatory 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), State Water Resources Control Board (SWRCB), or California Department of Fish and Wildlife (CDFW), as well as those addressed under the Bald and Golden Eagle Protection Act, Executive Order 11988 pertaining to floodplain management, Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the National Environmental Policy Act (NEPA), and the Wild and Scenic Rivers Act.

1.2 Project Description

This Project will involve (1) installing a wastewater treatment facility on an approximately 20-acre parcel, (2) installing approximately 6.3 miles of sewage pipelines, and (3) installing four pump stations.

1.3 Project Location

The Project will include work at various locations in Allensworth, a census-designated place in Tulare County, California (Figures 1 and 2). The Project work areas are bounded by Avenue 24 to the south, State Route 43 to the east, Colonel Allensworth State Historical Park to the north, and Road 72 to the west.

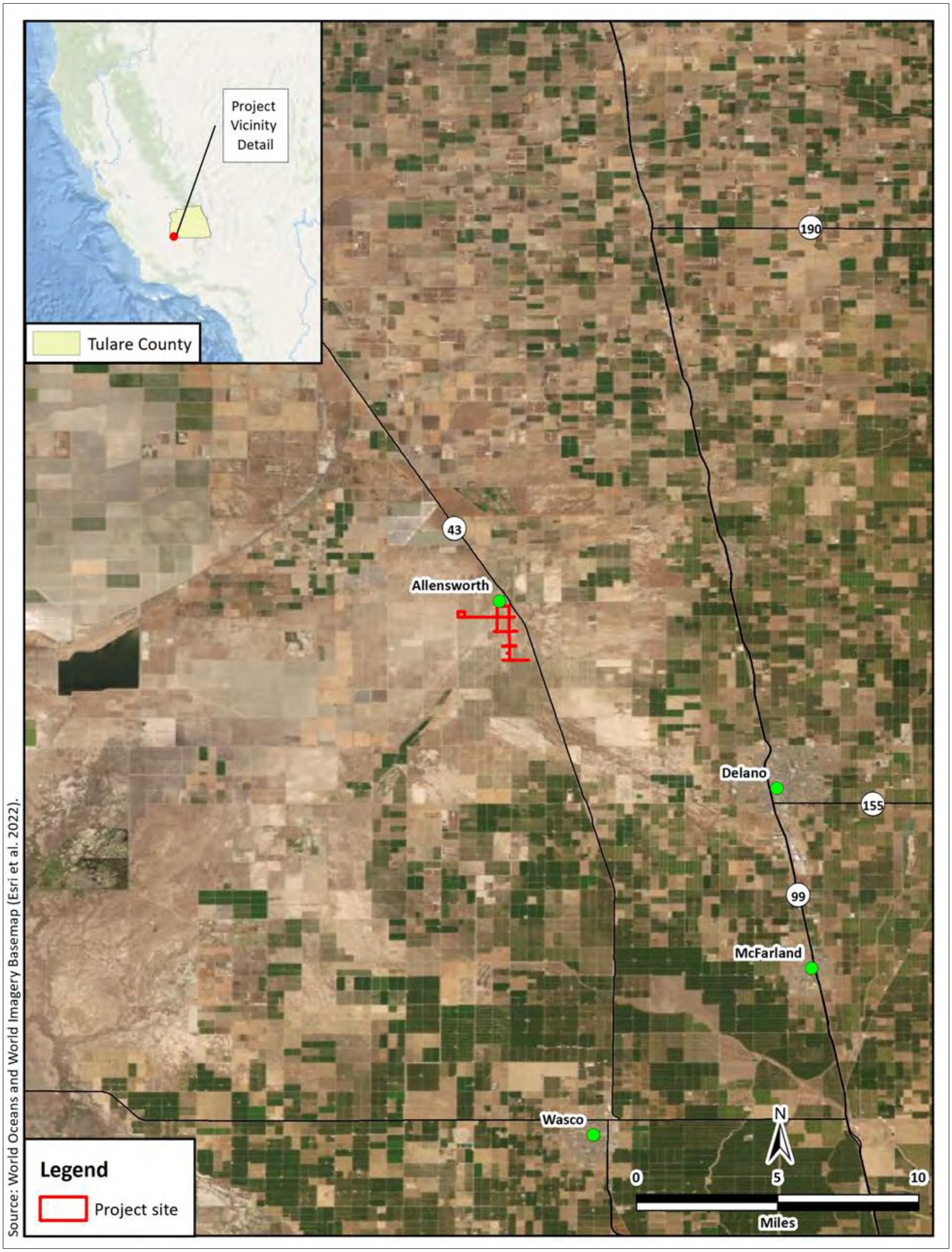

Figure 1. Project site vicinity map.

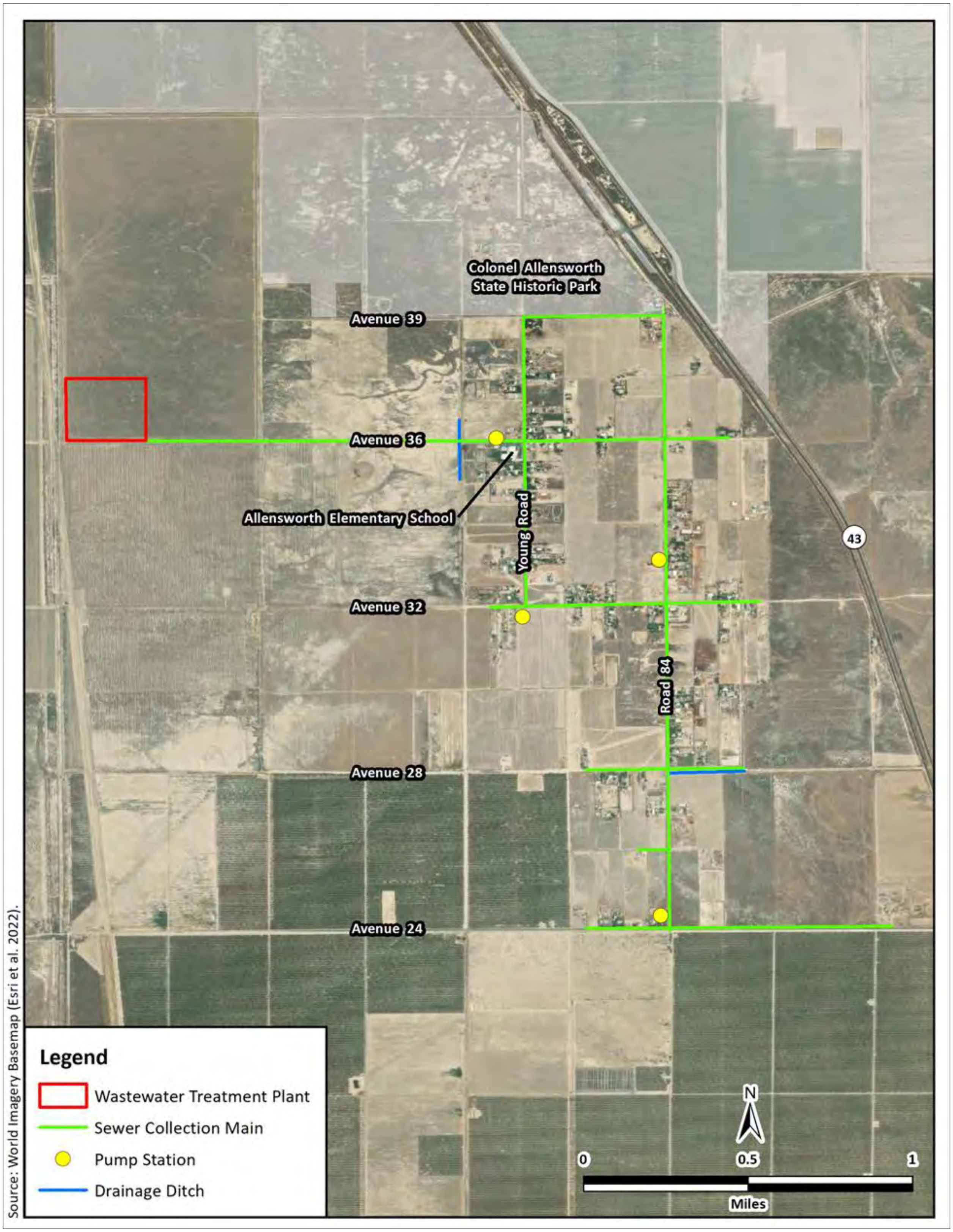

Figure 2. Project site map.

1.4 Purpose and Need of Proposed Project

The purpose of the Project is to replace several septic systems with a sewer system and a centralized wastewater treatment facility in Allensworth. The Project is needed to protect water quality and public health.

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 Senior Scientist Joshua Reece from the United States Fish and Wildlife Service (USFWS) website (https://ecos.fws.gov/ipac/) on 28 July 2022 (Appendix A).

1.6 Regulatory Framework

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

1.6.1 Federal Requirements

Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act (16 USC § 668-668d), originally the Bald Eagle Protection Act, was enacted in 1940 to protect bald eagle (*Haliaeetus leucocephalus*), the species selected as a national emblem of the United States. The act was amended in 1962 to include the golden eagle (*Aquila chrysaetos*). As amended, the Act prohibits take, possession, and commerce of bald and golden eagles and their parts, products, nests, or eggs, except by valid permit. Take is defined as "*pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.*" Disturb means agitating or bothering to a degree that causes, or is likely to cause, injury, a decrease in productivity, or nest abandonment. This law also prohibits human-induced alterations near previously used nest sites when eagles are not present if upon the eagle's return it is disturbed as defined above. Take permits may be issued for conducting certain types of lawful activities such as scientific research, propagation, and Indian religious purposes. The USFWS is responsible for enforcing this act.

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 effects associated with occupying and modifying flood plains and to avoid direct and indirect support of developing floodplains wherever there is a practicable alternative.

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 United States Code [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 action within its jurisdiction must determine whether any federally listed species may be present in the project site and determine whether the proposed action may affect such species. Under the FESA, habitat loss is considered an effect to a species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species that is listed or proposed for listing under the FESA (16 USC § 1536[3], [4]). Therefore, proposed action-related effects to these species or their habitats would be considered significant and would require mitigation.

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 U.S.C. ch. 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 effect that reduces the quality or quantity of EFH. Federal activities that occur outside of EFH, but which may affect 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.

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 and updated in 2018 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 2018).

National Environmental Policy Act. The purposes of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. §§ 4321–4347), including all relevant subsequent guidelines and regulations, include encouraging "harmony between [humans] and their environment and promoting efforts which will prevent or eliminate damage to the environment…

and stimulate the health and welfare of [humanity]". The purposes of NEPA are accomplished by evaluating the effects of federal actions. The results of these evaluations are presented to the public, federal agencies, and public officials in document format (e.g., Environmental Assessments and Environmental Impact Statements) for consideration prior to taking official action or making official decisions. Environmental documents prepared pursuant to NEPA must be completed before federal actions can be implemented. The NEPA process requires careful evaluation of the need for action, and that federal actions be considered alongside all reasonable alternatives, including the No Action alternative. NEPA also requires that the potential impacts on the human environment be considered for each alternative. Detailed implementing regulations for NEPA are contained in 40 C.F.R. 1500 et seq.

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 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). 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 SWRCB 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 U.S.C. 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.

1.6.2 State Requirements

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.

California Endangered Species Act. The California Endangered Species Act (CESA) of 1970 (Fish and Game Code § 2050 et seq., and California Code of Regulations [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 2022). 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, 3513, 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.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act (California Water Code § 13000 et. sec.) was established in 1969 and entrusts the State Water Resources Control Board 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

We obtained an official USFWS species list for the Project site as a framework for the evaluation and reconnaissance survey (USFWS 2022a, Appendix A). In addition, we searched the California Natural Diversity Data Base (CDFW 2022, Appendix B) and the CNPS Inventory of Rare and Endangered Plants (CNPS 2022, Appendix C) for records of special-status plant and animal species from the vicinity of the Project site. Regional lists of special-status species were compiled using USFWS, CNDDB, and CNPS database searches confined to the Allensworth 7.5-minute United States Geological Survey (USGS) topographic quadrangle, which encompasses the Project site, and the eight surrounding quadrangles (Hacienda Ranch NE, Alpaugh, Pixley, Hacienda Ranch, Delano West, Lost Hills NE, Wasco NW, and Pond). A local list of special-status species was compiled using CNDDB records from within 5 miles of the Project site. Species that lack a CEQA-recognized special-status designation by federal or state regulatory agencies or public interest 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 satellite imagery from Google Earth (Google 2022) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2022), the National Wetlands Inventory (USFWS 2022b), the National Wild and Scenic Rivers System (USFWS 2022c), Federal Emergency Management Agency (FEMA 2022) flood maps, and relevant literature.

2.2 Reconnaissance Survey

Colibri Senior Scientist Joshua Reece conducted a field reconnaissance survey of the Project site on 11 August 2022. 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 area to support state- or federally protected resources. The survey area also included a 0.5-mile buffer around the Project site to evaluate the potential occurrence of nesting special-status raptors (Figure 3). The 0.5-mile buffer was surveyed by driving public roads and identifying the presence of large trees or other potentially suitable substrates for nesting raptors as well as open areas that could provide foraging habitat. The main survey area, including the Project site and surrounding 50-foot buffer, was evaluated for the presence of regulated habitats, including lakes, streams, 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) and under the Porter-Cologne Water Quality Control Act. All plants except those planted for cultivation or landscaping and all animals (vertebrate wildlife species) observed in the survey area were identified and documented.

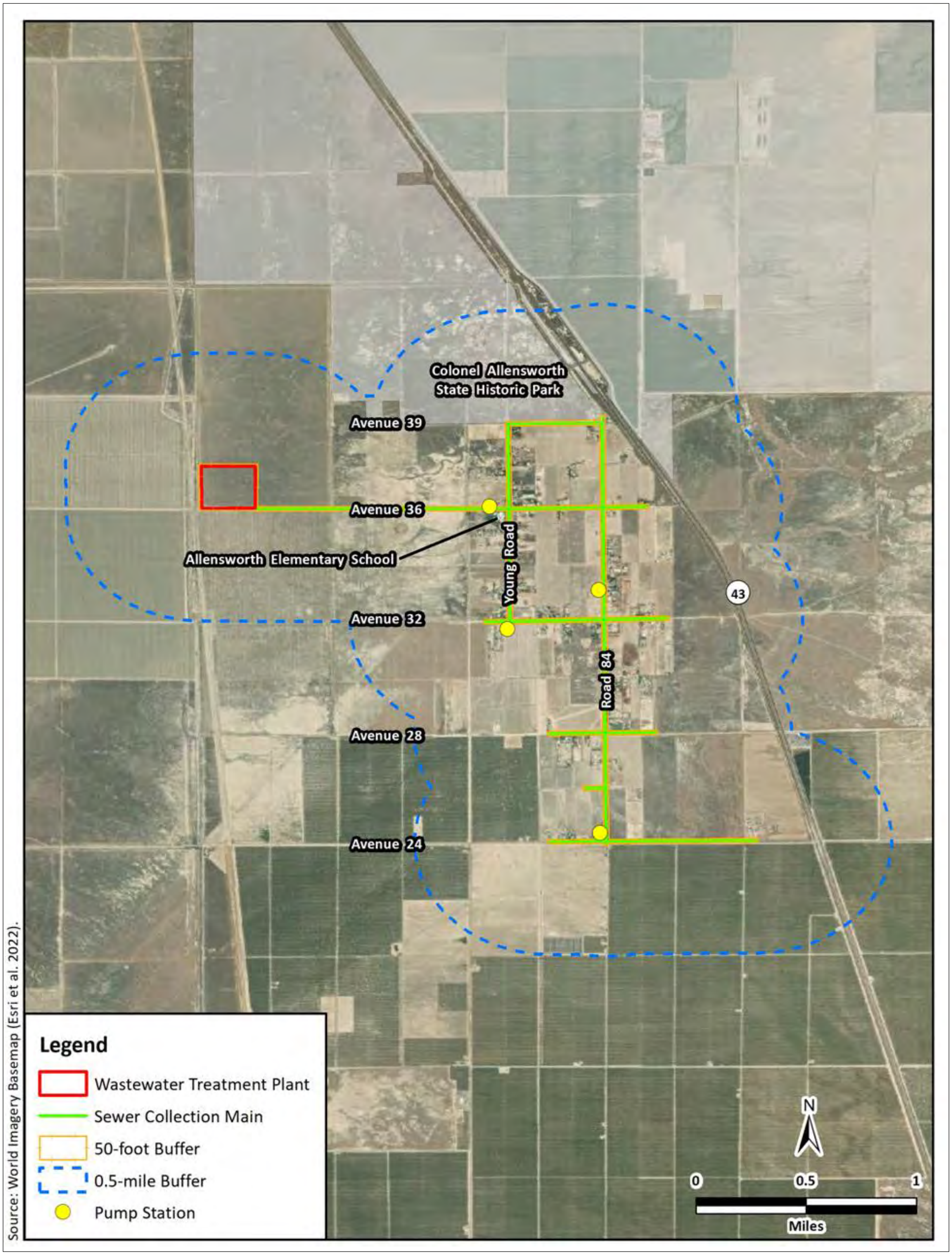

Figure 3. Reconnaissance survey area map.

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 effects to the habitat, (5) abundance and distribution of the 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 bald eagle, golden eagle, and migratory birds included the potential for the Project to result in (1) mortality of eagles or migratory birds or (2) loss of their 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 affect 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.

3.0 Results

3.1 Desktop Review

The USFWS species list for the Project site included nine species listed as threatened or endangered under the FESA (USFWS 2022a, Table 1, Appendix A). Two of those species, San Joaquin kit fox (*Vulpes macrotis mutica* – FE, ST) and Tipton kangaroo rat (*Dipodomys nitratoides nitratoides* FE, SE), could occur on or near the Project site. Of the seven remaining species, none could occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, or (3) 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 or proposed critical habitat for any species (USFWS 2022a, Appendix A).

Searching the CNDDB for records of special-status species from the Allensworth 7.5-minute USGS topographic quadrangle and the eight surrounding quadrangles produced 403 records of 46 species (Table 1, Appendix B). Of those 46 species, 10 were not considered further because they are not CEQA-recognized as special-status species by state or federal regulatory agencies or public interest groups (Appendix B). Of the remaining 36 species, 23 are known from within 5 miles of the Project site (Table 1, Figure 4). Of those species only three, Swainson's hawk (*Buteo swainsoni* – ST), San Joaquin kit fox, and Tipton kangaroo rat could occur on or near the Project site (Table 1).

Searching the CNPS Inventory of Rare and Endangered Plants of California yielded 18 taxa (CNPS 2022, Appendix C), all which have a CRPR of 1 (Table 1). None of those species are expected to occur on or near the Project site due to the lack of habitat (Table 1).

The Project site is underlain by Nahrub silt loam, Gareck-Garces association, and Kimberlina fine sandy loam, with 0 to 2 percent slopes (NRCS 2022). The Project site is at an elevation of 198–212 feet above mean sea level (Google 2022).

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*)	FE, SE, 1B.1	Flats and slopes, generally in non-alkaline grassland between 230–3280 feet elevation.	**None.** Habitat lacking; the Project site is underlain by alkaline soils and lacked grassland.
Kern mallow[3] (*Eremalche parryi* ssp. *kernensis*)	FE, 1B.2	Upland scrub and grassland with alkaline sandy loam or clay soils and < 25% shrub cover at 230–4230 feet elevation.	**None.** Habitat lacking; the Project site lacks upland scrub or grassland.
San Joaquin woollythreads[3] (*Monolopia congdonii*)	FE, 1B.2	Grassland in sandy soils at 250–2400 feet elevation.	**None.** Habitat lacking; the Project site lacked grassland.
Monarch California overwintering population (*Danaus plexippus*)	FC	Groves of trees within 1.5 miles of the ocean that produce suitable micro-climates for overwintering such as high humidity, dappled sunlight, access to water and nectar, and protection from wind.	**None.** Habitat lacking; the Project site is not within 1.5 miles of the ocean.
Vernal pool fairy shrimp[3] (*Branchinecta lynchi*)	FT	Vernal pools; some artificial depressions, stock ponds, vernal swales, ephemeral drainages, and seasonal wetlands.	**None.** Habitat lacking; no vernal pools or other potentially suitable aquatic features were found on the Project site.
Delta smelt (*Hypomesus transpacificus*)	FT, SE	River channels and tidally influenced sloughs.	**None.** Habitat lacking; no connectivity to the aquatic habitat this species requires.
Blunt-nosed leopard lizard[3] (*Gambelia sila*)	FE, SE, FP	Upland scrub and sparsely vegetated grassland with small mammal burrows.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas that lacked the cover

			in the form of burrows and vegetation this species requires.
Giant garter snake (*Thamnophis gigas*)	FT, ST	Marshes, sloughs, ponds, or other permanent sources of water with emergent vegetation, and grassy banks or open areas during active season; uplands with underground refuges or crevices during inactive season.	**None.** Habitat lacking; the Project site is outside the current known local range of this species.
Swainson's hawk[3] (*Buteo swainsoni*)	ST	Large trees for nesting with adjacent grasslands, alfalfa fields, or grain fields for foraging.	**Low.** Suitable trees for nesting were scarce but present along the pipeline pathway, and foraging habitat was present within 0.5 miles of the Project site.
Tricolored blackbird[3] (*Agelaius tricolor*)	ST, SSSC	Freshwater emergent wetlands, some agricultural fields, grassland, and silage fields near dairies.	**None.** Habitat lacking; no suitable aquatic resources or agricultural land in the survey area.
Western snowy plover (*Charadrius alexandrinus nivosus*)	FT, SSSC	Sandy beaches, salt pond levees, and shores of large alkali lakes.	**None.** Habitat lacking; no beaches, pond levees, or shorelines were present in the survey area.
Buena Vista Lake ornate shrew (*Sorex ornatus relictus*)	FE, SSSC	Moist riparian, wetlands, grasslands, and upland scrub with abundant leaf litter and dense herbaceous cover.	**None.** Habitat lacking; the Project site lacked wetlands, grasslands, or upland scrub.
Giant kangaroo rat (*Dipodomys ingens*)	FE, SE	Annual grassland communities with few or no shrubs, well drained, sandy-loam soils located on gentle slopes.	**None.** Habitat lacking; the Project site is outside the current known local range of this species.

San Joaquin antelope squirrel[3] (*Ammospermophilus nelsoni*)	ST	Arid grassland and upland scrub with sandy loam soils, widely spaced shrubs, and dry washes.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas that lacked shrubs and dry washes.
San Joaquin kit fox[3] (*Vulpes macrotis mutica*)	FE, ST	Grassland and upland scrub and fallowed agricultural lands adjacent to natural grasslands or upland scrub.	**Moderate.** The Project site consisted of agricultural and residential areas with some adjacency to natural lands.
Tipton kangaroo rat[3] (*Dipodomys nitratoides nitratoides*)	FE, SE	Grassland and upland scrub with sparse to moderate shrub cover and saline soils; also fallowed agricultural fields adjacent to natural grasslands or upland scrub.	**Low.** The Project site bordered natural areas but was heavily disturbed and contained only two small mammal burrows.
State Species of Special Concern			
Western spadefoot[3] (*Spea hammondii*)	SSSC	Open areas with sandy or gravelly soil that allow rain pools to gather for breeding.	**None.** Habitat lacking; the Project site lacked rain pools or other ephemeral water bodies.
Bakersfield legless lizard[3] (*Anniella grinnelli*)	SSSC	Moist, warm, loose soil with sparsely vegetated areas of scrub and sandy washes in southern San Joaquin Valley and east side of the Carrizo Plain.	**None.** Habitat lacking; the Project site lacked moist soils, scrub, and sandy washes.
Coast horned lizard[3] (*Phrynosoma blainvillii*)	SSSC	Open, generally sandy areas, washes, and flood plains with low vegetation in a variety of habitats.	**None.** Habitat lacking; the Project site lacked sufficient vegetation to support this species.
San Joaquin coachwhip[3] (*Masticophis flagellum ruddocki*)	SSSC	Chenopod scrub and valley and foothill grassland with small mammal burrows for	**None.** Habitat lacking; the Project site consisted of residential areas surrounded by fallowed agricultural fields.

		refuge and reproduction.	
Burrowing owl[3] (*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 ground squirrel burrows or burrow surrogates were found in the survey area.
Fulvous whistling-duck (*Dendrocygna bicolor*)	SSSC	Freshwater emergent wetlands, shallow lakes and rivers; dense emergent wetland vegetation for nesting.	**None.** Habitat lacking; the Project site lacked wetlands.
Golden eagle (*Aquila chrysaetos*)	FP	Cliffs or large trees in open areas for nesting; open grassland, desert, savannah, or early successional forest for foraging.	**None.** Habitat lacking; the Project site lacked the cliffs and natural lands this species requires.
Mountain plover (*Charadrius montanus*)	SSSC	Open, flat, and arid habitats with low, sparse vegetation.	**None.** Habitat lacking; the Project site consisted of residential areas surrounded by agricultural development.
American badger[3] (*Taxidea taxus*)	SSSC	Variable. Open, dry areas with friable soils and small mammal populations in grassland, conifer forest, and desert.	**None.** Habitat lacking; the Project site consisted of residential and agricultural landcover and lacked sufficient small mammal burrow densities.
Tulare grasshopper mouse (*Onchomys torridus tularensis*)	SSSC	Chenopod scrub with friable soil.	**None.** Habitat lacking; the Project site lacked chenopod scrub.
California Rare Plants			
Alkali mariposa-lily[3] (*Calochortus striatus*)	1B.2	Alkaline and mesic chaparral, chenopod scrub, Mojavean	**None.** Habitat lacking; the Project site is outside of

		desert scrub, and meadows and seeps at 2625–4600 feet elevation.	the elevational range of this species.
Alkali-sink goldfields[3] (*Lasthenia chrysantha*)	1B.1	Vernal pools and wet saline flats below 320 feet elevation.	**None.** Habitat lacking; the Project site lacked vernal pools and wet saline flats.
Brittlescale[3] (*Atriplex depressa*)	1B.2	Alkaline or clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools below 1000 feet elevation.	**None.** Habitat lacking; the Project site lacked clay soils and consisted of agricultural and residential areas.
California alkali grass (*Puccinellia simplex*)	1B.2	Scrub, meadows, seeps, grassland, vernal pools, saline flats, and mineral springs below 3000 feet elevation.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas.
Coulter's goldfields[3] (*Lasthenia glabrata* ssp. *coulteri*)	1B.1	Saltmarsh, playas, and vernal pools below 4000 feet elevation.	**None.** Habitat lacking; the Project site lacked vernal pools or other wetland habitat this species requires.
Earlimart orache[3] (*Atriplex cordulata* var. *erecticaulis*)	1B.2	Saline or alkaline soils in grassland below 230 feet elevation.	**None.** Habitat lacking; the Project site lacked grassland and was too heavily disturbed to support his species.
Horn's milk-vetch (*Astragalus hornii* var. *hornii*)	1B.1	Alkaline sink, wetland-riparian.	**None.** Habitat lacking; the Project site lacked the wetland habitat this species requires.
King's gold (*Tropidocarpum californicum*)	1B.1	Alkaline, sandy clay soil in chenopod scrub at 100–600 feet elevation.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas.
Lesser saltscale[3] (*Atriplex minuscula*)	1B.1	Saline or alkaline soils in the San Joaquin Valley below 328 feet elevation.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas.

Lost Hills crownscale (*Atriplex coronata* var. *vallicola*)	1B.2	Chenopod scrub and valley and foothill grassland at 150–2000 feet elevation.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas.
Munz's tidy-tips (*Layia munzii*)	1B.2	Alkaline, clay soils at 164–2625 feet elevation.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas.
Recurved larkspur[3] (*Delphinium recurvatum*)	1B.2	Poorly drained, fine, alkaline soils in grassland and saltbush scrub at 98–1969 feet elevation.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas.
Slough thistle (*Cirsium crassicaule*)	1B.1	Freshwater marshes below 330 feet elevation.	**None.** Habitat lacking; the Project site lacked freshwater marshes.
Spiny-sepaled button-celery (*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 lacked the wetland habitat this species requires.
Subtle orache[3] (*Atriplex subtilis*)	1B.2	Saline depressions.	**None.** Habitat lacking; the Project site consisted of agricultural and residential areas.

CDFW (2022), CNPS (2022), USFWS (2022a).

Status[1]	**Potential to Occur[2]**	
FC = Federal Candidate for Listing	None:	Species or sign not observed; conditions unsuitable for occurrence.
FE = Federally listed Endangered	Low:	Neither species nor sign observed; conditions marginal for occurrence.
FT = Federally listed Threatened	Moderate:	Neither species nor sign observed; conditions suitable for occurrence.
FP = State Fully Protected	High:	Neither species nor sign observed; conditions highly suitable for occurrence.
SE = State listed Endangered	Present:	Species or sign observed; conditions suitable for occurrence.
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).
2B – plants rare, threatened, or endangered in California but more common elsewhere.	0.2 – moderately threatened in California (20-80% of occurrences).

CNPS California Rare Plant Rank[1]:	Threat Ranks[1]:
3 – plants about which more information is needed.	0.3 – not very threatened in California (<20% of occurrences).
4 – plants have limited distribution in California.	

[3]Record from within 5 miles of the Project site.

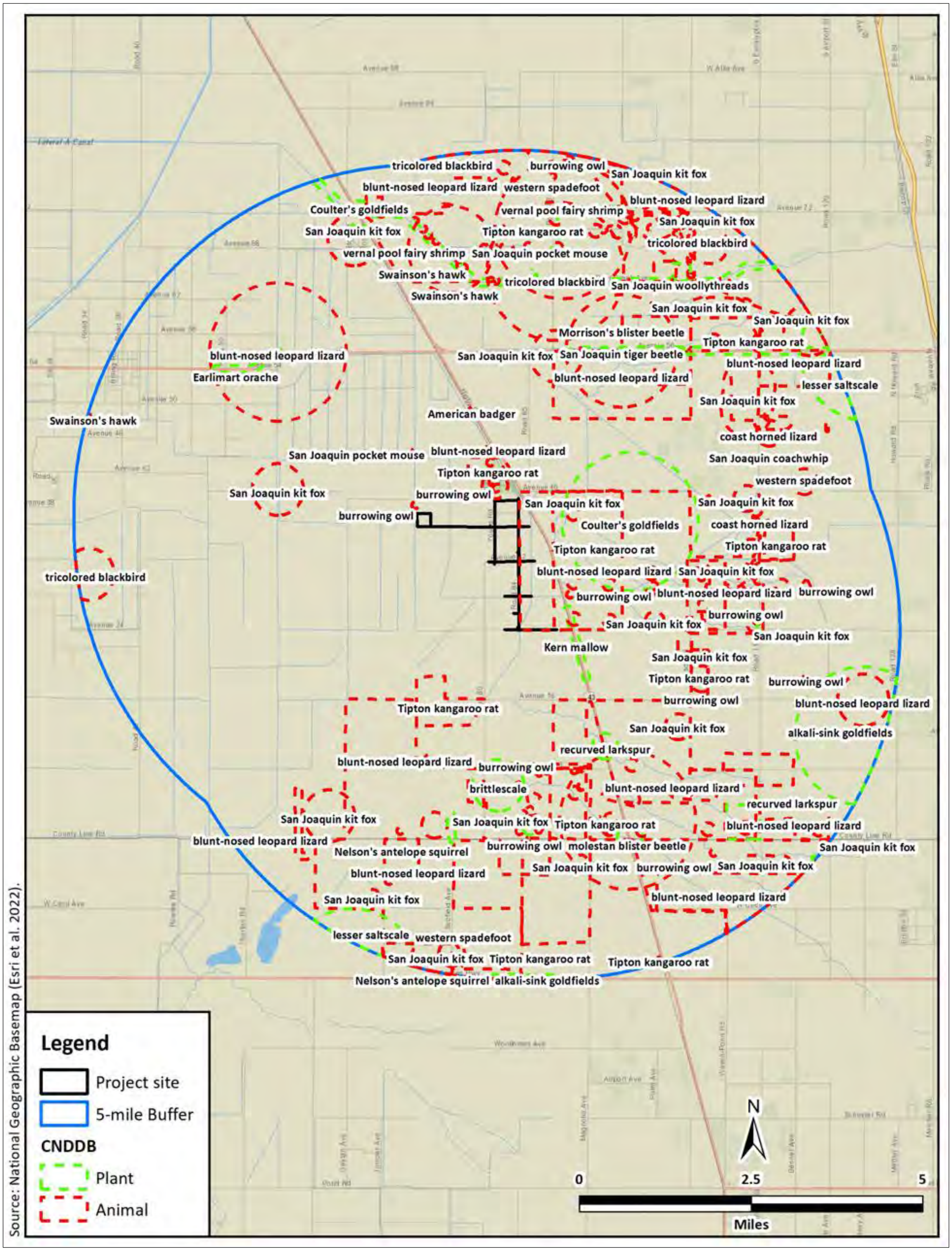

Figure 4. CNDDB occurrence map.

3.2 Reconnaissance Survey

3.2.1 Land Use and Habitats

The Project site consisted of a 20-acre parcel for a wastewater treatment facility, a sewer pipeline pathway, and four pump stations. The wastewater treatment facility parcel supported an inactive and barren agricultural field. This parcel has been periodically disked and dryland farmed since at least 1994 (Figure 5, Google Earth 2022). The proposed sewer pipeline pathway was in the barren shoulder of paved roads bordering rural residential areas, agricultural fields, and fallow fields (Figures 6 and 7). The four proposed pump station locations were in residential yards and small fallow fields (e.g., Figures 8–10) in a rural residential area. Two drainage ditches crossed the Project site at Road 84 between Avenue 24 and Avenue 32 (Figure 11) and at Avenue 36 immediately west of Allensworth Elementary School (Figures 2 and 12). The Project site bordered the southern edge of Colonel Allensworth State Historic Park. Small mammal burrows were scarce, with only two found in the survey area. Those were within 50 feet of the pipeline pathway between the wastewater treatment site and Allensworth Elementary School (Figure 13).

Figure 5. Photograph of the wastewater treatment facility site, showing an inactive and barren agricultural field lacking small mammal burrows.

Figure 6. Photograph of a sewer line pathway at the intersection of Avenue 36 and Road 84, showing an inactive vineyard (left), fallow fields (right), and barren road shoulders.

Figure 7. Photograph of a sewer line pathway along Avenue 24, showing orchard (left) and barren road shoulder.

Figure 8. Photograph of a pump station site in rural residential yards north of the intersection of Avenue 24 and Road 84.

Figure 9. Photograph of a pump station site north of the intersection of Avenue 32 and Road 84, showing a barren field in a rural residential area.

Figure 10. Photograph of a pump station site west of the intersection of Avenue 36 and Young Road, showing a fallow field adjacent to Allensworth Elementary School (left).

Figure 11. Photograph of a drainage ditch, oriented east-west, crossing Road 84 and the proposed sewer line pathway between Avenue 24 and Avenue 32.

Figure 12. Photograph of a drainage ditch, oriented north-south, crossing the Avenue 36 alignment and the proposed sewer line pathway west of Allensworth Elementary School.

Figure 13. Photograph of the two small mammal burrows near the pipeline pathway between the wastewater treatment site and Allensworth Elementary School.

3.2.2 Plant and Animal Species Observed

A total of 18 plant species (seven native and 11 nonnative) and seven bird species were observed during the survey (Table 2).

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

Common Name	Scientific Name	Status
Plants		
Family Amaranthaceae		
Prostrate pigweed	*Amaranthus blitoides*	Native
Redroot pigweed	*Amaranthus retroflexus*	Nonnative
Family Asteraceae		
Common sunflower	*Helianthus annuus*	Native
Prickly lettuce	*Lactuca serriola*	Nonnative
Family Boraginaceae		
Salt heliotrope	*Heliotropium curassavicum*	Native
Family Brassicaceae		
Black mustard	*Brassica nigra*	Nonnative
Family Chenopodiaceae		
Lamb's quarters	*Chenopodium album*	Nonnative
Russian thistle	*Salsola tragus*	Nonnative
Family Chenopodiaceae		
Bush seepweed	*Suaeda nigra*	Native
Four-wing saltbush	*Atriplex canescens*	Native
Iodine bush	*Allenrolfea occidentalis*	Native
Family Malvaceae		
Cheeseweed	*Malva parviflora*	Nonnative
Family Poaceae		
Ripgut brome	*Bromus diandrus*	Nonnative
Family Polygonaceae		
Curly dock	*Rumex crispus*	Nonnative
Prostrate knotweed	*Polygonum aviculare*	Nonnative
Family Solanaceae		
Jimsonweed	*Datura wrightii*	Native
White horse-nettle	*Solanum elaeagnifolium*	Nonnative
Family Zygophyllaceae		
Puncture vine	*Tribulus terrestris*	Nonnative
Birds		
Family Accipitridae		
Red-tailed hawk	*Buteo jamaicensis*	MBTA, CFGC
Family Columbidae		
Mourning dove	*Zenaida macroura*	MBTA, CFGC

Common Name	Scientific Name	Status
Rock pigeon	*Columbia livia*	Nonnative
Family Corvidae		
American crow	*Corvus brachyrhynchos*	MBTA, CFGC
California scrub-jay	*Aphelocoma californica*	MBTA, CFGC
Family Mimidae		
Northern mockingbird	*Mimus polyglottos*	MBTA, CFGC
Family Passeridae		
House sparrow	*Passer domesticus*	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), ST = State-listed as Threatened.

3.2.3 Bald Eagle and Golden Eagle

The Project site and surrounding 0.5-mile buffer (Figure 3) lacked foraging and nesting habitat for bald eagle and golden eagle.

3.2.4 Nesting Birds and the Migratory Bird Treaty Act

Migratory birds could nest on or near the Project site. Bird species that may nest on or near the property include, but are not limited to, northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), and American crow (*Corvus brachyrhynchos*). Large trees within 0.5 miles of the Project site could provide nesting sites for raptors.

3.2.5 Regulated Habitats

The proposed sewer pipeline pathway crossed two drainage ditches. Both ditches were dry at the time of survey and lacked connectivity to other potentially jurisdictional features. However, they may both be subject to the jurisdiction of the CDFW and SWRCB.

According to the National Wild and Scenic Rivers System, the nearest designated wild and scenic river is a reach of the Kern River approximately 50 miles east of the Project site (USFWS 2022c).

No marine or estuarine fishery resources or migratory routes to and from anadromous fish spawning grounds are 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 was not within a flood plain (FEMA 2022). The nearest flood plain limit was along the Tule River approximately 16 miles northwest of the Project site.

3.3 Special-Status Species

The following three special-status species could occur on or near the Project site based on the presence of habitat:

3.3.1 Swainson's Hawk

Swainson's hawk is a state listed as threatened raptor in the family Accipitridae. It is a migratory breeding resident of Central California. 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 hawks build small to medium-sized nests in medium to large trees near foraging habitat. 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). Swainson's hawks depart for the non-breeding grounds between August and September.

There are 10 species occurrence records of Swainson's hawk from within 5 miles of the Project site from 2003–2017. A few potential nest trees were within 0.5 miles of the work areas. Foraging habitat was not present on the Project site. Therefore, the potential for this species to occur on or near the Project site is low.

3.3.2 San Joaquin Kit Fox

San Joaquin kit fox is a federally listed as endangered and state listed as threatened member of the family Canidae (USFWS 1998; CDFW 2022). San Joaquin kit fox is primarily nocturnal and typically occupies valley grassland or mixed shrub/grassland habitats in low, rolling hills and valleys (Morrell 1972). San Joaquin kit fox uses grazed grasslands as well as grasslands with scattered structures such as power poles and wind turbines. This species also lives adjacent to, and forages in, tilled and fallow fields and irrigated row crops. However, large tracts of higher quality grassland or rangeland nearby is required to support the species (Warrick et al. 2007). The diet of the San Joaquin kit fox varies geographically, seasonally, and annually, but consists primarily of rodents, rabbits, ground-nesting birds, and insects (Scrivner et al. 1987; Spiegel et al. 1996). Giant kangaroo rat (*Dipodomys ingens*) is a favored prey item (Cypher et al. 2000).

San Joaquin kit fox requires underground dens to regulate its temperature and for shelter, reproduction, and predator avoidance (Morrell 1972). The species commonly modifies and uses dens constructed by other animals, such as ground squirrels and badgers, and will use human-made structures as well (USFWS 1998). Dens are usually made in loose-textured soils on slopes of less than 40 degrees, but the number of openings, entrance shape, and the slope of the ground on which they occur vary across the geographic range of the species (USFWS 1998). San Joaquin kit fox changes den locations often, typically using numerous dens each year. Koopman et al. (1998) estimated that a San Joaquin kit fox will use an average of about 12 dens over the course of a year and will often not use the same dens the following year. This species is subject to predation or competitive exclusion by other species such as coyote (*Canis latrans*), domestic dog (*Canis familiaris*), bobcat (*Felis rufus*), and nonnative red fox (*Vulpes vulpes*), as well as large raptors (Benedict and Forbes 1979; Cypher and Spencer 1998; Clark et al. 2005, 2007).

There are 39 species occurrence records of San Joaquin kit fox from within 5 miles of the Project site from 1972–2004 (CDFW 2022). The Project site did not contain grassland but was adjacent to grassland that could provide habitat for this species. The Project site also has connectivity to natural lands that provide habitat for this species. Therefore, the potential for San Joaquin kit fox to occur on or near the Project site is moderate.

3.3.3 Tipton Kangaroo Rat

Tipton kangaroo rat is a state and federally endangered member of the family Heteromyidae and is one of three subspecies of the San Joaquin kangaroo rat. It is distinguished from its conspecifics by being larger than the Fresno kangaroo rat (*Dipodomys nitratoides exilis*) and smaller than the short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*; Best 1991). Adults weigh between 35 and 38 grams and have a body length of between 3.9 and 4.3 inches and a tail length of 4.9 and 5.1 inches (Williams 1985). Tipton kangaroo rat has a diet of seeds and inhabits burrow systems in flat, open areas (Germano and Rhodehamel 1995). It occurs in Kings, Tulare, and Kern counties and currently occupies less than 4% of its historical range due to agricultural and urban development. Populations of Tipton kangaroo rat fluctuate in size in response to precipitation and exist at their lowest densities where nonnative grasses are present (Morrison et al. 1996, Williams and Germano 1992). Densities of well-studied populations are between 1 and 5.5 individuals per hectare. Females in captivity can produce one or two litters of one or two offspring each per year (Eisenberg and Isaac 1963), but reproduction in the wild is not well studied.

There are 10 species occurrence records of Tipton kangaroo rat from within 5 miles of the Project site from 1985–2003 (CDFW 2022). The Project site bordered nonnative grassland and flat open areas that could provide habitat for this species. Much of the Project site lacked vegetation or was dominated by sparse nonnative grasses, and only two small mammal burrows were found. Therefore, the potential for Tipton kangaroo rat to occur on or near the Project site is low.

4.0 Environmental Effects

4.1 Effects Determinations

4.1.1 Critical Habitat

We conclude the Project will have **no effect** on critical habitat as no critical habitat has been designated or proposed in the survey area.

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 federally listed as endangered and state listed as threatened San Joaquin kit fox, and the federally and state listed as endangered Tipton kangaroo rat. 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. Two drainage ditches were present on the Project site, but impacts to these features are not anticipated. If impacts to these features are unavoidable, consultation with the CDFW and the SWRCB shall be required.

4.2 Significance Determinations

This Project, which will result in temporary impacts to urban and 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 were used to assess the impacts to biological resources stemming from the Project and provide the basis for determinations of significance:

- <u>Criterion BIO1</u>: 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).

- <u>Criterion BIO2</u>: 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 Effects

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

The Project could adversely affect, either directly or through habitat modifications, three 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 BIO1–BIO3 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

Mitigation Measure BIO1. 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 construction between September and February, a qualified biologist shall conduct surveys for Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (SWTAC 2000, Appendix D). These methods require six surveys, three in each of

the two survey periods, prior to project initiation. Surveys shall be conducted within a minimum 0.5-mile radius around the Project site.

3. If an active Swainson's hawk nest is found within 0.5 miles of the Project site, and the qualified biologist determines that Project activities would disrupt the nesting birds, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

Mitigation Measure BIO2. Protect San Joaquin kit fox.

1. To protect San Joaquin kit fox, a qualified biologist shall conduct a pre-construction survey to identify any potential dens (burrows larger than 4 inches in diameter) in suitable land cover. If potential dens are present, their disturbance and destruction shall be avoided. If potential dens are in the proposed work area and cannot be avoided during construction, a qualified biologist shall determine if the dens are occupied. If unoccupied, the qualified biologist will remove these dens by hand excavating them in accordance with USFWS procedures (USFWS 2011). When occupied or potentially occupied dens are adjacent to the work area, exclusion zones shall be implemented following USFWS procedures. Exclusion zones shall be determined based on the type of den and current use: Potential Den—50 feet; Known Den—100 feet; Natal or Pupping Den—to be determined on a case-by-case basis in coordination with USFWS and CDFW. All pipes greater than 4 inches in diameter stored on the construction site shall be capped, and exit ramps shall be installed in trenches and other excavations to avoid direct mortality. *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior or During Ground Disturbance* (USFWS 2011, Appendix E) shall also be followed.

Mitigation Measure BIO3. Protect Tipton kangaroo rat.

1. To protect Tipton kangaroo rat, a qualified biologist shall establish an exclusion zone of 50 feet around all suitable burrows. If construction activities must occur within the exclusion zone, a qualified biologist holding a federal recovery permit and state scientific collecting permit and memorandum of understanding for Tipton kangaroo rat shall conduct pre-construction live-trapping surveys to determine the presence of Tipton kangaroo rat following the survey methods identified in *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats* (USFWS 2013, Appendix F). Trapping should be conducted for a minimum of five consecutive nights. If trapping confirms the presence of Tipton kangaroo rat, the Project applicant will need to obtain an incidental take permit from the CDFW and a biological opinion and incidental take statement from the USFWS.

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

The Project has the potential to impede the use of nursery sites for native birds protected under the Migratory Bird Treaty Act (MBTA). 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 can be considered take under the MBTA. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region. Construction activities such as excavating, trenching, and grading that disturb a nesting bird in the Project site or immediately adjacent to the construction zone could constitute a significant effect. We recommend that the mitigation measure BIO5 (below) be included in the conditions of approval to reduce the potential effect to a less-than-significant level.

Mitigation Measure BIO4. 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 the implementation of the Project. 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. 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 Effects

The Project will involve developing an approximately 20-acre parcel to install a wastewater treatment facility, installing four pump stations, and installing approximately 6.3 miles of sewer pipeline throughout Allensworth. Although all land within and immediately adjacent to the Project site was previously disturbed by residential or agricultural development, the Project site provides potential habitat for Swainson's hawk, San Joaquin kit fox, Tipton kangaroo rat, and migratory birds. However, implementing Mitigation Measures BIO1–BIO4 would reduce any contribution to cumulative impacts on biological resources to a less-than-significant level.

4.2.3 Unavoidable Significant Adverse Effects

No unavoidable significant adverse effects on biological resources would occur from implementing the Project.

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Appendix A. USFWS list of threatened and endangered species.

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: July 28, 2022
Project Code: 2022-0068751
Project Name: Allensworth Septic to Sewer Project

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

To Whom It May Concern:

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

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Project Code: 2022-0068751

Project Name: Allensworth Septic to Sewer Project

Project Type: Government / Municipal (Non-Military) Construction

Project Description: The project involves a wastewater treatment plant in Allensworth, Tulare County, California. The proposed project will involve constructing a wastewater treatment facility on approximately 120 acres. The project site is west of Road 80, north of Avenue 36, and south of Avenue 39.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.85765695,-119.39774567282524,14z

Counties: Tulare County, California

Endangered Species Act Species

There is a total of 9 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
Giant Kangaroo Rat *Dipodomys ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6051	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
Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7247	Endangered

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

Fishes

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

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

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

Flowering Plants

NAME	STATUS
Kern Mallow *Eremalche kernensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1731	Endangered

Critical habitats

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

IPaC User Contact Information

Agency: Colibri Ecological
Name: Josh Reece
Address: 9493 N Ft Washington Rd Ste 108
City: Fresno
State: CA
Zip: 93730
Email jreece@colibri-ecology.com
Phone: 5595004458

Appendix B. CNDDB occurrence records.

Query Criteria: Quad IS (Hacienda Ranch (3511975) OR Hacienda Ranch NE (3511985) OR Alpaugh (3511984) OR Pixley (3511983) OR Allensworth (3511974) OR Delano West (3511973) OR Lost Hills NE (3511965) OR Wasco NW (3511964) OR Pond (3511963))
 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	G1G2 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	195 300	955 S:20	0	2	0	0	1	17	9	11	19	1	0
Ammospermophilus nelsoni Nelson's (=San Joaquin) antelope squirrel	G2G3 S2S3	None Threatened	BLM_S-Sensitive IUCN_EN-Endangered	207 250	287 S:7	1	1	0	1	0	4	5	2	7	0	0
Anniella grinnelli Bakersfield legless lizard	G2G3 S2S3	None None	CDFW_SSC-Species of Special Concern	243 243	28 S:1	0	0	0	0	0	1	0	1	1	0	0
Aquila chrysaetos golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern	200 200	325 S:1	0	0	1	0	0	0	0	1	1	0	0
Astragalus hornii var. hornii Horn's milk-vetch	GUT1 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	250 250	28 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	190 275	2011 S:47	10	14	8	1	0	14	13	34	47	0	0
Atriplex cordulata var. erecticaulis Earlimart orache	G3T1 S1	None None	Rare Plant Rank - 1B.2	225 300	23 S:13	0	2	1	2	6	2	6	7	7	4	2

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Atriplex coronata var. vallicola Lost Hills crownscale	G4T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	200 230	75 S:7	2	0	2	0	0	3	2	5	7	0	0
Atriplex depressa brittlescale	G2 S2	None None	Rare Plant Rank - 1B.2	225 225	60 S:1	0	0	0	0	0	1	1	0	1	0	0
Atriplex minuscula lesser saltscale	G2 S2	None None	Rare Plant Rank - 1B.1	230 265	52 S:5	0	1	0	0	0	4	4	1	5	0	0
Atriplex subtilis subtle orache	G1 S1	None None	Rare Plant Rank - 1B.2	250 270	24 S:3	0	0	0	0	0	3	3	0	3	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	210 223	795 S:2	0	0	0	0	0	2	2	0	2	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	200 258	2548 S:15	7	3	1	0	0	4	3	12	15	0	0
Calochortus striatus alkali mariposa-lily	G3? S2S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	235 235	113 S:1	0	0	0	0	0	1	1	0	1	0	0
Caulanthus californicus California jewelflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	225 315	67 S:4	0	0	1	0	3	0	4	0	1	0	3
Charadrius montanus mountain plover	G3 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	205 225	90 S:3	0	1	1	0	0	1	1	2	3	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 A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Charadrius nivosus nivosus western snowy plover	G3T3 S2	Threatened None	CDFW_SSC-Species of Special Concern NABCI_RWL-Red Watch List	200 210	138 S:4	0	0	0	0	0	4	4	0	4	0	0
Cicindela tranquebarica joaquinensis San Joaquin tiger beetle	G5T1 S1	None None		200 200	2 S:1	0	0	0	0	0	1	0	1	1	0	0
Cirsium crassicaule slough thistle	G1 S1	None None	Rare Plant Rank - 1B.1	210 230	18 S:6	0	2	0	0	1	3	6	0	5	1	0
Delphinium recurvatum recurved larkspur	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	225 285	119 S:19	4	6	0	0	2	7	15	4	17	0	2
Dendrocygna bicolor fulvous whistling-duck	G5 S1	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	215 215	3 S:1	0	0	0	0	0	1	1	0	1	0	0
Dipodomys nitratoides nitratoides Tipton kangaroo rat	G3T1T2 S1S2	Endangered Endangered	IUCN_VU-Vulnerable	203 280	81 S:22	1	2	2	1	2	14	17	5	20	0	2
Egretta thula snowy egret	G5 S4	None None	IUCN_LC-Least Concern	220 220	20 S:1	0	0	0	0	0	1	1	0	1	0	0
Eremalche parryi ssp. kernensis Kern mallow	G3G4T3 S3	Endangered None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	200 284	202 S:15	0	5	1	1	0	8	5	10	15	0	0
Eriastrum hooveri Hoover's eriastrum	G3 S3	Delisted None	Rare Plant Rank - 4.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	230 235	47 S:3	0	2	0	0	0	1	3	0	3	0	0
Gambelia sila blunt-nosed leopard lizard	G1 S1	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	207 310	418 S:50	4	20	8	1	3	14	39	11	47	2	1
Lasthenia chrysantha alkali-sink goldfields	G2 S2	None None	Rare Plant Rank - 1B.1	190 285	55 S:11	0	0	0	0	5	6	9	2	6	5	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 A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Lasthenia glabrata ssp. coulteri Coulter's goldfields	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	225 225	111 S:3	0	0	0	0	0	3	2	1	3	0	0
Layia munzii Munz's tidy-tips	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	225 300	68 S:2	0	0	0	0	2	0	2	0	0	0	2
Lytta hoppingi Hopping's blister beetle	G1G2 S1S2	None None		300 300	5 S:1	0	0	0	0	0	1	1	0	1	0	0
Lytta molesta molestan blister beetle	G2 S2	None None		200 200	17 S:1	0	0	0	0	0	1	1	0	1	0	0
Lytta morrisoni Morrison's blister beetle	G1G2 S1S2	None None		210 240	10 S:2	0	0	0	0	0	2	0	2	2	0	0
Masticophis flagellum ruddocki San Joaquin coachwhip	G5T2T3 S2?	None None	CDFW_SSC-Species of Special Concern	220 250	96 S:4	0	2	1	0	0	1	3	1	4	0	0
Monolopia congdonii San Joaquin woollythreads	G2 S2	Endangered None	Rare Plant Rank - 1B.2 SB_UCBG-UC Botanical Garden at Berkeley	240 240	111 S:2	0	0	0	0	2	0	2	0	0	2	0
Nycticorax nycticorax black-crowned night heron	G5 S4	None None	IUCN_LC-Least Concern	220 220	37 S:1	0	0	0	0	0	1	1	0	1	0	0
Onychomys torridus tularensis Tulare grasshopper mouse	G5T1T2 S1S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern	200 240	53 S:2	0	0	0	0	0	2	1	1	2	0	0
Perognathus inornatus San Joaquin pocket mouse	G2G3 S2S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern	210 245	140 S:15	2	1	2	0	0	10	3	12	15	0	0
Phacelia ciliata var. opaca Merced phacelia	G5TH SH	None None	Rare Plant Rank - 3.2	200 200	7 S:1	0	0	0	0	0	1	1	0	1	0	0
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	200 255	784 S:12	6	1	1	0	0	4	6	6	12	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 A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Plegadis chihi white-faced ibis	G5 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	200 220	20 S:2	0	0	0	0	0	2	2	0	2	0	0
Puccinellia simplex California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	225 230	80 S:3	0	1	2	0	0	0	0	3	3	0	0
Sorex ornatus relictus Buena Vista Lake ornate shrew	G5T1 S1	Endangered None	CDFW_SSC-Species of Special Concern	220 220	7 S:1	1	0	0	0	0	0	1	0	1	0	0
Spea hammondii western spadefoot	G2G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	209 275	1422 S:19	2	9	0	0	0	8	8	11	19	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	213 280	594 S:5	0	1	2	1	0	1	2	3	5	0	0
Tropidocarpum californicum Kings gold	G1 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	220 255	9 S:5	1	2	0	1	0	1	1	4	5	0	0
Vulpes macrotis mutica San Joaquin kit fox	G4T2 S2	Endangered Threatened		200 370	1020 S:58	6	5	1	0	0	46	54	4	58	0	0

Appendix C. CNPS plant list.

CNPS Rare Plant Inventory

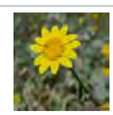
California Native Plant Society

Search Results

18 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1B:2B] , 9-Quad include [3511973:3511963:3511964:3511983:3511974:3511984:3511975:3511985:3511965]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Astragalus hornii var. hornii	Horn's milk-vetch	Fabaceae	annual herb	May-Oct	None	None	GUT1	S1	1B.1	No Photo Available
Atriplex cordulata var. erecticaulis	Earlimart orache	Chenopodiaceae	annual herb	Aug-Sep(Nov)	None	None	G3T1	S1	1B.2	 © 2009 Robert E. Preston, Ph.D.
Atriplex coronata var. vallicola	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	None	None	G4T3	S3	1B.2	No Photo Available
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	 © 2009 Zoya Akulova
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	 © 2000 Robert E. Preston, Ph.D.
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	(Apr)Jun-Sep(Oct)	None	None	G1	S1	1B.2	 © 2000

										Robert E. Preston, Ph.D.
Calochortus striatus	alkali mariposa-lily	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G3?	S2S3	1B.2	No Photo Available
Caulanthus californicus	California jewelflower	Brassicaceae	annual herb	Feb-May	FE	CE	G1	S1	1B.1	No Photo Available
Cirsium crassicaule	slough thistle	Asteraceae	annual/perennial herb	May-Aug	None	None	G1	S1	1B.1	No Photo Available
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	No Photo Available
Eremalche parryi ssp. kernensis	Kern mallow	Malvaceae	annual herb	Jan(Feb)Mar-May	FE	None	G3G4T3	S3	1B.2	No Photo Available
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual/perennial herb	Apr-Jun	None	None	G2	S2	1B.2	No Photo Available
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	 © 2009 California State University, Stanislaus
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1	 © 2013 Keir Morse
Layia munzii	Munz's tidy-tips	Asteraceae	annual herb	Mar-Apr	None	None	G2	S2	1B.2	 © 2017 Neal Kramer
Monolopia congdonii	San Joaquin woollythreads	Asteraceae	annual herb	Feb-May	FE	None	G2	S2	1B.2	No Photo Available
Puccinellia	California	Poaceae	annual herb	Mar-May	None	None	G3	S2	1B.2	

simplex	alkali grass									No Photo Available
Tropidocarpum californicum	Kings gold	Brassicaceae	annual herb	Feb-Mar	None	None	G1	S1	1B.1	 © 2017 Robert E. Preston, Ph.D.

Showing 1 to 18 of 18 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 28 July 2022].

Appendix D. Recommended timing and methodology for Swainson's hawk nesting surveys in California's Central Valley.

RECOMMENDED TIMING AND METHODOLOGY
FOR SWAINSON'S HAWK NESTING SURVEYS
IN CALIFORNIA'S CENTRAL VALLEY

Swainson's Hawk Technical Advisory Committee

May 31, 2000

This set of survey recommendations was developed by the Swainson's Hawk Technical Advisory Committee (TAC) to maximize the potential for locating nesting Swainson's hawks, and thus reducing the potential for nest failures as a result of project activities/disturbances. The combination of appropriate surveys, risk analysis, and monitoring has been determined to be very effective in reducing the potential for project-induced nest failures. As with most species, when the surveyor is in the right place at the right time, Swainson's hawks may be easy to observe; but some nest sites may be very difficult to locate, and even the most experienced surveyors have missed nests, nesting pairs, mis-identified a hawk in a nest, or believed incorrectly that a nest had failed. There is no substitute for specific Swainson's hawk survey experience and acquiring the correct search image.

METHODOLOGY

Surveys should be conducted in a manner that maximizes the potential to observe the adult Swainson's hawks, as well as the nest/chicks second. To meet the California Department of Fish and Game's (CDFG) recommendations for mitigation and protection of Swainson's hawks, surveys should be conducted for a ½ mile radius around all project activities, and if active nesting is identified within the ½ mile radius, consultation is required. In general, the TAC recommends this approach as well.

Minimum Equipment

Minimum survey equipment includes a high-quality pair of binoculars and a high quality spotting scope. Surveying even the smallest project area will take hours, and poor optics often result in eye-strain and difficulty distinguishing details in vegetation and subject birds. Other equipment includes good maps, GPS units, flagging, and notebooks.

Walking vs Driving

Driving (car or boat) or "windshield surveys" are usually preferred to walking if an adequate roadway is available through or around the project site. While driving, the observer can typically approach much closer to a hawk without causing it to fly. Although it might appear that a flying bird is more visible, they often fly away from the observer using trees as screens; and it is difficult to determine from where a flying bird came. Walking surveys are useful in locating a nest after a nest territory is identified, or when driving is not an option.

Angle and Distance to the Tree

Surveying subject trees from multiple angles will greatly increase the observer's chance of detecting a nest or hawk, especially after trees are fully leafed and when surveying multiple trees in close proximity. When surveying from an access road, survey in both directions. Maintaining a distance of 50 meters to 200 meters from subject trees is optimal for observing perched and flying hawks without greatly reducing the chance of detecting a nest/young: Once a nesting territory is identified, a closer inspection may be required to locate the nest.

Speed
Travel at a speed that allows for a thorough inspection of a potential nest site. Survey speeds should not exceed 5 miles per hour to the greatest extent possible. If the surveyor must travel faster than 5 miles per hour, stop frequently to scan subject trees.

Visual and Aural Ques
Surveys will be focused on both observations and vocalizations. Observations of nests, perched adults, displaying adults, and chicks during the nesting season are all indicators of nesting Swainson's hawks. In addition, vocalizations are extremely helpful in locating nesting territories. Vocal communication between. hawks is frequent during territorial displays; during courtship and mating; through the nesting period as mates notify each other that food is available or that a threat exists; and as older chicks and fledglings beg for food.

Distractions
Minimize distractions while surveying. Although two pairs of eyes may be better than one pair at times, conversation may limit focus. Radios should be off, not only are they distracting, they may cover a hawk's call.

Notes and Species Observed
Take thorough field notes. Detailed notes and maps of the location of observed Swainson's hawk nests are essential for filling gaps in the Natural Diversity Data Base; please report all observed nest sites. Also document the occurrence of nesting great homed owls, red-tailed hawks, red-shouldered hawks and other potentially competitive species. These species will infrequently nest within 100 yards of each other, so the presence of one species will not necessarily exclude another.

TIMING

To meet **the minimum level** of protection for the species, surveys should be completed for **at least** the two survey periods immediately prior to a project's initiation. For example, if a project is scheduled to begin on June 20, you should complete 3 surveys in Period III and 3 surveys in Period V. However, it is always recommended that surveys be completed in Periods II, III and V. **Surveys should not be conducted in Period IV.**

The survey periods are defined by the timing of migration, courtship, and nesting in a "typical" year for the majority of Swainson's hawks from San Joaquin County to Northern Yolo County. Dates should be adjusted in consideration of early and late nesting seasons, and geographic differences (northern nesters tend to nest slightly later, etc). If you are not sure, contact a TAC member or CDFG biologist.

Survey dates Justification and search image	Survey time	Number of Surveys
I. *January-March 20 (recommended optional)*	*All day*	*1*

Prior to Swainson's hawks returning, it may be helpful to survey the project site to determine potential nest locations. Most nests are easily observed from relatively long distances, giving the surveyor the opportunity to identify potential nest sites, as well as becoming familiar with the project area. It also gives the surveyor the opportunity to locate and map competing species nest sites such as great homed owls from February on, and red-tailed hawks from March on. After March 1, surveyors are likely to observe Swainson's hawks staging in traditional nest territories.

II. *March 20 to April 5*	*Sunrise to 1000* *1600 to sunset*	*3*

Most Central Valley Swainson's hawks return by April 1, and immediately begin occupying their traditional nest territories. For those few that do not return by April 1, there are often hawks ("floaters") that act as place-holders in traditional nest sites; they are birds that do not have mates, but temporarily attach themselves to traditional territories and/or one of the site's "owners." Floaters are usually displaced by the territories' owner(s) if the owner returns.

Most trees are leafless and are relatively transparent; it is easy to observe old nests, staging birds, and competing species. The hawks are usually in their territories during the survey hours, but typically soaring and foraging in the mid-day hours. Swainson's hawks may often be observed involved in territorial and courtship displays, and circling the nest territory. Potential nest sites identified by the observation of staging Swainson's hawks will usually be active territories during that season, although the pair may not successfully nest/reproduce that year.

III. *April 5 to April 20*	*Sunrise to 1200* *1630 to Sunset*	*3*

Although trees are much less transparent at this time, 'activity at the nest site increases significantly. Both males and females are actively nest building, visiting their selected site frequently. Territorial and courtship displays are increased, as is copulation. The birds tend to vocalize often, and nest locations are most easily identified. This period may require a great deal of "sit and watch" surveying.

IV. *April 21 to June 10*	*Monitoring known nest sites only* ***Initiating Surveys is not recommended***

Nests are extremely difficult to locate this time of year, and even the most experienced surveyor will miss them, especially if the previous surveys have not been done. During this phase of nesting, the female Swainson's hawk is in brood position, very low in the nest, laying eggs, incubating, or protecting the newly hatched and vulnerable chicks; her head may or may not be visible. Nests are often well-hidden, built into heavily vegetated sections of trees or in clumps of mistletoe, making them all but invisible. Trees are usually not viewable from all angles, which may make nest observation impossible.

Following the male to the nest may be the only method to locate it, and the male will spend hours away from the nest foraging, soaring, and will generally avoid drawing attention to the nest site. Even if the observer is fortunate enough to see a male returning with food for the female, if the female determines it is not safe she will not call the male in, and he will not approach the nest; this may happen if the observer, or others, are too close to the nest or if other threats, such as rival hawks, are apparent to the female or male.

V. ***June 10 to JuIy 30 (post-fledging)*** ***Sunrise to 1200*** ***3***
1600 to sunset

Young are active and visible, and relatively safe without parental protection. Both adults make numerous trips to the nest and are often soaring above, or perched near or on the nest tree. The location and construction of the nest may still limit visibility of the nest, young, ‘and adults.

DETERMINING A PROJECT'S POTENTIAL FOR IMPACTING SWAINSON'S HAWKS

LEVEL OF RISK	REPRODUCTIVE SUCCESS (Individuals)	LONGTERM SURVIVABILITY (Population)	NORMAL SITE CHARACTERISTICS (Daily Average)	NEST MONITORING
HIGH	Direct physical contact with the nest tree while the birds are on eggs or protecting young. (Helicopters in close proximity)	Loss of available foraging area. Loss of nest trees.	Little human-created noise, little human use: nest is well away from dwellings, equipment yards, human access areas, etc. *Do not include general cultivation practices in evaluation.*	MORE
↑	Loss of nest tree after nest building is begun prior to laying eggs.	Loss of potential nest trees.		↑
	Personnel within 50 yards of nest tree (out of vehicles) for extended periods while birds are on eggs or protecting young that are < 10 days old.	Cumulative: Multi-year, multi-site projects with substantial noise/personnel disturbance.		
	Initiating construction activities (machinery and personnel) within 200 yards of the nest after eggs are laid and before young are > 10 days old.	Cumulative: Single-season projects with substantial noise/personnel disturbance that is greater than or significantly different from the daily norm.		
	Heavy machinery only working within 50 yards of nest.			
↓	Initiating construction activities within 200 yards of nest before nest building begins or after young > 10 days old.	Cumulative: Single-season projects with activities that "blend" well with site's "normal' activities.	Substantial human-created noise and occurrence: nest is near roadways, well-used waterways, active airstrips, areas that have high human use. *Do not include general cultivation practices in evaluation.*	↓
LOW	All project activities (personnel and machinery) greater than 200 yards from nest.			LESS

Appendix E. U.S. Fish and Wildlife Service standardized recommendations for protection of the endangered San Joaquin kit fox prior to or during ground disturbance.

U.S. FISH AND WILDLIFE SERVICE
STANDARDIZED RECOMMENDATIONS
FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX
PRIOR TO OR DURING GROUND DISTURBANCE

Prepared by the Sacramento Fish and Wildlife Office
January 2011

INTRODUCTION

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. **However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act) and does not preclude the need for section 7 consultation or a section 10 incidental take permit for the proposed project.** Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). These protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

IS A PERMIT NECESSARY?

Certain acts need a permit from the Service which includes destruction of any known (occupied or unoccupied) or natal/pupping kit fox dens. Determination of the presence or absence of kit foxes and /or their dens should be made during the environmental review process. All surveys and monitoring described in this document must be conducted by a qualified biologist and these activities do not require a permit. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, the biologist(s) must be able to identify coyote, red fox, gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount. Resumes of biologists should be submitted to the Service for review and approval prior to an6y survey or monitoring work occurring.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints, of approximately one acre or less, such as an individual in-fill oil well, communication tower, or bridge repairs. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features and utilize this information as guidance to situate the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then surveys should be conducted and the Service should be contacted for technical assistance to determine the extent of possible take.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol). Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities.

If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, the project boundary can be demarcated, see den destruction section).

OTHER PROJECTS

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: Linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project and those requirements supersede any requirements found in this document.

EXCLUSION ZONES

In order to avoid impacts, construction activities must avoid their dens. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances due to the length of dens underground. The following distances are **minimums**, and if they cannot be followed the Service must be contacted. Adult and pup kit foxes are known to sometimes rest and play near the den entrance in the afternoon, but most above-ground activities begin near sunset and continue sporadically throughout the night. Den definitions are attached as Exhibit A.

Potential den**	50 feet
Atypical den**	50 feet
Known den*	100 feet
Natal/pupping den (occupied and unoccupied)	Service must be contacted

*Known den: To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Acceptable fencing includes untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the Service as long as it has openings for kit fox ingress/egress and keeps humans and equipment out. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

**Potential and Atypical dens: Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited or greatly restricted within the exclusion zones.

DESTRUCTION OF DENS

Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection. **Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service**.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den.

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use.

If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities.

The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the Service shall be notified immediately.

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities should be minimized by adhering to the following activities. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is

discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be

re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for guidance.

12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530)934-9309. The Service should be contacted at the numbers below.

13. The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFG contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.

14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620 or (916) 414-6600

EXHIBIT “A” - DEFINITIONS

"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means " . . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct". Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that <u>is used or has been used at any time in the past</u> by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms ”active” and “inactive” when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species’ range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Pupping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

Appendix F. San Joaquin kangaroo rat trapping protocol.

U.S. Fish & Wildlife Service

San Joaquin Kangaroo Rat Trapping Protocol

Fresno Kangaroo Rat and 1 more species

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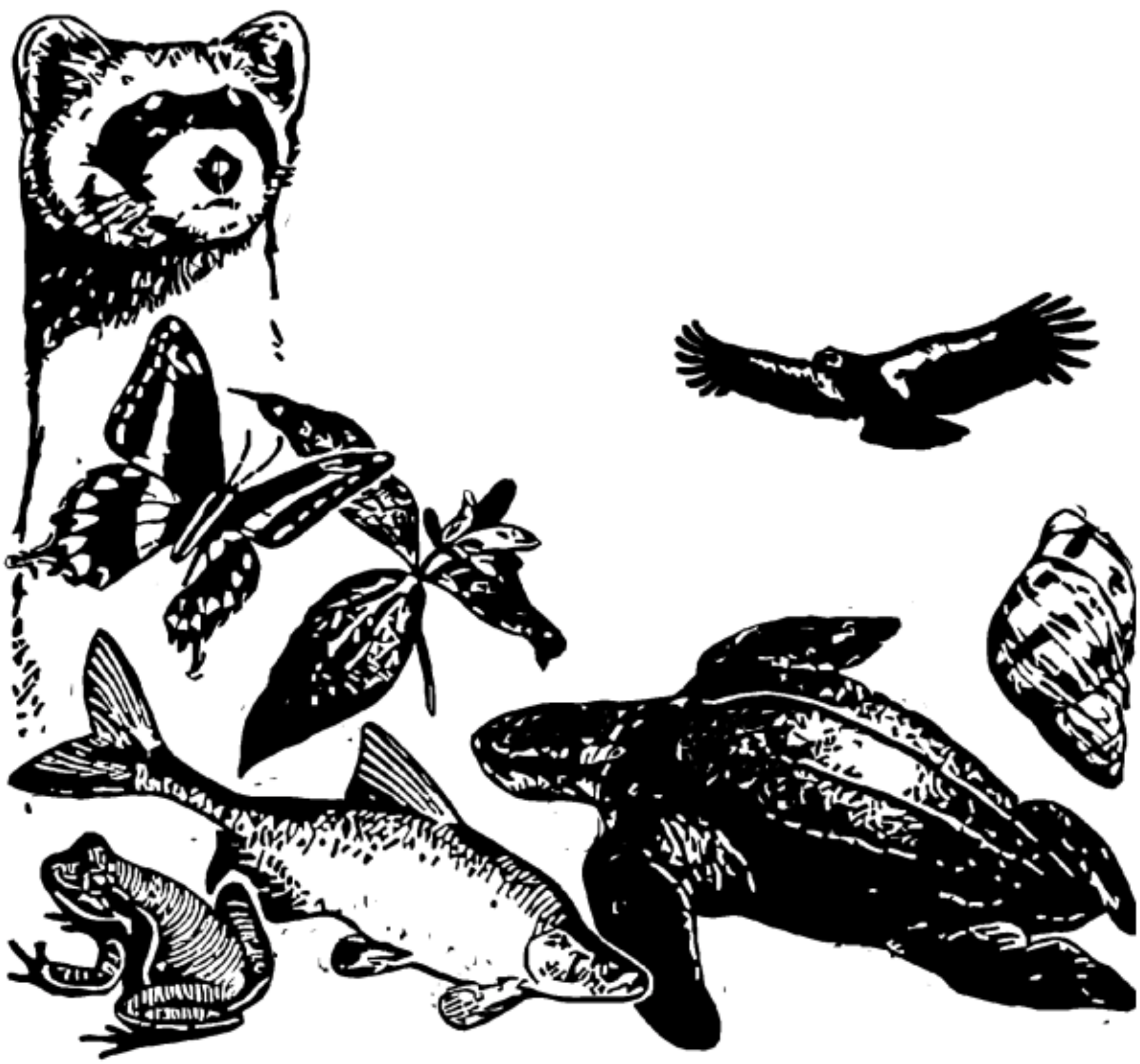

IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

Species Survey Guidelines - Fresno Kangaroo Rat and 1 more species

Published by Sacramento Fish And Wildlife Office for the following species included in your project

Fresno Kangaroo Rat Dipodomys nitratoides exilis

Tipton Kangaroo Rat Dipodomys nitratoides nitratoides

Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats
U.S. Fish and Wildlife Service
Sacramento Field Office
March 2013

The following protocol is designed for determining the presence of San Joaquin kangaroo rats, to include the following:

Common Name	Scientific Name	Federal Listing	State Listing
Fresno kangaroo rat	(*Dipodomys nitratoides exilis*)	Endangered	Endangered
Tipton kangaroo rat	(*Dipodomys nitratoides nitratoides*)	Endangered	Endangered
Short-nosed kangaroo rat	(*Dipodomys nitratoides brevinasus*)	Not Listed	Special Concern

These three species will be known hereafter as the "kangaroo rat(s)". This survey protocol was approved by the U.S. Fish and Wildlife Service (Service) on March4, 2013. This protocol will be conducted only by those individuals holding valid section 10(a)1(A) recovery permits from the Service and valid scientific collecting permits from the California Department of Fish and Wildlife (CDFW), as appropriate. This protocol is to be used in concert with the terms and conditions of those permits. This protocol is not intended to provide a basis for concluding that the species is absent from a site. Other activities involving the listed kangaroo rats that may require a permit, such as scientific research involving methods other than standard trapping and measuring animals are not part of this protocol and should be addressed in separate applications for Federal and State permits.

This information is provided as a starting point for biologists writing proposals for surveys and limited research work for the listed kangaroo rats in the jurisdiction of the Sacramento Fish and Wildlife Office (SFWO). Please note that each site-specific work plan will be independently evaluated according to the balance of the risks and benefits as to whether they can reasonably be expected to promote the recovery of the species in question, including proposed work plans submitted as part of a recovery permit application. As such, proposals for work need to provide a specific context of research objectives, defined with adequate specificity to enable a determination by the SFWO of whether the work would: jeopardize the species; minimize the impacts of the work on the individuals, populations, and the species; and would be reasonably expected to promote the recovery of the species.

One implication of this protocol is that deviations from any particular aspect of the methodologies described should be accompanied by an explanation of why the variance would reasonably be expected to increase the benefits of the work, or reduce the risks, and by how much. Such explanations should include information from any literature or unpublished information that provides field-tested conclusions in support of your argument, whenever such material is available. This can include information from work with similar species— the greater the similarity to the species, locations, and work proposed, the better the support it would provide that the improved results of the methodology would be expected to apply to the proposed work.

The more unique your proposed work plan is, the more lead time you should allow for evaluation by the Service and CDFW. Researchers may reduce evaluation delays by coordinating with the agency offices involved to be sure that everyone who needs to participate in the review and approval of your work plan has received copies of the plan.

Background information on the distribution, abundance, life history, ecology, threats and ongoing research of the Fresno and Tipton kangaroo rats is updated in Service produced status reviews completed every five years and published online at:
Tipton Kangaroo Rat (http://ecos.fws.gov/docs/five_year_review/doc3228.pdf)
Fresno Kangaroo Rat (http://ecos.fws.gov/docs/five_year_review/doc3214.pdf).

Survey Methods

1. Live-trapping is the only method for reliable identification of kangaroo rats in the San Joaquin Valley. It may be possible to determine the presence of kangaroo rats (*Dipodomys* spp) based on a variety of factors. Preliminary assessments to determine the probability that kangaroo rats may be present at a particular site should be based on a number of factors including species range, presence of habitat, and the presence of tail drags and tracks. Skeletal remains found in owl pellets may reveal the presence of kangaroo rats in the general area. The 1ocations of suitable habitat, potential burrows, and other signs of kangaroo rat activity should be reported to the Service and the CDFW as part of the survey authorization request.

2. A team of a minimum of two biologists is recommended to survey for the kangaroo rats at the specified locations. For greater trapping efforts involving large survey areas and using an increased number of traps, additional teams of biologists may be needed to safely and reliably conduct the surveys within the time constraints listed in the terms and conditions below. The Service will approve all trapping plans in advance, including the number of trapping teams to be used.

3. Only Sherman live traps with sufficient length [Sherman Extra-Large Kangaroo Rat live traps (*7.6 x 9.5 x 30.5 cm; H.B. Sherman Traps Inc. Tallahassee, FL*)] or modification to eliminate or substantially reduce the risk of tail injury shall be used. The use of other types of traps or other trap designs should be approved by the Service prior to their use. For detecting the presence of kangaroo rats at a particular site, live-traps should be placed close to burrow entrances, along runways, and near rodent sign to increase the potential for trapping success. For larger survey areas traps can be laid out in regular grid patterns. Trap arrays may also be set up in unique configurations to answer specific research questions. The planned density of traps and the geographic layout of trap arrays should be presented in the survey authorization requests to the Service and CDFW. Traps should be placed 5 meters or greater away from of any active ant mounds.

4. The Service recommends flagging the ends of each trap line or flagging individual trap clusters within trap lines. Uneven terrain and dense vegetation at the trapping site may increase the difficulty in finding traps. Flagging traps or trap lines is at the discretion of the biologist conducting the trapping. Marking trap locations using GPS is also recommended.

5. Traps should be baited with white proso millet, bird seed mixture, rolled oats, oatmeal, or other appropriate bait and provided with material for nesting and/or shredding. Wadded paper towels should be used for shredding material.

6. Kangaroo rats are active year around, but optimum activity periods occur from April 1 to October 31. It is recommended that trapping be completed within this activity period. Trapping outside of this time period will require additional trapping effort (increase in trap density and survey period).

7. Sherman traps will be set approximately 1 hour before sunset and will be checked no later than 1 hour after sunrise the following morning. Traps may be checked more frequently depending on the survey goals.

8. During the threat of inclement weather, such as the National Weather Service prediction of a 40 percent or greater chance of rain, all traps will be closed. Should the air temperature exceed 105 ˚F (41 ˚C), all traps will be closed. If the air temperature is predicted to drop below 50 ˚F (10 ˚C) then the following measures will be taken to reduce the effects of the colder weather on captured kangaroo rats:
   a. Once set, traps will be checked at a minimum interval of every 3 hours,
   b. Synthetic batting or other appropriate insulating material will be placed in the open trap,
   c. Additional food will be placed in the open trap, and
   d. Trapping will cease if captured animals are found to be lethargic or otherwise are showing signs of a decrease of body temperature.

9. Traps should be set and monitored for a minimum of five consecutive nights. If the survey is for determining presence only, then the trapping will end upon the first capture of the target species. The duration of trapping may be altered if authorized in advance by the SFWO.

10. All animals trapped will be identified to species, measured, weighed, and age class and sex will be recorded. If the survey includes a mark-recapture study the preferred method of marking individual kangaroo rats is to make a unique mark with a non-toxic, felt-tipped marker. Passive Integrated Transponder (PIT) tags provide a more permanent mark; however, use of these tags must be authorized by the Service in advance unless they are specified for use in a 10(a)1(A) permit.

11. All kangaroo rats will be immediately released at the location they were trapped following data collection. No animals will be removed from the wild without prior authorization form the Service and CDFW.

12. Any kangaroo rat incidentally killed during surveys or research will be placed in a freezer as soon as practical. Kangaroo rat carcasses shall ultimately be placed in the collection of a professionally maintained scientific facility or museum with the appropriate permits. A list of preferred facilities is included as a term and condition in the section 10(a)1(A) permit. The permittee will check with the accepting facility for instructions on preparation of the carcass for shipment or transport. SFWO will be notified by telephone within 1 working day of a kangaroo rat mortality, and in writing within 2 weeks of the incident. A final report summarizing trapping efforts and all data collected will be submitted to the SFWO within 30 days of completion of surveys to the Chief of the Endangered Species Division.

Agency Points of Contact:

U.S. Fish and Wildlife Service
Justin Sloan, Josh Hull, Thomas Leeman, or David Kelly
2800 Cottage Way, W-2605
Sacramento, California 95825 -1888
Telephone: 916-414-6600

California Department of Fish and Wildlife
Scott Osborn
1812 Ninth Street
Sacramento, California 95811
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(209) 667-3476 or (209) 667-3485

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Peer Reviewers

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Appendix D

Cultural Resource Evaluation

CLASS III INVENTORY/PHASE I SURVEY FOR ALLENSWORTH COMMUNITY SERVICES DISTRICT ALTERNATIVE 4 PROJECT, TULARE COUNTY, CALIFORNIA

Prepared for:

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Prepared by:

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MANAGEMENT SUMMARY

An intensive Class III cultural resources inventory/Phase I survey was conducted for the Allensworth Community Services District Alternative 4 Septic to Sewer Project (Project), Tulare County, California. The Project is located in Sections 8, 9, 15, and 16, Township 24 South, Range 24 East, MDBM, in the City of Allensworth, Tulare County, California. ASM Affiliates, Inc., conducted this study, with Peter Carey, M.A., RPA, serving as principal investigator. The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA).

A records search of site files and maps was conducted at the Southern San Joaquin Valley Archaeological Information Center (IC), California State University, Bakersfield. This investigation determined that four previous studies were conducted that covered portions of the Project APE, but it had not been surveyed in its entirety and no resources have been identified within it. Seven additional surveys had been previously conducted within 0.5-miles (mi) of the Project APE and three previously recorded resources were identified within this same radius. Resource P-54-004052 is the Allensworth Historical District (Albert 1971), P-54-004347 consists of a historic site (McIntosh 2004), and P-54-005317 is the historic Allensworth Cemetery (Thompson 2017).

A search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed on 3 October, 2022. Based on the NAHC records, no sacred sites or traditional cultural places had been identified within or adjacent to the Project. Outreach letters and follow-up emails were sent to tribal organizations on the NAHC contact-list. One response was received, from the Santa Rosa Rancheria Tachi-Yokuts, asking for worker environmental awareness training, monitoring and completion of a curation agreement with the tribe.

The Area of Potential Effect (APE) for the project was defined as the area of all potential ground surface disturbance, which includes staging, work and lay-down areas. The horizontal APE is approximately 5 miles (mi) of pipeline route and 20-acres (ac) for facility construction. With a 50-feet (ft) survey corridor for the pipeline, this represents a total of approximately 122.5-ac for the horizontal APE. The vertical APE was defined as the maximum depth of subsurface disturbance, in this case the maximum depth of excavation for the sewer line and facility foundations, or 10-ft.

The Class III inventory/Phase I survey fieldwork was conducted in November 2022 with parallel transects spaced at 15-meter intervals walked across the APE. No historical resources or properties were discovered within the APE. Based on these results, the Allensworth Community Services District Alternative 4 Project does not have the potential to result in significant impacts or adverse effects to historical resources or historic properties. A determination of no impact/no effect for cultural resources is recommended for this Project. It is further recommended that an archaeologist be contacted in the unlikely event that archaeological resources are encountered during Project construction or implementation.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates, Inc., was retained by the Crawford and Bowen Planning, Inc. to conduct an intensive Class III inventory/Phase I cultural resources survey for the Allensworth Community Services District (CSD) Alternative 4 Septic to Sewer Project (Project), Tulare County, California. The Project is located in Sections 8, 9, 15, and 16, Township 24 South, Range 24 East, MDBM, in the City of Allensworth, Tulare County, California (Figure 1). The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Protection Act (CEQA). The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historical resources or historic properties do not occur as a result of project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the project zone and/or whether the area had been previously and systematically studied by archaeologists;
- An on-foot, intensive inventory of the APE to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

Peter Carey, M.A., RPA, served as principal investigator. ASM Associate Archaeologist/Crew Chief Robert Azpitarte, B.A., conducted the fieldwork.

This document constitutes a report on the Class III inventory/Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; Native American outreach; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the APE.

1.1 PROJECT LOCATION

The Project is located in Sections 8, 9, 15, and 16, Township 24 South, Range 24 East, MDBM, in the Community of Allensworth, Tulare County, California. This places the Project area on the open flats of the San Joaquin Valley approximately 25-mi south of the city of Tulare and approximately 37-mi northwest of the city of Bakersfield. Elevation within the Project area, which is flat, ranges between approximately 195 to 210-feet (ft) above mean sea level (amsl).

1.2 PROJECT DESCRIPTION AND APE

The Allensworth CSD proposes to replace existing residential septic systems within the city limits with a new sewer system. The Project would involve installing a sewer collection system and the construction of a packaged wastewater treatment plant (WWTP) within the community. The sewer collection system consists of approximately 5-mi of new pipeline, including four small pump stations. The WWTP will cover approximately 20-ac. With an applied buffer of 50-ft, the proposed

Project will total approximately 122.5-ac. Currently the Project APE consists of paved streets, residential front yards with and without planted lawns, paved and unpaved parking lots, undeveloped portions of private property, open undeveloped lots and dirt road rights-of way (ROW). The vertical APE, consisting of the maximum depth for pipeline excavation and facility foundations, is 10-ft.

1.3 REGULATORY CONTEXT

1.3.1 California Environmental Quality Act

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

(A) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Are associated with the lives of persons important in our past;

(C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

(D) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

1.3.2 National Historic Preservation Act Section 106

NHPA Section 106 is applicable to federal undertakings, including projects financed or permitted by federal agencies regardless of whether the activities occur on federally managed or privately-owned land. Its purpose is to determine whether adverse effects will occur to significant cultural resources, defined as "historical properties" that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for NRHP eligibility are defined at 36 CFR § 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:
>
> (A) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) are associated with the lives of persons significant in our past; or
>
> (C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (D) have yielded or may be likely to yield, information important in prehistory or history.

There are, however, restrictions on the kinds of historical properties that can be NRHP listed. These have been identified by the Advisory Council on Historic Preservation (ACHP), as follows:

> Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
>
> (a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
>
> (b) A building or structure removed from its original location, but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
>
> (c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.
>
> (d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

(e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or

(f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

(g) A property achieving significance within the past 50 years if it is of exceptional importance. (http://www.achp.gov/nrcriteria.html)

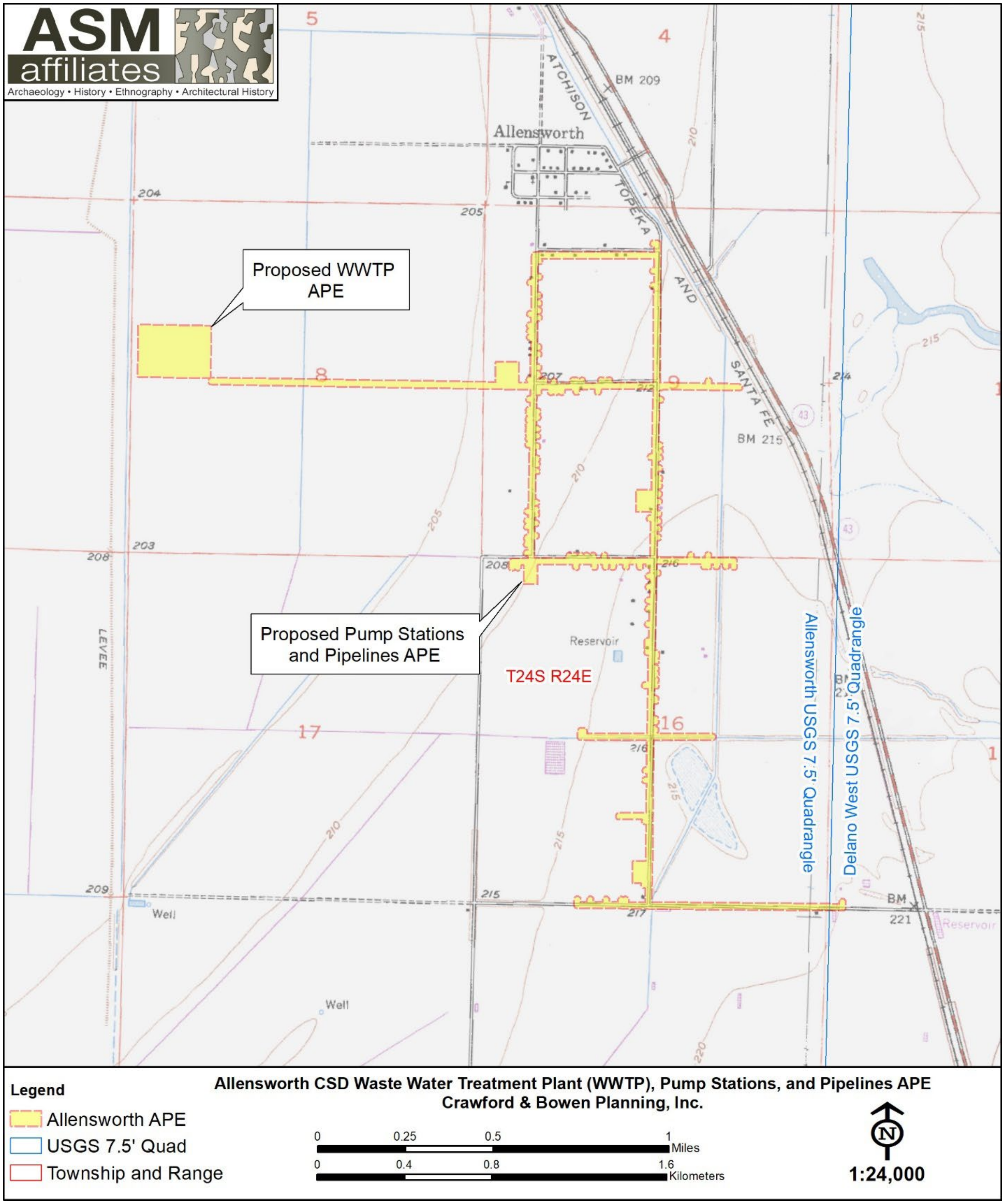

Figure 1. Location and APE, Allensworth Community Services District Alternative 4 Project, Allensworth, Tulare County, California.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY

As noted above, the study area is located at between roughly 195 and 210-ft elevation amsl on the open flats of the San Joaquin Valley, about 25-mi south of Tulare, California. Prior to the appearance of agriculture, starting in the nineteenth century, this location would have been prairie grasslands, grading into riparian environments and marshlands further south toward the north bank of Tulare Lake (Preston 1981). The study area and immediate surroundings have been urbanized and/or farmed and grazed for many years and no native vegetation is present. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the study area prior to cultivation. Currently, the study area consists of commercial and residential development.

A Caltrans geoarchaeological study that includes Allensworth provides a guide for the likelihood of subsurface archaeological deposits within the APE (Meyer et al. 2010). This study involved first determining the location and ages of late Pleistocene (>25,000 years old) landforms in the southern San Joaquin Valley. These were identified by combining a synthesis of 2,400 published paleontological, soils and archaeological chronometric dates with geoarchaeological field testing. The ages of surface landforms were then mapped to provide an assessment for the potential for buried archaeological deposits. These ages were derived primarily from the Soil Survey Geographic Database (SSURGO) and the State Soils Geographic (STATSGO) database. A map was created from this information that ranked locations in 7 ordinal classes for sensitivity for buried soils, from Very Low to Very High. This map can be employed to provide a general measure of the potential for buried archaeological deposits in any given location. According to this model, the APE has a Moderate potential for buried archaeological deposits. The presence of buried sites and cultural resources is therefore considered to be possible but not necessarily likely within the APE.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), Latta (1977), and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro-Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north, as well as other reservations in the foothills and Sierras. The result is an unfortunate scarcity of ethnographic detail on valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous life-ways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

Following Kroeber (1925: Plate 47; Latta 1977), the APE most likely lies in Wowol Yokuts territory. No historical villages are known in the vicinity of Allensworth and the Project APE.

Most Yokuts groups, regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 peoples (Kroeber 1925).

Each tribelet was headed by a chief who was assisted by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to most Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokut descendants continue to live in Fresno County, either on tribal reservations, or in local towns and communities.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The southern San Joaquin Valley region has received much less archaeological attention than other areas of the state. In part, this is because the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981; Rosenthal et al. 2007). Indeed, Gifford and Schenk (1926) were the first to identify the similarity between southern San Joaquin Valley prehistory and the archaeological record along the Santa Barbara Channel, a specific observation that was analytically verified more recently by Siefkin (1999). This circumstance, overlooked by some subsequent researchers, has resulted in confusion in the literature due to the application of the Sacramento Delta chronology on the local archaeological record, where it has never really fit. Based on these sources and this observation, the general prehistory of the region can be outlined in south-central California terms, as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 years before present (YBP). Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper. Both fluted and stemmed points are particularly common around lake margins (e.g., Wallace and Riddell 1993), suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far west at the same time. Little else is known about these earliest peoples at this point, however, in part because the locations of their recorded sites occur in lakeshore contexts that have experienced repetitive transgressive and regressive shorelines, resulting in mixed archaeological deposits.

Substantial evidence for human occupation of California first occurs during the Early Holocene, roughly 7500 to 4000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with tool-kits dominated by mullers and grindstones (manos and metates). Little evidence for Early Horizon occupation exists in most inland portions of the state with (again) the exceptions being along lakeshores, partly due to a severe cold and dry paleoclimatic period occurring at this time. Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4000 YBP during the *Middle Horizon* (or Intermediate Period). This period known climatically as the Holocene Maximum (circa 3800

YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. Archaeologically, it was marked by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture, which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian speaking peoples (including the Yokuts) are also hypothesized to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California or the Takic speaking groups that include the Gabrielino/Fernandeño, Tataviam, and Kitanemuk, may have moved into the region at this time, rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al. n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall Ranch near Valencia, appears to date to the Intermediate Period (W&S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W&S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W&S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W&S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes, and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major southern California-wide occurrence, and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W&S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the study area, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1500 and 800 YBP, with a consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizon transition (A.D. 800 to 1200) in the understanding of south-central California. This corresponds to the so-called Medieval Climatic Anomaly, a period of climatic instability that included major droughts and resulted in demographic disturbances across much of the west (Jones et al. 1999). It is also believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90 percent of the interior populations in some regions including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of people into fewer but larger villages. What is clear is that Middle Period villages and settlements were widely dispersed across the landscape; many at locations that lack contemporary evidence of fresh water sources. Late Horizon sites, in contrast, are typically located where fresh water was available during the historical period, if not currently.

The Late Horizon then can be best understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic life-ways recorded by anthropologists extend at least 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms can be expected to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

2.4 HISTORICAL BACKGROUND

Spanish explorers first visited the San Joaquin Valley in 1772, but its lengthy distance from the missions and presidios along the Pacific Coast delayed permanent settlement for many years, including during the Mexican period of control over the Californian region. In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley. The Mexican government granted the first ranchos in the southern part of the San Joaquin Valley in the early 1840s, but these did not result in permanent settlement. It was not until the annexation of California in 1848 that the exploitation of the southern San Joaquin Valley began (Pacific Legacy 2006).

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly. Some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns. Ranchers grazed cattle and sheep, and farmers dry-farmed or used limited irrigation to grow grain crops, leading to the creation of small agricultural communities throughout the valley (Caltrans 2007).

After the American annexation of California, the southern San Joaquin Valley became significant as a center of food production for this new influx of people in California. The expansive unfenced and principally public foothill spaces were well suited for grazing both sheep and cattle (Boyd 1997). As the Sierra Nevada gold rush presented extensive financial opportunities, ranchers introduced new breeds of livestock, consisting of cattle, sheep and pig (Boyd 1997).

With the increase of ranching in the southern San Joaquin came the dramatic change in the landscape, as non-native grasses more beneficial for grazing and pasture replaced native flora (Preston 1981). After the passing of the Arkansas Act in 1850, efforts were made to reclaim small tracts of land in order to create more usable spaces for ranching. Eventually, as farming supplanted ranching as a more profitable enterprise, large tracts of land began to be reclaimed for agricultural use, aided in part by the extension of the railroad in the 1870s (Pacific Legacy 2006).

Following the passage of state-wide 'No-Fence' laws in 1874, ranching practices began to decline, while farming expanded in the San Joaquin Valley in both large land holdings and smaller, subdivided properties. As the farming population grew, so did the demand for irrigation. Settlers began reclamation of swampland in 1866 and built small dams across the Kern River to divert water into the fields. By 1880, 86 different groups were taking water from the Kern River. Ten years later, 15 major canals provided water to thousands of acres in Kern County.

During the period of reclaiming unproductive land in the southern San Joaquin Valley, grants were given to individuals who had both the resources and the finances to undertake the operation alone. One small agricultural settlement, founded by Colonel Thomas Baker in 1861 after procuring one such grant, took advantage of reclaimed swampland along the Kern River. This settlement became the City of Bakersfield in 1869, and quickly became the center of activity in the southern San Joaquin Valley, and in the newly formed Kern County. Located on the main stage road through the San Joaquin Valley, the town became a primary market and transportation hub for stock and crops, as well as a popular stopping point for travelers on the Los Angeles and Stockton Road. The Southern Pacific Railroad reached the Bakersfield area in 1873, connecting it with important market towns elsewhere in the state, dramatically impacting both agriculture and oil production (Pacific Legacy 2006).

Three competing partnerships developed during this period which had a great impact on control of water, land reclamation and ultimately agricultural development in the San Joaquin Valley: Livermore and Chester, Haggin and Carr, and Miller and Lux, perhaps the most famous of the enterprises. Livermore and Chester were responsible, among other things, for developing the large Hollister plow (three feet wide by two feet deep), pulled by a 40-mule team, which was used for ditch digging. Haggin and Carr were largely responsible for reclaiming the beds of the Buena Vista and Kern lakes, and for creating the Calloway Canal, which drained through the Rosedale area in Bakersfield to Goose Lake (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the rights to over 22,000 square miles. Miller and Lux's impact extended beyond Kern County, however. They recognized early-on that control of water would have important economic implications, and they played a major role in the water development of the (http://www.mariposaresearch.net/santaclararesearch/SCBIOS/hmiller.html). They were also embroiled for many years in litigation against Haggin and Carr over control of the water rights to the Kern River. Descendants of Henry Miller continue to play a major role in California water rights, with his great grandson, George Nickel, Jr., the first to develop the concept of water banking, thus creating a system to buy and sell water (http://exiledonline.com/california-class-war-history-meet-the-oligarch-family-thats-been-scamming-taxpayers-for-150-years-and-counting/).

The San Joaquin Valley was dominated by agricultural pursuits until the oil boom of the early 1900s, which saw a shift in the region, as some reclaimed lands previously used for farming were leased to oil companies. Nonetheless, the shift of the San Joaquin Valley towards oil production did not halt the continued growth of agriculture (Pacific Legacy 2006). The Great Depression of the 1930s brought with it the arrival of great number of migrants from the drought-affected Dust Bowl region, looking for agricultural labor. These migrants established temporary camps in the valley, staying on long past the end of the drought and the Great Depression, eventually settling in towns such as Bakersfield where their descendants live today (Boyd 1997).

Lieutenant Colonel Allen Allensworth was born a slave in 1842 and, after fleeing slavery, served as a nurse with the Union Army, and subsequently joined the Army in 1863. Shortly after the conclusion of the war, he was discharged as a First-Class Petty Officer, and found work in the Commissary of the Navy Yard in St. Louis where he would begin a family, become an ordained minister, and operate several successful businesses with his brother. After learning that there were no Black chaplains to serve the four Black Army regiments, Allensworth was able to successfully solicit from President Grover Cleveland an appointment with the 24th Infantry in 1886. He would become the first chaplain to attain the rank of Lieutenant Colonel, and after his retirement from the military in 1906, Colonel Allensworth and his family relocated to Los Angeles where he would eventually meet Professor William Payne, and the two would eventually band together with a handful of other prominent black Los Angeles-area residents to form the California Colonization and Home Promotion Association (Mikell 2017; Willis Research and Development, Inc. 1973).

In 1908, the group received their state corporation papers and picked a small rail stop named Solito on the AT&SF Railroad between Los Angeles and San Francisco as the location for the new project. The land was purchased from Pacific Farming Company and later that year, the founders changed the name of the town in honor of Colonel Allensworth and established the Allensworth Progressive Association as an elective form of local governance and within a few years, the blossoming town became a voting precinct and had its own school district, and Allensworth was sanctioned as a judicial district in 1914. The town had numerous businesses, a branch of the Tulare County Library, and a post office, but the one-room Allensworth School was central to the growing community. Most civic and social meetings were all held at the school (Mikell 1984; Mikell 2017).

Like most other small Central Valley communities in the area, agriculture was the central economic industry, and although the water supply was once believed to be able to sustain to small community, by the mid-1920s the Allensworth wells and infrastructure were proving to be increasingly deficient in sustaining the town’s farming and ranching enterprises. Unfulfilled promises made by the Pacific Farming Company to supply irrigation water led to expensive litigation and the population began to disperse in search of outside employment. U.S. Census data shows that the population had dropped to below 300 by 1930, and while a small population continued to scrape out a living, Allensworth was all but a ghost town (Mikell 2017). It had approximately 470 occupants in 2010.

Allensworth was the first town in California to be founded, financed and governed by African-Americans. Its historical significance was memorialized by the creation of the Allensworth State Historical Park in 1974.

2.5 RESEARCH DESIGN

2.5.1 Pre-Contact Archaeology

Previous research and the nature of the pre-contact archaeological record suggest two significant NRHP themes, both of which fall under the general Pre-Contact Archaeology area of significance. These are the Expansion of Pre-Contact Populations and Their Adaptation to New Environments; and Adaptation to Changing Environmental Conditions.

The Expansion of Pre-Contact Populations and Their Adaptation to New Environments theme primarily concerns the Middle Horizon/Holocene Maximum. Its period of significance runs from about 4000 to 1500 YBP. It involves a period during which the prehistoric population appears to have expanded into a variety of new regions, developing new adaptive strategies in the process.

The Adaptation to Changing Environmental Conditions theme is partly related to the Holocene Maximum, but especially to the Medieval Climatic Anomaly. The period of significance for this theme, accordingly, extends from about 4000 to 800 YBP. This theme involves the apparent collapse of many inland populations, presumably with population movements to better environments such as the coast. It is not yet known whether the southern San Joaquin Valley, with its system of lakes, sloughs and swamps, experienced population decline or, more likely, population increase due to the relatively favorable conditions of this region during this period of environmental stress.

The range of site types that are present in this region include:

- Villages, primarily located on or near permanent water sources, occupied by large groups during the winter aggregation season;
- Seasonal camps, again typically located at water sources, occupied during other parts of the year tied to locally and seasonally available food sources;
- Special activity areas, especially plant processing locations containing bedrock mortars (BRMs), commonly (though not exclusively) near existing oak woodlands, and invariably at bedrock outcrops or exposed boulders;
- Stone quarries and tool workshops, occurring in two general contexts: at or below naturally occurring chert exposures on the eastern front of the Temblor Range; and at quartzite cobble exposures, often on hills or ridges;
- Ritual sites, most commonly pictographs (rock art) found at rockshelters or large exposed boulders, and cemeteries, both commonly associated with villages; and
- A variety of small lithic scatters (low density surface scatters of stone tools).

The first requisites in any research design are the definition of site age/chronology and site function. The ability to determine either of these basic kinds of information may vary between survey and test excavation projects, and due to the nature of the sites themselves. BRM sites without associated artifacts, for example, may not be datable beyond the assumption that they post-date the Early Horizon and are thus less than roughly 4,000 years old.

A second fundamental issue involves the place of site in the settlement system, especially with respect to water sources. Because the locations of the water sources have sometimes changed over time, villages and camps are not exclusively associated with existing (or known historical) water sources (W&S Consultants 2006). The size and locations of the region's lakes, sloughs and delta channels, to cite the most obvious example, changed significantly during the last 12,000 years due to major paleoclimatic shifts. This altered the area's hydrology and thus prehistoric settlement patterns. The western shoreline of Tulare Lake was relatively stable, because it abutted the Kettleman Hills. But the northern, southern and eastern shorelines comprised the near-flat valley floor. Relatively minor fluctuations up or down in the lake level resulted in very significant changes in the areal expression of the lake on these three sides, and therefore the locations of villages and camps. Although perhaps not as systematic, similar changes occurred with respect to stream channels and sloughs, and potential site locations associated with them. This circumstance has implications for predicting site locations and archaeological sensitivity. Site sensitivity is then hardest to predict in the open valley floor, where changes in stream courses and lake levels occurred on numerous occasions.

Nonetheless, the position of southern San Joaquin Valley prehistory relative to the changing settlement and demographic patterns seen in surrounding areas is still somewhat unknown (cf. Siefkin 1999), including to the two NRHP themes identified above. The presence of large lake systems in the valley bottoms can be expected to have mediated some of the effects of desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007), environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley and determining how these trends (if present) correlate with those seen elsewhere, is another primary regional research objective.

Archaeological sites would primarily be evaluated for NRHP eligibility under Criterion D, research potential.

2.5.2 Historical Archaeology: Native American

Less research has been conducted on the regional historical archaeological record, both Native American and Euro-American. For Native American historical sites, the ethnographic and ethnohistoric periods in the southern San Joaquin Valley extended from first Euro-American contact, in AD 1772, to circa 1900, when tribal populations were first consolidated on reservations. The major significant historic NRHP themes during this period of significance involve the related topics of Historic-Aboriginal Archaeology, and Native American Ethnic Heritage. More specifically, these concern the Adaptation of the Indigenous Population to Euro-American Encroachment and Settlement, and their Acculturation to Western Society. These processes included the impact of missionization on the San Joaquin Valley (circa 1800 to about 1845); the introduction of the horse and the development of a San Joaquin Valley "horse culture," including raiding onto the coast and Los Angeles Basin (after about 1810); the use of the region as a refuge for mission neophyte escapees (after 1820); responses to epidemics from introduced diseases (especially in the 1830s); armed resistance to Euro-American encroachment (in the 1840s and early 1850s); the origins of the reservation system and the development of new tribal organizations and ethnic identities; and, ultimately, the adoption of the Euro-American society's economic system and subsistence practices, and acculturation into that society.

Site types that have been identified in the region dating to the ethnographic/ethnohistoric period of significance primarily include villages and habitations, some of which contain cemeteries and rock art (including pictographs and cupules). Dispersed farmsteads, dating specifically from the reservation period or post-1853, would also be expected. The different social processes associated with this historical theme may be manifest in the material cultural record in terms of changing settlement patterns and village organization (from traditional nucleated villages to single family dispersed farmsteads); the breakdown of traditional trading networks with their replacement by new economic relationships; changing subsistence practices, especially the introduction of agriculture initially via escaped mission neophytes; the use of Euro-American artifacts and materials rather than traditional tools and materials; and, possibly, changing mortuary practices.

Inasmuch as culture change is a primary intellectual interest in archaeology, ethnographic villages and habitations may be NRHP eligible under Criterion D, research potential. Rock art sites, especially pictographs, may be eligible under Criterion C as examples of artistic mastery. They may also be eligible under Criterion A, association with events contributing to broad patterns of history. Ethnographic sites, further, may be NRHP eligible as Traditional Cultural Properties due to potential continued connections to tribal descendants, and their resulting importance in traditional practices and beliefs, including their significance for historical memory, tribal- and self-identity formation, and tribal education.

For Criteria A, C and D, eligibility requires site integrity (including the ability to convey historical association for Criterion A). These may include intact archaeological deposits for Criterion D, as well as setting and feel for Criteria C and A. Historical properties may lack physical integrity, as normally understood in heritage management, but still retain their significance to Native American tribes as Traditional Cultural Properties if they retain their tribal associations and uses.

2.5.3 Historical Archaeology: Euro-American

Approaches to historical Euro-American archaeological research relevant to the region have been summarized by Caltrans (1999, 2000, 2007, 2008). These concern the general topics of historical landscapes, agriculture and farming, irrigation (water conveyance systems), and mining. Caltrans has also identified an evaluation matrix aiding determinations of eligibility. The identified research issues include site structure and land-use (lay-out, land use, feature function); economics (self-sufficiency, consumer behavior, wealth indicators); technology and science (innovations, methods); ethnicity and cultural diversity (religion, race); household composition and lifeways (gender, children); and labor relations. Principles useful for determining the research potential of an individual site or feature are conceptualized in terms of the mnemonic AIMS-R, as follows:

> 1. *Association* refers to the ability to link an assemblage of artifacts, ecofacts, and other cultural remains with an individual household, an ethnic or socioeconomic group, or a specific activity or property use.

2. *Integrit*y addresses the physical condition of the deposit, referring to the intact nature of the archaeological remains. In order for a feature to be most useful, it should be in much the same state as when it was deposited. However, even disturbed deposits can yield important information (e.g., a tightly dated deposit with an unequivocal association).

3. *Materials* refers to the number and variety of artifacts present. Large assemblages provide more secure interpretations as there are more datable items to determine when the deposit was made, and the collection will be more representative of the household, or activity. Likewise, the interpretive potential of a deposit is generally increased with the diversity of its contents, although the lack of diversity in certain assemblages also may signal important behavioral or consumer patterns.

4. *Stratigraphy* refers to the vertically or horizontally discrete depositional units that are distinguishable. Remains from an archaeological feature with a complex stratigraphic sequence representative of several events over time can have the added advantage of providing an independent chronological check on artifact diagnosis and the interpretation of the sequence of environmental or sociocultural events.

5. *Rarity* refers to remains linked to household types or activities that are uncommon. Because they are scarce, they may have importance even in cases where they otherwise fail to meet other thresholds of importance (Caltrans 2007:209).

For agricultural sites, Caltrans (2007) has identified six themes to guide research: Site Structure and Land Use Pattern; Economic Strategies; Ethnicity and Cultural Adaptation; Agricultural Technology and Science; Household Composition and Lifeways; and Labor History. Expected site types would include farm and ranch homesteads and facilities, line camps, and refuse dumps. In general terms, historical Euro-American archaeological sites would be evaluated for NRHP eligibility under Criterion D, research potential. However, they also potentially could be eligible under Criteria A and B for their associate values with major historical trends or individuals. Historical landscapes might also be considered.

Historical structures, which are most likely to be pertinent to the current study area, are typically evaluated for NRHP eligibility under Criteria A and/or B, for their associate values with major historical trends or individuals, and C for potential design or engineering importance.

3. ARCHIVAL RECORDS SEARCH

3.1 ARCHIVAL RECORDS SEARCH

In order to determine whether the Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known within it, an archival records search was conducted by the staff of the Southern San Joaquin Valley Information Center (IC) on 12 July 2022. The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the APE; (ii) if the APE had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the surrounding region was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest. The Native American Heritage Commission (NAHC) Sacred Lands files were also searched to determine whether tribal cultural resources are present.

According to the IC records search (Confidential Appendix A), four previous archaeological surveys had covered small portions of the study area (Table 1), and no cultural resources were identified as a result of those studies. Additionally, seven previous archaeological surveys had been completed within 0.5-mi of the study area (Table 2) resulting in the recordation of three cultural resources within that outer radius (Table 3).

Table 1. Survey Reports within the APE

Report No.	Year	Author (s)/Affiliation	Title
TU-00633	1983	Woodward, J./ Individual Consultant	Archaeological Survey Report for Colonel Allensworth State Historical Park Trailer Pad Campground Construction, Tulare County, California
TU-01100	2001	Collet, T./ Terracon	Section 106 Review for the Allensworth Cell Tower Site, Tulare County, California
TU-01441	2009	Gold, A.P./ Archaeological Associates of Kern County	Cultural Resource Survey for a 57.8 Acre Parcel, Southwest of the Community of Allensworth Near Road 80 and Between Avenues 28 and 32, Tulare County, California
TU-01791	2016	Unknown Author; California High-Speed Rail Authority	Fresno-Bakersfield Project Section-Final Historic Architectural Survey Report Addendum No. 3 (Early Works Re-exam Area)

Table 2. Survey Reports within 0.5-mi of the APE

Report No.	Year	Author (s)/Affiliation	Title
TU-00623	1973	Williams, C./ Individual Consultant	The Impact of the Proposed Allensworth State Park on the Archaeological Resources of the Area Around It
TU-01025	2000	Nelson, W.J./ Far Western Anthropological Research Group, Inc.	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project; Project Number 27101
TU-01191	2000	Mason, R.D. and R.S. Shepard/ Chambers Group	Cultural Resources Survey Report for the Level (3) Communications Long Haul Fiber Optic Project: WS04, State Route 43 Reroute, Kern and Tulare Counties, California
TU-01498	2010	Leach-Palm, L. et al./ Far Western Anthropological Research Group, Inc.	Cultural Resources Inventory of Caltrans District 6 Rural Conventional Highways in Fresno, Western Kern, Kings, Madera, and Tulare Counties
TU-01607	2007	Cox, B.R./ Sonoma State University	The Archaeology of the Allensworth Hotel: Negotiating the System in Jim Crow America
TU-01788	2017	Thompson, E.R./ Sonoma State University	Allensworth: Preserving the Cemetery of "The Town That Refused To Die"
TU-01803	2017	Thomas, K./ Helix Environmental Planning	Cultural Resources Record Search and Site Visit Results for AT&T Mobility, LLC Candidate CVL00452 (Allensworth Christian Church), 3765 Young Road, Earlimart, Tulare County, California (EBI Project #6117002837)

Table 3. Resources within 0.5-mi of the APE

Resource	Type	Age
P-54-004052	District	Historic
P-54-004347	Site	Historic
P-54-005317	Site	Historic

Three previously recorded resources have been identified within 0.5-mi of the Project APE. Resource P-54-004052 is a historic district consisting of about 15 square blocks of the original Allensworth town site founded in 1908. This resource was added to the National Register of Historic Places in 1974. It is present 0.5-mi north of the project area. Resource P-54-004347 is a historic refuse scatter that appears to date to the early Twentieth Century (McIntosh & Tuck 2006). This resource is located north of the project APE. Resource P-54-005317 is the historic Allensworth Cemetery. Use of this cemetery dates to as early as 1911 (Thompson 2017) and it is located south of the Project APE.

According to historic accounts and maps such as the "Thompson Map of Tulare County, California, 1892", development occurs in the general vicinity of the Project area prior to 1891 (Thompson 1892) with the construction of the Southern Pacific Railroad and Alila to the east of the proposed Allensworth CSD Project.

3.2 TRIBAL COORDINATION

A records search of the Native American Heritage Commission (NAHC) Sacred Lands File was also completed for the Project. The results were negative (Confidential Appendix A). Outreach letters and follow-up emails were sent to the tribal organizations on the NAHC contact list (Confidential Appendix A). One response, from the Santa Rosa Rancheria – Tachi Yokut Tribe, was received. They requested environmental awareness training for the Project construction staff, archaeological monitoring and the completion of a curation agreement prior to Project start, to ensure that any discovered artifacts would be properly archived following the construction.

Based on the results of the IC and NAHC records searches, the tribal outreach, the review of historical maps, and the Meyer et al. (2010) geoarchaeological sensitivity model, the APE appears to have low to moderate archaeological sensitivity.

4. METHODS AND RESULTS

4.1 FIELD METHODS

An intensive Class III inventory/Phase I survey of the Kerman Sewer Improvement Project APE was conducted in November 2022 by ASM Associate Archaeologist/Crew Chief Robert Azpitarte, B.A., assisted by Margarita Medina Lemus, B.A., ASM Assistant Archaeologists. The field methods employed included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone) where applicable; the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation Instructions for Recording Historic Resources and the BLM 8100 Manual, using DPR 523 forms. Parallel survey transects spaced at 15-m intervals were employed for the inventory. A 50-ft buffer surrounding the pipeline APE was also surveyed, where this was possible given private property access restrictions.

4.2 SURVEY RESULTS

The Project APE primarily included dirt and paved roads, and open undeveloped fields at the locations of the pump stations and WWTP (Figures 2, 3 and 4). Ground surface visibility overall was excellent.

No cultural resources of any kind were observed in the APE.

Figure 2. WWTP APE looking northwest.

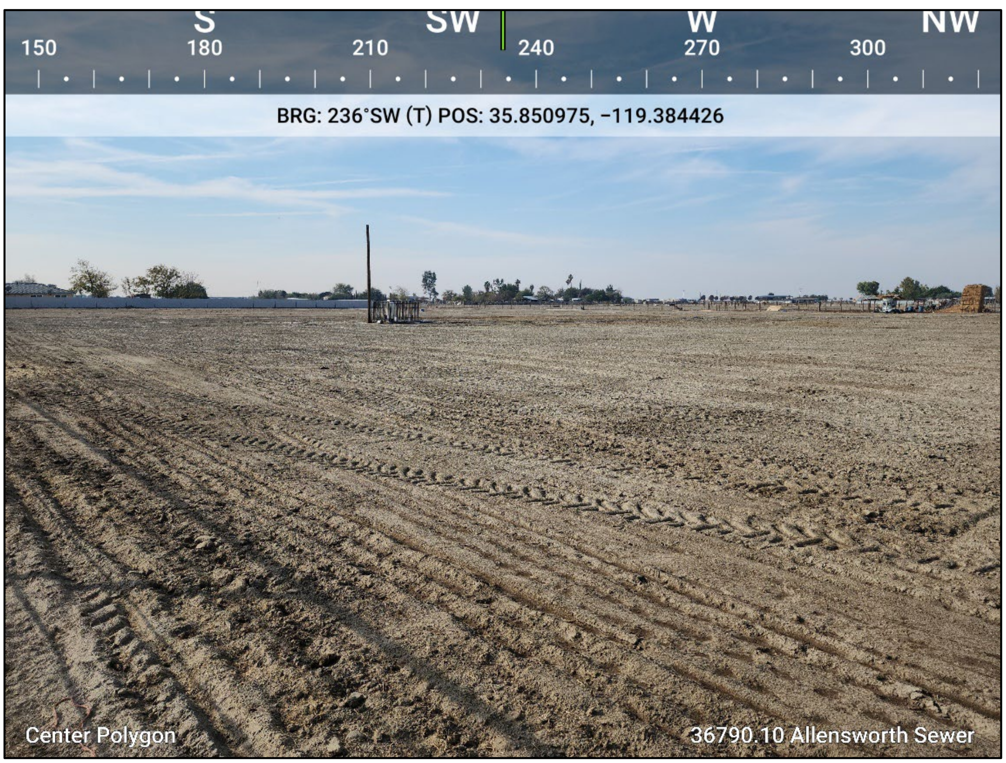

Figure 3. Central pumping station location, looking southwest.

Figure 4. Grant Drive, looking west.

5. SUMMARY AND RECOMMENDATIONS

An intensive Class III archaeological inventory/Phase I survey was conducted for the Allensworth CSD Septic to Sewer Project, Allensworth, Tulare County, California. A records search was conducted at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield. This indicated that the Project APE had not been surveyed in its entirety, and that no cultural resources were known within it. Three cultural resources, all historical in age, had been recorded within a 0.5-mi radius of the APE, including the Allensworth historical district and cemetery. An NAHC Sacred Land Files records search was negative for tribal cultural resources or sacred sites. Outreach letters and follow-up emails were sent to tribal organizations on the NAHC contact list. The Santa Rosa Rancheria, Tachi – Yokut Tribe responded, requesting environmental awareness training for the Project construction staff, archaeological monitoring and the completion of a curation agreement prior to Project start, to insure that any discovered artifacts would be properly archived following the construction.

The Class III inventory/Phase I survey fieldwork was conducted with parallel transects spaced at 15-meter intervals along the APE. No cultural resources of any kind were identified within the APE.

5.1 RECOMMENDATIONS

An intensive Class III inventory/Phase I survey demonstrated that the Allensworth CSD Septic to Sewer Project, Tulare County, California, does not contain significant or unique historical resources or historic properties. A finding of No Historic Properties Affected/No Significant Impact is recommended. In the unlikely event that cultural resources are encountered during project construction or use, however, it is recommended that an archaeologist be contacted to assess the discovery.

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