



MITIGATED NEGATIVE DECLARATION

Biola Groundwater Recharge Project

February 2019

PREPARED FOR:

Biola Community Services District
4925 N. Seventh Street
Biola, CA 93606

PREPARED BY:



Crawford & Bowen Planning, Inc.
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Initial Study/Mitigated Negative Declaration
Biola Groundwater Recharge Project

Prepared for:

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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 constructing a groundwater recharge facility within the Biola Community Services District (District) in western Fresno County. The new groundwater recharge facility (proposed Project) will help bring the District into compliance with the goals of the Sustainable Groundwater Management Act. The proposed Project is more fully described in Chapter Two – Project Description.

The Biola Community Services District 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 by a Sustainable Groundwater Planning Grant from the California Department of Water Resources, and the environmental review for the Project must meet state requirements under CEQA.

1.2 Document Format

This IS/MND contains five chapters, and appendices. Section 1, Introduction, provides an overview of the project and the CEQA environmental documentation process. Chapter 2, Project Description, provides a detailed description of project objectives and components. Chapter 3, Initial Study Checklist, presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the proposed project does not have the potential to significantly impact a given issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts, and appropriate mitigation measures and/or permit requirements that would reduce those impacts to a less than significant level. Chapter 4, Mitigation Monitoring and Reporting Program, provides the proposed mitigation measures, completion timeline, and person/agency responsible for implementation and Chapter 5, List of Preparers, provides a list of key personnel involved in the preparation of the IS/MND.

Environmental impacts are separated into the following categories:

Potentially Significant Impact. This category is applicable if there is substantial evidence that an effect may be significant, and no feasible mitigation measures can be identified to reduce

impacts to a less than significant level. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.

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

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

No Impact. This category applies when a project would not create an impact in the specific environmental issue area. “No Impact” answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific project (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis.)

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

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

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

- (1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for

public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and

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

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

Chapter 2

PROJECT DESCRIPTION

Project Description

2.1 Location

The Biola Community Services District (District) lies in the San Joaquin Valley's central region, approximately 13 miles northwest of downtown Fresno in Fresno County and approximately 7 miles west of State Highway 99 on the south side of Shaw Avenue (see Figure 1). The District's boundary encompasses approximately 242 acres.

The proposed Project components are located near the intersection of Shaw Avenue and Third Street, along Third Street, and south of G Street, as seen in Figure 2. The site is approximately one mile south of the San Joaquin River in Section 16, Township 13S, Range 18E, Mount Diablo Base and Meridian. See Figure 1 – Regional Location Map.

2.2 Setting and Surrounding Land Use

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

The Project site is relatively flat in an area dominated by agriculture. Surrounding terrain that is adjacent to the existing drainage basin is nearly flat and consists primarily of agricultural fields (vineyards) with the exception of the Actagro facility located immediately west of the site and the Polycell Packaging Corporation Facility located immediately north of the site.

Like most of California, the central/southern San Joaquin Valley experiences a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely exceed 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. According to the Western Regional Climate Center, annual precipitation in the vicinity of the Project site is about 10.9 inches, about 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain.

2.3 Project Background

The Biola CSD is in the Kings sub-basin of the Tulare Lake aquifer basin, which is in a critical state of aquifer overdraft. The proposed Project is consistent with the Regional Goals of the 2012 Upper Kings Basin Integrated Regional Water Management Plan and the Sustainable Groundwater Management Act and will help aid in reversing the current state of aquifer overdraft. The proposed Project is needed to help bring the Biola CSD into compliance with the Sustainable Groundwater Management Act.

Funding

As described in Chapter 1 - Introduction, the Project is expected to be funded through a Sustainable Groundwater Planning Grant from the California Department of Water Resources.

2.4 Project Description

The proposed Project includes four components.

1. Installation of a turnout valve with a flow meter in the Fresno Irrigation District (FID) Herndon Canal.
2. Installation of approximately 2,075 linear feet of 18-inch pipeline to connect the turnout valve with an existing storm drain pipeline.
3. A three-acre expansion of an existing two-acre storm drainage basin for a five-acre total groundwater recharge basin.
4. Installation of a six-foot chain link fence around the enlarged drainage basin.

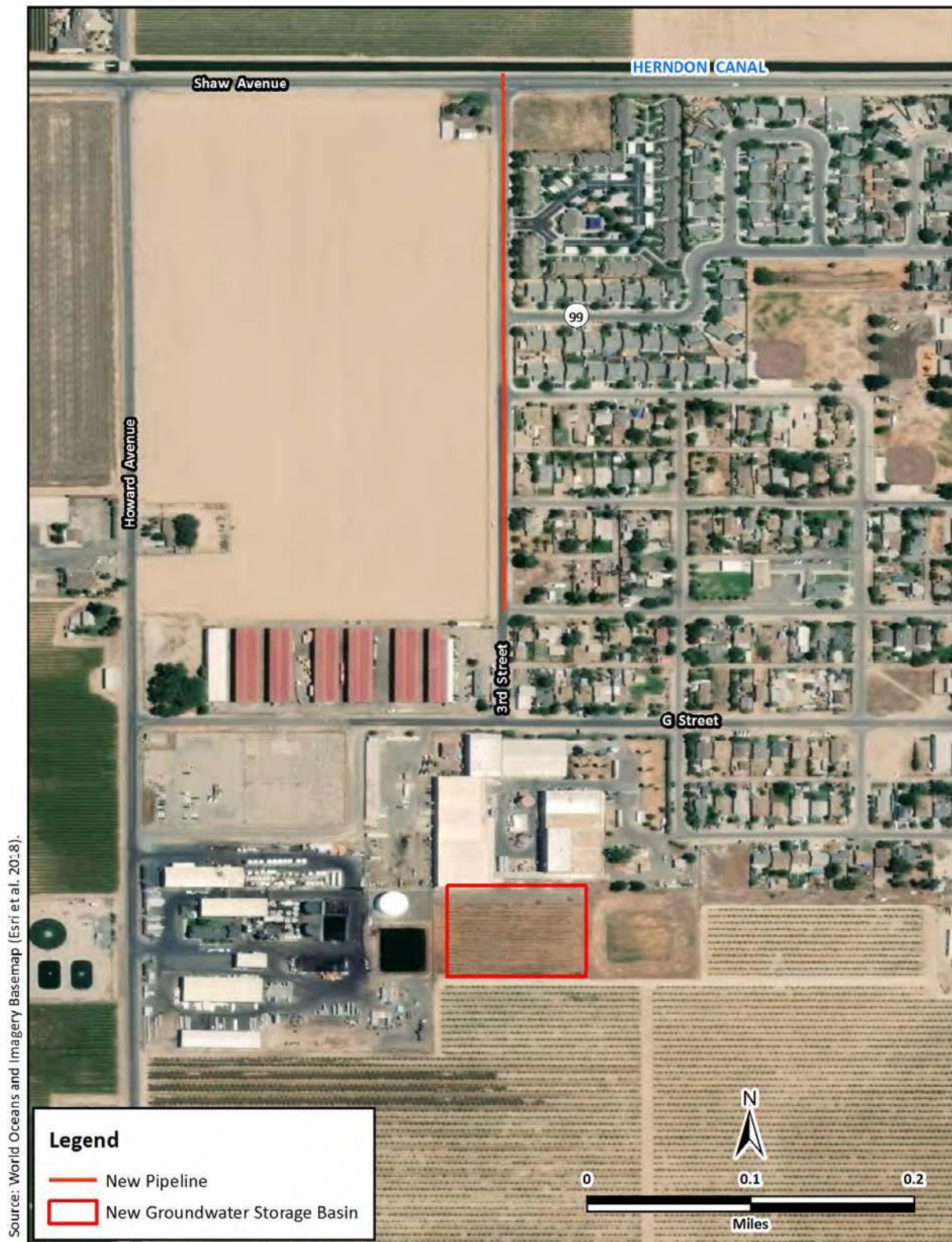
Construction

The pipeline and basin excavation portions of the project are expected to begin in June 2019 and will be completed by September 2019. The installation of the turnout valve at the canal will be completed in November 2019.

Figure 1 – Regional Location Map



Figure 2 – Aerial Project Map



2.5 Objectives

The primary objectives of the proposed Project are as follows:

- To bring the District into compliance with the Sustainable Groundwater Management Act.
- The District seeks to create a more reliable water supply in dry years.

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 Biola Community Services District
- California Department of Water Resources
- Regional Water Quality Control Board
- San Joaquin Valley Air Pollution Control District

Chapter 3

IMPACT ANALYSIS

Initial Study Checklist

3.1 Environmental Checklist Form

Project title:

Biola Groundwater Recharge Project

Lead agency name and address:

Biola Community Services District
4925 N. Seventh Street
Biola, CA 93606

Contact person and phone number:

Elaine Cervantes, General Manager: 559.843.2657
Gary Horn, PE: 559.244.3123

Project location:

See Section 2.1

Project sponsor's name/address:

Biola Community Services District

General plan designation:

Fresno County General Plan: AE-20 Exclusive Agricultural

Zoning:

Fresno County Zoning: AE-20 Exclusive Agricultural

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

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 | ☐ Geology /Soils |
| ☐ Greenhouse Gas
Emissions | ☐ Hazards & Hazardous
Materials | ☐ Hydrology / Water
Quality |
| ☐ Land Use / Planning | ☐ Mineral Resources | ☐ Noise |
| ☐ Transportation/Traffic | ☐ Utilities / Service
Systems | ☐ Mandatory
Findings of
Significance |

3.3 Determination

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or

“potentially significant unless mitigated” impact on the environment, but at least one effect 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.

 Elaine Cervantes

General Manager

Biola Community Services District

 Date

I. AESTHETICS

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. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

SETTING

Environmental

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

The Project site is relatively flat in an area dominated by agriculture. Surrounding terrain that is adjacent to the basin area is nearly flat and consists primarily of agricultural fields with the exception of the Actagro facility located immediately west of the site and the Polycall Packaging Corporation to the north of the site. The pipeline will be located within an existing road.

There are no scenic resources or scenic vistas in the area. The nearest major highway is Highway 99, located approximately seven miles east of the Project site.

California Scenic Highway Program

The California Department of Transportation (Caltrans) administers the California Scenic Highway Program, which is the only official program in Fresno County designed to protect and enhance scenic/visual resources. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263. Other regulations that assist in minimizing impacts from urban land uses, to some extent, include County zoning and development standards and regulations.

RESPONSES

a. Have a substantial adverse effect on a scenic vista?

Less than Significant Impact. The proposed Project involves the expansion of an existing basin for groundwater recharge and the installation of approximately 2,075 linear feet of pipeline within the 3rd Street right of way. The existing basin is currently surrounded by a chain-link fence and that fence will be expanded to surround the larger basin. There will not be a significant increase or change in the amount, height, or style of structures that already occur on site. Some changes will be underground and/or at ground level.

The Fresno County General Plan does not identify any scenic vistas within the Project area; however, the Sierra Nevada Mountains to the east could be considered scenic. A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area. The Project will not impede any views of the Mountains.

Construction activities will occur as necessary for six months in 2019 and will be visible from the adjacent roadsides; however, the construction activities will be temporary in nature and will not affect a scenic vista, as none exist in the Project area. The impact will be *less than significant*.

Mitigation Measures: None are required.

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

Less than Significant Impact. There are no state designated scenic highways within the immediate proximity to the Project site. California Department of Transportation Scenic Highway Mapping System identifies SR 180 east of SR 63 a County Scenic Highway. This is the closest scenic highway,

located approximately 40 miles east of the Project site; however, the Project site is both physically and visually separated from SR 180 by intervening land uses. In addition, no scenic highways or roadways are listed within the Project area in the Fresno County's General Plan. The proposed Project would not damage any trees, rock outcroppings or historic buildings within a State scenic highway corridor. Any impacts would be considered *less than significant*.

Mitigation Measures: None are required.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?

Less than Significant Impact. The proposed Project involves the expansion of an existing basin for groundwater recharge and the installation of approximately 2,075 linear feet of pipeline within the 3rd Street right of way. The existing basin is currently surrounded by a chain-link fence and that fence will be expanded to surround the larger basin. The proposed Project site will be similar in visual character to the existing landscape, as public facilities such as recharge basins are found throughout both rural and urban parts of the Central Valley. As such, the proposed Project will not substantially degrade the existing visual character or quality of the area or its surroundings.

The impact will be *less than significant*.

Mitigation Measures: None are required.

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

Less Than Significant Impact. Currently the sources of light in the Project area are from street lights, the vehicles traveling along surrounding roads, and security lights at the existing facilities to the north and west. The proposed Project does not include any new lighting. Accordingly, the proposed Project would not create substantial new sources of light or glare. There are *no potential impacts*.

Mitigation Measures: None are required.

II. AGRICULTURE AND FOREST RESOURCES

Would the project:

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

SETTING

Environmental

The existing recharge basin site is located on Prime Farmland, immediately south of the highly developed Biola CSD which consists of residential housing and commercial/industrial uses. The site is bordered by agricultural lands on the south and east.

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?

Less Than Significant Impact. The recharge basin expansion site is located in an area considered Prime Farmland by the Farmland Mapping and Monitoring Project.¹ The State of California has determined that groundwater recharge basins are a compatible use with agriculture in that they are allowed on lands under Williamson Act Contract. Additionally, the proposed Project would provide a beneficial use to the surrounding agricultural practices by ensuring a more reliable water supply for groundwater pumping. As such, any impacts resulting from farmland conversion would be *less than significant*.

Mitigation Measures: None are required.

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

No Impact. The proposed Project site is not under a Williamson Act contract. The areas surrounding the site contain agricultural fields and there are Williamson Act parcels to the south of the Project site.² The Project will not conflict with these contracts nor result in the conversion of existing farmlands. There is *no impact*.

Mitigation Measures: None are required.

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))?

¹ California Department of Conservation. California Important Farmland Finder. <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed January 2019.

² <https://databasin.org/maps/new#datasets=6871c77c876d421b985b1b70ee1640f5> Accessed January 2019.

No Impact. The proposed Project is not zoned for forestland and does not propose any zone changes related to forest or timberland. There is *no impact*.

Mitigation Measures: None are required.

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

No Impact. 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. There is *no impact*.

Mitigation Measures: None are required.

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. No land conversion from Farmland would occur as a result of the proposed Project. 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.

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. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

SETTING

Environmental

The climate of the San Joaquin Valley is characterized by long, hot summers and stagnant, foggy, winters. Precipitation is low and temperature inversions are common. These characteristics are conducive to the formation and retention of air pollutants and are in part influenced by the surrounding mountains which intercept precipitation and act as a barrier to the passage of cold air and air pollutants. The proposed Project lies within the San Joaquin Valley Air Basin (Air Basin), which is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD or Air District). National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide (CO), ozone (O₃), sulfur

dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter (PM₁₀ and PM_{2.5}), and lead (Pb). The CAAQS also set standards for sulfates, hydrogen sulfide, and visibility.

Air quality plans or attainment plans are used to bring the applicable air basin into attainment with all state and federal ambient air quality standards designed to protect the health and safety of residents within that air basin. Areas are classified under the Federal Clean Air Act as either “attainment”, “non-attainment”, or “extreme non-attainment” areas for each criteria pollutant based on whether the NAAQS have been achieved or not. Attainment relative to the State standards is determined by the California Air Resources Board (CARB). The San Joaquin Valley is designated as a State and Federal extreme non-attainment area for O₃, a State and Federal non-attainment area for PM_{2.5}, a State non-attainment area for PM₁₀, and Federal and State attainment area for CO, SO₂, NO₂, and Pb.

Clean Air Act

The federal Clean Air Act of 1970 (as amended in 1990) required the U.S. Environmental Protection Agency (EPA) to develop standards for pollutants considered harmful to public health or the environment. Two types of National Ambient Air Quality Standards (NAAQS) were established. Primary standards protect public health, while secondary standards protect public welfare, by including protection against decreased visibility, and damage to animals, crops, landscaping and vegetation, or buildings. NAAQS have been established for six “criteria” pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and lead (Pb).

California Air Resources Board

The California Air Resources Board (CARB) is the state agency responsible for implementing the federal and state Clean Air Acts. CARB has established California Ambient Air Quality Standards (CAAQS), which include all criteria pollutants established by the NAAQS, but with additional regulations for Visibility Reducing Particles, sulfates, hydrogen Sulfide (H₂S), and vinyl chloride.

The proposed Project is located within the Air Basin, which includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and parts of Kern counties and is managed by the SJVAPCD.

Air basins are classified as attainment, nonattainment, or unclassified. Attainment is achieved when monitored ambient air quality data is in compliance with the standards for a specified pollutant. Non-compliance with an established standard will result in a nonattainment designation and an unclassified designation indicates insufficient data is available to determine compliance for that pollutant.

Standards and attainment status for listed pollutants in the Air District can be found in Table 1. Note that both state and federal standards are presented.

Table 1
Standards and Attainment Status for Listed Pollutants in the Air District

	Federal Standard	California Standard
Ozone	0.075 ppm (8-hr avg)	0.07 ppm (8-hr avg) 0.09 ppm (1-hr avg)
Carbon Monoxide	9.0 ppm (8-hr avg) 35.0 ppm (1-hr avg)	9.0 ppm (8-hr avg) 20.0 ppm (1-hr avg)
Nitrogen Dioxide	0.053 ppm (annual avg)	0.30 ppm (annual avg) 0.18 ppm (1-hr avg)
Sulfur Dioxide	0.03 ppm (annual avg) 0.14 ppm (24-hr avg) 0.5 ppm (3-hr avg)	0.04 ppm (24-hr avg) 0.25 ppm (1-hr avg)
Lead	1.5 µg/m ³ (calendar quarter) 0.15 µg/m ³ (rolling 3-month avg)	1.5 µg/m ³ (30-day avg)
Particulate Matter (PM ₁₀)	150 µg/m ³ (24-hr avg)	20 µg/m ³ (annual avg) 50 µg/m ³ (24-hr avg)
Particulate Matter (PM _{2.5})	15 µg/m ³ (annual avg)	35 µg/m ³ (24-hr avg) 12 µg/m ³ (annual avg)

µg/m³ = micrograms per cubic meter

Additional State regulations include:

CARB Portable Equipment Registration Program – This program was designed to allow owners and operators of portable engines and other common construction or farming equipment to register their equipment under a statewide program so they may operate it statewide without the need to obtain a permit from the local air district.

U.S. EPA/CARB Off-Road Mobile Sources Emission Reduction Program – The California Clean Air Act (CCAA) requires CARB to achieve a maximum degree of emissions reductions from off-road mobile sources to attain State Ambient Air Quality Standards (SAAQS); off-road mobile sources include most construction equipment. Tier 1 standards for large compression-ignition engines used in off-road mobile sources went into effect in California in 1996. These standards, along with ongoing rulemaking, address emissions of nitrogen oxides (NOX) and toxic particulate matter from diesel engines. CARB is currently developing a control measure to reduce diesel PM and NOX emissions from existing off-road diesel equipment throughout the state.

California Global Warming Solutions Act – Established in 2006, Assembly Bill 32 (AB 32) requires that California's GHG emissions be reduced to 1990 levels by the year 2020. This will be implemented through a statewide cap on GHG emissions, which will be phased in beginning in 2012. AB 32 requires CARB to develop regulations and a mandatory reporting system to monitor global warming emissions levels.

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the local agency charged with preparing, adopting, and implementing mobile, stationary, and area air emission control measures and standards. The SJVAPCD has rules and regulations that may apply to the Project, including, but not limited to:

Rules 4101 (Visible Emissions) and 4102 (Nuisance) – These rules apply to any source of air contaminants and prohibits the visible emissions of air contaminants or any activity which creates a public nuisance.

Rule 4702 (Internal Combustion Engine) – This rule applies to any internal combustion engine rated at 25 brake horsepower or greater.

Regulation VIII (Fugitive PM₁₀ Prohibitions) – This regulation, a series of eight regulations, is designed to reduce PM₁₀ emissions by reducing fugitive dust. Regulation VIII requires implementation of control measures to ensure that visible dust emissions are substantially reduced. The control measures are summarized in Table 2.

Table 2
San Joaquin Valley Air Pollution Control District
Regulation VIII Control Measures for Construction Related Emissions of PM₁₀

The following are required to be implemented at all construction sites:
All disturbed areas, including storage piles, which are not actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizers/suppressants, covered with a tarp or other similar cover, or vegetative
All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions during construction using water or chemical stabilizer
All land clearing, grubbing, scraping, excavation, land leveling, grading cut and fill, and demolition activities during construction shall be effectively controlled of fugitive dust emissions utilizing application of water or pre-soaking.
When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from top of container shall be maintained.
All operations shall limit, or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of
Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site at the end of each workday.
Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.

RESPONSES

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

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 PM₁₀. To meet Federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

- Extreme Ozone Attainment Demonstration Plan (EOADP) for attainment of the 1-hour ozone standard (2004);
- 2007 Ozone Plan for attainment of the 8-hour ozone standard;
- 2007 PM₁₀ 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 PM₁₀, if the project-generated emissions of either of the ozone precursor pollutants (ROG or NO_x), PM₁₀, 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 in Impact c), below, predicted construction and operational emissions would not exceed the SJVAPCD's significance thresholds for ROG, NO_x, PM₁₀, 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. Therefore, this impact is *less than significant*.

Mitigation Measures: None are required.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant Impact. Because ozone is a regional pollutant³, the pollutants of concern for localized impacts are CO and fugitive PM₁₀ dust from construction. Ozone and PM₁₀ exhaust impacts are addressed under Impact c), below. The proposed Project would not result in localized CO hotspots or PM₁₀ impacts, as discussed below. Therefore, the proposed Project would not violate an air quality standard or contribute to a violation of an air quality standard in the proposed Project area.

Localized PM₁₀

Localized PM₁₀ would be generated by proposed Project construction activities, which would include earth-disturbing activities. The SJVAPCD indicates that all control measures in Regulation VIII are required for all construction sites by regulation. The SJVAPCD's Guide for Assessing and Mitigating Air Quality Impacts⁴ (GAMAQI) lists additional measures that may be required of very large projects or projects close to sensitive receptors. If all appropriate "enhanced control measures" in the GAMAQI are not implemented for very large projects or those close to sensitive receptors, then construction impacts would be considered significant (unless the Lead Agency provides a satisfactory detailed explanation as to why a specific measure is unnecessary). The GAMAQI also lists additional control measures (Optional Measures) that may be implemented if further emission reductions are deemed necessary by the Lead Agency. The SJVAPCD's Regulation VIII (Fugitive PM₁₀ Prohibitions) has been updated and expanded since the GAMAQI guidance was written in 2002. Regulation VIII now includes the "enhanced control measures" contained in the GAMAQI.

The proposed Project would comply with the SJVAPCD's Regulation VIII dust control requirements during any proposed construction (including Rules 8011, 8031, 8041, and 8071). Compliance with this regulation would reduce the potential for significant localized PM₁₀ impacts to *less than significant* levels.

CO Hotspot

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

As further discussed in the Transportation/Traffic checklist evaluation, the Project would not generate, or substantially contribute to, additional traffic that would reduce the level of surface on local

³ San Joaquin Valley Air Pollution Control District. Air Quality Plans. Ozone Plans, 8-hour ozone standard. https://www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm. Accessed January 2019.

⁴ 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. Accessed January 2019.

roadways. Therefore, the Project would not significantly contribute to an exceedance that would exceed state or federal CO standards. Impacts are considered *less than significant*.

Mitigation Measures: None are required.

- c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. The nonattainment pollutants for the SJVAPCD are ozone, PM₁₀ and PM_{2.5}. Therefore, the pollutants of concern for this impact are ozone precursors, regional PM₁₀, 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 for construction and operational emissions are as follows⁵:

- 10 tons per year ROG
- 10 tons per year NO_x
- 15 tons per year PM₁₀

The estimated annual operational emissions are shown below. The California Emissions Estimator (CalEEMod), Version 2016.3.2, was used to estimate the basin and turnout valve construction and operational (vehicle trips) emissions and the Road Construction Emissions Model (RCEM), Version 8.1.0 was used to estimate construction emissions resulting from the pipeline installation. The modeling results are provided in Table 3 and the CalEEMod and RCEM output files are provided in Appendix A.

Table 3
Proposed Project Construction and Operation Emissions*

	ROG (tons/year)	NO _x (tons/year)	PM10 (tons/year)	CO2 (tons/year)
Basin and Valve Construction Emissions	0.09	1.02	0.27	95.91
Pipeline Construction Emissions	0.21	2.15	0.30	288.52
Total Project Construction Emissions	0.30	3.17	0.57	384.43
Total Project Operation and Area	0.01	0.00	0.00	0.00
Total Project Emissions	0.31	3.17	0.57	384.43
Threshold of Significance	10	10	15	--

* Appendix A includes projected emissions from ozone, carbon monoxide, lead, particulate matter (less than 2.5 microns in diameter), but are not included in this table because there is no established threshold of significance for these emissions.

⁵ 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 January 2019.

As demonstrated in Table 3, Project-estimated emissions are below significance thresholds. Any impacts would be considered *less than significant*.

Mitigation Measures: None are required.

d. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. Sensitive receptors are those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend time include schools and school yards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities are also considered sensitive receptors.⁶ The nearest sensitive receptors to the proposed Project site are the residential neighborhood approximately 0.3 miles to the northeast of the existing basin and the residences along the pipeline alignment on 3rd Street.

Construction would take place within the vicinity of sensitive receptors; however, construction emissions would be well below SJVAPCD thresholds. In addition, the proposed construction period would be brief and would occur as-needed to achieve full buildout. Therefore, the small amount of emissions generated, and the short duration of the construction period would not expose sensitive receptors to substantial pollutant concentrations. Operational emissions would be limited to infrequent maintenance vehicle trips at the basin site. Therefore, the Project is not introducing new impacts and historical basin operations and adjacent farming operations are considered as baseline conditions. Impacts to sensitive receptors would be *less than significant*.

Mitigation Measures: None are required.

e. Create objectionable odors affecting a substantial number of people?

Less than Significant Impact. If the proposed Project were to result in a sensitive odor receptor being located in the vicinity of an undesirable odor generator, the impact would be considered significant. The SJVAPCD regulates odor sources through its nuisance rule, Rule 4102, but has no quantitative standards for odors. The SJVAPCD presents a list of project screening trigger levels for potential odor sources in its GAMAQI, which is displayed in Table 4. If the project were to result in sensitive receptors being located closer to an odor generator in the list in Table 4 than the recommended distances, a more detailed analysis including a review of SJVAPCD odor complaint records is recommended.

⁶ 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 44. Accessed January 2019.

Table 4
Screening Levels for Potential
Odor Sources⁷

Odor Generator	Distance (Miles)
Wastewater Treatment Facilities	2
Sanitary Landfill	1
Transfer Station	1
Composting Facility	1
Petroleum Refinery	2
Asphalt Batch Plant	1
Chemical Manufacturing	1
Fiberglass Manufacturing	1
Painting/Coating Operations (e.g., auto body shop)	1
Food Processing Facility	1
Feed Lot/Dairy	1
Rendering Plant	1

Significant odor problems are defined as:

- More than one confirmed complaint per year averaged over a three year period; or
- Three unconfirmed complaints per year averaged over a three-year period.

Groundwater recharge basins generally do not emit odors and as such, the proposed Project operation will not be a source of odors. Construction related activities of the proposed Project may have the potential to result in diesel fuel combustion odors from construction equipment; however, the construction periods will be temporary and short-term. Diesel-type construction related exhaust odors are not typically detectable offsite and therefore are not considered a “nuisance” by the general public. Therefore, objectionable odors are not expected to be a significant concern during either proposed Project construction related or operational emissions. As such, any impacts would be considered *less than significant*.

Mitigation Measures: None are required.

⁷ 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 103. Accessed January 2019.

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 federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☒ | ☐ |
| f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☒ | ☐ |

SETTING

Environmental

Colibri Ecological Consulting, LLC was retained to conduct a reconnaissance survey to describe the biotic resources of the proposed Project site and to evaluate potential impacts to those resources that could result from proposed Project development. Field surveys were conducted on September 17, 2018. The results of these surveys are summarized herein and the full report is included in Appendix B – *Biological Resource Evaluation* (October 2018).

The proposed Project site consists of developed and disturbed land cover surrounded by agricultural, industrial and residential development. The existing storm drainage basin is surrounded by chain link fence and underlain hardpan. The proposed expansion to the drainage basin is in a disturbed field with cultivated grape vines and ruderal, nonnative vegetation. These sites are bordered up the north and west by industrial development and to the south and east by orchards. The proposed pipeline along 3rd Street follows paved roadways.

RESPONSES

- a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
- 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 federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? or
- 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?

To evaluate whether the Project may affect biological resources under CEQA purview, Colibri: (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 aerial images and topographic maps, and (3) conducted a field reconnaissance survey of the Project site.

Desktop Review

As a framework for the evaluation and reconnaissance survey, an official USFWS species list was obtained for the Project (USFWS 2018, Appendix A of Appendix B). In addition, the California Natural Diversity Data Base (CNDDB, CDFW 2018) and the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2018) were searched for records of special-status plant and animal species in the Project area. Regional lists of special-status species were compiled using USFWS, CNDDB, and CNPS database searches confined to the Biola 7.5-minute United States Geological Survey (USGS) topographic quad, which encompasses the Project site, and the eight surrounding quads (Bonita Ranch, Gravelly Ford, Gregg, Herndon, Jamesan, Kearney Park, Kerman, and Madera). Local lists of special-status species were compiled using CNDDB records from within 5 miles of the Project site. Species for which the Project site does not provide suitable habitat were eliminated from further consideration. Aerial imagery from Google Earth and other sources was reviewed, along with USGS topographic maps, and relevant literature.

Desktop Review Results

The official species list for the Project site (USFWS 2018b, Table 1, Appendix A of Appendix B) included eight species listed as threatened or endangered under the FESA. Those species include the threatened vernal pool fairy shrimp (*Branchinecta lynchi*), the threatened Delta smelt (*Hypomesus transpacificus*), the

threatened California red-legged frog (*Rana draytonii*), the threatened California tiger salamander (*Ambystoma californiense*), the endangered blunt-nosed leopard lizard (*Gambelia sila*), the threatened giant garter snake (*Thamnophis gigas*), the endangered Fresno kangaroo rat (*Dopodomys nitratoides exilis*), and the endangered San Joaquin kit fox (*Vulpes macrotis mutica*). None of these species has the potential to occur on or within 50 feet of the proposed Project site due to a lack of habitat or because the Project site is outside the current known range of the species. As identified in the official species list (USFWS 2018b, Appendix A of Appendix B), the Project site does not occur in designated or proposed critical habitat.

Searching the CNDDDB (CDFW 2018) for records of special-status species from within the Biola 7.5-minute USGS topographic quad and the eight surrounding quads produced 62 records of 36 species (Table 1, Appendix B). Of those species, three are known from within five miles of the Project site. The non-federally listed species known from within five miles of the Project site include Swainson's hawk (*Buteo swainsoni*), a species state-listed as threatened, California alkali grass (*Puccinellia simplex*), a plant with a CNPS Rare Plant Rank of 1B.2, and San Joaquin pocket mouse (*Pereognathus inornatus*), a species without state or federal listing status. The CNDDDB occurrence of California alkali grass is considered possibly extirpated, and the occurrence of San Joaquin pocket mouse is considered extirpated. None of these species are expected on or near the Project site due to lack of habitat.

Reconnaissance Survey

Colibri Ecological Scientist Kristofer Robison conducted a field reconnaissance survey of the Project site on September 17, 2018. The Project site and a 50-foot buffer surrounding the Project site were walked and thoroughly inspected to evaluate and document the potential for the site to support federally or state-protected resources. 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 B). All plants except those under cultivation in agricultural fields or planted in residential areas and all animals (vertebrate wildlife species) observed within the survey area were identified and documented. The survey area was evaluated for the presence of regulated habitats, including lakes, streams, and other waters using methods described in the Wetlands Delineation Manual and regional supplement (USACE 1987, 2008).

Reconnaissance Survey Results

The survey revealed that nonnative grasses such as red brome (*Bromus madritensis* ssp. *Rubens*) and agricultural crops such as cultivated grapes (*Vitis vinifera*) dominate open areas of the Project site. In all, 35 plant species (15 native and 20 nonnative) were found during the survey (Table 2 of Appendix

B). Thirteen bird species, two reptile species, and two mammal species were also detected (Table 2 of Appendix B).

Nesting Birds and the Migratory Bird Treaty Act

Migratory birds have the potential to nest on or near the Project site. Species that may use the Project site or adjacent habitat include, but are not limited to, red-tailed hawk (*Buteo jamaicensis*), western kingbird (*Tyrannus verticalis*), American crow (*Corvus brachyrhynchos*), California scrub-jay (*Aphelocoma californica*), and house finch (*Carpodacus mexicanus*).

Significant Determination

Less Than Significant Impact [a.), b.), c.), e.), and f.)]. Based on the results of the desktop review and field survey, this Project will not: (1) 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 (criterion a); (2) 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 b); (3) have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (criterion c); (4) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (criterion e); or (5) 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 f). Thus, impacts are determined to be *less than significant* and these significance criteria are not analyzed further.

Mitigation Measures: None are required.

Less Than Significant Impact With Mitigation [d.)]. The Project has the potential to impede the use of nursery sites for native birds protected under the Migratory Bird Treaty Act and California Fish and Game Code. Migratory birds are expected to nest on and in the vicinity of the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort is considered take by the CDFW. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant impact if the species is particularly rare in the region. Construction activities such as trenching and grading that disturb a nesting bird on the site or immediately adjacent to the construction zone could constitute a significant impact. Thus, mitigation

measure BIO-1 (below) will be included in the conditions of approval to reduce the potential impact to a *less than significant level with mitigation*.

Mitigation Measure BIO-1: 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 preconstruction 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.

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 as defined in §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

SETTING

Environmental

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric (before the introduction of writing in a particular area) or historic (after the introduction of writing). The majority of such places in this region are associated with either Native American or Euroamerican occupation of the area. The most frequently encountered prehistoric and early historic Native American archaeological sites are village settlements with residential areas and sometimes cemeteries; temporary camps where food and raw materials were collected; smaller, briefly occupied sites where tools were manufactured or repaired; and special-use areas like caves, rock shelters, and sites of rock art. Historic archaeological sites may include foundations or features such as privies, corrals, and trash dumps.

Area-Specific Recent History

From the late nineteenth century, up to the first decade of the twentieth century, the large parcels around the study area and the future townsite of Biola supported grain fields, which were irrigated by

the nearby Herndon Canal (Guard 1909:24; Vandor 1919:780, 783). By the time of the 1913 Fresno County atlas, the town of Biola had emerged, owing apparently to the subdivision of the surrounding properties into vineyard lots (Progressive Map Service 1913:24, 87). Biola got its name from William Kerckhoff, one of the first owners of the San Joaquin Power Company. Kerckhoff wanted to pay homage to his favorite academic institution, the Bible Institute of Los Angeles (Clough 1986:250; Durham 2001:27), which also embraced the acronym and today is known as Biola University.

The Villa Land Company built a fruit packing plant in Biola, which was later leased by the California Associated Raisin Company (Vandor 1919:988). By late 1913, Biola had become a productive agricultural center. To expedite the movement of goods from Biola across Fresno County, the Fresno Traction Company financed construction of a branch line running west from the Biola Junction on the Southern Pacific's main Central Valley Line in Fresno for 8.5 miles to the community of Biola. By 1930, the branch was lengthened 4 miles southward to link Biola with Kerman (Palmer 2009; Progressive Map Service 1913:24; USGS 1946). Southern Pacific leased this line, which came to be known as the Biola Branch, and eventually purchased it in 1936 (Clough 1986:250). Segments of the Biola Branch were abandoned as early as 1956, and the entire branch line was abandoned in 1985 (Palmer 2009).⁸

Methodology

To meet State and federal requirements, Applied EarthWorks, Inc. (Æ) was retained 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 2018 (see Appendix C). The results of the Report are summarized herein and were used to support the determinations made in this CEQA document.

Native American Outreach

On October 9, 2018, Æ sent an e-mail to the Native American Heritage Commission (NAHC) requesting a search of its Sacred Lands File and the contact information for local Native American representatives who may have information about the study area. The NAHC responded on October 10, 2018 with its findings and attached a list of Native American tribes and individuals culturally affiliated with the study area. Æ prepared and sent a letter to each of the contacts identified by the NAHC and kept a log of all responses. This record of correspondence is included in Appendix B of Appendix C.

⁸ Cultural Resources Inventory and Evaluation for the Biola Community Services District's Groundwater Recharge Project, Fresno County, California. December 2018. See Appendix C.

Records Search and Site-Specific Research

In 2017, the SSJVIC of the CHRIS at California State University, Bakersfield, conducted a records search for the Biola CSD Water Systems Upgrade Project (Jones and Baloian 2017). Because the 2017 records search (File #17-413) covered much of the current Project area and was conducted only a year prior, Æ did not repeat the search and only requested information for a portion of the 0.5-mile buffer around the Project area that was not covered by the earlier search. This supplemental records search request was made on September 19, 2018. Sources consulted included archaeological site and survey base maps, reports of previous investigations, cultural resource records, the listings of the Historic Properties Directory of the Office of Historic Preservation, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources (Appendix C).

Pedestrian Survey

On September 27, 2018, Æ Staff Archaeologist Joshua Tibbet conducted a pedestrian survey of the 3.1-acre Project area. Tibbet surveyed all open ground within the Project area using parallel transects spaced no more than 15–20 meters apart. He photographed the survey area using a digital camera to document the environmental setting and ground visibility at the time of the survey. He recorded his observations on a Survey Field Record form and documented specific information about the segment of the Herndon Canal in the Project area on a DPR Linear Feature Record (Appendix D of Appendix C). All photographs and field notes are on file at Æ's Fresno office

Findings and Results

Native American Outreach

In its October 18, 2018, response to Æ's request, the NAHC stated that its search of the Sacred Lands File did not indicate the presence of resources in the immediate Project area (see Appendix B of Appendix C). However, the NAHC cautioned that the absence of specific site information in its file does not indicate the absence of cultural resources in the area. The NAHC supplied a list of parties to be contacted for information regarding locations of sacred or special sites of cultural and spiritual significance in the study locale. Letters about the proposed project were sent to the individuals listed below. Æ also sent a follow-up e-mail to those contacts with active e-mail addresses.

- Chairperson Elizabeth D. Kipp of the Big Sandy Rancheria of Western Mono Indians
- Chairperson Carole Bill of the Cold Springs Rancheria
- Stan Alec of the Kings River Choinumni Farm Tribe

- Chairperson Claudia Gonzalez of the Picayune Rancheria of Chukchansi Indians
- Chairperson David Alvarez of the Traditional Choinumni Tribe
- Chairperson Kenneth Woodrow of the Wuksachi Indian Tribe/Eshom Valley Band
- Chairperson Robert Marquez of the Cold Springs Rancheria of Mono Indians
- Tribal Chairperson Robert Ledger Sr. of the Dumna Wo-Wah Tribal Government
- Cultural Resource Manager Eric Smith of the Dumna Wo-Wah Tribal Government
- Board Chairperson Mandy Marine of the Dunlap Band of Mono Indians Historical Preservation Society
- Jerry Brown of the Chowchilla Tribe of Yokuts
- Chairperson Ron Goode of the North Fork Mono Tribe
- Cultural Coordinator Lalo Franco of the Santa Rosa Tachi Rancheria
- Cultural Resources Director Bob Pennell of the Table Mountain Rancheria of California

Æ received responses from Chairperson Kipp of the Big Sandy Rancheria and Chairperson Goode of the North Fork Mono Tribe via e-mail on November 28, 2018. Chairperson Kipp stated that the tribe has no information of sensitive or sacred sites within the city of Biola. However, if significant items are discovered, the tribe would like to be notified of such items. Chairperson Goode shared that the Project area is within the confines of an ancient village that stretched for miles within the San Joaquin river watershed. He stated that occupants of a village of this magnitude would have utilized the surrounding area within a 5-mile radius. He cautions that Native American sites and artifacts may be discovered in Biola. Æ has received no other responses to date.

Records Search

The combined findings of the SSJVIC records search (#17-413) conducted August 2017 and the updated search (#18-386) on October 3, 2018, resulted in the identification of two previous cultural resources studies that overlap the current Project area (FR-01759 and FR-02878) and two studies within a 0.5-mile radius of the Project area (FR-02039 and FR-02508). The search revealed one known resource, the historical Herndon Canal (P-10-005753), within the Project area and one previously recorded resource, the Biola Branch of the Southern Pacific Railroad System (P-10-003930), within a 0.5-mile radius of the Project area.

Pedestrian Survey

On September 27, 2018, Æ's archaeologist conducted an intensive pedestrian survey of all open ground in the Project area (Figure 4-2 of Appendix C). Most of the Project construction will occur within the paved Third Avenue roadway and an agricultural field west of the existing basin. Æ's archaeologist surveyed along both shoulders of Third Avenue, scanning the ground for isolated artifacts, features, and other evidence of cultural material. Asphalt, concrete sidewalks, and residential landscaping reduced ground visibility to some degree, although much of the road shoulders were clear with 80–100 percent visibility (Figure 4-3 of Appendix C). As mentioned above, many of the residential and commercial properties adjacent to the pipeline route are homes built between 1950 and 1967. Because they lie outside the Project area limits, Æ did not record any of the historic-era buildings on DPR forms. The Herndon Canal lies at the north end of the Project (Figure 4-4 of Appendix C). The canal's tan sandy banks are clear of vegetation and afforded excellent visibility. A concrete turnout with a steel valve and grate directs water south from the canal to the Biola community. Æ's pedestrian survey resulted in the identification of only one cultural resource within the Project area limits—the Herndon Canal. Æ recorded a 450-foot segment of the canal, including the turnout at Third Avenue that will be modified. The segment also includes a turnout farther east in line with Fourth Avenue as well as several steel ladders installed on both sides of the concrete-lined canal. No additional resources were discovered in association with the Herndon Canal.

Æ did not observe any prehistoric or Native American isolated artifacts, archaeological sites, or features in the Project area. Nearly all of the residences and industrial buildings (Figure 4-7) flanking Third Avenue are of historic age (i.e., over 45 years old), but the project is not expected to impact any of these properties. Thus, these historical buildings were not recorded as part of the current Project. The planned basin expansion intersects the historical alignment of the Southern Pacific Railroad Biola Branch; however, Æ did not observe any vestiges of the railroad grade, rails, or other associated features within the surveyed area.

RESPONSES

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 herein, Æ performed a cultural resource inventory of the Project area to determine potential for impacts to historical resources. The inventory included a records search at the SSJVIC at California State University, Bakersfield to identify previously recorded cultural resources and prior studies in the Project area, historical research, a search of the NAHC Sacred Lands File and communication with Native American tribes and individuals from the area, and a pedestrian survey of the Project APE.

Æ found the canal to be historically significant under Criterion 1 for its association with the development of the county's agribusiness and colonization at the turn of the century. Moreover, the canal is also significant under Criterion 2 for its association with E. B. Perrin, an influential land developer who directed the construction of the canal, which led to the successful development of turn-of-the-century agricultural colonies in Fresno County. However, due to the lack of historical integrity, this segment of the Herndon Canal is not eligible for inclusion in the CRHR.

While this study found no significant cultural resources within the Project area, there is always the potential for encountering prehistoric or historic-era materials during construction. If cultural materials are encountered during ground-disturbing work, it is recommended that all work in the immediate vicinity is halted until a Registered Professional Archaeologist can evaluate the finds and make recommendations.

Because unidentified cultural resources could be uncovered during proposed Project construction which could result in a potentially significant impact, the District will implement Mitigation Measure CUL-1 to help ensure that significant impacts remain *less than significant with mitigation incorporation*.

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

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*.

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

Less than Significant Impact with Mitigation. 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 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 with mitigation incorporation*.

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

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 Fresno 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. GEOLOGY AND SOILS

Would the project:

a. Expose people or structures to 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

☐ ☐ ☒ ☐

Potentially
Significant
Impact

Less than
Significant
With
Mitigation
Incorporation

Less than
Significant
Impact

No
Impact

adopted Uniform Building Code
creating substantial 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?

☐☐☐☒

SETTING

Environmental

Fresno County is close to the geographic center of California and occupies part of the San Joaquin Valley. There are a number of active and potentially active faults within and adjacent to Fresno County, with the nearest fault being the Clovis Fault (located 6 miles east of Clovis).⁹

International Building Code

The California Code of Regulations (CCR) Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The California Building Standards Code incorporates by reference the International Building Code with necessary California amendments. The International Building Code is a widely adopted model building code in the United States published by the International Code Council. About one-third of the text within the California Building Code has been tailored for California earthquake conditions. The District also incorporates by reference the County Building Code, with certain exceptions.

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.

⁹ Fresno Co. General Plan Background Report, page 9-2.

Less Than Significant Impact. No active faults are mapped within the District or in the vicinity of the Project. The site is not zoned within a currently delineated Alquist-Priolo Earthquake Fault Zone.¹⁰ The closest active fault is the Clovis Fault, located approximately 25 miles east of the site. The San Andreas Fault Zone passes about 100 miles south of the site. The potential for earthquake impacts at the Project site, however, is not greater than at most other sites in the area. Compliance with the seismic requirements of the California Building Code would reduce hazards from strong ground shaking to a less than significant level.

Additionally, prior to the issuance of building permits, the District will be required to demonstrate that the proposed development complies with all required regulations and standards pertaining to seismic hazards. There are no significant constraints to development related to seismic hazards within the District that cannot be reduced through implementation of applicable regulations and codes and standard engineering practices. Implementation of applicable California Building Code and local permitting requirements would minimize the potential for adverse effects on people and property due to seismic activity.

Any impacts would be *Less Than Significant*.

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. Fresno County has extremely low seismic activity levels, although shaking may be felt from earthquakes whose epicenter lie to the south and east. Due to the relatively flat topography of the proposed Project area, impacts associated with liquefaction, slope instability or landslides are not anticipated. Impacts would be *less than significant*.

Mitigation Measures: None are required.

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

Less than Significant Impact. The proposed Project site has a generally flat topography and does not include any Project features that would result in soil erosion or loss of topsoil. The Project would be required to comply with the General Construction Permit and implementation of a Storm Water Pollution Prevention Plan to prevent sediment risk from construction activities to receiving waters and

¹⁰ California Department of Conservation. CGS Regional Geologic Maps. Fresno, 1965.
http://ftp.consrv.ca.gov/pub/dmg/pubs/gam/GAM_005_Fresno/GAM_005_Map.pdf. Accessed January 2019.

specifying best management practices that would be used by the Project to minimize pollution of stormwater. 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. See Responses a. and b. above. The impact is *less than significant*.

Mitigation Measures: None are required.

- d. Be located on expansive soil, as defined in the most recently adopted International Building Code creating substantial risks to life or property?

Less than Significant Impact. The Project is not located on expansive soil. The site is flat and there are no significant slopes on or adjacent to the site. Therefore, the potential for liquefaction, slope instability or debris flows is not considered significant. The impact is *less than significant*.

Mitigation Measures: None are required.

- e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed Project would not contribute to use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no *impact*.

Mitigation Measures: None are required.

VII. GREENHOUSE GAS EMISSIONS

Would the project:

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

Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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☐☐☒☐

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

☐☐☒☐

SETTING

Environmental

Various gases in the earth's atmosphere play an important role in moderating the earth's surface temperature. Solar radiation enters earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs are transparent to solar radiation, but are effective in absorbing infrared radiation. Consequently, radiation that would otherwise escape back into space is retained, resulting in a warming of the earth's atmosphere. This phenomenon is known as the greenhouse effect. Scientific research to date indicates that some of the observed climate change is a result of increased GHG emissions associated with human activity. Among the GHGs contributing to the greenhouse effect are water vapor, carbon dioxide (CO₂), methane (CH₄), ozone, Nitrous Oxide (NO_x), and chlorofluorocarbons. Human-caused emissions of these GHGs in excess of natural ambient concentrations are considered responsible for enhancing the greenhouse effect. GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Global climate change is, indeed, a global issue. GHGs are global pollutants, unlike criteria pollutants and toxic air contaminants (which are pollutants of regional and/or local concern). Global climate change, if it occurs, could potentially affect water resources in California. Rising temperatures could be anticipated to result in sea-level rise (as polar ice caps melt) and possibly change the timing and amount of precipitation, which could alter water quality. According to some research, climate change could result in more extreme weather patterns; both

heavier precipitation that could lead to flooding, as well as more extended drought periods. There is uncertainty regarding the timing, magnitude, and nature of the potential changes to water resources as a result of climate change; however, several trends are evident.

Snowpack and snowmelt may also be affected by climate change. Much of California's precipitation falls as snow in the Sierra Nevada and southern Cascades, and snowpack represents approximately 35 percent of the state's useable annual water supply. The snowmelt typically occurs from April through July; it provides natural water flow to streams and reservoirs after the annual rainy season has ended. As air temperatures increase due to climate change, the water stored in California's snowpack could be affected by increasing temperatures resulting in: (1) decreased snowfall, and (2) earlier snowmelt.

US EPA

The USEPA Mandatory Reporting Rule (40 CFR Part 98), which became effective December 29, 2009, requires that all facilities that emit more than 25,000 metric tons CO₂-equivalent per year beginning in 2010, report their emissions on an annual basis. On May 13, 2010, the USEPA issued a final rule that established an approach to addressing GHG emissions from stationary sources under the CAA permitting programs. The final rule set thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration and title V Operating Permit programs are required for new and existing industrial facilities.

In addition, the Supreme Court decision in *Massachusetts v. EPA* (Supreme Court Case 05-1120) found that the USEPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the CAA. On April 17, 2009, the USEPA found that CO₂, CH₄, NO_x, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride may contribute to air pollution and may endanger public health and welfare. This finding may result in the USEPA regulating GHG emissions; however, to date the USEPA has not proposed regulations based on this finding.

Executive Order S-3-05

California is taking action to reduce GHG emissions. In June 2005, Governor Schwarzenegger signed Executive Order S-3-05 to address climate change and GHG emissions in California. This order sets the following goals for statewide GHG emissions:

- Reduce to 2000 levels by 2010
- Reduce to 1990 levels by 2020
- Reduce to 80 percent below 1990 levels by 2050

Assembly Bill 32

In 2006, California passed AB 32, the California Global Warming Solutions Act of 2006 (Act). The Act requires ARB to design and implement emission limits, regulations, and other feasible cost-effective measures to reduce statewide GHG emissions to 1990 levels by 2020. Senate Bill 97 was signed into law in August 2007. The Senate Bill required the Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resource Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions by July 1, 2009. On April 13, 2009, the OPR submitted to the Secretary for Natural Resources its recommended amendments to the State CEQA Guidelines for addressing GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting the amendments. Following a 55-day public comment period and 2 public hearings, and in response to comments, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the CCR. The Amendments became effective on March 18, 2010.

The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG emissions that cause climate change. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. The first regulation adopted by the ARB pursuant to AB 32 was the regulation requiring mandatory reporting of GHG emissions. The regulation requires large industrial sources emitting more than 25,000 metric tons of CO₂ per year to report and verify their GHG emissions from combustion of both fossil fuels and biomass-derived fuels. The California Cap and Trade program is being developed and the ARB adopted regulations on January 1, 2011. Finally, Governor Schwarzenegger directed the ARB, pursuant to Executive Order S-21-09, to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

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

Less than Significant Impact. The proposed Project involves expanding an existing basin, installing approximately 2,075 linear feet of pipeline, and constructing a turnout valve at the Herndon Canal. As shown in Table 3, the Project is estimated to produce 384.43 tons per year of CO₂ (combined construction and operational totals), which is less than 2% of the reporting threshold set by the USEPA. Therefore, the proposed Project would not generate significant greenhouse gas emissions, conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions, or result in significant global climate change impacts. Impacts would be *less than significant*.

Mitigation Measures: None are required.

VIII. 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 for people residing or working in the project area?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project result in	☐	☐	☐	☒

a safety hazard for people residing or working in the project area?

- g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ☐ ☐ ☐ ☒
- h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands ☐ ☐ ☐ ☒

SETTING

Environmental

The proposed Project site is located immediately south and east of existing industrial and commercial development and west and north of active agriculture. The nearest sensitive receptors to the proposed Project site are the residential neighborhood approximately 0.3 miles to the northeast of the existing basin and the residences along the pipeline alignment on 3rd Street.

US EPA

The primary federal agencies with responsibility for hazardous materials management include the EPA, U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). The Environmental Protection Agency (EPA) was created to protect human health and to safeguard the natural environment – air, water and land – and works closely with other federal agencies, and state and local governments to develop and enforce regulations under existing environmental laws. Where national standards are not met, EPA can issue sanctions and take other steps to assist the states in reaching the desired levels of environmental quality. EPA also works with industries and all levels of government in a wide variety of voluntary pollution prevention programs and energy conservation efforts.

State of California

The California Department of Industrial Relations, Division of Occupational Safety and Health is the administering agency designed to protect worker health and general facility safety. The California

Department of Forestry and Fire Protection has designated the area that includes the proposed Project site as a Local Responsibility Area, defined as an area where the local fire jurisdiction is responsible for emergency fire response.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

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

Less than Significant Impact. Proposed Project implementation would not result in any new chemicals or hazardous materials being used or stored onsite, nor would it result in the increase in volume or frequency of delivery of chemicals or hazardous materials to the site, as the site is already functioning as a water basin. Any impacts would be *less than significant*.

Mitigation Measures: None are required.

- g. 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. See Impact VIII (a) above. Any impacts would be *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. There are no schools located (or proposed) within one-quarter mile of the Project site. The nearest school is the Biola - Pershing Elementary School located approximately 0.4 miles northeast of the WWTP with intervening land uses (residential and commercial establishments). As such, the impact is *less than significant*.

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 compiled pursuant to Government Code Section 65962.5.¹¹ There are no hazardous materials sites that impact the Project. As such, *no impacts* would occur that would create a significant hazard to the public or the environment.

Mitigation Measures: None are required.

- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No Impact. The nearest airport is the Sierra Skypark Airport, located approximately 8.5 miles northeast of the Project site, while the Fresno-Yosemite International Airport is the closest regional airport, approximately 15 miles southeast. The Project will have *no impact* to airport operations.

Mitigation Measures: None are required.

- f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. There are no private airstrips in the Project vicinity and as such, there is *no impact*.

Mitigation Measures: None are required.

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

No Impact. The proposed Project site will continue to be accessible utilizing the existing entrances to the basin. As such, the proposed Project will not interfere with any adopted emergency response or evacuation plan and there is *no impact*.

Mitigation Measures: None are required.

- h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

¹¹ California Department of Toxic Substance Control. EnviroStor. <http://www.envirostor.dtsc.ca.gov/public/> Accessed January 2019.

No Impact. As the proposed Project site is an existing basin surrounded by built up land and active agriculture, and a pipeline in the existing right of way of 3rd Street, there are no wildlands on or near the Project site. There is *no impact*.

Mitigation Measures: None are required.

IX. 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?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or	☐	☐	☐	☒

IX. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
provide substantial additional sources of polluted runoff?				
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

SETTING

Environmental

Like most of California, the southern San Joaquin Valley experiences a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely exceed 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. According to the Western Regional Climate Center, annual precipitation in the vicinity of the Project sites is about 10.9 inches,

about 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain.

There are numerous canals located in the vicinity of the Project site, although none cross the site or are adjacent to the site. The nearest body of water is the San Joaquin River, located approximately one mile north of the proposed Project site.

RESPONSES

a. Violate any water quality standards or waste discharge requirements?

Less than Significant Impact. The State Water Board currently does not have standards in place for discharges of surface water into recharge basins. The project includes transferring water from the Herndon Canal to a 5-acre groundwater recharge basin via a new turnout valve and new pipeline. No water quality standards or waste discharge requirements will be violated. Any impacts are *less than significant*.

Mitigation Measures: None are required.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less Than Significant Impact. The proposed Project would allow for the recharge of the aquifer utilizing surface water supplies obtained from the Herndon Canal, which would reduce demand on groundwater and/or surface water in the area, thus creating a beneficial impact. Therefore, impacts would be *less than significant*.

Mitigation Measures: None are required.

c., d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less than Significant Impact. The proposed basin enlargement would have a minimal impact on the drainage conditions of the Project site when compared to the existing baseline environmental conditions as no new impermeable surfaces will be introduced. Additionally, as required by the Clean

Water Act, construction of the proposed improvements would require an approved Stormwater Pollution Prevention Plan (SWPPP) that includes best management practices for grading and preservation of topsoil. The District or contractor is required to submit the SWPPP with a Notice of Intent to the RWQCB to obtain a General Permit for projects greater than one acre in size. Any impacts would be *less than significant*.

Mitigation Measures: None are required.

- e. 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?

No Impact. Implementation of the proposed Project will not require expansion of the District's existing stormwater system, nor will it result in additional sources of polluted runoff. There is *no impact*.

Mitigation Measures: None are required.

- f. Otherwise substantially degrade water quality?

Less than Significant Impact. See Impact IX (a), (c) and (d). The Project would not otherwise degrade water quality and therefore the impact is *less than significant*.

Mitigation Measures: None are required.

- g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The proposed Project site is not within a 100-year flood zone (as identified by current FEMA Flood Insurance Rate Map); in addition, there is no housing associated with this proposed Project. Therefore, there is *no impact*.

Mitigation Measures: None are required.

- h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Less Than Significant Impact. The proposed Project site is not within a 100-year flood zone (as identified by current FEMA Flood Insurance Rate Map). No facilities are being proposed that would substantially alter the existing drainage pattern of the area. Any impacts would be *less than significant*.

Mitigation Measures: None are required.

- i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less than Significant Impact. The closest dam is the Friant Dam at Millerton Lake which is approximately 21 miles northeast of the site and the Project site is within the dam failure inundation area of the dam.¹² However, there are no habitable structures associated with the Project and the Project will not produce any additional dam inundation impacts than existing conditions. As such, impacts related to exposure of people or structures to a risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam would be *less than significant*.

Mitigation Measures: None are required.

- j. Inundation by seiche, tsunami, or mudflow?

No Impact. There are no inland water bodies that could be potentially susceptible to a seiche in the Project vicinity. This precludes the possibility of a seiche inundating the Project site. The Project site is approximately 100 miles from the Pacific Ocean, a condition that precludes the possibility of inundation by tsunami. There are no steep slopes that would be susceptible to a mudflow in the Project vicinity, nor are there any volcanically active features that could produce a mudflow in the District. This precludes the possibility of a mudflow inundating the Project site. *No impacts* would occur.

Mitigation Measures: None are required.

¹² Fresno Co. General Plan Background Report, Fig. 9-8.

X. 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. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

SETTING

Environmental

The proposed Project site is located on the southern edge of the community of Biola. The site is surrounded by agricultural lands to the south and east and a commercial/industrial development to the north and west. See Figure 2 – Site Map.

RESPONSES

a. Physically divide an established community?

No Impact. The proposed Project includes the expansion of an existing water basin and the installation of a turnout valve on the Herndon Canal and associated pipeline along 3rd Street. The continued operation of the water basin would not cause any land use changes in the surrounding vicinity nor would it divide an established community. *No impacts* would occur as a result of Project implementation.

Mitigation Measures: None are required.

- b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed Project involves expanding an existing basin site and installing a new pipeline with the existing right of way of 3rd Street. The recharge basin expansion does not conflict with any land use plans, policies or regulations. There are *no impacts*.

Mitigation Measures: None are required.

- c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The proposed Project site is not included in any adopted habitat conservation plans or natural community conservation plans. Therefore, the proposed Project would not conflict with any such plans and *no impacts* would result.

Mitigation Measures: None are required.

XI. MINERAL RESOURCES

Would the project:

- a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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☐	☐	☐	☒
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☐	☐	☐	☒
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SETTING

Environmental

Fresno County has been a leading producer of minerals because of the abundance and wide variety of mineral resources that are present in the County. Extracted resources include aggregate products (sand and gravel), fossil fuels (oil and coal), metals (chromite, copper, gold, mercury, and tungsten), and other minerals used in construction or industrial applications (asbestos, high-grade clay, diatomite, granite, gypsum, and limestone). Aggregate and petroleum are considered the County's most significant extractive mineral resources. No mineral resource locations are within the vicinity of the District.¹³

RESPONSES

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

No Impact. The proposed Project area is not included in a State classified mineral resource zone. Therefore, there is *no impact*.

¹³ Fresno County General Plan Background Report. Adopted 2000. Page 7-66/67. Accessed May 2017
<http://www.co.fresno.ca.us/viewdocument.aspx?id=5696>

Mitigation Measures: None are required.

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

No Impact. The proposed Project site is not delineated on a local general plan, specific plan, or other land use plan as having importance regarding 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. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

SETTING

Environmental

The proposed Project site is located southwest of the community of Biola. See Figure 2 – Site Map. The site is surrounded by agricultural lands (primarily vineyards) to the south and east and commercial development to the north and west.

Federal Railway Administration

The Federal Railway Administration (FRA) and the Federal Transit Administration (FTA) have published guidance relative to vibration impacts. The FRA has determined that ground vibrations from construction activities do not often reach the levels that can damage structures, but they can be within the audible and perceptible ranges in buildings very close to the site.¹⁴ The FTA has identified the human annoyance response to vibration levels as 80 RMS.¹⁵

California Noise Control Act

The California Noise Control Act was enacted in 1973 (Health and Safety Code § 46010 et seq.), and states that the Office of Noise Control (ONC) should provide assistance to local communities in developing local noise control programs. It also indicates that ONC staff will work with the OPR to provide guidance for the preparation of the required noise elements in city and county General Plans, pursuant to Government Code § 65302(f). California Government Code § 65302(f) requires city and county general plans to include a noise element. The purpose of a noise element is to guide future development to enhance future land use compatibility.

In addition, this proposed Project is being evaluated pursuant to CEQA.

Fresno County

Measuring and reporting noise levels involves accounting for variations in sensitivity to noise during the daytime versus nighttime hours. Noise descriptors used for analysis need to factor in human sensitivity to nighttime noise when background noise levels are generally lower than in the daytime and outside noise intrusions are more noticeable. Common descriptors include the Community Noise Equivalent Level (CNEL) and the Day-Night Average Level (Ldn). Both reflect noise exposure over an

¹⁴ U.S. Federal Railroad Administration. High Speed Ground Transportation Noise and Vibration Impact Assessment. Final Report No. DOT/FRA/ORD-12/15. September 2012. Page 10-11.

¹⁵ U.S. Federal Transit Administration. Transit Noise and Vibration Impact Assessment. Final Report No. FTA-VA-90-1003 prepared 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 January 2019.

average day with weighting to reflect the increased sensitivity to noise during the evening and night. The two descriptors are roughly equivalent. The CNEL descriptor is used in relation to major continuous noise sources, such as aircraft or traffic, and is the reference level for the Noise Element under State planning law.

RESPONSES

- a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact. The nearest sensitive receptors to the proposed Project site are the residential neighborhood approximately 0.3 miles to the northeast of the existing basin and the residences along the pipeline alignment on 3rd Street. The proposed Project includes excavating to increase the size of the existing basin, installing approximately 2,075 linear feet of pipeline along a paved roadway and the installation of a turnout valve on the Herndon Canal. Once operational, the enlarged recharge basin will not result in generating noise above and beyond existing conditions. Once constructed, noise levels generated during normal operation would not exceed applicable noise standards established in the Fresno County Ordinance Code.

The Fresno County Ordinance Code does not identify a short-term, construction-noise-level threshold. 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 in urban environments. Most residents of urban areas recognize this reality and expect to hear construction activities on occasion. As the construction period will be brief and periodic, and construction hours would be limited to those established in the County's Code, any impacts would be *less than significant*.

Mitigation Measures: None are required.

- b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. 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 with creating berms, 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 day¹⁶. Table 5 describes the typical construction equipment vibration levels.

Table 5
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 residence which is located northeast of the basin site, and east of the pipeline alignment. Project site. The impact will be *less than significant*.

Mitigation Measures: None are required.

c., d. A substantial temporary or permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. See Impact XII (a). There will be no substantial temporary or permanent increase in ambient noise levels and therefore the impact is *less than significant*.

Mitigation Measures: None are required.

e., f. For a project within the vicinity of a public or private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The proposed Project is not located in the vicinity of an airport. Therefore, there would be *no impact*.

Mitigation Measures: None are required.

¹⁶ 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 January 2019.

XIII. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Induce substantial 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 housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

SETTING

Environmental

According to the 2015 U.S. Census, the population of Biola was approximately 1,151.

RESPONSES

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

No Impact. The proposed Project includes expanding an existing basin to create a groundwater recharge basin and the installation of approximately 2,075 linear feet of pipeline. The recharge basin will passively operate and as such, will not require new employees. The proposed Project will not directly or indirectly induce population growth. There is *no impact*.

Mitigation Measures: None are required.

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

No Significant. The proposed Project would not result in the displacement of housing or people, or cause replacement housing to be constructed elsewhere. *No impact* would occur.

Mitigation Measures: None are required.

c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed Project will not displace any people and therefore there is *no impact*.

Mitigation Measures: None are required.

XIV. PUBLIC SERVICES

Would the project:

- 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:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

SETTING

Environmental

The existing community of Biola is protected by the County Sheriff and Fire Services. Biola-Pershing Elementary School is located in the District.

California Fire Code and Building Code

The 2017 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety and assistance to fire fighters and emergency responders during emergency operations. The provision of the Fire Code includes regulations regarding fire-resistance rated construction, fire

protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, fire safety during construction and demolition, and wildland urban interface areas.

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 enlarge the existing basin, install a turnout valve on the Herndon Canal, and install pipeline within the 3rd Street right of way. The enlarged basin would promote groundwater recharge so the Biola Community Services District could gain a more reliable water supply in dry years. The proposed Project would not directly or indirectly induce population growth and no impact would occur. The Project won't require any additional fire protection services or personnel beyond existing conditions. There is *no impact*.

Police Protection?

No Impact. The proposed Project would enlarge an existing basin. The proposed Project would not directly or indirectly induce population growth and no impact would occur, as discussed in Response XIV-a. The Project will not require any additional police protection services beyond existing conditions. There is *no impact*.

Schools, Parks, Other Public Facilities?

No Impact. The proposed Project would not increase the number of residents in the District, as the Project does not include residential units or new jobs. 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.

XV. 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?

No Impact. The proposed Project does not include the construction of residential uses or creation of new jobs 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.

- 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 induce population growth. Therefore, the Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities. There is *no impact*.

Mitigation Measures: None are required.

XVI. TRANSPORTATION/ TRAFFIC

Would the project:

- a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
- b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?
- c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?
- d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- e. Result in inadequate emergency access?

Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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☐	☐	☐	☒
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- f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

☐☐☐☒

SETTING

Environmental

The Project is located on the south side of Shaw Avenue, west of the City of Fresno. The nearest major highway is Highway 99, located approximately seven miles east of the Project site. There are no airports near the Project area.

RESPONSES

- a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

No Impact. The proposed Project would not cause a substantial increase in traffic, reduce the existing level of service, or create any additional congestion at any intersections. The proposed Project would require periodic service and maintenance, approximately two trips per day. As such, level of service standards would not be exceeded and the proposed Project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. There is *no impact*.

Mitigation Measures: None are required.

- b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

No Impact. As shown in Response a., the proposed Project will have *no impact* on any existing level of service or other travel demand measures. The proposed Project will not conflict with any congestion management programs, as none are applicable to the Project.

Mitigation Measures: None are required.

- c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

No Impact. There are no characteristics of the proposed Project that would have any impact on air traffic patterns at any airport. As such, there is *no impact*.

Mitigation Measures: None are required.

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

No Impact. No roadway design features are associated with this proposed Project that would result in an increase in hazards due to a design feature or be an incompatible use. See also Impact XVI (a). There is *no impact*.

Mitigation Measures: None are required.

XVII. TRIBAL CULTURAL RESOURCES

Would the project:

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		
Potentially Significant Impact	With Mitigation Incorporation	Less than Significant Impact	No Impact

☐
☐
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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. As described in the Cultural Resources Section, On October 9, 2018, Æ sent an e-mail to the Native American Heritage Commission (NAHC) requesting a search of its Sacred Lands File and the contact information for local Native American representatives who may have information about the study area. The NAHC responded on October 10, 2018 with its findings and attached a list of Native American tribes and individuals culturally affiliated with the study area. Æ (on behalf of the District) prepared and sent a letter to each of the contacts identified by the NAHC and listed below and kept a log of all responses. Æ also sent a follow-up e-mail to those contacts with active e-mail addresses.

- Chairperson Elizabeth D. Kipp of the Big Sandy Rancheria of Western Mono Indians
- Chairperson Carole Bill of the Cold Springs Rancheria
- Stan Alec of the Kings River Choinumni Farm Tribe
- Chairperson Claudia Gonzalez of the Picayune Rancheria of Chukchansi Indians
- Chairperson David Alvarez of the Traditional Choinumni Tribe
- Chairperson Kenneth Woodrow of the Wuksachi Indian Tribe/Eshom Valley Band
- Chairperson Robert Marquez of the Cold Springs Rancheria of Mono Indians
- Tribal Chairperson Robert Ledger Sr. of the Dumna Wo-Wah Tribal Government
- Cultural Resource Manager Eric Smith of the Dumna Wo-Wah Tribal Government

- Board Chairperson Mandy Marine of the Dunlap Band of Mono Indians Historical Preservation Society
- Jerry Brown of the Chowchilla Tribe of Yokuts
- Chairperson Ron Goode of the North Fork Mono Tribe
- Cultural Coordinator Lalo Franco of the Santa Rosa Tachi Rancheria
- Cultural Resources Director Bob Pennell of the Table Mountain Rancheria of California

Æ received responses from Chairperson Kipp of the Big Sandy Rancheria and Chairperson Goode of the North Fork Mono Tribe via e-mail on November 28, 2018. Chairperson Kipp stated that the tribe has no information of sensitive or sacred sites within the city of Biola. However, if significant items are discovered, the tribe would like to be notified of such items. Chairperson Goode shared that the Project area is within the confines of an ancient village that stretched for miles within the San Joaquin river watershed. He stated that occupants of a village of this magnitude would have utilized the surrounding area within a 5-mile radius. He cautions that Native American sites and artifacts may be discovered in Biola. Æ has received no other responses to date.

Therefore, there is a *less than significant impact*.

Mitigation Measures: None are required.

XVII. UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e. 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?	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local	☐	☐	☐	☒

statutes and regulations related to solid waste?

SETTING

Environmental

The Biola CSD has responsibility for providing water, stormwater and wastewater services for the community. The proposed Project would not involve any construction or changes to water, stormwater drainage or solid waste management.

RESPONSES

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The proposed Project includes enlarging an existing basin, installing a turnout valve on the Herndon Canal, and installing approximately 2,075 linear feet of pipeline along the existing right of way of 3rd Street. No wastewater would be generated by the proposed Project, and as such, no wastewater treatment requirements would be exceeded. There is *no impact*.

Mitigation Measures: None are required.

b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. As described in Response XVII-a, the proposed Project will not generate any wastewater. There is *no impact*.

Mitigation Measures: None are required.

c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The project includes the expansion of an existing basin for groundwater recharge. The Project will not create new impervious surfaces which could result in excess runoff. There is *no impact*.

Mitigation Measures: None are required.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. The proposed Project includes the expansion of an existing basin for groundwater recharge. No new water supplies would be required as a result of this Project. The Project is intended to have a beneficial impact on water supplies. There is *no impact*.

Mitigation Measures: None are required.

- e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. As described in Response XVII-a, the proposed Project will not generate any wastewater. There is *no impact*.

Mitigation Measures: None are required.

- f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less than Significant Impact. Proposed Project construction and operation will generate minimal amounts of solid waste. Any impacts will be *less than significant*.

Mitigation Measures: None are required.

- g. Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. The proposed Project will comply with all federal, state and local statutes and regulations related to solid waste. There is *no impact*.

Mitigation Measures: None are required.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

- 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?
- 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?

Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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☐☒☐☐☐☐☒☐☐☒☐☐

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 design 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 design 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 Biola Groundwater Recharge Project, in the southern portion of the community of Biola in Fresno County. 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 District to ensure that individual mitigation measures have been monitored.

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Biology				
<i>Mitigation Measure BIO-1: Protect Nesting Birds.</i> 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	Biola CSD	Prior to construction	Biola CSD	

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
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				
Measure 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.	Biola CSD	Prior to and during construction	Biola CSD	

Chapter 5

PREPARERS

LIST OF PREPARERS

Crawford & Bowen Planning, Inc.

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

Yamabe and Horn Consulting Engineers

- Gary Horn, PE

Colibri Ecological Consulting, LLC

- Jeff N. Davis, Principal Scientist

Applied EarthWorks, Inc.

- Jessica Jones
- Mary Baloian

Appendices

Appendix A

CalEEMod Output Files

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

Biola Groundwater Recharge Basin

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 Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2019
Utility Company					
CO2 Intensity (lb/MW hr)	0	CH4 Intensity (lb/MW hr)	0	N2O Intensity (lb/MW hr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The existing recharge basin is two acres and will be expanded by three acres for a total of a five acre recharge basin.

Construction Phase - The project includes excavating a basin and installing a turnout valve on an existing canal. There will be no demolition, building, or architectural coating phases.

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6.00	72.00
tblConstructionPhase	PhaseEndDate	7/11/2019	9/11/2019
tblConstructionPhase	PhaseStartDate	7/4/2019	6/4/2019
tblGrading	AcresOfGrading	36.00	3.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

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					
2019	0.0964	1.0231	0.6122	1.1400e-003	0.2251	0.0504	0.2755	0.1211	0.0463	0.1675	0.0000	102.0717	102.0717	0.0305	0.0000	102.8351
Maximum	0.0964	1.0231	0.6122	1.1400e-003	0.2251	0.0504	0.2755	0.1211	0.0463	0.1675	0.0000	102.0717	102.0717	0.0305	0.0000	102.8351

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					
2019	0.0964	1.0231	0.6122	1.1400e-003	0.2251	0.0504	0.2755	0.1211	0.0463	0.1675	0.0000	102.0716	102.0716	0.0305	0.0000	102.8350
Maximum	0.0964	1.0231	0.6122	1.1400e-003	0.2251	0.0504	0.2755	0.1211	0.0463	0.1675	0.0000	102.0716	102.0716	0.0305	0.0000	102.8350

[illegible]

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-3-2019	9-2-2019	1.0108	1.0108
2	9-3-2019	9-30-2019	0.1000	0.1000
		Highest	1.0108	1.0108

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	0.0112	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
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	0.0112	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0112	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
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	0.0112	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	6/4/2019	9/11/2019	5	72	

Acres of Grading (Site Preparation Phase): 0

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

Acres of Grading (Grading Phase): 3**Acres of Paving: 3****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41

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
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

3.2 Grading - 2019**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					0.2184	0.0000	0.2184	0.1193	0.0000	0.1193	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0929	1.0205	0.5866	1.0700e-003		0.0503	0.0503		0.0463	0.0463	0.0000	95.9122	95.9122	0.0304	0.0000	96.6708
Total	0.0929	1.0205	0.5866	1.0700e-003	0.2184	0.0503	0.2687	0.1193	0.0463	0.1656	0.0000	95.9122	95.9122	0.0304	0.0000	96.6708

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	3.4900e-003	2.6100e-003	0.0257	7.0000e-005	6.7100e-003	5.0000e-005	6.7600e-003	1.7800e-003	4.0000e-005	1.8300e-003	0.0000	6.1595	6.1595	1.9000e-004	0.0000	6.1643
Total	3.4900e-003	2.6100e-003	0.0257	7.0000e-005	6.7100e-003	5.0000e-005	6.7600e-003	1.7800e-003	4.0000e-005	1.8300e-003	0.0000	6.1595	6.1595	1.9000e-004	0.0000	6.1643

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

3.2 Grading - 2019**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					0.2184	0.0000	0.2184	0.1193	0.0000	0.1193	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0929	1.0205	0.5866	1.0700e-003		0.0503	0.0503		0.0463	0.0463	0.0000	95.9120	95.9120	0.0304	0.0000	96.6707
Total	0.0929	1.0205	0.5866	1.0700e-003	0.2184	0.0503	0.2687	0.1193	0.0463	0.1656	0.0000	95.9120	95.9120	0.0304	0.0000	96.6707

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	3.4900e-003	2.6100e-003	0.0257	7.0000e-005	6.7100e-003	5.0000e-005	6.7600e-003	1.7800e-003	4.0000e-005	1.8300e-003	0.0000	6.1595	6.1595	1.9000e-004	0.0000	6.1643
Total	3.4900e-003	2.6100e-003	0.0257	7.0000e-005	6.7100e-003	5.0000e-005	6.7600e-003	1.7800e-003	4.0000e-005	1.8300e-003	0.0000	6.1595	6.1595	1.9000e-004	0.0000	6.1643

4.0 Operational Detail - Mobile

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

4.1 Mitigation Measures Mobile

	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 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 Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.492402	0.034496	0.167383	0.136948	0.023406	0.006040	0.021602	0.106741	0.001802	0.001770	0.005495	0.001006	0.000911

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

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5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

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

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

Mitigated

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

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0112	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Unmitigated	0.0112	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

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	2.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	0.0112	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

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	2.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	0.0112	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

7.0 Water Detail**7.1 Mitigation Measures Water**

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

7.2 Water by Land Use**Unmitigated**

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

Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

7.2 Water by Land Use**Mitigated**

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

8.0 Waste Detail

8.1 Mitigation Measures Waste**Category/Year**

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

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8.2 Waste by Land Use**Unmitigated**

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

Mitigated

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

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Biola Groundwater Recharge Basin - San Joaquin Valley Unified APCD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

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

11.0 Vegetation

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Biola Groundwater Recharge Basin														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.24	10.20	14.24	5.61	0.61	5.00	1.59	0.55	1.04	0.02	2,182.00	0.59	0.02	2,203.77
Grading/Excavation	7.05	55.31	76.62	8.74	3.74	5.00	4.44	3.40	1.04	0.10	9,794.75	2.85	0.09	9,893.99
Drainage/Utilities/Sub-Grade	4.14	34.02	40.56	7.21	2.21	5.00	3.09	2.05	1.04	0.06	5,698.30	1.20	0.05	5,744.62
Paving	1.79	17.68	17.81	1.10	1.10	0.00	0.99	0.99	0.00	0.03	2,844.42	0.75	0.03	2,872.23
Maximum (pounds/day)	7.05	55.31	76.62	8.74	3.74	5.00	4.44	3.40	1.04	0.10	9,794.75	2.85	0.09	9,893.99
Total (tons/construction project)	0.21	1.66	2.15	0.30	0.11	0.19	0.14	0.10	0.04	0.00	288.52	0.08	0.00	291.25
Notes: Project Start Year -> 2019														
Project Length (months) -> 4														
Total Project Area (acres) -> 0														
Maximum Area Disturbed/Day (acres) -> 1														
Water Truck Used? -> Yes														
Total Material Imported/Exported Volume (yd³/day)														
Daily VMT (miles/day)														
Phase Soil Asphalt Soil Hauling Asphalt Hauling Worker Commute Water Truck														
Grubbing/Land Clearing 0 0 0 0 200 40														
Grading/Excavation 0 0 0 0 800 40														
Drainage/Utilities/Sub-Grade 0 0 0 0 560 40														
Paving 0 0 0 0 400 40														
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.														
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.														
CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.														
Total Emission Estimates by Phase for -> Biola Groundwater Recharge Basin														
Project Phases	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
(Tons for all except CO2e. Metric tonnes for CO2e)														
Grubbing/Land Clearing	0.01	0.04	0.06	0.02	0.00	0.02	0.01	0.00	0.00	0.00	9.60	0.00	0.00	8.80
Grading/Excavation	0.12	0.97	1.35	0.15	0.07	0.09	0.08	0.06	0.02	0.00	172.39	0.05	0.00	157.97
Drainage/Utilities/Sub-Grade	0.06	0.52	0.62	0.11	0.03	0.08	0.05	0.03	0.02	0.00	87.75	0.02	0.00	80.26
Paving	0.01	0.12	0.12	0.01	0.01	0.00	0.01	0.01	0.00	0.00	18.77	0.00	0.00	17.20
Maximum (tons/phase)	0.12	0.97	1.35	0.15	0.07	0.09	0.08	0.06	0.02	0.00	172.39	0.05	0.00	157.97
Total (tons/construction project)	0.21	1.66	2.15	0.30	0.11	0.19	0.14	0.10	0.04	0.00	288.52	0.08	0.00	264.22
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.														
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.														
CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.														
The CO2e emissions are reported as metric tons per phase.														

Appendix B

Biological Evaluation Report

Biological Resource Evaluation

Biola Groundwater Recharge Project

Fresno County, California



PREPARED FOR:

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Executive Summary

The Biola Community Services District (BCSD) proposes to construct a groundwater recharge facility in the community of Biola in Fresno County, California. The proposed infrastructure will deliver surface water from the Fresno Irrigation District (FID) Herndon Canal into a storm drainage basin. The proposed project will involve (1) installing a turnout valve with a flow meter on the FID Herndon Canal, (2) installing about 2075 feet of 18" pipeline along Third Avenue between the Herndon Canal and an existing storm drain pipeline at F Street, (3) expanding an existing 2-acre recharge basin by 3 acres, and (4) installing fencing to accommodate the enlarged basin. The goal of the Project is to increase the amount of surface water recharged to the groundwater to offset water pumped from the aquifer. This Project will help bring the Biola Community Services District into compliance with the goals of the Sustainable Groundwater Management Act. It will also create a more reliable water supply for dry years.

The Project will be funded by a Sustainable Groundwater Planning Grant from the California Department of Water Resources, and the environmental review for the Project must meet state requirements under the California Environmental Quality Act (CEQA).

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

This biological resource evaluation summarizes 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 that the Project may affect nesting migratory birds, but effects can be reduced to less-than-significant levels with mitigation.

Abbreviations

Abbreviation	Definition
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CSD	Community Services District
EPA	Environmental Protection Agency
FE	Federally listed as Endangered
FESA	Federal Endangered Species Act
FP	Fully Protected
FT	Federally listed as Threatened
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 Biola Community Services District (Biola CSD) proposes to construct a groundwater recharge facility to offset water pumped from the aquifer and create a more reliable water supply in dry years (the Project). The Biola CSD will obtain funding for the Project, which is subject to environmental review under the California Environmental Quality Act (CEQA), through a Sustainable Groundwater Planning Grant from the California Department of Water Resources.

The purpose of this biological resource evaluation is to assess whether the Project will affect state- or federally protected resources pursuant to CEQA 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).

1.2 Project Description

The Project includes four components:

1. Installation of a turnout valve with a flow meter in the Fresno Irrigation District (FID) Herndon Canal,
2. Installation of approximately 2075 linear feet of 18-inch pipeline to connect the turnout valve with an existing storm drain pipeline,
3. A 3-acre expansion of an existing 2-acre storm drainage basin, and
4. Fence installation around the enlarged drainage basin.

1.3 Project Location

The Project is located within the community of Biola, about 6 miles west of the city of Fresno in northern Fresno County, California (Figure 1). The Project components are located near the intersection of Shaw Avenue and Third Street, along Third Street, and south of G Street (Figure 2).

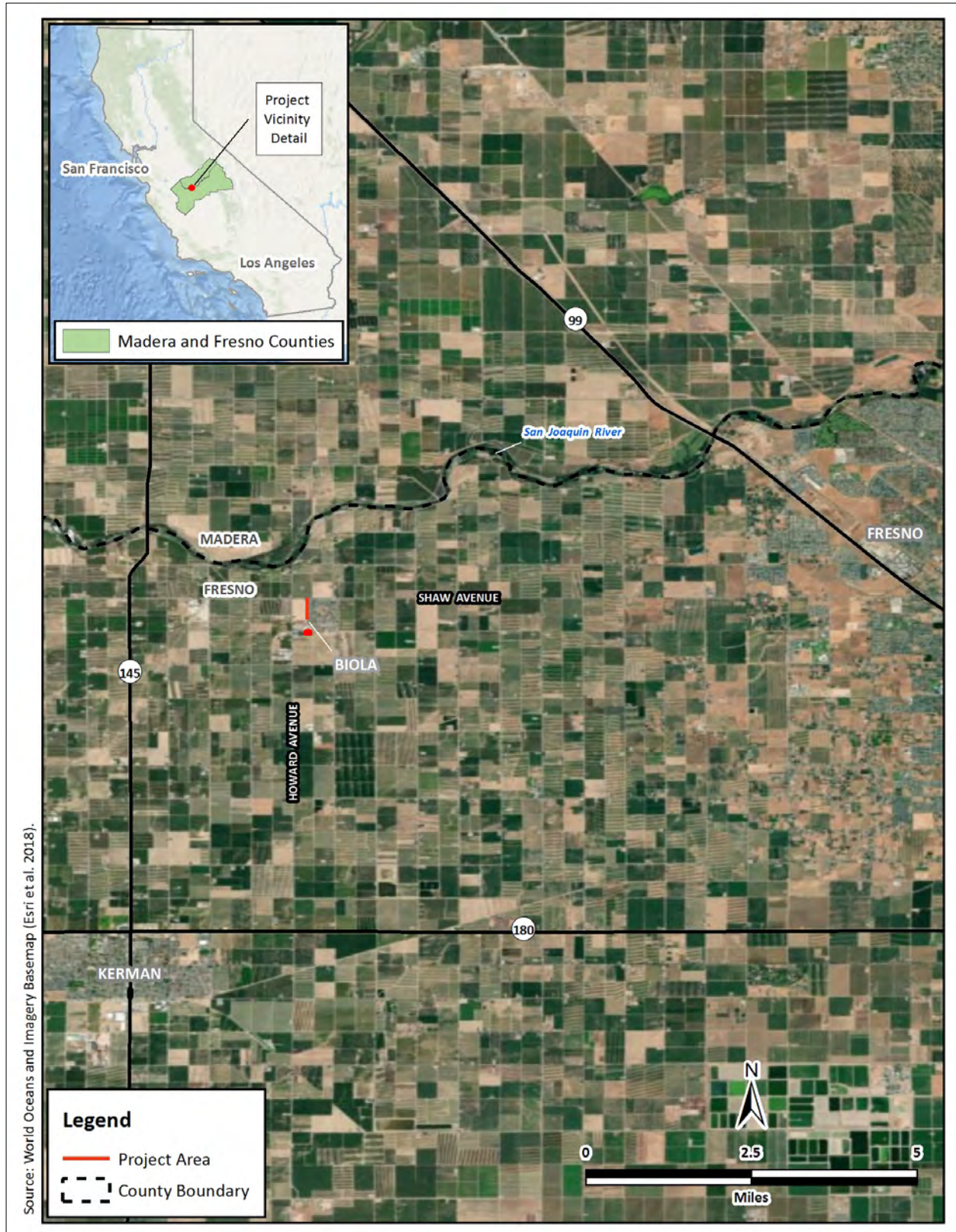


Figure 1. Site vicinity map.



Figure 2. Project site map.

1.4 Purpose and Need of Proposed Project

The Biola CSD is in the Kings sub-basin of the Tulare Lake aquifer basin, which is in a critical state of aquifer overdraft. The Project is consistent with the Regional Goals of the 2012 Upper Kings Basin Integrated Regional Water Management Plan and the Sustainable Groundwater Management Act and will help to halt and reverse the current state of aquifer overdraft.

The purpose of the Project is to increase aquifer recharge to offset groundwater pumping within the Biola CSD. This Project is needed to help bring the Biola CSD into compliance with the Sustainable Groundwater Management Act.

1.5 Regulatory Framework

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

1.5.1 Federal Requirements

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

Migratory Bird Treaty Act. The federal Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] §703, Supp. I, 1989) prohibits killing, possessing, trading, or other forms of take of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. "Take" is defined as the pursuing, hunting, shooting, capturing, collecting, or killing of birds, their nests, eggs, or young (16 USC §703 and §715n). This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA specifically protects migratory bird nests from possession, sale, purchase, barter transport, import, and export, and take. For nests, the definition of take

per 50 CFR 10.12 is to collect. The MBTA does not include a definition of an “active nest.” However, the “Migratory Bird Permit Memorandum” issued by the USFWS in 2003 clarifies the MBTA in that regard and states that the removal of nests, without eggs or birds, is legal under the MBTA, provided no possession (which is interpreted as holding the nest with the intent of retaining it) occurs during the destruction (USFWS 2003).

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

1.5.2 State Requirements

California Endangered Species Act. The California Endangered Species Act (CESA) of 1970 (Fish and Game Code Section 2050 et seq., and CCR Title 14, Subsection 670.2, 670.51) prohibits the take of species listed under CESA (14 CCR Subsection 670.2, 670.5). Take is defined as hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill. Under CESA, state agencies are required to consult with the California Department of Fish and Wildlife [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 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 2017). 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 Section 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 Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are “Fully Protected” as those that may not be taken or possessed except under specific permit.

California Department of Fish and Wildlife Jurisdiction. The CDFW has regulatory jurisdiction over lakes and streams in California. Activities that divert or obstruct the natural flow of a stream;

substantially change its bed, channel, or bank; or use any materials (including vegetation) from the streambed, may require that the project applicant enter into a Streambed Alteration Agreement with the CDFW in accordance with California Fish and Game Code Section 1602.

2.0 Methods

2.1 Desktop Review

As a framework for the evaluation and reconnaissance survey, we obtained an official USFWS species list for the Project (USFWS 2018, Appendix A). In addition, we searched the California Natural Diversity Data Base (CNDDDB, CDFW 2018) and the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2018) for records of special-status plant and animal species in the Project area. Regional lists of special-status species were compiled using USFWS, CNDDDB, and CNPS database searches confined to the Biola 7.5-minute United States Geological Survey (USGS) topographic quad, which encompasses the Project site, and the eight surrounding quads (Bonita Ranch, Gravelly Ford, Gregg, Herndon, Jamesan, Kearney Park, Kerman, and Madera). Local lists of special-status species were compiled using CNDDDB records from within 5 miles of the Project site. Species for which the Project site does not provide habitat were eliminated from further consideration. We also reviewed aerial imagery from Google Earth and other sources, USGS topographic maps, and relevant literature.

2.2 Reconnaissance Survey

Colibri biologists Jennifer Rippert and Graham Biddy conducted a field reconnaissance survey of the Project site on 17 September 2018. The Project site and a 50-foot buffer surrounding the Project site were walked and thoroughly inspected to evaluate and document the potential for the site to support federally or state-protected resources. 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). All plants except those under cultivation in agricultural fields or planted in residential or commercial areas and all animals (vertebrate wildlife species) observed within the survey area were identified and documented. The survey area was evaluated for the presence of regulated habitats, including lakes, streams, and other waters using methods described in the *Wetlands Delineation Manual* and regional supplement (USACE 1987, 2008).

2.3 Effects Analysis and Significance Criteria

2.3.1 Effects Analysis

Factors considered in evaluating the effects of the Project on special-status species included the (1) presence of designated or proposed critical habitat in the survey area, (2) potential for the survey area to support special-status species, (3) dependence of any such species on specific habitat components that would be removed or modified, (4) the degree of impact to habitat, (5) abundance and distribution of habitat in the region, (6) distribution and population levels of the species, (7) cumulative effects of the Project and any future activities in the area, and (8) the potential to mitigate any adverse effects.

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

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

2.3.2 Significance Criteria

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

- 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

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 the following:

- 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 CDFW or USFWS.
- 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 CDFW or USFWS.
- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

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

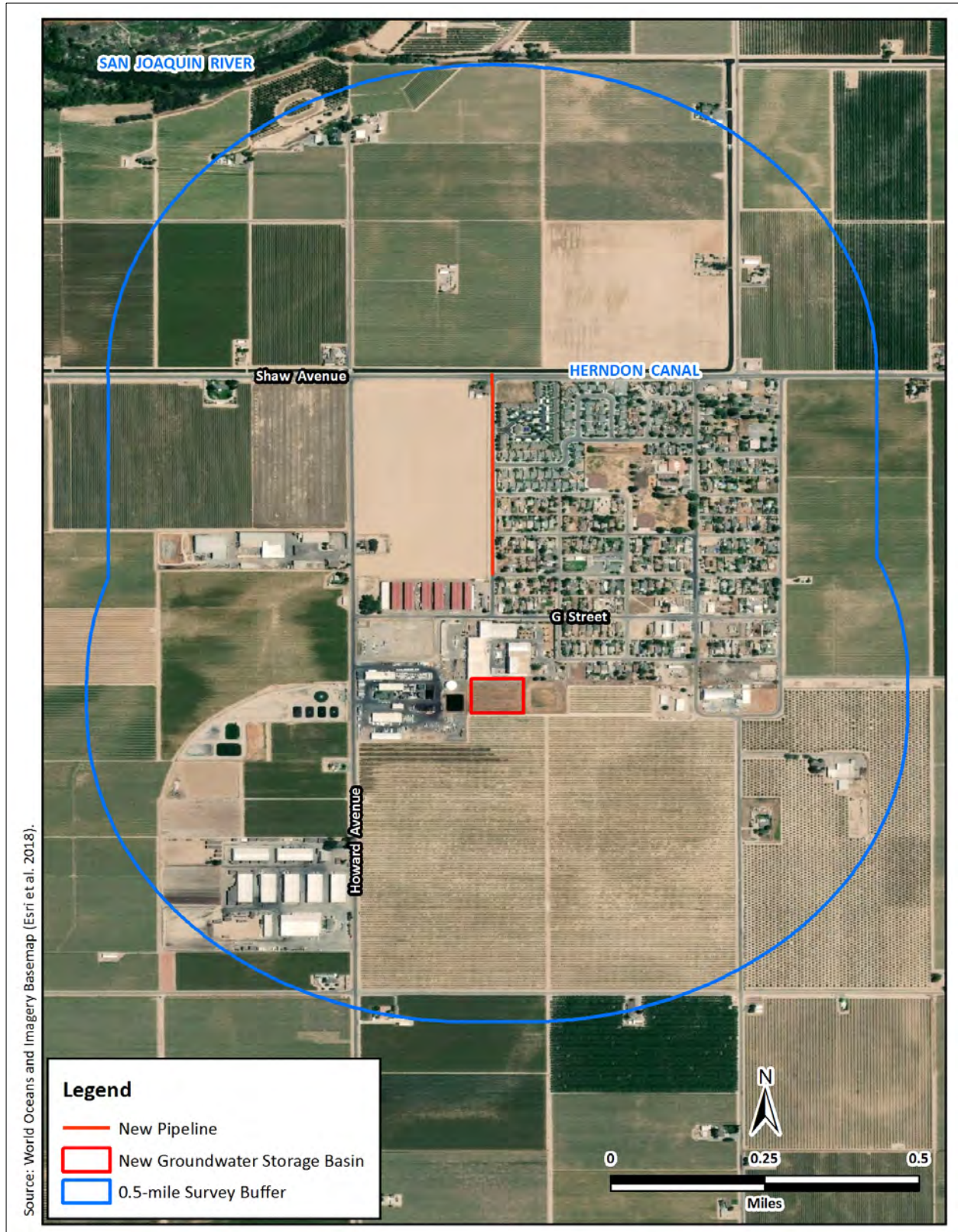


Figure 3. Reconnaissance survey area map.

3.0 Results

3.1 Desktop Review

The official species list for the Project site included eight species listed as threatened or endangered under the FESA (USFWS 2018b, Table 1, Appendix A). Those species include the threatened vernal pool fairy shrimp (*Branchinecta lynchi*), the threatened Delta smelt (*Hypomesus transpacificus*), the threatened California red-legged frog (*Rana draytonii*), the threatened California tiger salamander (*Ambystoma californiense*), the endangered blunt-nosed leopard lizard (*Gambelia sila*), the threatened giant garter snake (*Thamnophis gigas*), the endangered Fresno kangaroo rat (*Dipodomys nitratoideis exilis*), and the endangered San Joaquin kit fox (*Vulpes macrotis mutica*). None of these species has the potential to occur on or within 50 feet of the Project site due to a lack of habitat or because the Project site is outside the current known range of the species (Table 1). As identified in the official species list (USFWS 2018b, Appendix A), the Project site does not occur in designated or proposed critical habitat.

Searching the CNDDDB (CDFW 2018) for records of special-status species from within the Biola 7.5-minute USGS topographic quad and the eight surrounding quads produced 62 records of 36 species (Table 1, Appendix B). Of those species, three are known from within 5 miles of the Project site (Table 1, Figure 4). Non-federally listed species known from within 5 miles of the Project site include Swainson's hawk (*Buteo swainsoni*), a species state-listed as threatened, California alkali grass (*Puccinellia simplex*), a plant with a CNPS Rare Plant Rank of 1B.2, and San Joaquin pocket mouse (*Perognathus inornatus*), a species without state or federal listing status. The CNDDDB occurrence of California alkali grass is considered possibly extirpated, and the occurrence of San Joaquin pocket mouse is considered extirpated. None of these species are expected on or near the Project site due to a lack of habitat (Table 1).

Searching the CNPS rare and endangered plant inventory (CNPS 2018) for records within the Biola 7.5-minute USGS topographic quad and the eight surrounding quads produced records of 16 species, including two that were not previously identified by the CNDDDB search (Table 1, Appendix C). None of these species are expected on or near the Project site due to lack of habitat (Table 1).

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			
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	Vernal pools; some artificial depressions, stock ponds, vernal swales, ephemeral drainages, and seasonal wetlands.	Absent. Habitat lacking; no vernal pools found in the survey area.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Elderberry (<i>Sambucus</i> sp.) plants with stems > 1-inch diameter at ground level.	Absent. Habitat lacking; no elderberry plants found in the survey area. Project site outside current known range.
Delta smelt (<i>Hypomesus transpacificus</i>)	FT, SE	River channels, tidally influenced sloughs.	Absent. Habitat lacking; no connectivity with habitat.
California red-legged frog (<i>Rana draytonii</i>)	FT, SSSC	Creeks, ponds, and marshes for breeding; burrows for upland refuge.	Absent. Habitat lacking; no breeding habitat found in the survey area. Project site outside current known range.
California tiger salamander (<i>Ambystoma californiense</i>)	FT, ST	Vernal pools or other seasonal wetlands for breeding; underground refugia for non-breeding.	Absent. Habitat lacking. Although burrows and other underground refugia were found in the survey area, no suitable breeding habitat is present within known dispersal distance, and Project site is outside current known range.
Blunt-nosed leopard lizard (<i>Gambelia sila</i>)	FE, SE, FP	Grassland and upland scrub with small mammal burrows.	Absent. Habitat lacking; although burrows were found in the survey area, no grassland or upland scrub habitat is present.
Giant gartersnake (<i>Thamnophis gigas</i>)	FT, ST	Marshes, sloughs, ponds, or other permanent sources of water with emergent vegetation, and grassy	Absent. Habitat lacking; outside current known range.

Species	Status ¹	Habitat	Potential to Occur ²
		banks or open areas during active season; uplands with underground refuges or crevices during inactive season.	
Swainson's hawk (<i>Buteo swainsoni</i>)	ST	Large trees for nesting with adjacent grasslands, alfalfa fields, or grain fields for foraging.	Absent. Potential nest trees found but foraging habitat is lacking in the survey area.
Tricolored blackbird (<i>Agelaius tricolor</i>)	SE	Freshwater marsh, grassland, and silage crops adjacent to dairies.	Absent. Habitat lacking; no suitable marsh, grassland, or silage crops found in the survey area.
Fresno kangaroo rat (<i>Dipodomys nitratoideus exilis</i>)	FE, SE	Sandy, alkaline, saline, and clay-based soils in upland scrub and grassland.	Absent. Habitat lacking; no upland scrub or grassland habitat found in the survey area.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, ST	Upland scrub and grassland.	Absent. Habitat lacking; no upland scrub or grassland habitat found in the survey area.
State Species of Special Concern			
Western spadefoot (<i>Spea hammondi</i>)	SSSC	Open areas with sandy gravelly soils; rain pools for breeding.	Absent. Habitat lacking; no breeding habitat found in the survey area.
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	SSSC	Open, generally sandy areas, washes, and flood plains in a variety of habitats.	Absent. Habitat lacking; no sandy areas, washes, or flood plains found in the survey area.
San Joaquin coachwhip (<i>Masticophis flagellum ruddocki</i>)	SSSC	Open, dry, treeless area including grassland and saltbush scrub.	Absent. Habitat lacking; no grassland or saltbush scrub found in the survey area.
Burrowing owl (<i>Athene cunicularia</i>)	SSSC	Upland scrub and grassland with friable soil; some agricultural or other developed and disturbed areas with ground squirrel burrows.	Absent. Habitat lacking; although ground squirrel burrows were found in the survey area, no foraging habitat is present.

Species	Status ¹	Habitat	Potential to Occur ²
American badger (<i>Taxidea taxus</i>)	SSSC	Upland scrub and grassland.	Absent. Habitat lacking; no upland scrub or grassland habitat found in the survey area.
Otherwise Rare or Imperiled Species			
California linderiella (<i>Linderiella occidentalis</i>)	CNDDDB	Vernal pools.	Absent. Habitat lacking; no vernal pools found in survey area
Midvalley fairy shrimp (<i>Brachinecta lynchi</i>)	CNDDDB	Vernal pools and grass-bottomed swales.	Absent. Habitat lacking; no vernal pools or grass-bottomed swales found in the survey area.
Molestan blister beetle (<i>Lytta molesta</i>)	CNDDDB	Vernal pools.	Absent. Habitat lacking; no vernal pools found in the survey area.
Hoary bat (<i>Lasiurus cinereus</i>)	CNDDDB	Dense foliage of medium to large trees for roosting. Large open areas such as lakes for foraging.	Absent. Habitat lacking, no suitable foraging habitat found in the survey area.
San Joaquin pocket mouse (<i>Perognathus inornatus</i>)	CNDDDB	Open grassland and scrub with friable soils.	Absent. Habitat lacking, no grassland or scrub habitat found in the survey area.
California Rare Plants			
Brittlescale (<i>Atriplex depressa</i>)	1B.2	Vernal pools, grasslands, or upland scrub with alkaline or clay soils.	Absent. Habitat lacking; no vernal pools, grasslands, or upland scrub found in the survey area.
California alkali grass (<i>Puccinellia simplex</i>)	1B.2	Scrub, meadows, seeps, grassland, and vernal pools.	Absent. Habitat lacking; no scrub, meadow seeps, grassland or vernal pools found in the survey area.
Ewan's larkspur (<i>Delphinium hansenii</i> ssp. <i>ewanianum</i>)	4.2	Cismontane woodland, valley and foothill grassland.	Absent. Habitat lacking; no woodland or grassland habitat found in the survey area.
Hairy Orcutt grass (<i>Orcuttia pilosa</i>)	1B.1	Vernal pools.	Absent. Habitat lacking; no vernal pools found in the survey area.

Species	Status ¹	Habitat	Potential to Occur ²
Heartscale (<i>Atriplex cordulata</i> var. <i>cordulata</i>)	1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland with sandy soils.	Absent. Habitat lacking; no scrub, meadows, seeps, or grassland habitat found in the survey area.
Hoover's eriastrum (<i>Eriastrum hooveri</i>)	4.2	Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland.	Absent. Habitat lacking; no scrub, woodland, or grassland habitat found in the survey area.
Lesser saltscale (<i>Atriplex minuscula</i>)	1B.1	Chenopod scrub, playa, and grassland communities with sandy, alkaline soil.	Absent. Habitat lacking; no scrub, playa, or grassland habitat found in the survey area.
Lost Hills crownscale (<i>Atriplex coronata</i> var. <i>vallicola</i>)	1B.2	Chenopod scrub, valley and foothill grassland, vernal pools.	Absent. Habitat lacking; no scrub, grasslands, or vernal pools found in the survey area.
Madera leptosiphon (<i>Leptosiphon serrulatus</i>)	1B.2	Cismontane woodland, lower montane coniferous forest.	Absent. Habitat lacking; no woodland or forest habitat found in the survey area.
Palmate-bracted bird's- beak (<i>Chloropyron palmatum</i>)	1B.1	Chenopod scrub, valley and foothill grassland, alkaline soil.	Absent. Habitat lacking; no records from within 5 miles, and no scrub or grassland habitat found in the survey area.
Recurved larkspur (<i>Delphinium recurvatum</i>)	1B.2	Chenopod scrub, cismontane woodland, valley and foothill grassland, alkaline soil.	Absent. Habitat lacking; no scrub, woodland, or grassland habitat found in the survey area.
Sanford's arrowhead (<i>Sagittaria sanfordii</i>)	1B.2	Freshwater marsh- wetlands.	Absent. Habitat lacking; no wetlands found in the survey area.
Spiny-sepaled button- celery (<i>Eryngium spinosepalum</i>)	1B.2	Seasonally flooded depressions in clay soils.	Absent. Habitat lacking; no records from within 5 miles.
Subtle orache (<i>Atriplex subtilis</i>)	1B.2	Valley and foothill grassland, alkaline soil.	Absent. Habitat lacking; no grassland habitat found in the survey area.
Succulent owl's-clover (<i>Castilleja campestris</i> var. <i>succulent</i>)	1B.2	Vernal pools (often acidic).	Absent. Habitat lacking; no vernal pools found in the survey area.

Species	Status ¹	Habitat	Potential to Occur ²
Vernal pool smallscale (<i>Atriplex persistens</i>)	1B.2	Alkaline vernal pools.	Absent. Habitat lacking; no vernal pools found in the survey area.

CDFW (2018), CNPS (2018), USFWS (2018b).

Status ¹	Potential to Occur ²
CNDDDB = Recognized by the CNDDDB, other state or federal agencies, or conservation groups as rare or imperiled.	Absent: Species or sign not observed; conditions unsuitable for occurrence.
FE = Federally listed Endangered	
FT = Federally listed Threatened	
FP = Fully Protected	
SE = State-listed Endangered	
ST = State-listed Threatened	
SSSC = State Species of Special Concern	

CNPS California Rare Plant Rank:	Threat Ranks:
1B – plants rare, threatened, or endangered in California and elsewhere.	0.1 – seriously threatened in California (> 80% of occurrences).
4 – plants have limited distribution in California.	0.2 – moderately threatened in California (20-80% of occurrences).

3.2 Reconnaissance Survey

3.2.1 Land Use and Habitats

The Project site consists of developed and disturbed land cover surrounded by agricultural, industrial, and residential development. The existing storm drainage basin is surrounded by chain link fence and underlain by hardpan (Figure 5). The proposed expansion to the storm drainage basin is in a disturbed field with cultivated grape vines and ruderal, nonnative vegetation (Figure 6). These sites are bordered to the north and west by industrial development and to the south and east by orchards. The proposed pipeline between the storm drainage basin and the Herndon Canal follows paved roadways (Figure 7).



Figure 5. Photograph of the existing storm drainage basin.



Figure 6. Photograph from the existing storm drainage basin showing the land cover near the proposed expansion.



Figure 7. Photograph of the land cover along the pipeline alignment.

3.2.2 Plant and Animal Species Observed

Nonnative grasses such as red brome (*Bromus madritensis* ssp. *rubens*) and agricultural crops such as cultivated grapes (*Vitus vinifera*) dominate open areas of the Project site. In all, 35 plant species (15 native and 20 nonnative) were found during the survey (Table 2). Thirteen bird species, two reptile species, and two mammal species were also detected (Table 2).

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

Common Name	Scientific Name	Status
Plants		
Family Amaranthaceae		
Rough pigweed	<i>Amaranthus retroflexus</i>	Nonnative
Family Asteraceae		
Cat's ear	<i>Hypochaeris</i> sp.	Nonnative
Canadian Horseweed	<i>Erigeron canadensis</i>	Native
Common sunflower	<i>Helianthus annuus</i>	Native
Common tarweed	<i>Centromadia pungens</i>	Native
Jersey cudweed	<i>Pseudognaphalium luteoalbum</i>	Nonnative

Pineapple weed	<i>Matricaria discoidea</i>	Native
Prickly sow thistle	<i>Sonchus asper</i>	Nonnative
Prickly lettuce	<i>Lactuca serriola</i>	Nonnative
Wire lettuce	<i>Stephanomeria pauciflora</i>	Native
Yarrow	<i>Achillea millefolium</i>	Native
Family Boraginaceae		
Small flowered fiddleneck	<i>Amsinckia menziesii</i>	Native
Valley popcornflower	<i>Plagiobothrys canescens</i>	Native
Family Brassicaceae		
Black mustard	<i>Brassica nigra</i>	Nonnative
Pepperweed	<i>Lepidium strictum</i>	Native
Shepherd's purse	<i>Capsella bursa-pastoris</i>	Nonnative
Wild radish	<i>Raphanus sativus</i>	Nonnative
Family Cyperaceae		
Sedge	<i>Carex</i> sp.	Native
Family Chenopodiaceae		
Russian thistle	<i>Salsola tragus</i>	Nonnative
Family Euphorbiaceae		
Turkey-mullein	<i>Croton setiger</i>	Native
Valley spurge	<i>Euphorbia acellata</i>	Native
Family Fabaceae		
California burclover	<i>Medicago polymorpha</i>	Nonnative
Hairy vetch	<i>Vicia villosa</i>	Nonnative
Family Geraniaceae		
Redstem stork's bill	<i>Erodium cicutarium</i>	Nonnative
Family Lamiaceae		
Henbit	<i>Lamium amplexicaule</i>	Nonnative
Family Malvaceae		
Dwarf mallow	<i>Malva neglecta</i>	Nonnative
Family Orobanchaceae		
Owl's clover	<i>Castilleja exserta</i>	Native
Family Phrymaceae		
Yellow monkey flower	<i>Erythranthe guttatus</i>	Native
Family Poaceae		

Bermuda grass	<i>Cynodon dactylon</i>	Nonnative
Hare barley	<i>Hordeum murinum</i>	Nonnative
Red brome	<i>Bromus madritensis ssp. rubens</i>	Nonnative
Wild oat	<i>Avena fatua</i>	Nonnative
Family Salicaceae		
Pacific willow	<i>Salix lasiandra</i>	Native
Family Vitaceae		
Cultivated grape	<i>Vitus vinifera</i>	Nonnative
Family Zygophyllaceae		
Puncture vine	<i>Tribulus terrestris</i>	Nonnative
Reptiles		
Family Phrynosomatidae		
Common side-blotched lizard	<i>Uta stansburiana</i>	None
Western fence lizard	<i>Sceloporus occidentalis</i>	None
Birds		
Family Accipitridae		
Red-tailed hawk	<i>Buteo jamaicensis</i>	MBTA
Family Cathartidae		
Turkey vulture	<i>Cathartes aura</i>	MBTA
Family Columbidae		
Mourning dove	<i>Zenaida macroura</i>	MBTA
Rock pigeon	<i>Columba livia</i>	None
Family Corvidae		
American crow	<i>Corvus brachyrhynchos</i>	MBTA
California scrub-jay	<i>Aphelocoma californica</i>	MBTA
Family Fringillidae		
House finch	<i>Haemorhous mexicanus</i>	MBTA
Family Hirundinidae		
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	MBTA
Family Mimidae		
Northern mockingbird	<i>Mimus polyglottos</i>	MBTA
Family Passeridae		
House sparrow	<i>Passer domesticus</i>	None
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	MBTA

Family Sturnidae		
European starling	<i>Sturnus vulgaris</i>	None
Family Tyrannidae		
Western Kingbird	<i>Tyrannus verticalis</i>	MBTA
Mammals		
Family Geomyidae		
Botta's pocket gopher	<i>Thomomys bottae</i>	None
Family Sciuridae		
California ground squirrel	<i>Otospermophilus beecheyi</i>	None

MTBA: Covered under the Migratory Bird Treaty Act.

3.2.3 Nesting Birds and the Migratory Bird Treaty Act

Migratory birds have the potential to nest on or near the Project site. Such species include, but are not limited to, red-tailed hawk (*Buteo jamaicensis*), western kingbird (*Tyrannus verticalis*), American crow (*Corvus brachyrhynchos*), California scrub-jay (*Aphelocoma californica*), and house finch (*Carpodacus mexicanus*).

3.2.4 Regulated Habitats

Work will occur on and within 50 feet of the Herndon Canal, a potentially jurisdictional waterway that is hydrologically connected to the San Joaquin River, a navigable waterway under the regulatory jurisdiction of the USACE, the Regional Water Quality Control Board, and the CDFW. The Project will likely impact the canal at a single location near the junction of Shaw Avenue and Third Avenue, where a turnout valve and flow meter will be installed and connected to the new pipeline.

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

The Project site is not within a flood plain (Federal Emergency Management Agency 2018). The nearest flood plain limit is along the San Joaquin River, approximately 0.75 miles north of the Project site.

4.0 Environmental Impacts

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 will have no effect on special-status species due to the lack of habitat for such species in the survey area.

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 may affect but is not likely to adversely affect the Herndon Canal, a potentially regulated habitat. The Herndon Canal is hydrologically connected to the San Joaquin River, a habitat under the regulatory jurisdiction of the USACE, the RWQCB, and the CDFW. As such, a Clean Water Act Section 404 permit, a Section 401 water quality certification, as well as a California Fish and Game Code section 1602 Lake and Streambed Alteration Agreement may be required for impacts at this work location.

4.2 Significance Determinations

This Project will not:

(1) 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 (criterion a), as no such species are expected on or near the Project site;

(2) 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 b), as no such habitat or community occurs on or near the Project site;

(3) have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (criterion c), as no federally protected wetlands were found on or near the Project site;

(4) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (criterion e), as no such policy exists and no trees will be removed; or

(5) 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 f), as no such plan exists that pertains to the Project.

Therefore, these significance criteria are not analyzed further.

The remaining statutorily defined criterion provided the framework for criterion BIO1 below. This criterion is used to assess the impacts to biological resources stemming from the Project and provides the basis for determinations of significance:

- Criterion BIO1: 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.

4.2.1 Direct and Indirect Impacts

4.2.1.1 Potential Impact #1: 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 and California Fish and Game Code. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort is considered take by the CDFW. Loss of fertile eggs or nestlings, or any activities resulting in nest abandonment, could constitute a significant impact if the species is particularly rare in the region. Construction activities such as trenching and grading that disturb a rare nesting bird on the site or immediately adjacent to the construction zone could constitute a significant impact. We recommend that mitigation measure B1 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

Mitigation Measure B1. Protect nesting birds.

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

4.2.2 Cumulative Impacts

The Project involves the installation of new storm water recovery infrastructure. All of the work will occur in disturbed or developed land cover. However, the worksite is adjacent to a potentially regulated waterway. While the potential for the work areas to support special-status species is limited as discussed above, Mitigation Measure B1 would reduce any contribution to cumulative impacts on biological resources to a less-than-significant level. No other development projects are known or planned for the immediate area as a result of this Project.

4.2.3 Unavoidable Significant Adverse Impacts

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

5.0 Literature Cited

- California Department of Fish and Wildlife (CDFW). 2018. State and Federally Listed Endangered, Threatened, and Rare Plants of California. Biogeographic data branch, California Natural Diversity Data Base. <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>, accessed 20 September 2018.
- California Native Plant Society (CNPS). 2018. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. <http://www.rareplants.cnps.org>. Accessed 20 September 2018.
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- United States Fish and Wildlife Service. 2018b. IPaC Information for Planning and Conservation. <https://ecos.fws.gov/ipac/>. Accessed 09 September 2018.

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



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

September 10, 2018

Consultation Code: 08ESMF00-2018-SLI-3165

Event Code: 08ESMF00-2018-E-09515

Project Name: Biola Community Services District Groundwater Recharge Project

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-3165

Event Code: 08ESMF00-2018-E-09515

Project Name: Biola Community Services District Groundwater Recharge Project

Project Type: WATER SUPPLY / DELIVERY

Project Description: The Biola Community Service District (BCSD) proposes to construct the necessary infrastructure to create a groundwater recharge facility within the city of Biola, Fresno County, California. The proposed infrastructure will deliver surface water from the Fresno Irrigation District's (FID) Herndon Canal into an existing storm drainage basin. The proposed project will involve (1) installing a turnout valve with a flow meter on the Fresno Irrigation District's Herndon Canal, (2) installing about 2075 feet of 18" pipeline along Third Avenue between the Herndon Canal and a connection to an existing storm drain pipeline at F Street, (3) expanding an existing 3-acre recharge basin by 2 acres, and (4) installing fencing to accommodate the enlarged basin. The goal of the project is to increase the amount of surface water recharged to the groundwater to offset water pumped from the aquifer. This project will help bring the Biola Community Services District into compliance with the goals of the Sustainable Groundwater Management Act. It will also create a more reliable water supply for dry years. Construction is scheduled to commence May 13, 2019.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/36.803805133605024N120.02143448889919W>



Counties: Fresno, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

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

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

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

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

Mammals

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

Reptiles

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

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

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

Crustaceans

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

Critical habitats

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

Appendix B. CNDDDB occurrence records.



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS (Biola (3612071) OR Bonita Ranch (3612082) OR Madera (3612081) OR Gregg (3611988) OR Gravelly Ford (3612072) OR Herndon (3611978) OR Jamesan (3612062) OR Kerman (3612061) OR Kearney Park (3611968))

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.
<i>Agelaius tricolor</i> tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	165 185	951 S:3	0	0	0	0	0	3	1	2	3	0	0
<i>Ambystoma californiense</i> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	270 383	1176 S:6	0	0	0	2	3	1	4	2	3	2	1
<i>Athene cunicularia</i> 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	200 255	1971 S:6	1	2	0	1	1	1	2	4	5	1	0
<i>Atriplex cordulata</i> var. <i>cordulata</i> heartscale	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	185 200	66 S:7	2	1	1	0	2	1	3	4	5	0	2
<i>Atriplex coronata</i> var. <i>vallicola</i> Lost Hills crownscale	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	190 190	74 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Atriplex depressa</i> brittlescale	G2 S2	None None	Rare Plant Rank - 1B.2	185 190	61 S:3	0	3	0	0	0	0	3	0	3	0	0
<i>Atriplex minuscula</i> lesser saltscale	G2 S2	None None	Rare Plant Rank - 1B.1	185 200	37 S:9	3	3	1	0	0	2	5	4	9	0	0
<i>Atriplex persistens</i> vernal pool smallscale	G2 S2	None None	Rare Plant Rank - 1B.2	182 205	41 S:4	1	2	1	0	0	0	0	4	4	0	0
<i>Atriplex subtilis</i> subtle orache	G1 S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	185 190	24 S:5	2	0	0	0	0	3	2	3	5	0	0
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	273 342	766 S:5	0	2	1	1	0	1	1	4	5	0	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Branchinecta mesoallensis</i> midvalley fairy shrimp	G2 S2S3	None None		294 294	128 S:1	0	0	1	0	0	0	0	1	1	0	0
<i>Buteo swainsoni</i> Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	165 282	2460 S:7	0	3	1	0	0	3	1	6	7	0	0
<i>Castilleja campestris</i> var. <i>succulenta</i> succulent owl's-clover	G4?T2T3 S2S3	Threatened Endangered	Rare Plant Rank - 1B.2	300 300	91 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Chloropyron palmatum</i> palmate-bracted bird's-beak	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	195 195	25 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Delphinium recurvatum</i> recurved larkspur	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	180 185	100 S:3	0	1	1	0	1	0	1	2	2	0	1
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	G3T2 S2	Threatened None		225 225	271 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Dipodomys nitratoideus exilis</i> Fresno kangaroo rat	G3TH SH	Endangered Endangered	IUCN_VU-Vulnerable	200 225	12 S:5	0	0	0	0	2	3	5	0	3	1	1
<i>Eriastrum hooveri</i> Hoover's eriastrum	G3 S3	Delisted None	Rare Plant Rank - 4.2 SB_RSABG-Rancho Santa Ana Botanic Garden	170 200	47 S:2	0	0	0	0	2	0	2	0	0	0	2
<i>Eryngium spinosepalum</i> spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2	183 183	90 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Gambelia sila</i> blunt-nosed leopard lizard	G1 S1	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	180 232	323 S:11	0	0	0	0	0	11	11	0	11	0	0
<i>Lasiurus cinereus</i> hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority	270 270	238 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Leptosiphon serrulatus</i> Madera leptosiphon	G3 S3	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	270 270	27 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Linderiella occidentalis</i> California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	285 360	435 S:2	0	0	0	0	0	2	2	0	2	0	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Lytta molesta</i> molestan blister beetle	G2 S2	None None		270 270	17 S:1	0	0	0	0	0	1	1	0	0	1	0
<i>Masticophis flagellum ruddocki</i> San Joaquin coachwhip	G5T2T3 S2?	None None	CDFW_SSC-Species of Special Concern	180 180	93 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Northern Claypan Vernal Pool</i> Northern Claypan Vernal Pool	G1 S1.1	None None		175 175	21 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Northern Hardpan Vernal Pool</i> Northern Hardpan Vernal Pool	G3 S3.1	None None		290 350	126 S:3	0	0	1	1	0	1	3	0	3	0	0
<i>Orcuttia pilosa</i> hairy Orcutt grass	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	300 360	33 S:4	0	0	0	0	4	0	4	0	0	3	1
<i>Perognathus inornatus</i> San Joaquin Pocket Mouse	G2G3 S2S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern	265 265	123 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Phrynosoma blainvillii</i> coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	183 183	774 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Puccinellia simplex</i> California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2	180 220	71 S:9	0	0	0	0	2	7	3	6	7	1	1
<i>Sagittaria sanfordii</i> Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	185 185	126 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Spea hammondi</i> western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	185 350	463 S:4	0	0	2	2	0	0	1	3	4	0	0
<i>Taxidea taxus</i> American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	182 315	559 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Valley Sacaton Grassland</i> Valley Sacaton Grassland	G1 S1.1	None None		175 175	9 S:1	0	0	1	0	0	0	1	0	1	0	0
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	G4T2 S2	Endangered Threatened		185 302	1017 S:3	0	0	0	0	0	3	3	0	3	0	0

Appendix C. CNPS occurrence records.

Plant List

Inventory of Rare and Endangered Plants

16 matches found. Click on scientific name for details

Search Criteria

Found in Quads 3612082, 3612081, 3611988, 3612072, 3612071, 3611978, 3612062 3612061 and 3611968;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex coronata var. vallicola	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	1B.2	S2	G4T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	1B.1	S2	G2
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	Jun, Aug, Sep, Oct	1B.2	S2	G2
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	Jun, Aug, Sep (Oct)	1B.2	S1	G1
Castilleja campestris var. succulenta	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar) Apr-May	1B.2	S2S3	G4? T2T3
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	4.2	S3	G4T3
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Eriastrum hooveri	Hoover's eriastrum	Polemoniaceae	annual herb	(Feb) Mar-Jul	4.2	S3	G3
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Leptosiphon serrulatus	Madera leptosiphon	Polemoniaceae	annual herb	Apr-May	1B.2	S3	G3
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	1B.1	S1	G1
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct (Nov)	1B.2	S3	G3

Suggested Citation

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Questions and Comments

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Appendix C

Cultural Resources Report

Cultural Resources Inventory and Evaluation for the Biola Community Services District's Groundwater Recharge Project, Fresno County, California

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December 2018
draft

MANAGEMENT SUMMARY

The Biola Community Services District is preparing to construct the necessary infrastructure to create a groundwater recharge facility in the City of Biola. The proposed Groundwater Recharge Project (Project) will include surface water delivery from the Fresno Irrigation District's Herndon Canal at the north end of the Project area through a new pipeline connected to an existing recharge basin. The new pipe will run south from the Herndon Canal along North Third Avenue and connect to an existing pipeline that flows into an existing basin proposed for expansion at the south end of town.

The proposed Project will be funded by the California Department of Water Resources (DWR) Sustainable Groundwater Planning (SGWP) Grant, established through the approval of Proposition 1 in 2014. Activities funded under the SGWP must be in compliance with the California Environmental Quality Act (CEQA), which requires the CEQA lead agency to consider the impacts of its actions on the environment, including cultural resources. Additionally, California Public Resources Code Section 21090.3.1 requires the CEQA lead agency to consider project effects on tribal cultural resources and to conduct consultation with California Native American tribes.

To meet the requirements under CEQA, Applied EarthWorks, Inc. (Æ), under contract to Crawford and Bowen Planning, Inc., conducted a cultural resource inventory to determine whether cultural resources are present within the approximately 3-acre Project area for the proposed improvements. The inventory included a records search at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System to identify previously recorded cultural resources and prior studies in the area; archival research; a search of the Native American Heritage Commission's (NAHC) Sacred Lands File and communication with local Native American tribes and individuals to solicit input; a pedestrian survey of all open ground within the Project area; and a California Register of Historical Resources eligibility evaluation of a segment of the Herndon Canal (P-10-005573) that lies within the Project area.

The SSJVIC reported two previous cultural resource studies have occurred within portions of the Project area and two studies within a 0.5-mile radius of the Project. Additionally, the records search identified one resource within the Project area, the historical Herndon Canal (P-10-005573), and one previously recorded cultural resource, the Biola Branch of the Southern Pacific Railroad System (P-10-003930), within 0.5 mile of the Project. A search of the NAHC's Sacred Lands File and outreach to local tribal representatives did not result in the identification of sacred or important tribal cultural sites within the Project area. However, Chairperson Ron Goode of the North Fork Mono Tribe stated that due to the Project's proximity to village sites along the San Joaquin River and its associated creeks and drainages, Native American isolated artifacts and/or sites may be found in the Project area.

Æ's pedestrian survey did not identify any previously unrecorded archaeological resources or historic-era built environment resources. The historical Herndon Canal (P-10-005573) is at the northern end of the Project area. The canal was built in the late nineteenth century by brothers

E. B. and Robert Perrin to irrigate their agricultural colonies northwest of Fresno. Æ evaluated the segment within the Project area and found it to be historically significant for its association with the development of the county's agribusiness and colonization, and with E. B. Perrin, who is responsible for building the canal that led to the expansion of settlement at the turn of the twentieth century. However, due to the lack of historical integrity, this segment of the Herndon Canal is not eligible for inclusion in the California Register.

In sum, there are no known significant cultural resources within the Project area that will be impacted by the Project as currently designed. However, due to known Native American village sites in the nearby San Joaquin River watershed and the possibility that isolated artifacts or prehistoric sites relating to Native American occupation may be uncovered in previously undisturbed portions of the Project (such as the area planned for basin expansion), Æ recommends that an archaeologist monitor ground-disturbing construction of the recharge basin expansion. Moreover, Æ advises that in the event archaeological remains are encountered at any time during development or ground-moving activities in any of the areas associated with the proposed improvements, all work in the vicinity of the find should be stopped until a qualified archaeologist can assess the discovery. Finally, if human remains are uncovered during construction, the Fresno County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent, who will be afforded the opportunity to recommend means for treatment of the human remains following protocols in California Public Resources Code (PRC) 5097.98.

A copy of this report will be transmitted to the SSJVIC at California State University, Bakersfield, for inclusion in the California Historical Resources Information System. Field notes and photographs are on file at Æ's office in Fresno, California.

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1

INTRODUCTION

The Biola Community Services District (CSD) is preparing to construct the necessary infrastructure to create a groundwater recharge facility in the City of Biola within Fresno County, California (Figure 1-1). The proposed Groundwater Recharge Project (Project) will include surface water delivery from the Fresno Irrigation District's (FID) Herndon Canal at the north end of the Project area through a new pipeline connected to an expanded recharge basin system. The new pipe will run south from the Herndon Canal along North Third Avenue and connect to an existing pipeline that flows into an existing recharge basin at the south end of town (Figure 1-2). The existing 2-acre basin will be expanded to 5 acres. The Project is expected not to exceed a depth of 25 feet below the surface.

The City of Biola is approximately 13.6 miles northwest of Fresno. Specifically, it is 1.1 miles south of the San Joaquin River in Township 13 South, Range 18 East, Section 16, as shown on the U.S. Geological Survey (USGS) Biola quadrangle (Figure 1-2). The Project area extends approximately 3,000 feet from the Herndon Canal to the proposed basin and covers roughly 3.1 acres.

1.1 PROJECT DESCRIPTION AND OBJECTIVES

The goal of the proposed Project is to increase the amount of surface water recharged to the groundwater to offset water pumped from the aquifer. The Project will help bring the Biola CSD into compliance with the goals of the Sustainable Groundwater Management Act. It will also create a more reliable water supply for dry years.

The Project includes the following elements: a turnout valve with a flow meter on the FID Herndon Canal, an 18-inch-diameter pipeline, expansion of the existing recharge basin, and associated fencing (Figure 1-3). The pipeline will be installed south across Shaw Avenue on Third Street to an existing connection at G Street. The existing pipeline continues east on G Street to Fourth Street then south to the existing recharge basin. The recharge basin will be enlarged to 5 acres by including the 3 acres adjacent to the existing basin owned by the Biola CSD. A fence will be erected around the enlarged basin.

1.2 REGULATORY REQUIREMENTS

The proposed Project will be funded by the Department of Water Resources (DWR) Sustainable Groundwater Planning Grant (SGWP), established through the approval of Proposition 1 in 2014. The DWR is the lead state agency responsible for ensuring compliance with the California Environmental Quality Act (CEQA) statute (California Public Resources Code [PRC] 21000–21189) and guidelines (Title 14, California Code of Regulations [CCR], Sections 15000–15387), which mandate that government bodies consider the impacts of discretionary projects on the environment. If a project has the potential to cause substantial adverse change in the characteristics of an important cultural resource or “historical resource”—either through demolition, destruction, relocation, alteration, or other means—then the project is judged to have

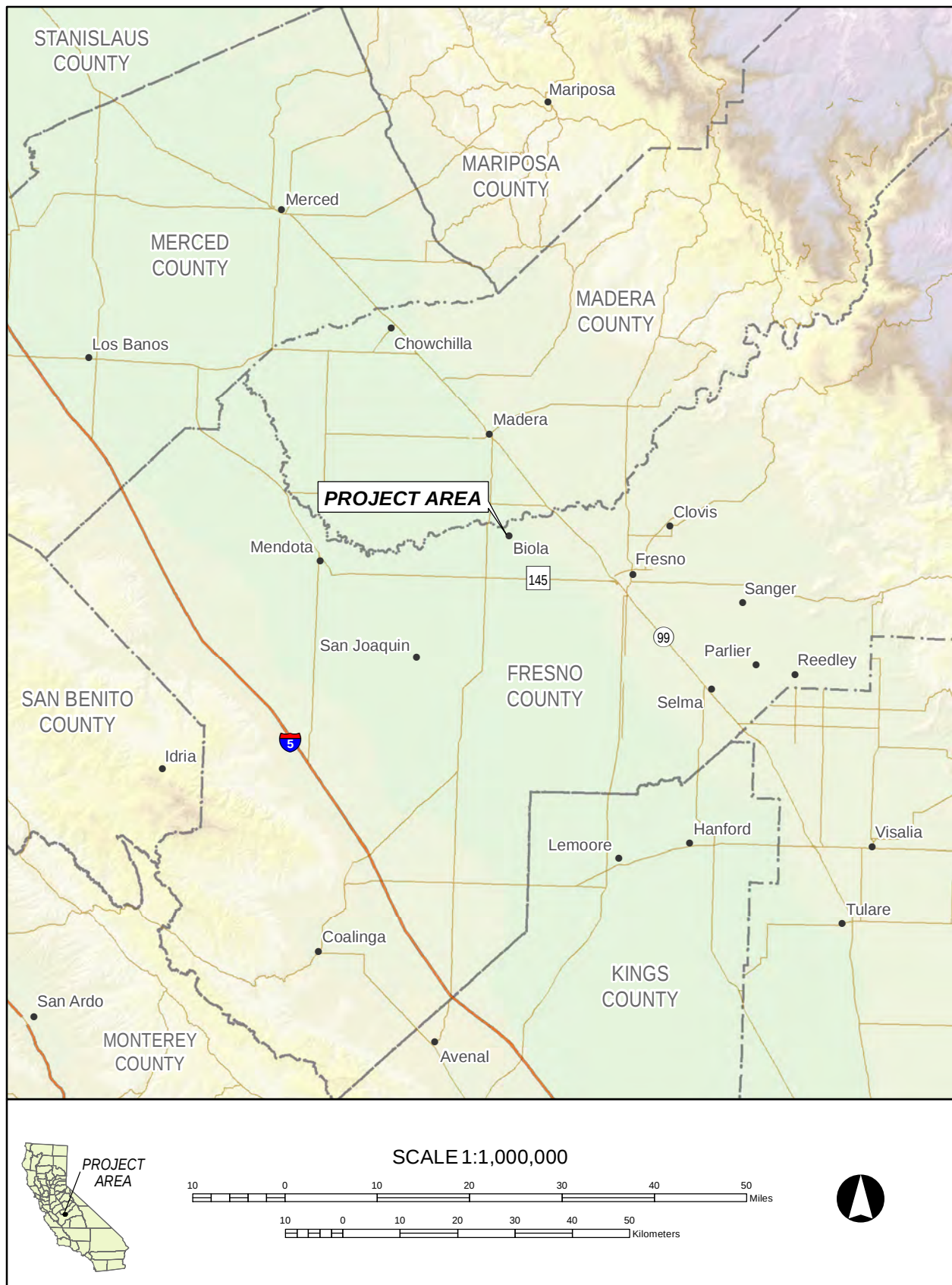


Figure 1-1 Project vicinity in Fresno County, California.

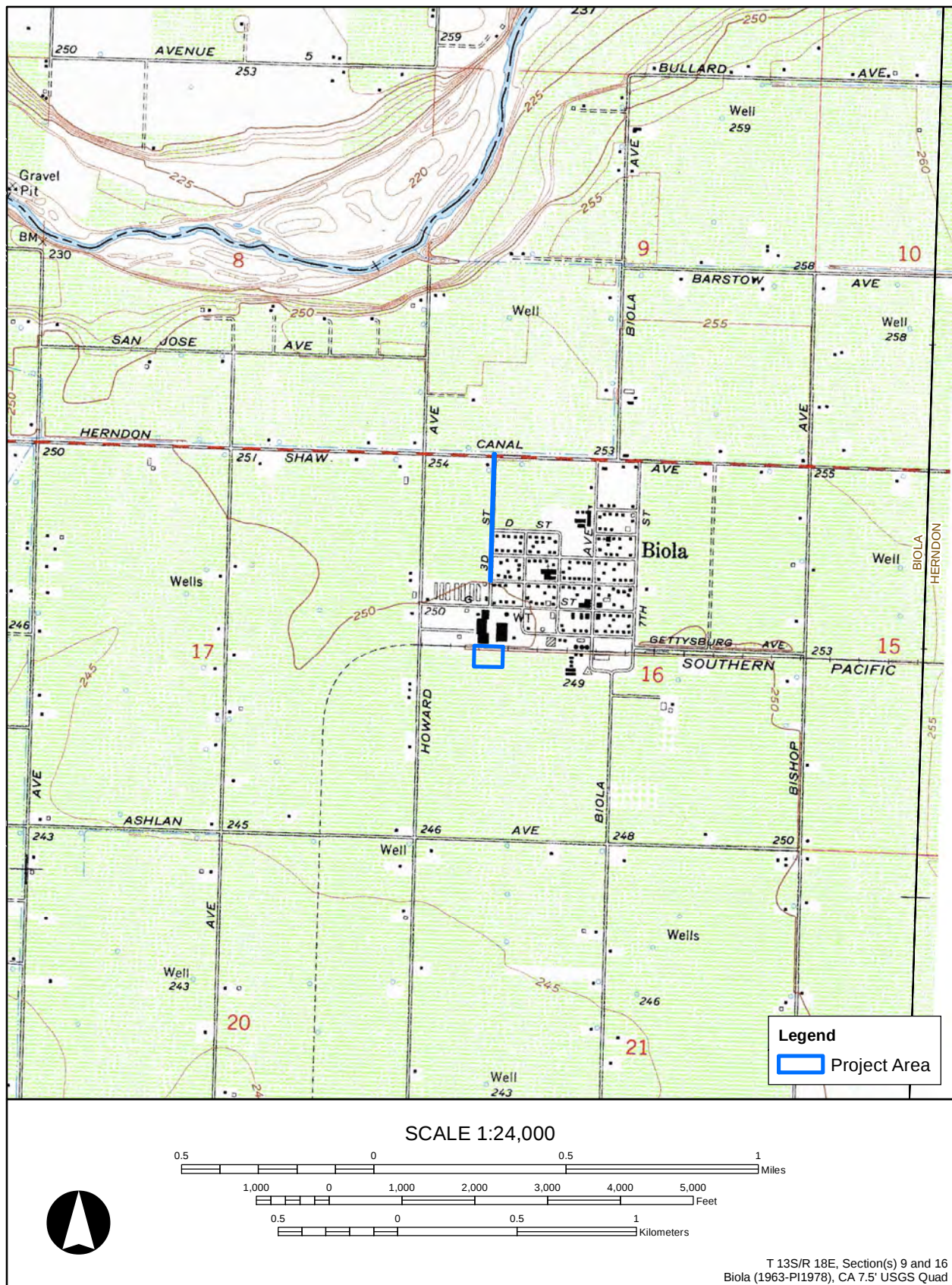


Figure 1-2 Project location on the USGS Biola, CA 7.5-minute topographic quadrangle.

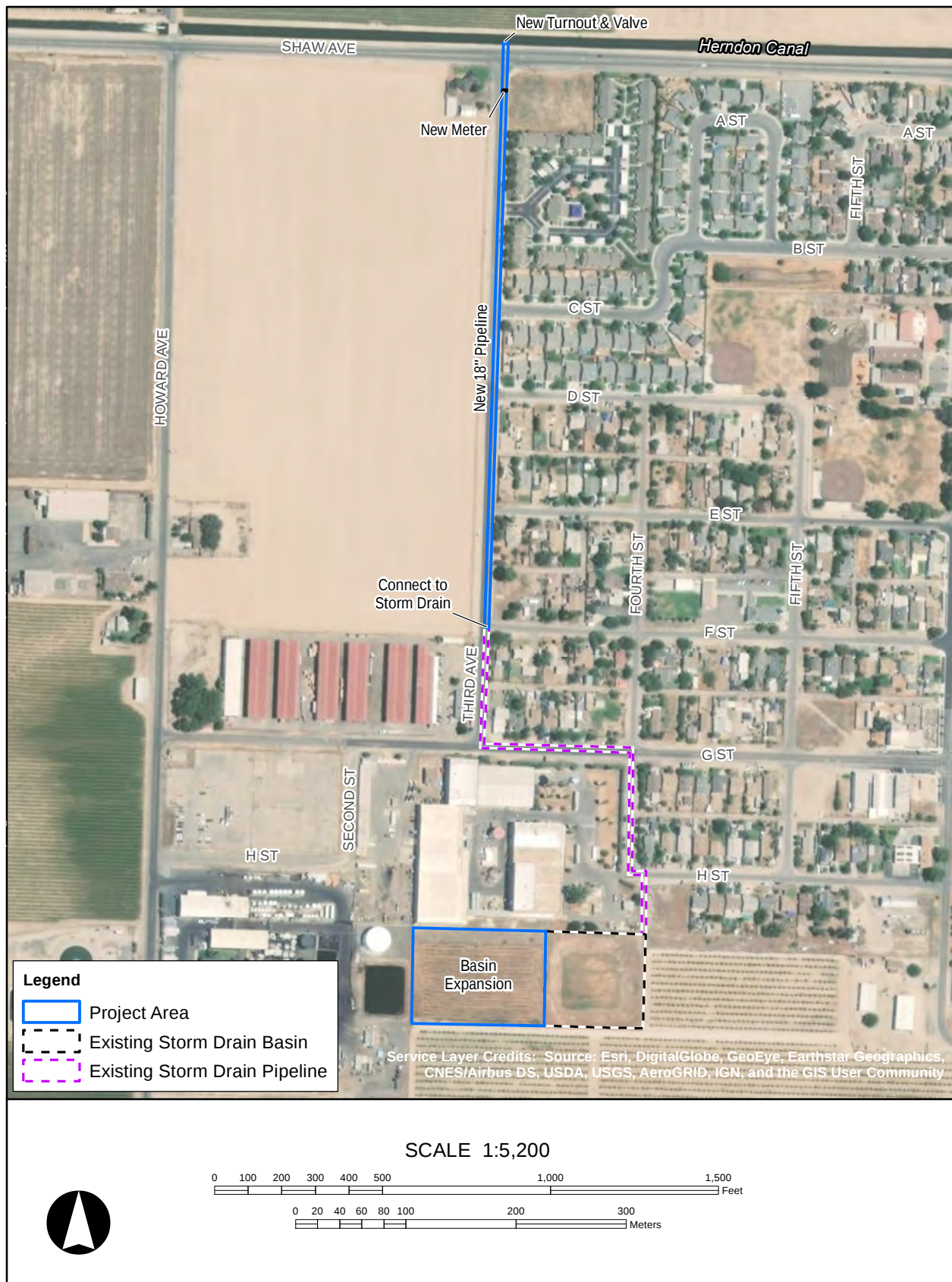


Figure 1-3 Components of the Biola Groundwater Recharge Project.

a significant effect on the environment (CEQA Guidelines, Section 15064.5[b]). CEQA Guidelines Section 15064.5(a) defines a historical resource as one that: (1) is listed or determined eligible for listing in the California Register of Historical Resources (CRHR) (PRC Section 5024.1; 14 CCR Section 4852); (2) is included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or identified as significant in a historical resource survey per the CRHR eligibility criteria (PRC Section 5024.1[c]); or (3) is considered eligible by a lead agency under PRC Section 5020.1(j) or 5024.1. The definition subsumes a variety of resources, including prehistoric and historical archaeological sites, structures, buildings, and objects (CEQA Guidelines Sections 15064.5[a][3] and 15064.5[c]).

1.3 SCOPE OF WORK

To meet the requirements under CEQA, Applied EarthWorks, Inc. (Æ) under contract to Crawford and Bowen Planning, Inc., conducted a cultural resource inventory to determine whether cultural resources are present within the 3.1-acre Project area. The inventory included a records search at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS) to identify previously recorded cultural resources and prior studies in the area, historical research; a search of the Native American Heritage Commission's (NAHC) Sacred Lands File and communication with local Native American tribes and individuals; a pedestrian survey of the Project area; and identification and California Register eligibility evaluation of a segment of the historical Herndon Canal.

Æ Principal Archaeologist Mary Baloian (Ph.D.), a Registered Professional Archaeologist (RPA 15189), served as project manager for this investigation, providing quality oversight and technical guidance for all aspects of the study. Æ Staff Archaeologist Joshua Tibbet (B.A.) conducted an intensive pedestrian survey of the Project area and recorded a segment of the Herndon Canal (P-10-005573). Tibbet assisted with the preparation of this technical report and completed the California Department of Parks and Recreation (DPR) cultural resource record forms with the assistance of Æ Historian Randy Baloian (M.A.). Jessica Jones (B.A.) managed the GIS data and prepared all maps and graphics in this report. Résumés of key personnel are provided in Appendix A.

2 BACKGROUND

2.1 NATURAL ENVIRONMENT

The Project lies within the San Joaquin Valley, the southern half of an elongated trough called the Great Valley. This 50-mile-wide lowland extends approximately 500 miles from the Cascade Range to the Tehachapi Mountains (Norris and Webb 1990:412) and is divided into two unequally sized lobes separated by the Stockton fault. The northern lobe is the Sacramento Valley, drained by the Sacramento River, whereas the southern lobe is the San Joaquin Valley, drained by the San Joaquin River. The southeastern end of the San Joaquin Valley contains the now-dry Tulare–Buena Vista–Kern Lake Basin.

The San Joaquin Valley is bound by the Sacramento–San Joaquin River Delta to the north, the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi Mountains to the south. The San Joaquin Valley comprises two distinct hydrologic subbasins: the San Joaquin and the Tulare. The San Joaquin subbasin is drained by the San Joaquin River. The Tulare subbasin has no regular surface outlet; it was formed by the merging of alluvial fans from the Kings River to the east and Los Gatos Creek to the west (Cone 1911). The Tulare subbasin rivers—the Kings, Kaweah, Tule, and Kern—flowed into the subbasin, forming large inland lakes. Tulare Lake, approximately 40 miles south of the Project, was an extremely shallow seasonal lake that expanded horizontally across the flat landscape as it filled with winter and spring runoff. Its broad yet shallow dimensions resulted in wide fluctuations of the lake’s shoreline during both prehistoric and historical times. As it filled beyond its natural alluvial barriers, water was channeled down the Fresno Slough into the San Joaquin River. Tulare Lake was the largest naturally occurring lake in California as recently as 1920 (Norris and Webb 1990:433). The size of the lake was gradually reduced by the historical development of irrigation systems and the reclamation of water from the Kings River and other sources. Today, Tulare Lake only exists in times of flooding, and the deep reserve of groundwater is tapped for private and public use.

The Project is approximately 1.1 miles south of the San Joaquin River and approximately 13.6 miles northwest of the city of Fresno. USGS topographic maps do not indicate any natural drainages crossing the Project area, which lies at 250 feet above mean sea level.

The development of agriculture within the Project area resulted in the replacement of native plants and animals with domesticated species. Common native plants today include white, blue, and live oaks (*Quercus* sp.) as well as walnut (*Juglans* sp.), cottonwood (*Populus aegiros*), willow (*Salix* sp.), and tule (*Schoenoplectus* sp.). Also prominent is bulrush (*Cyperus* sp.) and cattail (*Typha* sp.), various grasses, flowers, and saltbrush. The previously swampy valley floor once provided a lush habitat for a variety of animals, including mule deer (*Odocoileus hemionus*), tule elk (*Cervus* sp.), pronghorn (*Antilocapra americana*), grizzly bears (*Ursus arctos horribilis*), black bears (*Ursus americanus*), and mountain lions (*Puma concolor*) (Preston 1981:245–247). Mammals commonly noted today are the valley coyote (*C. latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), kit fox (*Vulpes macrotis*), and rabbits (Leporidae). Birds in the area include American osprey (*Pandion haliaetus*), redwing blackbird (*Agelaius phoeniceus*), marsh hawk (*Circus cyaneus*), willow and Nuttall woodpeckers (Picidae),

western meadowlark (*Sturnella neglecta*), and quail (Phasianidae). The lakes, rivers, and streams throughout the region provide habitat for freshwater fish, including Sacramento perch (*Archoplites interruptus*), rainbow trout (*Oncorhynchus mykiss*), thick-tailed chub (*Gila crassicauda*), and Sacramento sucker (*Catostomus occidentalis*) (Preston 1981:249).

2.2 PREHISTORY AND ARCHAEOLOGY

In contrast to the numerous archaeological excavations in the south-central Sierra Nevada and adjacent foothills, there has been little archaeological work done in the central San Joaquin Valley generally, or in the study vicinity specifically. Recent excavations relatively close to the Project area include work along the San Joaquin River at CA-MAD-826 and CA-MAD-295/827 (Baloian et al. 2006), at Jamison Ranch (CA-MAD-1503) along Highway 41 west of the San Joaquin River (Shapiro et al. 2010), along Highway 168 at CA-FRE-1671 (Moratto 1988), and near Mendota at CA-FRE-3529 (Baloian et al. 2011). This work has produced data that are generally consistent with prehistoric sequences developed from excavations in the foothill and mountain areas that provide a fairly clear understanding of cultural change during the last 2,000–3,000 years (summarized in Moratto 1984:316–324; Table 2-1).

Table 2-1
Culture Phases in the Sierra Nevada Foothills
(adapted from Moratto 1984)

Phase	Dates	Common Artifacts and Features
Chowchilla Phase	800 B.C.–A.D. 550	Large projectile points, cobble mortars and cylindrical pestles, milling stones, bone fish spear tips, abundant beads and ornaments of <i>Olivella</i> and <i>Haliotis</i> shell, bone tools common, extended and semi-extended burials, grave goods common and abundant, ochre in graves.
Raymond Phase	A.D. 550–A.D. 1500	Milling stones, small-to-medium projectile points (likely introduction of bow and arrow), bedrock mortar and unshaped pestles, burials usually in flexed position, few to no grave goods, cairns over burials, <i>Olivella</i> and <i>Haliotis</i> beads nearly vanish from archaeological record.
Madera Phase	A.D. 1500–Historic Period	Lightweight arrowheads, steatite disk beads, bedrock mortars and cobble pestles, <i>Olivella</i> beads, steatite artifacts, small amounts of brownware pottery, flexed burials (cremations for high-status individuals), grave goods common, and small quantities of European artifacts.

This chronology is relatively short compared to the southern San Joaquin Valley, where archaeological investigations in the Tulare Lake and Buena Vista Lake localities suggest that people occupied the region as early as 11,000–12,000 years ago (Fredrickson and Grossman 1977; Riddell and Olson 1969). Despite the consistent data from sites in Fresno and Madera counties, there has been very little archaeological excavation in the immediate study vicinity and it is unclear whether the cultural phases identified in the adjacent foothills extend to this area. Moreover, the late phase of this chronology is generally associated with ancestral Miwok peoples rather than Yokuts.

Studies conducted in the 1960s along the eastern side of the Diablo Range, west of the Project area, resulted in the identification of a cultural sequence similar to, but distinct from, that of the Sierra Nevada foothills. Excavations conducted for the construction of several reservoirs, including San Luis (Olsen and Payen 1969; Riddell and Olsen 1965; Treganza 1960), Los Banos (Pritchard 1967, 1970), and Little Panoche (Olsen and Payen 1968), led to the development of four cultural complexes focused on the exploitation of the foothill-valley biotic zone (Table 2-2). Further refinement of the chronology is based on archaeological excavations of CA-MER-3, CA-FRE-128, and CA-MER-S-94 (Moratto 1984:189–193).

Table 2-2
Culture Phases in the Western San Joaquin Valley
(adapted from Moratto 1984)

Phase	Dates	Common Artifacts and Features
Positas Complex	ca. 3300–2600 B.C.	Shaped mortars, short cylindrical pestles, milling stones, perforated flat cobbles, spire-lopped <i>Olivella</i> beads
Pacheco B Complex	ca. 2600–1600 B.C.	Foliate bifaces, rectangular <i>Haliotis</i> ornaments, rectangular <i>Olivella</i> beads
Pacheco A Complex	ca. 1600 B.C.–A.D. 300	Multiple types of <i>Olivella</i> beads (often in interments), <i>Haliotis</i> disk beads and ornaments, perforated canine teeth, bone awls, whistles, grass saws, large stemmed and side-notched projectile points, milling stones, mortars, and pestles
Gonzaga Complex	A.D. 300–1000	Extended and flexed burials, bowl mortars and shaped pestles, squared and taper-stemmed projectile points, bone awls and grass saws, <i>Haliotis</i> ornaments, multiple types of <i>Olivella</i> wall beads
Undefined	A.D. 1000–1500	Archaeological sites in the region demonstrate an approximate 500-year hiatus in which there appears to be little to no evidence of cultural occupation
Panoche Complex	A.D. 1500–1850	Large circular structures; flexed burials; cremations; few milling stones; multiple types of mortars and pestles; bone awls, saws, whistles, and tubes; side-notched arrowheads; clamshell disk beads; <i>Haliotis</i> epidermis disk beads; <i>Olivella</i> wall beads

It is difficult to determine the ancestry of these early inhabitants. Olsen and Payen (1983) speculate that Ohlone people may have crossed the Diablo Range and established habitation on its eastern side near the pass. Others suggest that the artifact assemblages associated with occupation circa 1000 B.C.–A.D. 500 are more similar to those of the Valley Yokuts (Moratto 1984:193). The latest occupation, the Panoche Complex, is associated with the time period in which the ethnographic Yokuts inhabited the region.

The impression gained from investigations in the central San Joaquin Valley and neighboring foothills is one of highly mobile foragers who were slowly changing lifeways and becoming more sedentary due to ecological and social changes. The shift in resource procurement from small animals and hard seeds to acorns and larger game suggests intensified and more specialized use of local resources.

During the early nineteenth century, Native Californian populations dwindled, the missions began to lose neophytes, and Spanish (and later Mexican) raids into the inland areas were

conducted to capture Native Americans who escaped from the missions, abduct people (especially children) for the missions, and conduct punitive actions against both runaways and native raiders. In addition, the presence of the Spanish missions pushed many formerly coastal people inland, causing some consolidation of the Native Californian population around water sources in the San Joaquin Valley. As a result, the peoples of the San Joaquin Valley became dependent on a diminishing resource base and became more militant in their opposition to European forces. Raiding parties originating in the San Joaquin Valley traveled through the Panoche and Pacheco passes to attack Spanish/Mexican settlements both in acts of armed resistance and to obtain goods. This not only required the adoption of horses and firearms but also resulted in a switch in staple foods from acorns to horsemeat (Beck and Haase 1974:23; Cook 1976:226–254).

The missions were secularized in 1834, and the need for new recruits therefore ceased. Many Native Californians found employment on nearby ranchos. As the nineteenth century wore on and California was “Americanized,” Native Californians continued to assimilate, although not always easily, into local social and economic systems.

2.3 ETHNOGRAPHY

At the time of first contact with the Spanish missionaries, the Yokuts, including Southern Valley, Northern Valley, and Foothill groups, collectively inhabited the San Joaquin Valley as well as the eastern foothills of the Sierra Nevada from the Calaveras River southward to the Kern River (Wallace 1978a, 1978b). The Yokuts language belongs to the broader Penutian family, which subsumes a relatively diverse assemblage of languages including Miwok, Costanoan, Maiduan, and Wintuan (Silverstein 1978). Compared to other Penutian languages, however, Yokuts shows considerable internal linguistic homogeneity, especially given the extent of its geographic distribution. Dialects differ minimally and were mutually intelligible, at least among individuals from contiguous groups. This relative lack of linguistic differentiation suggests that ancestors of the Yokuts entered California after the arrival and subsequent radiation of the more linguistically diverse Penutian groups such as the Miwok and Costanoan (Moratto 1984:554).

The Project lies within territory typically ascribed to the Pitkachi. Relatively little is known of the Pitkachi, and both Kroeber (1976:484) and Latta (1999:161) provide only their general location and the names of their known settlements: *Gewacheu* (near, likely on the banks of, the San Joaquin River) and *Kohuou* (near Herndon). It is likely, however, that their lifeways were similar to that of other Yokuts groups.

Acorns were a Yokuts staple; additional nutrition was culled from other nuts and seeds, berries, fruit, and game. These dietary items as well as tool stone and a variety of other resources were gathered at summer camps. Procurement loci survive today as scatters of lithic artifacts, granite outcrops with bedrock milling stations, and scattered and cached ground stone artifacts where plants and seeds were processed. Steatite is available in the Sierra Nevada foothills, and items made from this material (including cooking bowls, beads, and ornaments) are often found at Yokuts sites.

The Yokuts profited from the east-west trade of goods that flowed between the Pacific Coast and the High Sierra and Great Basin (Davis 1961). The Yokuts bartered their local staples (e.g.,

freshwater fish, acorns, steatite goods, and tule reeds) to obtain goods such as obsidian, pine nuts, shell beads and ornaments, and other exotic commodities.

As with other Indian groups in California, the lifeways of the Yokuts were dramatically altered as a result of contact with Spanish explorers and missionaries, miners, ranchers, and other immigrants who entered the San Joaquin Valley after 1700. The introduction of European culture and new diseases proved devastating to the native population. Having been pushed off their land by white settlers, many Yokuts ended up as impoverished agricultural workers or otherwise occupied the lower echelons of the new California society (Wallace 1978a).

2.4 HISTORY

2.4.1 Development and Growth of Fresno County

The California gold rush, which brought droves of miners to the Sierra Nevada foothills in search of the precious ore, marked the beginning of the first significant Euro-American settlements in what would become Fresno County. Although the region is south of the gold fields of the Sierra Nevada Mother Lode, gold mining did occur along the San Joaquin River. Outposts such as Fort Miller and Campbell's Ferry offered river crossing points, supplies, lodging, and, in the case of the former, fortification from Indian attacks (Clough and Secrest 1984:44–68). Located on the south bank of the San Joaquin River, Fort Miller grew into the town of Millerton, which became Fresno County's first seat in 1856.

Demographic data from the 1860 U.S. Census suggests that the county's population was ethnically diverse, fairly transient, and mostly male. According to local historian Paul Vandor (1919:105), 7,899 people lived in Fresno County, including 4,305 white settlers, 300 Chinese, and 3,294 Indians. A closer look at the records indicates that the census takers subsumed Californios (i.e., native Californians with both Spanish and Native American ancestry) together with Yokuts into the same racial category of "Indian." Many of the county's Native American population lived in a village near the county seat at Millerton (Clough and Secrest 1984:68), while the Californios—who are identified by their Spanish surnames—were found in San Juan, Fresno City, and Firebaugh. Much of the white population resided in Millerton, Scotsburg (which later became Centerville), and Kingston. The Chinese, whose actual population may have exceeded 300, were segregated in their own quarter of Millerton (Clough and Secrest 1984:68; Vandor 1919:105). Virtually all of the Chinese were listed as miners, as were a significant number of Californios. Some whites also engaged in gold prospecting, but the fact that mining was undertaken primarily by the nonwhite segment of the population strongly suggests that it was not a lucrative business within the county. Throughout the California gold rush, white miners excluded Chinese and Latinos from the choice claims through various means, relegating them to the worked-over placers or poorer diggings outside the Mother Lode (like Fresno County). Census data for personal property indicate that the economic weight of the county lay in ranching. With an estimated \$30,000 in livestock, Andrew M. Darwin of Scotsburg led the local industry, followed by George F. Smith of Millerton (\$28,000) and Charles Lewis of Kingston (\$22,000).

During the 1850s and 1860s, Fresno County slowly developed its agrarian economy based on farming and ranching. Agricultural settlements established in the late 1860s by both private land developers and southerners displaced after the Civil War soon fizzled due to drought, lack of

irrigation infrastructure, and interference from free-range livestock (Vandor 1919). By the beginning of the 1870s, however, changes in laws and the introduction of irrigation accelerated development.

Irrigation began modestly within Fresno County when Anderson Akers and S. S. Hyde built a 4-foot-wide and 2-foot-deep ditch from the west bank of the Kings River in 1866 (Elliot 1882:102). Two years later, the Centerville Canal and Irrigation Company bought the ditch and expanded the channel to 20 feet wide and 4 feet deep. J. B. Swum built a similar ditch in 1869. The Fresno Canal and Irrigation Company, headed by Moses Church and A. Y. Easterby, constructed one of the first extensive irrigation systems in the valley, which began supplying water to their agricultural colony in 1876 (Clough and Secrest 1984:143). In the coming decades, a network of canals and ditches sprouted from the banks of the Kings River to provide water to various other farming colonies (Mead 1901). For Church and other wealthy landowners, the intended effect of irrigation was to increase the value of their properties so that they could be subdivided and sold to newly arriving homesteaders at a hefty profit. While this primary purpose was certainly achieved, the advent of intensive irrigation additionally led to a shift in both the types of crops grown and the size of the typical farm. Prior to intensive irrigation and colonization, valley pioneers initially grew wheat and other grain crops or raised cattle—both large-scale ventures requiring substantial acreage. As irrigation water became more readily available, individual farmers realized that premium crops like grapes, citrus, and tree fruit could be profitably grown on lots as small as 20 acres.

In 1872 the Southern Pacific Railroad rolled into Fresno County, connecting the previously remote region with northern California. Shortly afterward, the town of Fresno was born and quickly rose to replace Millerton as the county seat in 1874. In that same year, California enacted the “no fence” law, a decidedly pro-agriculture statute that held ranchers responsible for damages caused by their herds and compelled them to limit the range of their livestock.

The trend toward smaller farms began in the late nineteenth century and continued well into the twentieth century, spurred in part by the 1887 Wright Act, which provided for the creation of irrigation districts and the construction of the San Francisco and San Joaquin Railroad in 1896 (acquired by Atchison, Topeka, and Santa Fe Railway in 1900). Between 1900 and 1920, 45,000 new farms were established in California, of which about 85 percent were less than 50 acres in size (Hall 1986:170).

World War I increased the demand for agricultural goods, especially those resistant to damage from storage and transportation (e.g., canned fruits and vegetables, dried fruit, wine, and cotton). Greater demand, coupled with the introduction of an increasingly broad range of crops, fueled local agribusiness. However, in the early 1920s, at the onset of Prohibition, the demand for viticulture products dropped significantly, which resulted in hard times for grape farmers.

Beginning in the mid-twentieth century, water management methods became more diverse and included the development of major irrigation projects such as the Central Valley Project, the integration of local irrigation systems with these larger projects, the storage of runoff in reservoirs for hydroelectric power and flood control, and maintenance of underground water tables for such uses as irrigation and drinking water. Technological improvements in electric water pumps allowed wells to extend even deeper into the aquifer, seriously impacting the water

table in the valley. By the 1950s, these advancements spurred further agricultural development, creating the agricultural system as it exists today.

2.4.2 Biola and the Biola Branch Railroad

From the late nineteenth century up to the first decade of the twentieth century, the large parcels around the Project area and the future townsite of Biola supported grain farms, which were irrigated by the nearby Herndon Canal (Guard 1909:24; Vandor 1919:780, 783). By the time the 1913 Fresno County atlas was issued, the town of Biola had emerged, owing its existence to the subdivision of the surrounding properties into Thompson grape vineyard lots (Progressive Map Service 1913:24, 87). Biola got its name from William Kerckhoff, one of the first owners of the San Joaquin Power Company. Kerckhoff wanted to pay homage to his favorite academic institution, the Bible Institute of Los Angeles (Clough 1986:250; Durham 2001:27), which also embraced the acronym and today is known as Biola University.

The Villa Land Company built a fruit packing plant in Biola, which was later leased by the California Associated Raisin Company (Vandor 1919:988). By late 1913, Biola had become a productive agricultural center for Thompson grapes. Biola boosters advertised the city in the *Fresno Bee* as the “largest Thompson growing section in the raisin belt” due to the area’s white ash soil and ample water supply (City of Biola Boosters 1923). To expedite the movement of goods from Biola across Fresno County, the Fresno Traction Company financed construction of a branch line running west from the Biola Junction on the Southern Pacific’s main Central Valley Line in Fresno for 8.5 miles to the community of Biola. This segment became known as the Biola Branch. The line was immediately leased to the Southern Pacific Railroad Company. From 1929 to 1930, the Southern Pacific Railroad Company extended the branch line 4 miles southward to link Biola with Kerman (Palmer 2009; Progressive Map Service 1913:24; USGS 1946). The company also paid for other infrastructure needs to support the new extension, including a \$39,000 safety subway on Whitesbridge Avenue in Kerman (*Fresno Bee* 1930). The Southern Pacific Railroad Company purchased the Biola Branch in 1936 (Clough 1986:250). Segments of the Biola Branch were abandoned as early as 1956, and the entire branch line was abandoned in 1985 (Palmer 2009).

2.4.3 Herndon Canal

E. B. Perrin and his brother Robert, who came to Fresno in 1869, amassed approximately a quarter million acres in north and northwest Fresno (Clough and Secrest 1984:146; Vandor 1919:259). Like other developers, the brothers thought they could increase the value of the land by bringing irrigation water to their property. Beginning in 1882, they set out to construct a canal that would flow southwest from Friant along the south side of the San Joaquin River. However, the Upper San Joaquin Canal proved to be a total failure due to the volcanic soils along the river, which caused too many cave-ins during construction.

In 1887, the Perrins gained control of the Fresno Canal and Irrigation Company (FCIC), thereby acquiring direct access to water from the Kings River. The main conduit of this system was the Fresno Canal, from which the Fancher Creek Canal, the Mill Ditch, and other smaller ditches originate (Willison 1980:270-286). The head gate of the Herndon Canal is at the terminus of the Mill Ditch (Willison 1980:270). The Herndon Canal, which appears in an 1891 Fresno County atlas as the Perrin Canal, was built by the FCIC in the middle or late 1880s (Thompson 1891).

Comparison of the original and current alignments of portions of the canal through urban areas indicates that the initial route has been altered; the linear right-of-way of the current canal, which sharply corners around Fresno's city streets in many segments, contrasts with the gently curved original path (see Nettles and Baloian 2006). Historic maps suggest that these changes occurred between 1907 and 1923, but the exact date(s) of these modifications could not be determined by current research (Harvey 1907; USGS 1923). The current alignment of the canal within the Project area appears to be the original alignment and has not been rechanneled since its inception, as suggested by a comparison of maps dating from 1891, 1923, and 1935. Further work on the canal may have taken place after the FID purchased the assets of the Fresno Canal and Land Company (descendant of the FCIC), and sought to enlarge and improve the irrigation system. From 1921 to 1926, the FID effected more than \$400,000 worth of improvements to the canal network (Willison 1980:129, 182). Much of the work involved replacing old dilapidated wood structures with concrete.

Ongoing maintenance, such as lining of the walls, has also taken place over the years. The original date that the canal was lined is unknown, but an evaluation of the canal for the Mojave Pipe Line Project states that gunite (a mixture of sand, cement, and water) was sprayed along portions of the canal in the late 1970s (Nelson 2000). Portions of the canal remain unlined today.

3 METHODS

3.1 NATIVE AMERICAN OUTREACH

PRC 21080.3.1 requires the CEQA lead agency to consider project effects on tribal cultural resources and to conduct consultation with California Native American tribes. Appendix C of the SGWP Grant Program Guidelines (California Department of Water Resources 2015:16) contains information on the tribal notification process recommended for the lead agency. The DWR is responsible for government-to-government consultation for the Project; however, AECOM is responsible for reaching out to the Native American community to inquire about sacred lands or resources that may be impacted by the proposed Project.

AECOM sent an e-mail to the Native American Heritage Commission (NAHC) on October 9, 2018 requesting a search of its Sacred Lands File and the contact information for local Native American representatives who may have information about the Project area. The NAHC responded on October 10, 2018, with its findings and attached a list of Native American tribes and individuals culturally affiliated with the Project area. AECOM sent a letter describing the Project to each of these contacts asking for information on sacred/sensitive area and or tribal cultural resources in the Project area. The letters were sent to the individuals listed in Appendix B via the U.S. Postal Service on October 22, 2018. AECOM followed up either by phone or email on November 28, 2018. Correspondence with the NAHC and tribal contacts is included in Appendix B.

3.2 RECORDS SEARCH

In 2017, the SSJVIC of the CHRIS at California State University, Bakersfield, conducted a records search for the Biola CSD Water Systems Upgrade Project (Jones and Baloian 2017). Because the 2017 records search (File #17-413) covered much of the current Project area and was conducted only a year prior, AECOM did not repeat the search and only requested information for a portion of the 0.5-mile buffer around the Project area that was not covered by the earlier search. This supplemental records search request was made on September 19, 2018. Sources consulted included archaeological site and survey base maps, reports of previous investigations, cultural resource records, the listings of the Historic Properties Directory of the Office of Historic Preservation, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources (Appendix C).

3.3 ARCHIVAL RESEARCH

The purpose of archival research for archaeological studies is to provide information regarding the history of land use and the potential for historic-era archaeological deposits to exist within the Project area. The investigation compiled information from several sources, including:

- Map Aerial Locator Tool (MALT) of the Henry Madden Library at California State University, Fresno (<http://malt.lib.csufresno.edu/MALT/>);

- Various online resources for historical maps and documents; and
- Æ's in-house library, which includes local histories.

3.4 PEDESTRIAN SURVEY

On September 27, 2018, Æ Staff Archaeologist Joshua Tibbet conducted a pedestrian survey of the 3.1-acre Project area. Tibbet surveyed all open ground within the Project area using parallel transects spaced no more than 15–20 meters apart. He photographed the survey area using a digital camera to document the environmental setting and ground visibility at the time of the survey. He recorded his observations on a Survey Field Record form and documented specific information about the segment of the Herndon Canal in the Project area on a DPR Linear Feature Record (Appendix D). All photographs and field notes are on file at Æ's Fresno office

3.5 EVALUATION OF CALIFORNIA REGISTER ELIGIBILITY

The purpose of evaluating an identified cultural resource within the Project area is to determine whether it meets the criteria of a historical resource eligible for inclusion in the California Register of Historical Resources (CRHR). As described in Chapter 1, CEQA requires government agencies to consider potential impacts to CRHR-eligible properties (i.e., historical resources), whereas such consideration is not necessary for ineligible resources.

The first threshold in this determination is to ascertain whether the site satisfies the age criterion for the state register, which in California is considered to be 45 years of age or older (Office of Historic Preservation [OHP] 1995:2). In California, cultural resources are classified according to *Instructions for Recording Historical Resources*, published by the California Office of Historic Preservation in 1995. This handbook contains listings of resource categories for historical and prehistoric sites as well as standing structures. For built environment resources, it is additionally helpful to define a property along its economic dimensions (e.g., commercial vs. residential; urban vs. rural; agricultural vs. industrial).

The National Park Service (NPS 2002) has established guidelines for evaluating eligibility of resources meeting the age criterion for eligibility to the National Register of Historic Places, which are equally applicable for evaluating CRHR eligibility. The basic steps in the process include: (1) classifying the resource as a district, archaeological site, building, structure, or object; (2) determining the theme, context, and period that the resource represents; (3) determining whether the resource is historically important under a set of significance criteria; and (4) determining whether the resource retains integrity.

The historic context establishes the framework within which decisions about significance are based. The evaluation process essentially weighs the relative importance of events, people, and places against the larger backdrop of history; the context provides the comparative standards and/or examples as well as the theme(s) necessary for this assessment. According to the OHP (1995:11), a theme is the subject or topic of historical study that illustrates a pattern or trend that has influenced the history of an area for a certain period. A theme is typically couched in geographic (i.e., local, state, or national) and temporal terms to focus and facilitate the evaluation process.

Significance is based on how well the subject resource represents one or more of these themes through its associations with important events or people and/or through its inherent qualities. A resource must demonstrate more than just association with a theme; it must be a good representative of the theme, capable of illustrating the various thematic elements of a particular time and place in history. According to the CEQA Guidelines, in order for a resource to be eligible for the CRHR, it must meet at least one of the criteria defined in PRC 5024.1:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- (2) Is associated with the lives of persons important in our past.
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- (4) Has yielded, or may be likely to yield, information important in history or prehistory.

To be included in the CRHR, a property must not only possess historical significance but also the physical means to convey such significance—that is, it must possess integrity. Integrity refers to the degree to which a resource retains its original character. Whereas historical significance requires consideration of the entire resource, the concept of integrity is usually applied to only a portion or segment of the resource. This is particularly relevant for a linear feature, where the level of integrity can vary across its extent and in which assessment of integrity for the entire resource is typically not feasible. Integrity considerations should focus on whether or not a resource retains historic integrity in terms of setting, feeling, association, workmanship, design, materials, and location (OHP 1995:19).

Assessing integrity of a significant resource depends on an understanding of the components or features that give it significance. For this reason, the issue of integrity is addressed only after significance has been established. Moreover, cultural resources that are not significant per CRHR criteria are by definition not eligible for inclusion the register and do not require an integrity assessment.

In evaluating the historical significance and CRHR eligibility of the Herndon Canal, Æ drew from previous evaluations of the canal's segments in Fresno County (Hibma 2010; Nettles and Baloian 2006).

4 FINDINGS

4.1 NATIVE AMERICAN OUTREACH

In its October 18, 2018, response to Æ's request, the NAHC stated that its search of the Sacred Lands File did not indicate the presence of resources in the immediate Project area (see Appendix B). However, the NAHC cautioned that the absence of specific site information in its file does not indicate the absence of cultural resources in the area. The NAHC supplied a list of parties to be contacted for information regarding locations of sacred or special sites of cultural and spiritual significance in the study locale. Letters about the proposed project were sent to the individuals listed below. Æ also sent a follow-up e-mail to those contacts with active e-mail addresses.

- Chairperson Elizabeth D. Kipp of the Big Sandy Rancheria of Western Mono Indians
- Chairperson Carole Bill of the Cold Springs Rancheria
- Stan Alec of the Kings River Choinumni Farm Tribe
- Chairperson Claudia Gonzalez of the Picayune Rancheria of Chukchansi Indians
- Chairperson David Alvarez of the Traditional Choinumni Tribe
- Chairperson Kenneth Woodrow of the Wuksachi Indian Tribe/Eshom Valley Band
- Chairperson Robert Marquez of the Cold Springs Rancheria of Mono Indians
- Tribal Chairperson Robert Ledger Sr. of the Dumna Wo-Wah Tribal Government
- Cultural Resource Manager Eric Smith of the Dumna Wo-Wah Tribal Government
- Board Chairperson Mandy Marine of the Dunlap Band of Mono Indians Historical Preservation Society
- Jerry Brown of the Chowchilla Tribe of Yokuts
- Chairperson Ron Goode of the North Fork Mono Tribe
- Cultural Coordinator Lalo Franco of the Santa Rosa Tachi Rancheria
- Cultural Resources Director Bob Pennell of the Table Mountain Rancheria of California

Æ received responses from Chairperson Kipp of the Big Sandy Rancheria and Chairperson Goode of the North Fork Mono Tribe via e-mail on November 28, 2018. Chairperson Kipp stated that the tribe has no information of sensitive or sacred sites within the city of Biola. However, if

significant items are discovered, the tribe would like to be notified of such items. Chairperson Goode shared that the Project area is within the confines of an ancient village that stretched for miles within the San Joaquin river watershed. He stated that occupants of a village of this magnitude would have utilized the surrounding area within a 5-mile radius. He cautions that Native American sites and artifacts may be discovered in Biola. AECOM has received no other responses to date.

4.2 RECORDS SEARCH

The combined findings of the SSJVIC records search (#17-413) conducted August 2017 and the updated search (#18-386) on October 3, 2018, resulted in the identification of two previous cultural resources studies that overlap the current Project area (FR-01759 and FR-02878) and two studies within a 0.5-mile radius of the Project area (FR-02039 and FR-02508). The search revealed one known resource, the historical Herndon Canal (P-10-005753), within the Project area and one previously recorded resource, the Biola Branch of the Southern Pacific Railroad System (P-10-003930), within a 0.5-mile radius of the Project area.

4.3 ARCHIVAL RESEARCH

A 1937 aerial photograph of Biola depicts a small community surrounded by large tracts of row crops. The image also depicts the Biola Branch of the Southern Pacific Railroad, which forms the southern boundary of the town grid, and adjacent commercial properties to the north. The 1923 USGS Biola 7.5-minute quadrangle shows the Biola Branch extending west from Biola Junction in Fresno and terminating at North Howard Avenue. By 1937, the line extended west of North Howard Avenue and south toward the community of Kerman.

The Herndon Canal is depicted on the 1891 atlas as the Perrin Canal (Thompson 1891). On the 1923 USGS Biola 7.5-minute quadrangle, it is shown in the same alignment but not labeled. By 1935, it appears that the water conveyance was officially referred to as the Herndon Canal (Progressive Map Service 1935). The segment of the canal depicted through Sections 8, 9, and 10 of Township 13 South, Range 18 East does not vary in alignment from 1891 to the present.

No more than 20 residential properties are visible on the 1937 aerial photograph; however, the presence of a town grid system suggests plans for future development (Figure 4-1). By 1946, the number of residential properties doubled, and a new school complex was constructed north of the town's center. Residential development of the town appears to continue into the 1970s, after which it seems to subside with little change to the present (Figure 4-1). Commercial properties adjacent to the railroad south of town appear to be consistently utilized from the mid-twentieth century to present day, despite the decommissioning of the Biola Branch (Palmer 2009).

Much of the Project area occurs within the existing roadway; however, ancillary Project activities (such as vehicle parking, equipment laydown) may overlap the frontage of residential and commercial properties developed between 1950 and 1967. In addition, the proposed basin expansion overlaps the historical alignment of the Biola Branch railroad grade (P-10-003930). Segments of the Biola Branch were abandoned as early as 1956, and the entire branch line was abandoned by 1985 (Palmer 2009). The railroad is not visible on aerial images dating to 1977 and later, suggesting it was dismantled between 1956 and 1977. Source information for all maps and aerial photographs referenced above is provided in Appendix C.



Figure 4-1 Aerial photographs from 1937, 1946, 1977, and 1998 showing the extent of Biola development relative to the Project area.

4.4 PEDESTRIAN SURVEY

4.4.1 Overview

On September 27, 2018, Æ's archaeologist conducted an intensive pedestrian survey of all open ground in the Project area (Figure 4-2). Most of the Project construction will occur within the paved Third Avenue roadway and an agricultural field west of the existing basin. Æ's archaeologist surveyed along both shoulders of Third Avenue, scanning the ground for isolated

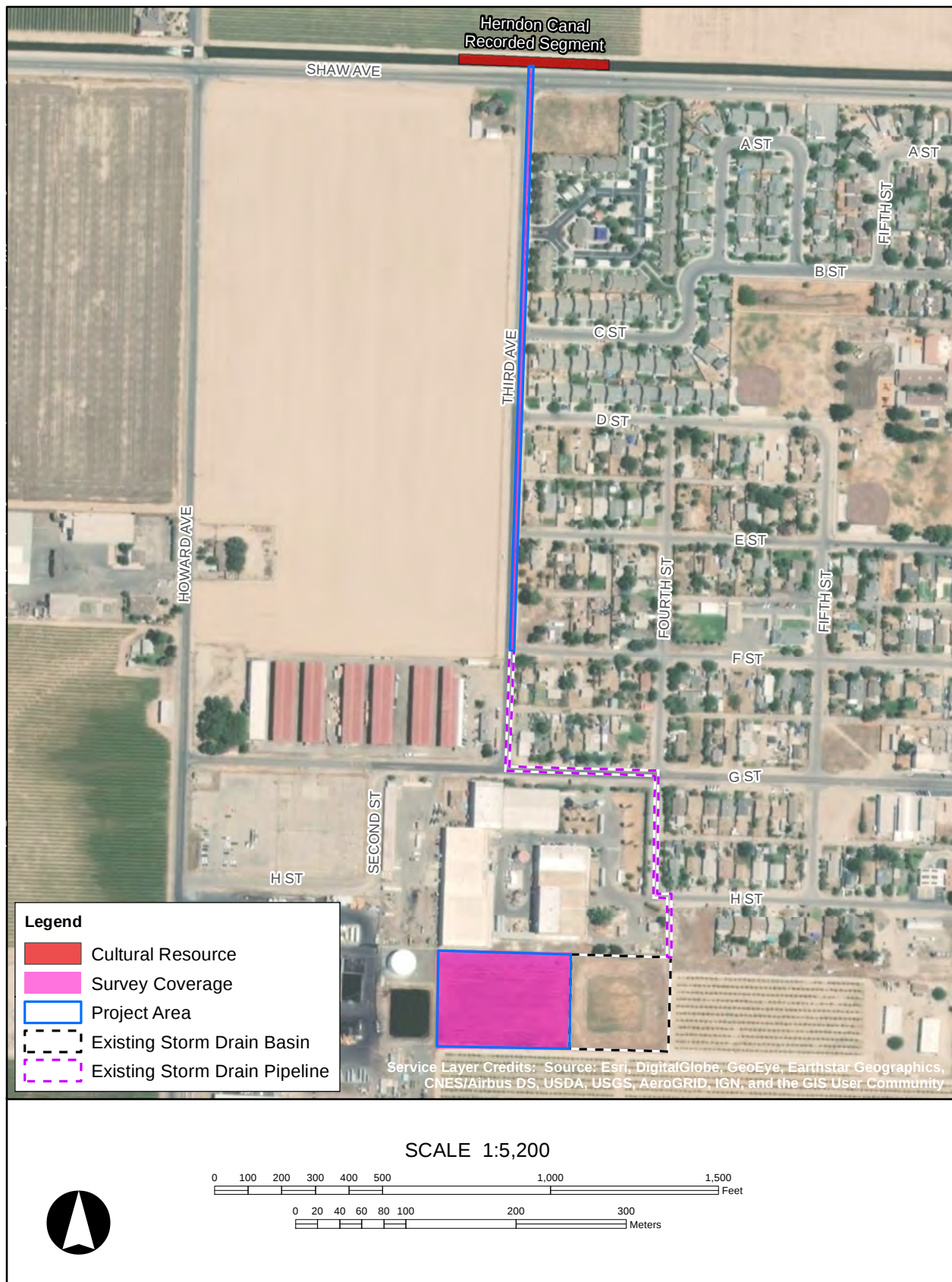


Figure 4-2 Aerial view of the Project area showing survey coverage.

artifacts, features, and other evidence of cultural material. Asphalt, concrete sidewalks, and residential landscaping reduced ground visibility to some degree, although much of the road shoulders were clear with 80–100 percent visibility (Figure 4-3). As mentioned above, many of the residential and commercial properties adjacent to the pipeline route are homes built between 1950 and 1967. Because they lie outside the Project area limits, Æ did not record any of the historic-era buildings on DPR forms. The Herndon Canal lies at the north end of the Project (Figure 4-4). The canal's tan sandy banks are clear of vegetation and afforded excellent visibility. A concrete turnout with a steel valve and grate directs water south from the canal to the Biola community.



Figure 4-3 North Third Avenue near its intersection with Shaw Avenue; facing south.

The existing recharge basin lies at the southern edge of town, south of the intersection of Fourth Avenue and H Street. At the time of survey, the chain link fence to the basin was closed and padlocked preventing access (Figure 4-5). However, the neighboring CSD-owned grape orchard directly west, planned for the basin expansion, was accessible. Here visibility was poor (less than 10 percent) due to heavy vegetation covering the ground (Figure 4-6).

4.4.2 Findings

Æ's pedestrian survey resulted in the identification of only one cultural resource within the Project area limits—the Herndon Canal. Æ recorded a 450-foot segment of the canal, including the turnout at Third Avenue that will be modified. The segment also includes a turnout farther east in line with Fourth Avenue as well as several steel ladders installed on both sides of the concrete-lined canal. No additional resources were discovered in association with the Herndon Canal. This resource is described further below.



Figure 4-4 Herndon Canal at the northern border of the Project area with the Third Avenue turnout, facing east.



Figure 4-5 Existing basin at the south end of the project, facing northwest.



Figure 4-6 CSD-owned grape orchard directly west of existing basin with historic-era brick warehouse and water tower in background, facing northeast.

Æ did not observe any prehistoric or Native American isolated artifacts, archaeological sites, or features in the Project area. Nearly all of the residences and industrial buildings (Figure 4-7) flanking Third Avenue are of historic age (i.e., over 45 years old), but the project is not expected to impact any of these properties. Thus, these historical buildings were not recorded as part of the current Project. The planned basin expansion intersects the historical alignment of the Southern Pacific Railroad Biola Branch; however, Æ did not observe any vestiges of the railroad grade, rails, or other associated features within the surveyed area.

4.5 CULTURAL RESOURCES IN PROJECT AREA

4.5.1 Herndon Canal (P-10-005573)

The segment of the Herndon Canal paralleling West Shaw Avenue to the north, measures 30 feet wide. It is lined with concrete along its interior and its earthen banks, measuring 10 feet wide, are level with Shaw Avenue. The canal has a concrete turnout with a steel grate and valve for flow rate control at Third Avenue (Figures 4-4 and 4-8) as well as a turnout with no valve or grate aligned slightly east in line with Fourth Avenue. The canal was full of water at the time of survey, preventing accurate measurements of the canal's width and depth. Steel ladders were observed protruding above the waterline at regular intervals on both sides of the canal's interior.



Figure 4-7 Third Avenue and G Street intersection showing a historic agricultural facility presently occupied by Biola Fresh, facing northwest.



Figure 4-8 Herndon Canal with turnout on south side of canal at Third Avenue.

As described in Section 2.4.3, the Herndon Canal, which appears in an 1891 Fresno County atlas as the Perrin Canal, was built by the FCIC in the middle or late 1880s (Thompson 1891) to convey water to farming settlements in northwest Fresno. Other segments of the approximately 26.5-mile-long canal between its head gate at the terminus of Mill Ditch in eastern Fresno and its western extent have been recorded in the past (Freeman and Flores 2009; Hibma 2019; Nettles and Baloian 2006). One such segment occurs just west of the Project at Shaw Avenue and Highway 145 (Freeman and Flores 2009).

4.6 EVALUATION OF HERNDON CANAL

Under the guidelines of the OHP (1995), the Herndon Canal is recorded as a linear resource. The evaluation below employs the NPS (2002) criteria and guidelines in evaluating the canal's historical significance and considers the CRHR evaluation criteria.

4.7 SIGNIFICANCE

4.7.1 Criterion 1

Michael Hibma of LSA Associates, Inc. evaluated the eligibility of the Herndon Canal for inclusion in the national and state registers in 2010 and concluded that because the canal has been owned and maintained by the FID since the 1920s, it is potentially significant under Criterion A/1 for its association with development of irrigation and agricultural development (Hibma 2010). Arguably more significant is the Herndon Canal's association with the FCIC and the network of canals historically significant for bringing irrigation to the west side of Fresno County in the late nineteenth century.

Incorporated in 1871, the FCIC, headed by Moses Church and A. Y. Easterby, constructed one of the first extensive irrigation systems in the valley, which began supplying water to their agricultural colony in 1876 (Clough and Secrest 1984:143). In the coming decades, a network of canals and ditches sprouted from the banks of the Kings River to provide water to various other farming colonies (Mead 1901). In 1887, Church sold the FCIC to E. B. Perrin and others for \$200,000 (Willison 1980:103). Perrin immediately set out to build a canal that would irrigate his holdings west of the Central Pacific Railroad. The 26.5-mile-long Herndon Canal proved to be a major contribution to the county's agribusiness, leading to the subdivision and improvement of lands in what is today the Kerman area (Vandor 1919:183).

For these reasons, the Herndon Canal is considered historically significant at the local level under Criterion 1 for its association with the development of irrigation as a function of agricultural colonization at the turn of the twentieth century.

4.7.2 Criterion 2

In order to be considered significant under Criterion 2, a built environment resource must satisfy at least two conditions: (1) persons associated with the resource must be individually significant and (2) the resource must be associated with the person's productive life and be exemplary of his/her contributions to history (NPS 2002:15).

Moses Church, who was the founder of the FCIC, is arguably an important individual in the early history of Fresno County. From the late 1800s to 1887, Church operated the FCIC.

Contemporary accounts make clear that he was not easily intimidated nor did he shy away from confrontation. Far from being appreciated in his day, ranchers vilified him because he took their water, while farmers criticized him for unduly high irrigation costs and the poorly maintained FCIC system. Yet without Church's toughness and stubborn nature, it is hard to imagine the FCIC surviving into the 1890s. And without the FCIC, a *Fresno Weekly Expositor* (1881) op-ed piece argued that Fresno County would have surely take an economic step backward. In 1887, with the weight of some 42 legal cases pending in Fresno County alone, Church apparently had reached the end of his line and sold the FCIC to E. B. Perrin.

E. B. Perrin made considerable progress in resolving the company's legal issues in 1891 when he purchased the Laguna de Tache Ranch, including its all-important water rights (Willison 1980:104–105). As with any large acquisition, Perrin needed financing and borrowed \$1 million from a consortium of English insurance companies headed by Lord Fitz-Williams (Vandor 1919:266). Two years later, a depression hammered the country's economy, and Perrin was unable to meet his debt obligations. In 1894, the English creditors foreclosed, obtaining the FCIC, among other assets. The consortium would retain controlling interest in the canal company until 1921.

While Moses Church is no doubt a significant individual in Fresno County history for building the first irrigation system and hundreds of miles of canals allowing for the expansion of agricultural and colonies, Church is not directly tied to the construction of the Herndon Canal and was no longer director of the FCIC when it was built. It was E. B. Perrin who purchased the FCIC and was responsible for building the conveyance with intent to irrigate his land and support the development of his colonies. By 1876, Perrin had acquired more than 130,000 acres, and he needed to provide them water (Thickens 1946:173). After purchasing the FCIC in 1887, he was able to construct the Herndon Canal (then called the Perrin Canal) and successfully irrigate his land, which led to the growth of six Perrin colonies north and northwest of the city of Fresno. Although his operation of the FCIC was brief, Perrin set in motion the canal that successfully converted his acreage as well as others to agricultural colonies in Fresno County. Thus, the Herndon Canal is considered historically significant at the local level under Criterion 2 for its association with E. B. Perrin.

4.7.3 Criterion 3

Criterion 3 evaluates the physical design or construction of a resource, including such elements as architecture, landscape architecture, engineering, and aesthetics (NPS 2002:17–20). The Herndon Canal does not exhibit the innovative features that would make it significant. At 26.5 miles, the canal is not a particularly long conveyance, and its internal dimensions—10 feet deep and 30 feet wide at the top—are not at all exceptional among Central Valley canals. Moreover, the canal contains features along its alignment (e.g., culverts, turnouts, etc.) that are fairly commonplace throughout the valley. Thus, the Herndon Canal is not considered significant under Criterion 3 due to a lack of engineering and technological innovations/achievements.

4.7.4 Criterion 4

Canals can be considered significant under Criterion 4 if further study of their construction and/or components yields important information that cannot be obtained from other sources (NPS 2002). The most likely scenario would involve a local or novel engineering method that has not been documented or commonly seen in other canals or ditches. The engineering method used to build the Herndon Canal is well known and can be found in contemporary literature. Further investigation would not yield additional information, therefore, the Herndon Canal is not considered significant under Criterion 4.

4.7.5 Assessment of Integrity

Application of the CRHR significance criteria indicates that the Herndon Canal is locally significant under Criteria 1 and 2. As explained in Section 3.5, for a resource to be eligible for the CRHR, it must not only possess historical significance but also the physical means to convey such significance—that is, it must possess integrity. Integrity refers to the degree to which a resource retains its original character and conveys the components or features that give the resource significance. The assessment of integrity focuses on the recorded segment. When possible, the current characteristics of the canal are compared with those from the resource's period of significance at the turn of the twentieth century.

The recorded segment exhibits good integrity of association. The canal continues to carry out its initial purpose as a canal, and although the FID has long since replaced the FCIC, the canal's waters are still conveyed to individual farmers for irrigation of premium crops. That being said, the canal lost its association with E. B. Perrin and the FCIC when the canal changed ownership and its name was changed from the Perrin Canal to the Herndon Canal.

The recorded segment also retains integrity of location. According to historic maps and aerial photographs dating back to 1891, the alignment of this segment of the canal has not been altered since it was first constructed. This is not the case for other segments of the canal. As Nettles and Baloian (2006) explain, the Herndon Canal was constructed to serve the Perrins' agricultural colonies. As central Fresno evolved from rural to residential, it became more profitable to develop residential communities with small lots, and the irrigation water from the Herndon Canal was no longer needed in the central portion of town. Thus, the developers rerouted the canal so that parcels could be divided into the most usable space. The canal route was changed through the city of Fresno to closely parallel streets and not cut through useable land. However, the original alignment of the canal outside the newly developing areas (like its western reaches) was not rerouted.

Although the subject segment maintains its original alignment, its design, workmanship, and materials have been compromised by subsequent improvements. The recorded segment has been lined with concrete and turnouts have been installed to bring water to the community of Biola. Concrete did not become a common medium for this purpose until the early twentieth century and does not date to the period of significance (Enright 1916:54). While it is not known exactly when the improvements were made, there were more than \$400,000 worth of improvements to the canal network from 1921 to 1926 (Willison 1980:129, 182). Much of the work involved replacing wood structures with concrete. Integrity of materials is thus considered below average.

For historical canals, workmanship is most evident in its water-regulating features, including head gates, irrigation gates, and weirs. As Willison (1980:82) states all of the old regulating features of the FCIC were replaced in the early 1920s when the FID took over the aging system. Modernization has continued to the present. Because no such features within the segment are from the period of significance (ca. 1900), the recorded segment lacks integrity of workmanship.

While the setting of the recorded segment is still rural, it has been compromised by the development of the neighboring city of Biola, removal of agricultural land, and expansion of the heavily travelled adjacent Shaw Avenue. In general, the canal surroundings have changed since 1900 and no longer embody the original agricultural landscape, nor does the viewer have the sense that the structure is old and somehow historic. Thus, integrity of setting is at best average, while integrity of feeling is wholly lacking from the recorded segment.

In conclusion, the segment of the Herndon Canal within the Project area retains integrity of location and association but lacks integrity of setting, feeling, workmanship, materials, and design.

4.7.6 Conclusion

Æ found the canal to be historically significant under Criterion 1 for its association with the development of the county's agribusiness and colonization at the turn of the century. Moreover, the canal is also significant under Criterion 2 for its association with E. B. Perrin, an influential land developer who directed the construction of the canal, which led to the successful development of turn-of-the-century agricultural colonies in Fresno County. However, due to the lack of historical integrity, this segment of the Herndon Canal is not eligible for inclusion in the CRHR.

5 SUMMARY AND RECOMMENDATIONS

Æ performed a cultural resource inventory in support of the City of Biola Community Service District's Groundwater Recharge Basin Project. The proposed Project will include surface water delivery from the FID's Herndon Canal at the north end of the Project area through a new pipeline connected to an existing recharge basin. The new pipe will run south from the Herndon Canal along North Third Avenue and connect to an existing pipeline that flows into an existing basin proposed for expansion at the south end of town.

The proposed Project will be funded by an SGWP Grant, established through the approval of Proposition 1 in 2014. The DWR is the lead state agency responsible for ensuring compliance with the regulations of the CEQA, which requires that state and local agencies consider the impacts of their actions on the environment, including cultural resources.

To assist the DWR in meeting CEQA requirements, under contract to Crawford and Bowen Planning, Inc., Æ conducted an inventory to determine whether cultural resources are present within the approximately 3.1-acre Project area for the proposed improvements. The investigation included a records search at the SSJVIC, a search of the Sacred Lands File maintained by the NAHC, contact with local Native American tribal representatives, archival research, an archaeological and built environment pedestrian survey of the Project area, and a CRHR eligibility evaluation of a segment of the Herndon Canal (P-10-005573) within the Project area.

The SSJVIC reported two previous cultural resource studies conducted within portions of the Project area and two studies within a 0.5-mile radius of the Project. Additionally, the records search identified one resource within the Project area, the historical Herndon Canal (P-10-005573), and one previously recorded cultural resource, the Biola Branch of the Southern Pacific Railroad System (P-10-003930), within a 0.5-mile radius of the Project. A search of the NAHC's Sacred Lands File and outreach to local tribal representatives did not result in the identification of sacred or important tribal cultural sites within the Project area. However, Chairperson Ron Goode of the North Fork Mono Tribe stated that due to the Project's proximity to village sites in the San Joaquin River watershed, Native American isolated artifacts and sites may be discovered in the Project area.

Æ's pedestrian survey resulted in the identification of one cultural resource, the historical Herndon Canal (P-10-005573), in the Project area. The canal was built in the late nineteenth century by the FCIC to convey water to settlements and agricultural developments in northwestern Fresno. Æ's evaluation of the Herndon Canal suggests that it is historically significant under CRHR Criteria 1 and 2, but the segment of the canal within the Project area lacks integrity and does not contribute to its overall significance.

Æ noted the presence of several historical buildings on either side of the Project corridor; however, they will not be impacted during construction.

No further archaeological studies are recommended unless the proposed Project is redesigned and extends outside the current Project area into areas not included in this inventory. However, Æ offers the following general recommendations:

- As noted by Chairperson Goode of the North Fork Mono Tribe, the Project is within the proximity of an ancient village that stretched for miles along the San Joaquin River, and Native American sites and artifacts may be discovered in otherwise undisturbed areas within the Biola Project footprint. The proposed basin expansion lies in an area that has been used solely for agriculture for almost the last 100 years. Because there has been no major disturbance to this portion of the Project area, it is recommended that an archaeologist be present during ground-disturbing work to identify significant Native American artifacts or sites if they are uncovered.
- In the event that archaeological remains are encountered at any time during development or ground-moving activities within the Project area, all work in the vicinity of the find should be halted until a qualified archaeologist can assess the discovery.
- If human remains are uncovered, or in any other case when human remains are discovered during construction, the Fresno County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent, who will be afforded the opportunity to recommend means for treatment of the human remains following protocols in California Public Resources Code (PRC) 5097.98.

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- 1923 *Biola, Calif.* 1:31,680 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), <https://ngmdb.usgs.gov/topoview/>, accessed October 18, 2017.
- 1946 *Biola, Calif.*, 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), <https://ngmdb.usgs.gov/topoview/>, accessed July 11, 2017.

Vandor, Paul E.

- 1919 *History of Fresno County, California, with Biographical Sketches: The Leading Men and Women of the County Who Have Been Identified with Its Growth and Development from the Early Days to the Present*, Vol. 2. Historic Record Company, Los Angeles, California.

Wallace, William J.

- 1978a Southern Valley Yokuts. In *California*, edited by Robert F. Heizer, pp. 448–461. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
- 1978b Northern Valley Yokuts. In *California*, edited by Robert F. Heizer, pp. 462–484. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Willison, Paul H.

- 1980 *Past, Present, & Future of the Fresno Irrigation District*. Fresno Irrigation District, Fresno, California.

APPENDIX A

Personnel Qualifications

Areas of Expertise

- Cultural resource management
- Prehistoric archaeology
- Project management

Years of Experience

- 28

Education

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

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

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

Registrations/Certifications

- Register of Professional Archaeologist No. 15189

Permits/Licensure

- Principal Investigator, California BLM Statewide Cultural Resources Use Permit CA-15-29
- Crew Chief, Nevada BLM Statewide Cultural Resources Use Permit N-85878

Professional Affiliations

- Society for American Archaeology
- Society for California Archaeology

Professional Experience

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

Technical Qualifications

Dr. Clark Baloian has been involved in archaeology in California and the western United States since 1987. Her areas of expertise include the prehistory of the San Joaquin Valley, Sierra Nevada, Great Basin, central California coast, and the Iron Age of West Africa. Dr. Baloian has served as Project Manager, Field Supervisor, Crew Chief, or Field Technician for projects throughout California, Oregon, Nevada, New Mexico, Texas, Hawaii, and West Africa. Her experience in cultural resources management includes research design, data acquisition, laboratory analysis, and preparation of technical reports and compliance documents; she also has completed the Advisory Council on Historic Preservation course in National Historic Preservation Act Section 106 compliance policies and procedures. Her analytic skills include lithic and ceramic analyses as well as settlement pattern studies and spatial analysis, which were the foci of her doctoral research. As a Senior Archaeologist for Applied EarthWorks, Dr. Baloian directs professional staff and subcontractors and provides quality assurance for all project work. She has directed numerous surveys, testing and data recovery excavations as well as prepared dozens of technical reports and compliance documents. She administers both large, complex, multiyear, multiphase projects as well as smaller.

Areas of Expertise

- California archaeology
- Survey, excavation, and construction monitoring
- Project administration support

Years of Experience

- 7

Education

B.A., Anthropology, California State University, Fresno, 2010

M.A., Public Administration, National University, Fresno (in progress, expected completion 2018)

Registrations/Certifications

- A.C.I. Concrete Technician Level 1 Certification, Technicon Engineering Services
- Forklift Certification, Graylift

Professional Experience

- | | |
|-----------|---|
| 2015– | Staff Archaeologist, Applied EarthWorks, Inc., Fresno, California |
| 2014–2015 | Construction Materials Lab/Field Testing Technician, BSK & Associates, Fresno, California |
| 2011–2014 | Archaeological Field Technician, Applied EarthWorks, Inc., Fresno, California |
| 2010–2011 | Laboratory Technician (volunteer), Applied EarthWorks, Inc., Fresno, California |

Technical Qualifications

Mr. Tibbet's project experience includes survey, excavation, and documentation of both prehistoric and historic-era resources in the Central Valley, Sierra Nevada, and Central Coast regions of California. In addition to participating as an archaeological and paleontological field technician and laboratory technician on projects throughout California, he also contributes to technical reports, prepares site documentation, and assists with bid and proposal efforts. In the field, Mr. Tibbet has performed in a variety of work environments, such as residential and commercial developments, landfills and quarries, solar farms, transmission lines, oil, and gas lines. His experience processing archaeological and paleontological collections in the laboratory includes washing, sorting, bagging, and labeling artifacts and fossils as well as catalog data entry. His employment in the construction materials lab and as a field testing technician has provided him with valuable skills regarding soil composition and description as well as a better understanding of proper construction site etiquette and increased awareness of safety issues.

APPENDIX B

Native American Outreach

Native American Outreach Log

Biola Groundwater Sustainability Project

Organization	Name	Position	Letter	E-mail	Phone	Summary of Contact
Native American Heritage Commission						Request sent 10/09/2018, response received 10/16/18
Big Sandy Rancheria	Elizabeth D. Kipp	Chairperson	10/22/18	11/28/18		Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018. Response received from Ms. Kipp via email stating that the Tribe has no information of sensitive or sacred sites within the City of Biola. However, if significant items are discovered, the tribe would like to be
Cold Springs Rancheria of Mono Indians	Carol Bill	Chairperson	10/22/18	11/28/18		Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.
Dumna Wo-Wah Tribal Government	Robert Ledger Sr.	Tribal Chairperson	10/22/18	11/28/18		Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.
Dunlap Band of Mono Indians	Dirk Charley	Tribal Secretary	10/22/18			The project lies outside the Dunlap Band of Mono Indian's traditional territory. Per Dirk Charley's request, AE did not reach out for additional information.
Dunlap Band of Mono Indians	Benjamin Charley Jr.	Tribal Chair	10/22/18			Outreach letter mailed 10/22/2018; see above
Kings River Choinumni Farm Tribe	Stan Alec		10/22/18			Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.
North Fork Mono Tribe	Ron Goode	Chairperson	10/22/18	11/28/18		Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018. Response received from Mr. Goode via email stating that the project is within the confines of an ancient village that stretched for miles from the River east of 99 and north of Herndon following a creek that meandered down through Bullard on the West side of 99. Because of the magnitude of the nearby village, unrecorded Native American isolated artifacts and sites may be found in Biola. He cautioned to keep an eye out and let the Tribe know if anything is found.
Santa Rosa Rancheria Tachi Yokut Tribe	Rueben Barrios Sr.	Chairperson	10/22/18			Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.
Table Mountain Rancheria	Leanne Walker-Grant	Chairperson	10/22/18			Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.

Native American Outreach Log

Biola Groundwater Sustainability Project

Table Mountain Rancheria	Bob Pennell	Cultural Resources Director	10/22/18	11/28/18		Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.
Traditional Choinumni Tribe	Rick Osborne	Cultural Resources		11/28/18		Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.
Traditional Choinumni Tribe	David Alvarez	Chairperson	10/22/18	11/28/18		Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.
Wuksache Indian Tribe/Eshom Valley Band	Kenneth Woodrow	Chairperson	10/22/18	11/28/18		Outreach letter mailed 10/22/2018; follow-up email sent 11/28/2018.

NATIVE AMERICAN HERITAGE COMMISSION

Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710



October 18, 2018

Mary Baloian
Applied Earth Works

Sent by Email: mbaloian@appliedearthworks.com
Number of Pages: 2

RE: City of Biola Groundwater Project, Biola, Fresno County

Dear Ms. Boloian:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. **Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.**

I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. **By contacting all those on the list, your organization will be better able to respond to claims of failure to consult.** If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: Sharaya.Souza@nahc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Sharaya Souza", is written over a light blue horizontal line.

Sharaya Souza
Staff Services Analyst
(916) 573-0168

**Native American Heritage Commission
Native American Contacts List
10/16/2018**

Big Sandy Rancheria of Western Mono Indians Elizabeth D. Kipp, Chairperson P.O. Box 337 37387 Auberry Mission Rd. Auberry ,CA 93602 lkipp@bsrnation.com (559) 374-0066 (559) 374-0055	Western Mono	Kings River Choinumni Farm Tribe Stan Alec 3515 East Fedora Avenue Fresno ,CA 93726 (559) 647-3227 Cell	Foothill Yokuts Choinumni
Cold Springs Rancheria Carol Bill, Chairperson P.O. Box 209 Tollhouse ,CA 93667 (559) 855-5043 (559) 855-4445 Fax	Mono	North Fork Mono Tribe Ron Goode, Chairperson 13396 Tollhouse Road Clovis ,CA 93619 rwgoode911@hotmail.com (559) 299-3729 Home (559) 355-1774 - cell	Mono
Dumna Wo-Wah Tribal Goverment Robert Ledger SR., Chairperson 2191 West Pico Ave. Fresno ,CA 93705 ledgerrobert@ymail.com (559) 540-6346	Dumna/Foothill Yokuts Mono	Santa Rosa Rancheria Tachi Yokut Tribe Rueben Barrios Sr., Chairperson P.O. Box 8 Lemoore ,CA 93245 (559) 924-1278 (559) 924-3583 Fax	Tache Tachi Yokut
Dunlap Band of Mono Indians Benjamin Charley Jr., Tribal Chair P.O. Box 14 Dunlap ,CA 93621 ben.charley@yahoo.com (760) 258-5244	Mono	Table Mountain Rancheria Leanne Walker-Grant, Chairperson P.O. Box 410 Friant ,CA 93626 (559) 822-2587 (559) 822-2693 Fax	Yokuts
Dunlap Band of Mono Indians Dick Charley, Tribal Secretary 5509 E. McKenzie Avenue Fresno ,CA 93727 dcharley2016@gmail.com (559) 554-5433	Mono	Table Mountain Rancheria Bob Pennell, Cultural Resources Director P.O. Box 410 Friant ,CA 93626 rpennell@tmr.org (559) 325-0351 (559) 325-0394 Fax	Yokuts

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

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

**This list is only applicable for contacting local Native American Tribes for the proposed:
City of Biola Groundwater Project, Biola, Fresno County.**

**Native American Heritage Commission
Native American Contacts List
10/16/2018**

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

Choinumni

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

Choinumni

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

Foothill Yokuts
Mono
Wuksache

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

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

**This list is only applicable for contacting local Native American Tribes for the proposed:
City of Biola Groundwater Project, Biola, Fresno County.**



EXAMPLE

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

October 25, 2018

Kenneth Woodrow, Chairperson
Wuksache Indian Tribe/Eshom Valley Band
1179 Rock Haven Ct.
Salinas, CA 93906

RE: Biola Community Services District's Groundwater Recharge Project, Fresno County, California.

Dear Mr. Kenneth Woodrow,

Applied EarthWorks, Inc. (Æ), under contract to Crawford and Bowen, Inc., is providing cultural resource services for the Biola Groundwater Recharge Project (Project) in the City of Biola, Fresno County. The proposed Groundwater Recharge Project (Project) will include surface water delivery from the Fresno Irrigation District's Herndon Canal, at the north end of the Project area, through a new pipeline connected to an existing recharge basin. The City of Biola is approximately 13.6 miles northwest of Fresno. Specifically, the Project is 1.1 mile south of the San Joaquin River in Township 13 South, Range 18 East, Section 17, as shown on the U.S. Geological Survey (USGS) Biola quadrangle. The new pipe will run south from the Herndon Canal along N. Third Ave and connect into an existing pipeline that flows into an existing basin proposed for expansion at the south end of town (see enclosed map).

The proposed Project will be funded by the Department of Water Resources (DWR) Sustainable Groundwater Planning Grant, established through the approval of Proposition 1 in 2014. DWR is the lead state agency responsible for ensuring compliance with the regulations of the California Environmental Quality Act (CEQA), which requires that state and local agencies consider the impacts of their actions on the environment, including cultural resources.

A search of the Native American Heritage Commission's (NAHC) *Sacred Lands File* did not indicate the presence of Native American cultural resources in the Project area. Æ also requested a records search of the California Historic Resources Information System at the Southern San Joaquin Valley Information Center in Bakersfield, California. The records identified one resource within the Project area, the historical Herndon Canal (P-10-005573), and one previously recorded cultural resource—the Biola Branch of the Southern Pacific Railroad System (P-10-003930)—within a one-half mile of the Project. Æ completed a pedestrian survey of the Project area to identify and record cultural resources visible on the ground surface. No historic-era or prehistoric archaeological resources were observed during the survey.

The NAHC provided your name and address as someone who might have an interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the Project area. If you have any information to share, have questions, or would like more information about the Project, please do not hesitate to contact me by phone (559) 229-1856 x 11, email (mbaloian@appliedearthworks.com), or send a letter to my attention at the address in the letterhead.

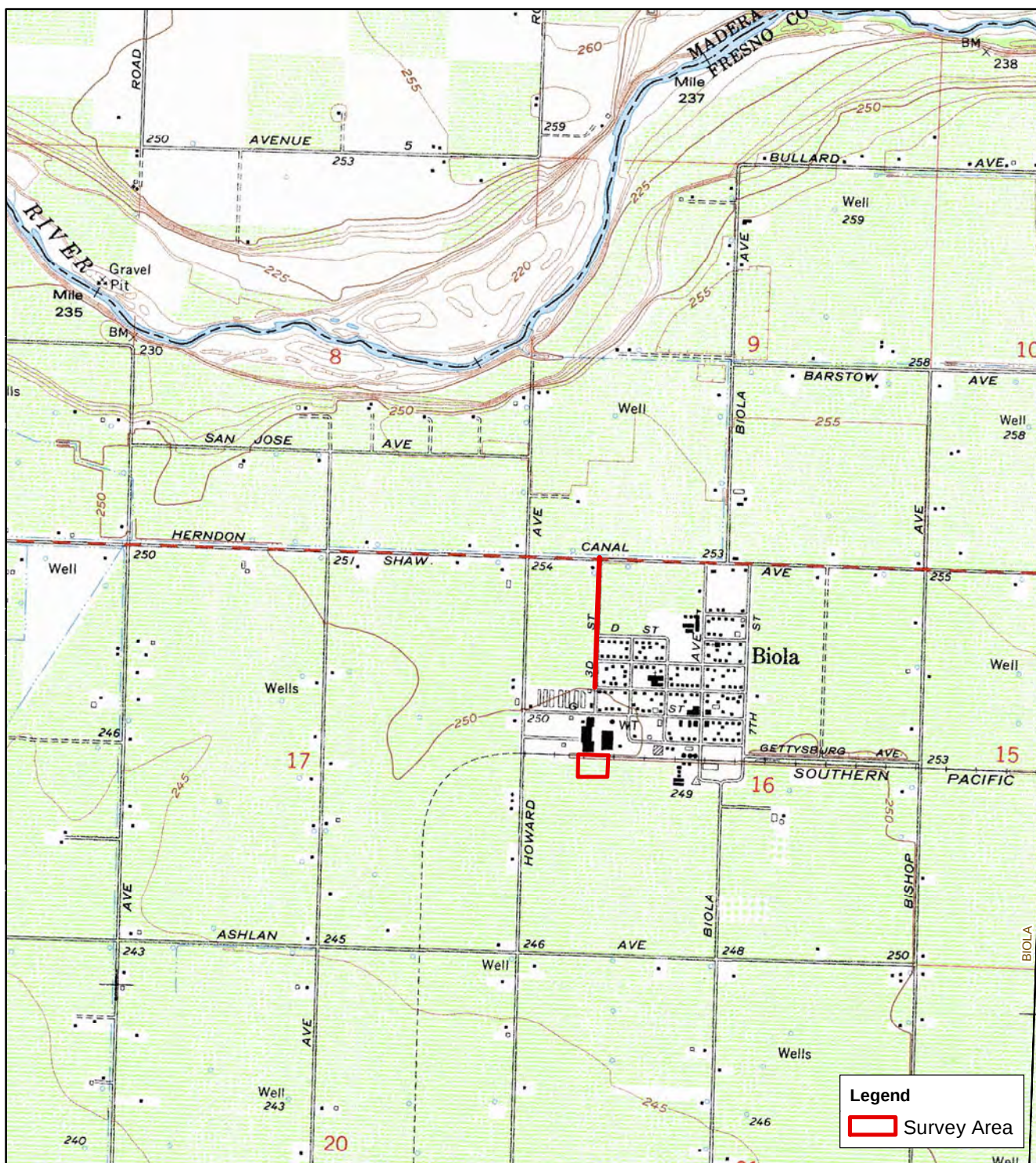


I would appreciate any information you might provide to assist us with our inventory efforts. Be assured that any locations of archaeological sites, cemeteries, or sacred places will be treated confidentially, as required by law, and would not be disclosed in any document available to the general public.

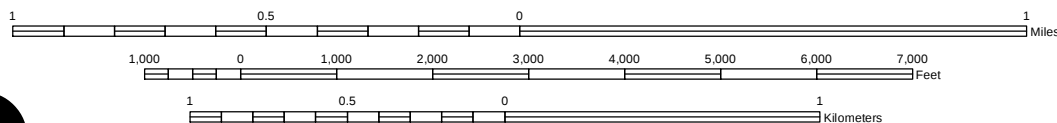
Sincerely,

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

encl.: Project Location Map



SCALE 1:24,000



T 13S/R 18E , Section(s) 9, 16, 17, 21
Biola (1963-PI1978), CA 7.5' USGS Quadrangle

NAHC location map for the *Biola Groundwater Project- AE3936*.

From: [Ron W. Goode](#)
To: [Mary Baloian](#)
Subject: Re: Tribal outreach for the Biola Groundwater Recharge Project, Biola, Fresno County
Date: Wednesday, November 28, 2018 7:17:40 PM

As I stated before, your project is within the confines of an ancient village that stretched for miles from the River east of 99 and north of Herndon following a creek that meandered down through Bullard on the West side of 99. While you as an archaeologist see sites as individual campsites, the Native American tribal community sees it for what it was and what it is worth. Meaning, if a village of this magnitude existed then two to five miles on any side is not out of the picture as a place they might have ventured. Therefore, Biola, could very well have artifacts and sites unrecorded. Keep an eye out and let us know if anything is found.

Ron Goode

From: Mary Baloian <mbaloian@appliedearthworks.com>
Sent: Wednesday, November 28, 2018 6:21 PM
To: rwgoode911@hotmail.com
Subject: FW: Tribal outreach for the Biola Groundwater Recharge Project, Biola, Fresno County

Dear Chairperson Goode:

I am reaching out to inquire if you have any questions or information you wish to share about sensitive or sacred sites within the City of Biola, Fresno County that may be impacted by the proposed Biola Groundwater Recharge Project. As explained in the letter I sent earlier, dated October 22, 2018, Applied EarthWorks, Inc. is providing cultural resource services for the Biola Groundwater Recharge Project in the City of Biola. The proposed Project will include surface water delivery from the Fresno Irrigation District's Herndon Canal, at the north end of the Project area, through a new pipeline connected to an existing recharge basin. The Project lies 1.1 mile south of the San Joaquin River in Township 13 South, Range 18 East, Section 17, as shown on the U.S. Geological Survey (USGS) Biola quadrangle. The new pipe will run south from the Herndon Canal along N. Third Ave and connect into an existing pipeline that flows into an existing basin proposed for expansion at the south end of town (see enclosed map).

A search of the Native American Heritage Commission's (NAHC) *Sacred Lands File* did not indicate the presence of Native American cultural resources in the Project area. We also requested a records search of the California Historic Resources Information System at the Southern San Joaquin Valley Information Center in Bakersfield, California. The records identified one resource within the Project area, the historical Herndon Canal (P-10-005573), and one previously recorded cultural resource—the Biola Branch of the Southern Pacific Railroad System (P-10-003930)—within a one-half mile of the Project. A completed a pedestrian survey of the Project area to identify and record cultural resources visible on the ground surface. No historic-era or prehistoric archaeological resources were observed during the survey.

The NAHC provided your name and address as someone who might have an interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the

Project area. If you have any information to share, have questions, or would like more information about the Project, please do not hesitate to contact me. I would appreciate any information you might provide to assist us with our inventory efforts. Be assured that any locations of archaeological sites, cemeteries, or sacred places will be treated confidentially, as required by law, and would not be disclosed in any document available to the general public.

Best,

Mary Clark Baloian | Applied EarthWorks, Inc.
President / Principal Archaeologist



1391 W Shaw Ave., Suite C
Fresno, CA 93711
559 229.1856 x. 11
559 801.1652

office
cell

www.appliedearthworks.com

From: [Liz Kipp](#)
To: [Mary Baloian](#)
Subject: RE: Tribal outreach for the Biola Groundwater Recharge Project, Biola, Fresno County
Date: Wednesday, November 28, 2018 5:30:40 PM

Ms. Baloian, on behalf of Big Sandy Rancheria, we have no information of sensitive or sacred sites within the City of Biola. If at any time, any items of significance is discovered, at a minimum, we would request to be notified of such findings. Have a great evening.

From: Mary Baloian <mbaloian@appliedearthworks.com>
Sent: Wednesday, November 28, 2018 5:15 PM
To: Liz Kipp <LKipp@bsrnation.com>
Subject: Tribal outreach for the Biola Groundwater Recharge Project, Biola, Fresno County

Dear Chairperson Kipp:

I am reaching out to inquire if you have any questions or information you wish to share about sensitive or sacred sites within the City of Biola, Fresno County that may be impacted by the proposed Biola Groundwater Recharge Project. As explained in the letter I sent earlier, dated October 22, 2018, Applied EarthWorks, Inc. is providing cultural resource services for the Biola Groundwater Recharge Project in the City of Biola. The proposed Project will include surface water delivery from the Fresno Irrigation District's Herndon Canal, at the north end of the Project area, through a new pipeline connected to an existing recharge basin. The Project lies 1.1 mile south of the San Joaquin River in Township 13 South, Range 18 East, Section 17, as shown on the U.S. Geological Survey (USGS) Biola quadrangle. The new pipe will run south from the Herndon Canal along N. Third Ave and connect into an existing pipeline that flows into an existing basin proposed for expansion at the south end of town (see enclosed map).

A search of the Native American Heritage Commission's (NAHC) *Sacred Lands File* did not indicate the presence of Native American cultural resources in the Project area. We also requested a records search of the California Historic Resources Information System at the Southern San Joaquin Valley Information Center in Bakersfield, California. The records identified one resource within the Project area, the historical Herndon Canal (P-10-005573), and one previously recorded cultural resource—the Biola Branch of the Southern Pacific Railroad System (P-10-003930)—within a one-half mile of the Project. A completed a pedestrian survey of the Project area to identify and record cultural resources visible on the ground surface. No historic-era or prehistoric archaeological resources were observed during the survey.

The NAHC provided your name and address as someone who might have an interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the Project area. If you have any information to share, have questions, or would like more information about the Project, please do not hesitate to contact me. I would appreciate any information you might provide to assist us with our inventory efforts. Be assured that any locations of archaeological sites, cemeteries, or sacred places will be treated confidentially, as required by law, and would not be disclosed in any document available to the general public.

Best,

Mary Clark Baloian | Applied EarthWorks, Inc.
President / Principal Archaeologist



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559 229.1856 x. 11
559 801.1652

office
cell

www.appliedearthworks.com

APPENDIX C

Records Search and Archival Research



10/3/2018

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

Re: Biola Groundwater Project
Records Search File No.: 18-386

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

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

Resources within project area: P-10-003930, 5573

Reports within project area: FR-01759, 02039, 02878

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

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

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

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

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

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

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

Report Copies: ☐ enclosed ☒ not requested ☐ nothing listed

OHP Historic Properties Directory: ☒ enclosed ☐ not requested ☐ nothing listed

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

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

Caltrans Bridge Survey: Not available at SSJVIC; please see
<http://www.dot.ca.gov/hq/structur/strmaint/historic.htm>

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

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

Local Inventories: Not available at SSJVIC

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

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

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

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

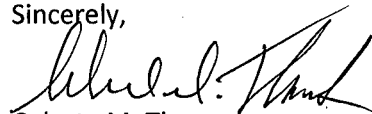
The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained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

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

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

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

Sincerely,



Celeste M. Thomson
Coordinator

California
Historical
Resources
Information
System



Fresno
Kern
Kings
Madera
Tulare

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

To: Gary Horn
Yamabe & Horn Engineering, Inc.
2985 North Burl Ave., Suite 101
Fresno, CA 93727

Record Search 17-413

Date: September 5, 2017

Re: Biola SRF Water System Upgrade

County: Fresno

Map(s): Biola 7.5'

RECEIVED
SEP 11 2017
YAMABE & HORN

CULTURAL RESOURCES RECORDS SEARCH

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

The following are the results of a search of the cultural resource files at the Southern San Joaquin Valley Information Center. These files include known and recorded cultural resources sites, inventory and excavation reports filed with this office, and resources listed on the National Register of Historic Places, Historic Property Directory (3/18/13), California State Historical Landmarks, California Register of Historical Resources, California Inventory of Historic Resources, and California Points of Historical Interest. Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area.

PRIOR CULTURAL RESOURCE STUDIES CONDUCTED WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there have been three previous cultural resource studies conducted within portions of the project area, FR-01759, FR-02039, and FR-02508. There have been no additional studies conducted within the one-half mile radius.

KNOWN/RECORDED CULTURAL RESOURCES WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

There is one recorded cultural resource within the project area, P-10-003930, the Southern Pacific Railroad. There is one recorded resource within the one-half mile radius, P-10-005573, the Herndon Canal.

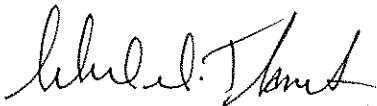
There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, or the California State Historic Landmarks.

COMMENTS AND RECOMMENDATIONS

We understand this project consists of construction of a 500,000 gallon water storage tank at an existing well site, replacement of existing 6 and 8-inch water mains with 10-inch water mains, and replacement of all existing water meters. Further, we understand most project activities will take place in existing right-of-ways. As project activities will take place on previously disturbed lands and within existing right-of-ways, no further cultural resources investigation is recommended at this time. However, if cultural resources are unearthed during ground disturbance activities, all work must halt in the area of the find and a qualified, professional archaeologist should be called out to assess the findings and make the appropriate mitigation recommendations. A list of professionals can be found at www.chrisinfo.org.

We also recommend that you contact the Native American Heritage Commission in Sacramento. They will provide you with a current list of Native American individuals/organizations that can assist you with information regarding cultural resources that may not be included in the CHRIS Inventory and that may be of concern to the Native groups in the area. The Commission can consult their "Sacred Lands Inventory" file in order to determine what sacred resources, if any, exist within this project area and the way in which these resources might be managed. Finally, please consult with the lead agency on this project to determine if any other cultural resource investigation is required. If you need any additional information or have any questions or concerns, please contact our office at (661) 654-2289.

By:



Celeste M. Thomson, Coordinator

Date: September 5, 2017

Please note that invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Resource List

SSJVIC Record Search 18-386

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-10-003930	CA-FRE-003109H	Resource Name - Southern Pacific Railroad	Structure	Historic	AH07	1998 (W.L. Norton, Jones & Stokes); 1999 (S. Hooper, S. Flint, Applied EarthWorks, Inc.); 2002 (Peggy B. Murphy, Three Girls and a Shovel); 2004 (Bryan Larson, Cindy Toffelmier, JRP Historical Consulting); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting); 2010 (Michael Hibma, LSA Associates); 2013 (Randy Balolan, Applied Earthworks, Inc.); 2015 (Randy Balolan, Applied EarthWorks, Inc.); 2015 (Randy Balolan, Applied Earthworks, Inc.); 2016 (J. Tibbet, Applied EarthWorks, Inc.)	FR-00238, FR-01770, FR-01771, FR-01772, FR-02642, FR-02726, FR-02769, FR-02847
P-10-005573	CA-FRE-003608H	Resource Name - Herndon Canal	Structure	Historic	HP20	2001 (Kelly Hobbs, Cal Trans); 2006 (Wendy Nettles, Applied EarthWorks, Inc.); 2009 (Joseph Freeman, Rebecca Flores, JRP Historical Consulting); 2010 (Michael R. Hibma, Jennifer Redmond, LSA Associates)	

Report List

SSJVIC Record Search 18-386

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
FR-01759		1987	Smith, Ephraim K. and Powell, Edward John	Historic Property Survey Report: Shaw Avenue, From Madera to Chateau Fresno Avenues	Individual Consultant	
FR-02039		2004	Varner, Dudley M.	A Cultural Resource Study for the Self-Help Biola Project, Fresno County, California	Varner Associates	
FR-02878		2017	Jones, Jessica and Baloian, Mary	Cultural Resource Survey for Biola Community Services District Water Systems Upgrade Project, Fresno County, California	Applied EarthWorks, Inc.	

Historical Topographic Maps and Aerial Images Consulted

Date	Name	Author	Reference
1937	Fresno County Aerial Survey 1937 13-ABI 51-44	Agricultural Adjustment Administration	1937 Fresno County, California, Aerial Survey 1937 13-ABI 51-44, http://cdmweb.lib.csufresno.edu/cdm/singleitem/collection/aerial/id/1178 , accessed through Map and Aerial Locator Tool (MALT), Henry Madden Library, California State University, Fresno, October 18, 2017.
1942	Fresno County Aerial Survey 1942 ABI-6B-24	Agricultural Adjustment Administration	1942 Fresno County, California, Aerial Survey 1942 ABI-6B-24, http://cdmweb.lib.csufresno.edu/cdm/ref/collection/aerial/id/17653 , accessed through Map and Aerial Locator Tool (MALT), Henry Madden Library, California State University, Fresno, October 18, 2017.
1957	Fresno County Aerial Survey 1957 ABI-24T-5	Commodity Stabilization Service	1957 Fresno County, California, Aerial Survey 1957 ABI-24T-5, http://cdmweb.lib.csufresno.edu/cdm/ref/collection/aerial/id/2793 , accessed through Map and Aerial Locator Tool (MALT), Henry Madden Library, California State University, Fresno, October 18, 2017.
1967	Fresno County Aerial Survey 1967 ABI-1HH-193	Agricultural Stabilization and Conservation Service	1967 Fresno County, California, Aerial Survey 1965 ABI-1HH-193, http://cdmweb.lib.csufresno.edu/cdm/ref/collection/aerial/id/5119 , accessed through Map and Aerial Locator Tool (MALT), Henry Madden Library, California State University, Fresno, October 18, 2017.
1977	Fresno County Aerial Survey 1977 FRE CO 11-19 R	Agricultural Adjustment Administration	1977 Fresno County, California, Aerial Survey 1970 FRE CO 11-19 R, http://cdmweb.lib.csufresno.edu/cdm/ref/collection/aerial/id/23262 , accessed through Map and Aerial Locator Tool (MALT), Henry Madden Library, California State University, Fresno, October 16, 2017.
1998	Fresno County Aerial Survey 1998 NAPP 10560-128	Agricultural Adjustment Administration	1998 Fresno County, California, Aerial Survey 1998 NAPP 10560-128, http://cdmweb.lib.csufresno.edu/cdm/ref/collection/aerial/id/18833 , accessed through Map and Aerial Locator Tool (MALT), Henry Madden Library, California State University, Fresno, October 18, 2017.
1923	Biola, CA 1:31,680	U.S. Geological Survey	1923 <i>Biola, Calif.</i> , 1:31,680 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/ , accessed October 18, 2017.
1946	Biola, CA 1:24,000	U.S. Geological Survey	1946 <i>Biola, Calif.</i> , 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/ , accessed October 18, 2017.
1947	Biola, CA 1:24,000	U.S. Geological Survey	1947 <i>Biola, Calif.</i> , 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/ , accessed October 18, 2017.
1963	Biola, CA 1:24,000	U.S. Geological Survey	1963 <i>Biola, Calif.</i> , 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/ , accessed October 18, 2017.
1946	Madera, CA 1:62,500	U.S. Geological Survey	1946 <i>Madera, Calif.</i> , 1:62,500 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/ , accessed October 18, 2018.
1963 (PI1978)	Biola, CA 1:24,000	U.S. Geological Survey	1978 <i>Biola, Calif.</i> , 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/ , accessed October 18, 2017.
1891	Atlas of Fresno County	Thompson, Thomas H.	1891 <i>Atlas of Fresno County, California</i> . Thos. H. Thompson, Tulare, California.

APPENDIX D

Cultural Resource Records

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code**

Page 1 of 4

Resource Name or #: Herndon Canal

B1. Historic Name: Perrin Canal

B2. Common Name: Herndon Canal

B3. Original Use: Water Conveyance

B4. Present Use: Water Conveyance

***B5. Architectural Style:** N/A

***B6. Construction History (construction date, alterations, and dates of alterations):** Built by the Fresno Canal & Irrigation Company ca. 1890 (Thompson 1891).

***B7. Moved?:** ☐ No ☐ Yes ☐ Unknown Date:

Original Location:

***B8. Related Features:** turn-outs, levees,

B9. a. Architect: Unknown

b. Builder: Fresno Canal & Irrigation Company

***B10. Significance:** Theme: Irrigation and Agricultural Development

Area: Fresno County

Period of Significance: ca. 1890

Property Type: Irrigation Conveyance

Applicable Criteria: A/1, B/2

Historic Context

E. B. Perrin and his brother Robert, who came to Fresno in 1869, amassed approximately a quarter million acres in north and northwest Fresno (Clough and Secrest 1984:146; Vador 1919:259). Like other developers, the brothers thought they could increase the value of the land by bringing irrigation water to their property. Beginning in 1882, they set out to construct a canal that would flow from Friant southwest along the south side of the San Joaquin River. However, the Upper San Joaquin Canal proved to be a total failure due to the volcanic soils along the river, which caused too many cave-ins during construction.

In 1887, the Perrin brothers gained control of the Fresno Canal and Irrigation Company (FCIC), and thereby acquired direct access to water of the Kings River. The Perrins' ownership of a handful of agricultural colonies combined with control of the FCIC appear to have brought about construction of the Herndon Canal. Based on available maps, the canal was built sometime between 1886 and 1891 (Hall 1886; Thompson 1891). The main conduit of this system was the Fresno Canal, from which the Fancher Creek Canal, the Mill Ditch, and other smaller ditches originate (Willison 1980:270–286). The head gate of the Herndon Canal is at the terminus of the Mill Ditch (Willison 1980:270). The Herndon Canal appears in Thompson's 1891 Fresno County atlas as the Perrin Canal.

Comparison of the original and current alignments of portions of the canal through urban areas indicates that the initial route has been altered; the linear right-of-way of the current canal, which sharply corners around Fresno's city streets in many segments, contrasts with the gently curved original path (Nettles and Baloian 2006). Historical maps suggest that these changes occurred between 1907 and 1923, but the exact date(s) of these modifications could not be determined by current research (Harvey 1907; U.S. Geological Survey 1923). The current segment at Biola appears to follow the original alignment and its course has not been altered since its inception, as suggested by a comparison of maps dating from 1891, 1923, and 1935. Further work on the canal may have taken place after the Fresno Irrigation District purchased the assets of the Fresno Canal and Land Company (descendant of the FCIC), and sought to enlarge and improve the irrigation system. From 1921 to 1926, the Fresno Irrigation District effected more than \$400,000 worth of improvements to the canal network (Willison 1980:129, 182). Much of the work involved replacing old dilapidated wood structures with concrete. Ongoing maintenance, such as lining of the walls and deepening and widening the channels, has also taken place over the years. The original date that the canal was lined is unknown, but an evaluation of the canal for the Mojave Pipe Line Project states that gunite (a mixture of sand,

This space reserved for official comments.

Sketch Map

cement, and water) was sprayed along portions of the canal in the late 1970s (Nelson 2000). Portions of the canal remain unlined today.

Evaluation of Significance

Criterion A/1

Michael Hibma of LSA Associates, Inc. evaluated the eligibility of the Herndon Canal for inclusion in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) in 2010 and concluded that because the canal has been owned and maintained by the Fresno Irrigation District (FID) since the 1920s, it is potentially significant under Criterion A/1 for its association with development of irrigation and agricultural development (Hibma 2010). Arguably more significant is the Herndon Canal's association with the FCIC and the network of canals historically significant for bringing irrigation to the west side of Fresno County in the late nineteenth century.

Incorporated in 1871, the FCIC, headed by Moses Church and A. Y. Easterby, constructed one of the first extensive irrigation systems in the valley, which began supplying water to their agricultural colony in 1876 (Clough and Secrest 1984:143). In the coming decades, a network of canals and ditches sprouted from the banks of the Kings River to provide water to various other farming colonies (Mead 1901). In 1887, Church sold the FCIC to E. B. Perrin and others for \$200,000 (Willison 1980:103). Perrin immediately set out to build a canal that would irrigate his holdings west of the Central Pacific Railroad. The 26.5-mile-long Herndon Canal proved to be a major contribution to the county's agribusiness, leading to the subdivision and improvement of lands in what is today the Kerman area (Vandor 1919:183).

For these reasons, the Herndon Canal is considered historically significant at the local level under Criterion A/1 for its association with the development of irrigation as a function of agricultural colonization at the turn of the twentieth century.

Criterion B/2

In order to be considered significant under Criterion B/2, a built environment resource must satisfy at least two conditions: (1) persons associated with the resource must be individually significant and (2) the resource must be associated with the person's productive life and be exemplary of his/her contributions to history (NPS 2002:15).

Moses Church, who was the founder of the FCIC, is arguably an important individual in the early history of Fresno County. From the late 1800s to 1887, Church operated the FCIC. Contemporary accounts make clear that he was not easily intimidated nor did he shy away from confrontation. Far from being appreciated in his day, ranchers vilified him because he took their water, while farmers criticized him for unduly high irrigation costs and the poorly maintained FCIC system. Yet without Church's toughness and stubborn nature, it is hard to imagine the FCIC surviving into the 1890s. And without the FCIC, a *Fresno Weekly Expositor* (1881) op-ed piece argued that Fresno County would have surely take an economic step backward. In 1887, with the weight of some 42 legal cases pending in Fresno County alone, Church apparently had reached the end of his line and sold the FCIC to E. B. Perrin.

E. B. Perrin made considerable progress in resolving the company's legal issues in 1891 when he purchased the Laguna de Tache Ranch, including its all-important water rights (Willison 1980:104–105). As with any large acquisition, Perrin needed financing and borrowed \$1 million from a consortium of English insurance companies headed by Lord Fitz-Williams (Vandor 1919:266). Two years later, a depression hammered the country's economy, and Perrin was unable to meet his debt obligations. In 1894, the English creditors foreclosed, obtaining the FCIC, among other assets. The consortium would retain controlling interest in the canal company until 1921.

While Moses Church is no doubt a significant individual in Fresno County history for building the first irrigation system and hundreds of miles of canals allowing for the expansion of agricultural colonies, Church is not directly tied to the construction of the Herndon Canal and was no longer director of the FCIC when it was built. It was E. B. Perrin who purchased the FCIC and was responsible for building the conveyance with intent to irrigate his land and support the development of his colonies. By 1876, Perrin had acquired more than 130,000 acres, and he needed to provide them water (Thickens 1946:173). After purchasing the FCIC in 1887, he was able to construct the Herndon Canal (then called the Perrin Canal) and successfully irrigate his land, which led to the growth of six Perrin colonies north and northwest of the city of Fresno. Although his operation of the FCIC was brief, Perrin set in motion the canal that successfully converted his acreage as well as others to agricultural colonies in Fresno County. Thus, the

Herndon Canal is considered historically significant at the local level under Criterion B/2 for its association with E. B. Perrin.

Criterion C/3

Criterion C/3 evaluates the physical design or construction of a resource, including such elements as architecture, landscape architecture, engineering, and aesthetics (NPS 2002:17–20). The Herndon Canal does not exhibit the innovative features that would make it significant. At 26.5 miles, the canal is not a particularly long conveyance, and its internal dimensions—10 feet deep and 30 feet wide at the top—are not at all exceptional among Central Valley canals. Moreover, the canal contains features along its alignment (e.g., culverts, turnouts, etc.) that are fairly commonplace throughout the valley. Thus, the Herndon Canal is not considered significant under Criterion C/3 due to a lack of engineering and technological innovations/achievements.

Criterion D/4

Canals can be considered significant under Criterion D/4 if further study of their construction and/or components yields important information that cannot be obtained from other sources (NPS 2002). The most likely scenario would involve a local or novel engineering method that has not been documented or commonly seen in other canals or ditches. The engineering method used to build the Herndon Canal is well known and can be found in contemporary literature.

Further investigation would not yield additional information, therefore, the Herndon Canal is not considered significant under Criterion D/4.

Assessment of Integrity

Application of the CRHR significance criteria indicates that the Herndon Canal is locally significant under Criteria A/1 and B/2. For a resource to be eligible for the CRHR, it must not only possess historical significance but also the physical means to convey such significance—that is, it must possess integrity. Integrity refers to the degree to which a resource retains its original character and conveys the components or features that give the resource significance.

Whereas historical significance requires consideration of the entire resource, the concept of integrity is usually applied to only a portion or segment of the resource. This is particularly relevant for a linear feature, where the level of integrity can vary across its extent and in which assessment of integrity for the entire resource is typically not feasible. Integrity considerations should focus on whether or not a resource retains historic integrity in terms of setting, feeling, association, workmanship, design, materials, and location (Office of Historic Preservation 1995:19).

To date, there has been no comprehensive survey of the entire 26.5-mile-long canal. It is possible that some segments of the canal retain sufficient integrity to convey the historical significance of the canal, but integrity can only be assessed after a physical examination of the resource.

B11. Additional Resource Attributes (list attributes and codes): None

***B12. References:**

Clough, Charles W., and William B. Secrest Jr.

1984 *Fresno County—The Pioneer Years: From the Beginnings to 1900*, edited by Bobbye Sisk Temple. Panorama West Books, Fresno, California.

Enright, Bernard

1916 Cement Sampling and Some Cement Peculiarities. *The Cement Era* 14(6):51–66.

Fresno Weekly Expositor

1881 A County Matter. 6 April:3. Fresno, California.

Hall, Richard D.

1986 Agriculture and Water. In *Fresno County in the 20th Century: From 1900 to the 1980s*, edited by Bobbye Sisk Temple, pp. 169–202. Panorama West Books, Fresno, California.

Harvey, William

1907 *Atlas of Fresno County, California*. William Harvey, Sr., Fresno, California.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary # 10-005573
HRI #/Trinomial CA-FRE-3608H

*NRHP Status Code

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Resource Name or #: Herndon Canal

Hibma, Michael

- 2010 *Historical Resources Evaluation Report for the Veterans Boulevard/State Route 99 Interchange and Grade Separations Project, Fresno, Fresno County, California*. LSA Associates, Inc., Point Richmond, California.

Mead, Elwood

- 1901 *Irrigation Investigations in California*. U.S. Department of Agriculture Office of Experiment Stations Bulletin No. 100. Government Printing Office, Washington, D.C.

National Parks Service

- 2002 *How to Apply the National Register Criteria for Evaluation*. Revised. U.S. Department of the Interior, National Park Service, Cultural Resources, National Register, History, and Education, Washington D.C.

Nelson, Wendy J.

- 2000 *Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optic Project, Segment WS04: Sacramento to Bakersfield*. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to Parsons Brinckerhoff Network Services, Pleasanton, California. On file, California Historical Resources Information System, Southern San Joaquin Valley Information Center, California State University, Bakersfield, Report No. FR-1651.

Nettles, Wendy M., and Randy Baloian

- 2006 *Historical Resources Evaluation Report for the City of Fresno Herndon Canal Bankside Trail Project, Fresno County, California*. Applied EarthWorks, Inc., Fresno, California. Prepared for City of Fresno Public Works Department. Submitted to California Department of Transportation, District 6, Fresno County, California.

Office of Historic Preservation

- 1995 *Instructions for Recording Historical Resources*. California Department of Parks and Recreation, Sacramento.

Thickens, Virginia E.

- 1946 *Pioneer Agricultural Colonies of Fresno County (Concluded)*. *California Historical Society Quarterly* 25(2):169–177.

Thompson, Thos. H.

- 1891 *Official Historical Atlas of Fresno County*. Available for reference at the Fresno County Public Library.

U.S. Geological Survey (USGS)

- 1923 *Biola, Calif.* 1:31,680 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), <https://ngmdb.usgs.gov/topoview/>, accessed October 18, 2017.

Vandor, Paul E.

- 1919 *History of Fresno County, California, with Biographical Sketches: The Leading Men and Women of the County Who Have Been Identified with Its Growth and Development from the Early Days to the Present*, Vol. 2. Historic Record Company, Los Angeles, California.

Willison, Paul H.

- 1980 *Past, Present, & Future of the Fresno Irrigation District*. Fresno Irrigation District, Fresno, California.

B13. Remarks: None

***B14. Evaluator:** Applied EarthWorks, Inc.

1391 W. Shaw Ave., Suite C

Fresno, Ca 93711

Date of Evaluation: 10/5/2018

Page 1 of 2

Resource Name or #: Herndon Canal (Biola Segment)

L1. **Historic and/or Common Name:** Perrin Canal

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

b. Location of point or segment: The recorded segment is at the intersection of Shaw Avenue and Third Avenue in Biola, California (see attached Location Map).

UTM: NAD 83; Zone 10N; 765660.31 **mE**/ 4077687.69 **mN** (west end), 765796.04 **mE**/ 4077690.70 **mN** (east end)

L3. **Description:** This segment of the Herndon Canal is an open concrete-lined channel with tan sandy banks approximately 10 feet wide. The canal parallels Shaw Avenue, and the banks are level with the road. The segment contains a turnout to Third Avenue, and there are steel ladders installed on the canal's interior walls.

L4. **Dimensions:**

L4e. **Sketch or Cross Section** ☐ attached **Facing:**

a. **Top Width:** 30 feet

☒ none

b. **Bottom Width:** Unknown

c. **Height or Depth:** Unknown (likely 5–10 feet)

d. **Length of Segment:** 450 feet (east-west)

L5. **Associated Resources:** None.

L6. **Setting:** From the late nineteenth century up to the first decade of the twentieth century, the large parcels around the future townsite of Biola supported grain farms, which were irrigated by the nearby Herndon Canal. By 1913, the town of Biola had emerged, owing its existence to the subdivision of the surrounding properties into Thompson grape vineyard lots. The town is approximately 10 miles from the city of Fresno and is a hub for produce packing.

L7. **Integrity Considerations:** The recorded segment exhibits good integrity of association. The canal continues to carry out its initial purpose as a canal, and although the Fresno Irrigation District has long since replaced the Fresno Canal and Irrigation Company (FCIC), the canal's waters are still conveyed to individual farmers for irrigation of premium crops. The canal also retains good integrity of location. According to historic maps and aerial photographs dating back to 1891, the alignment of this segment of the canal has not been altered since it was first constructed.

Although the subject segment maintains its original alignment, its design, workmanship, and materials have been compromised by subsequent improvements. The recorded segment has been lined with concrete and turnouts have been installed to bring water to the community of Biola. All of the old regulating features of the FCIC were replaced in the early 1920s when the FID took over the aging system. Modernization has continued to the present and no such features within the segment are from the period of significance (ca. 1900).

While the setting of the recorded segment is still rural, it has been compromised by the development of the neighboring city of Biola, removal of agricultural land, and expansion of the heavily travelled adjacent Shaw Avenue. In general, the canal surroundings have changed since 1900 and no longer embody the original agricultural landscape, nor does the viewer have the sense that the structure is old and somehow historic. Thus, integrity of setting is at best average, while integrity of feeling is wholly lacking from the recorded segment.

In conclusion, the segment of the Herndon Canal within the Project area retains integrity of location and association but lacks integrity of setting, feeling, workmanship, materials, and design. Consequently, due to the lack of historical integrity, this segment of the Herndon Canal does not contribute to the eligibility of the resource as a whole.

L8a. **Photo, Map, or Drawing:**



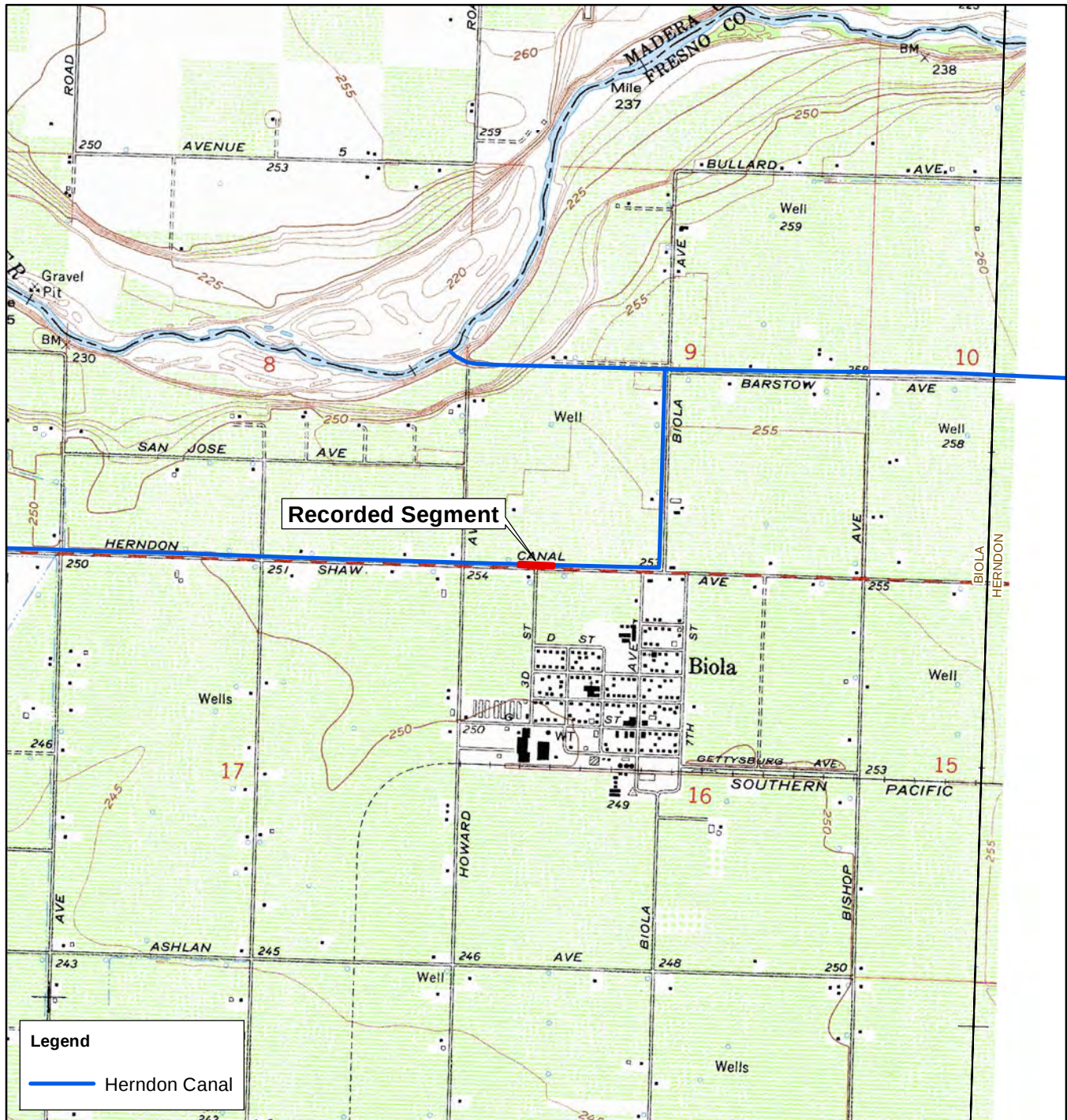
L8b. **Description of Photo, Map, or**

Drawing: Herndon Canal on north side of Shaw Avenue with a turnout toward Third Avenue, facing east

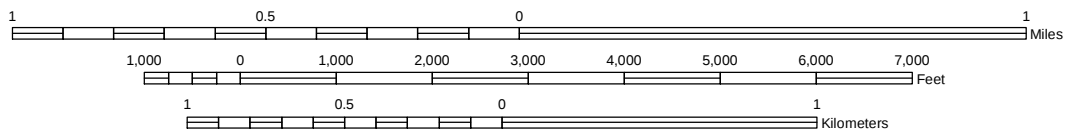
L9. **Remarks:** None

L10. **Form Prepared By:** Joshua Tibbet

L11. **Date:** 10/5/18



SCALE 1:24,000



TRUE NORTH