Initial Study

Woodlake Stormwater Basin Project

Prepared for:

City of Woodlake
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TABLE OF CONTENTS

PROJECT INFORMATION

This document is the Initial Study for the potential environmental effects of the City of Woodlake's (City) Stormwater Basin Project (Project). The City of Woodlake will act as the Lead Agency for this project pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines. Copies of all materials referenced in this report are available for review in the project file during regular business hours at 350 N. Valencia Avenue, Woodlake, CA 93286.

Project title

Woodlake Stormwater Basin Project

Lead agency name and address

City of Woodlake
350 N. Valencia Avenue
Woodlake, CA 93286

Contact person and phone number

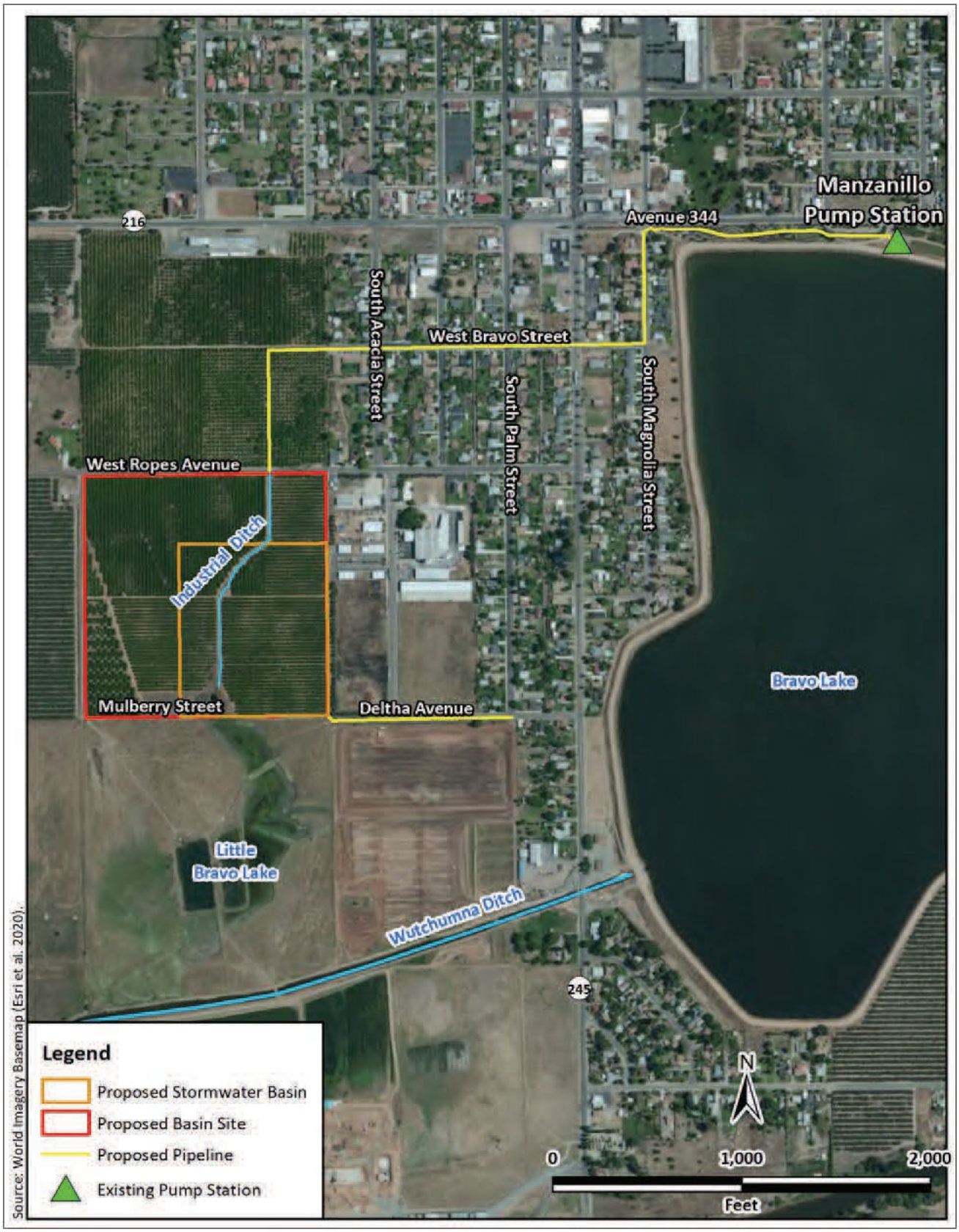
Jason Waters, Community Services Director
City of Woodlake
(559) 564-8055

Project location

The City of Woodlake is located in Tulare County in the southern part of the San Joaquin Valley. The proposed Project is located north of Little Bravo Lake, south of W. Ropes Avenue and northwest of Mulberry Street on Assessor's Parcel Numbers 060-170-016 and -015. The Project site lies within City Limits. Woodlake is bisected by SR 216 and SR 245 and the City is situated five miles north of SR 198.

Figure 1 – Location

Figure 2 – Site Aerial



Project sponsor's name/address

City of Woodlake
350 N. Valencia Avenue
Woodlake, CA 93286

General plan designation

Industrial

Zoning

Light Industrial (ML)

Project Description

The City of Woodlake intends to construct and operate a 17-acre (800 by 1000-foot) stormwater retention basin on a 38-acre site in south Woodlake. The Project is a portion of what the City of Woodlake Stormwater Master Plan (March 2010) has recommended for the phased improvements to the City's existing storm drain system.

Project Components

- Constructing and operating a 17-acre stormwater retention basin, which will receive runoff from the Bravo Lake/ Wutchumna Ditch via the Manzanillo Stormwater Pump Station, South Valencia Boulevard and the existing Industrial Ditch.
- Excavated soil from basin construction will be spread on the remaining 21 acres on-site.
- Installing 4,611 linear feet of 48-inch pipeline from the new basin north to the Bravo Avenue alignment, east along Bravo Avenue to Magnolia Street, north on Magnolia Street to just south of Avenue 344, then east along the north edge of Bravo Lake to the Manzanillo Pump Station
- Installing approximately 930 linear feet of pipeline from the new basin along Deltha Avenue alignment to Palm Street.
- The City will design the project in a way that will capture water that currently travels via the Industrial Ditch when the Ditch is removed

The proposed Project consists of phases two and three of the larger Stormwater Improvement Project, which will be funded by the Community Development Block Grant program through the U.S. Department of Housing and Urban Development. The second phase consists of constructing a new stormwater line that will transport water from the new pump near Bravo Lake to the proposed stormwater retention basin. This phase is fully funded and the design and engineering

RFP will go out to bid shortly. The third and final phase consists of constructing the new stormwater retention basin at the proposed Project site.

Project Operations

The Project at full build-out will consist of a stormwater retention basin, which is approximately 800 ft wide and 1,000 ft long, with the highest elevation being 436 ft above mean sea level in the northeast corner. The dirt excavated from the basin area will be spread over the adjacent areas to the west and northwest of the basin site.

As mentioned previously, the stormwater retention basin will receive stormwater runoff from three sources; from the Bravo Lake/ Wutchumna Ditch, from South Valencia Boulevard and from the existing Industrial Ditch.

The size of the stormwater retention basin has been determined and sized based on approximated runoff for a 10-day storm event with a 25-year storm frequency. In the event that a storm is encountered that exceeds the predicted allowable runoff accumulation, the excess stormwater will overflow into the existing ditch that feeds Little Bravo Lake, south of the new basin site. The maximum water height level is set at 421 ft, just below the elevation of the pipelines feeding into the basin.

The substrate at the bottom of the retention pond will be designed similarly to the percolation ponds at the City of Woodlake Wastewater Treatment Plant, which will allow water percolation into the ground.

Surrounding Land Uses/Existing Conditions

The proposed Project site is currently being utilized for agricultural purposes, specifically orchard cultivation.

Lands surrounding the proposed Project are described as follows:

- North: Residential and Agricultural.
- South: Little Bravo Lake.
- East: Vacant and Commercial.
- West: Agricultural.

Figure 3 – Conceptual Basin Site Plan

Other Public Agencies Involved

- State of California Native American Heritage Commission
- San Joaquin Valley Air Pollution Control District
- Central Valley Regional Water Quality Control Board
- U.S. Department of Housing and Urban Urban Development

Tribal Consultation

The City of Woodlake received correspondence from the Santa Rosa Rancheria Tachi-Yokut Tribe, requesting to give a cultural presentation to all construction staff. No other Project-specific correspondence was received.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

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.

Jason Waters — Date

Community Services Director

City of Woodlake

ENVIRONMENTAL CHECKLIST

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. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The City of Woodlake is located on the San Joaquin Valley floor at the western foothills of the Sierra Nevada mountain range. On clear days, the peaks are visible from the majority of the City. The proposed basin is located in an agricultural area while the pipeline will pass through established residential neighborhoods and commercial areas of the City. The proposed basin site is bounded to the south and east by Mulberry Street. The areas immediately north and west of the Project site will be utilized by future industrial purposes, which will be analyzed in a separate environmental document. There are no adopted scenic resources or scenic vistas in the area. State Routes (SR) in the proposed Project vicinity include 216, 245 and 198.

RESPONSES

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

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

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and regulations governing scenic quality?

Less than Significant Impact. The City of Woodlake General Plan does not identify any scenic vistas within the proposed Project area; however, the peaks of the Sierra Nevada mountain range are clearly visible on many days of the year. 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 proposed Project is consistent with the existing character and uses of the surrounding area, as industrial and commercial land are in the neighboring vicinities. As such, Project operations will not degrade the existing visual character of the site. Construction activities may be visible from the adjacent roadside; however, the construction activities will be temporary in nature and will not affect a scenic vista.

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 198 east of SR 99 as an Eligible State Scenic Highway.[1] This is the closest highway, located approximately 5.2 miles south of the Project site; however, the Project site is both physically and visually separated from SR 198 by intervening land uses. In addition, no scenic highways or roadways are listed within the Project area in the City of Woodlake's General Plan or Tulare County's General Plan. Based on the National Register of Historic Places (NRHP) and the City's General Plan, no historic buildings exist on the Project site. The proposed Project would not cause damage to rock outcroppings or historic buildings within a State scenic highway corridor. Any impacts would be considered ***less than significant***.

Mitigation Measures: None are required.

[1] California Department of Transportation. California Scenic Highway Mapping System, Tulare County. http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed February 2020.

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. Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments; however, these lights have the potential to produce spillover light and glare and waste energy, and if designed incorrectly, could be considered unattractive. Light that falls beyond the intended area is referred to as "light trespass." Types of light trespass include spillover light and glare. Minimizing all these forms of obtrusive light is an important environmental consideration. A less obtrusive and well-designed energy efficient fixture would face downward, emit the correct intensity of light for the use, and incorporate energy timers.

Glare results when a light source directly in the field of vision is brighter than the eye can comfortably accept. Squinting or turning away from a light source is an indication of glare. The presence of a bright light in an otherwise dark setting may be distracting or annoying, referred to as discomfort glare, or it may diminish the ability to see other objects in the darkened environment, referred to as disability glare. Glare can be reduced by design features that block direct line of sight to the light source and that direct light downward, with little or no light emitted at high (near horizontal) angles, since this light would travel long distances. Cutoff-type light fixtures minimize glare because they emit relatively low-intensity light at these angles.

Current sources of light in the Project area are from the surrounding commercial and agricultural uses and the vehicles traveling along West Ropes Avenue. The Project will not include any new sources of lighting. Accordingly, the Project would not create substantial new sources of light or glare. Potential impacts are ***less than significant***.

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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

While the proposed Project site is currently being utilized for agricultural purposes and Agriculture is its given land use, it is officially zoned by the City of Woodlake[2] as ML (Light Industrial). The Project site is considered *Farmland of Statewide Importance*[3]*;* however, the land is not under the Williamson Act.

RESPONSES

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

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

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

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

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

No Impact. The Project site is *Farmland of Statewide Importance* according to the California Important Farmland Finder, the site is zoned Light Industrial by the City of Woodlake. As such, potential conversion of farmlands on this portion of the site have been found to be significant and unavoidable in the Woodlake General Plan, 2008-2028 EIR (Sch#2008101159) and a Statement of Overriding Consideration has been adopted by the City. The Project site is not under the Williamson Act contract. Therefore, no land conversion from Farmland would occur for the Project. The 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.

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[2] City of Woodlake General Plan, Zoning Map. http://www.cityofwoodlake.com/wp-content/uploads/2017/11/City-of-Woodlake-Zoning-Map.pdf. Accessed February 2020.
[3] Department of Conservation, California Important Farmland Finder. https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed February 2020.

III. AIR QUALITY

Would the project:

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

ENVIRONMENTAL SETTING

The climate of the City of Woodlake and 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, 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 (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM_{10} 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 PM2.5, a State non-attainment area for PM10, and Federal and State attainment area for CO, SO2, NO2, and Pb.

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 (1hr avg)
Lead	1.5 µg/m3 (calendar quarter) 0.15 µg/m3 (rolling 3-month avg)	1.5 µg/m3 (30-day avg)
Particulate Matter (PM10)	150 µg/m3 (24-hr avg)	20 µg/m3 (annual avg) 50 µg/m3 (24-hr avg)
Particulate Matter (PM2.5)	15 µg/m3 (annual avg)	35 µg/m3 (24-hr avg) 12 µg/m3 (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 was phased in beginning in 2012. AB 32 requires CARB to develop regulations and a mandatory reporting system to monitor global warming emissions levels.

RESPONSES

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

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

c. Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The proposed Project lies within the San Joaquin Valley Air Basin (SJVAB). At the Federal level, the SJVAB is designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM_{10} and CO, and nonattainment fort $PM_{2.5}$. At the State level, the SJVAB is designated as nonattainment for the 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards. Although the Federal 1-hour ozone standard was revoked in 2005, areas must still attain this standard, and the SJVAPCD recently requested an EPA finding that the SJVAB has attained the standard based on 2011-2013 data[4]. To meet Federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

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

Because of the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if the project-generated emissions of either of the ozone precursor pollutants (ROG or NOx), PM_{10}, or $PM_{2.5}$ were to exceed the SJVAPCD's significance thresholds, then the project uses would be considered to conflict with the attainment plans. In addition, if the project uses were to result in a change in land use and corresponding

[4] San Joaquin Valley Air Pollution Control District. Guide to Assessing and Mitigating Air Quality Impacts. March 19, 2015. Page 28. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Accessed February 2020.

increases in vehicle miles traveled, they may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

The annual significance thresholds to be used for the Project for construction and operational emissions are as follows[5]:

- 10 tons per year ROG;
- 10 tons per year NOx;
- 15 tons per year PM_{10}; and
- 15 tons per year $PM_{2.5}$.

The project will result in both construction emissions and operational emissions as described below.

Short-Term (Construction) Emissions

Site preparation and project construction would involve excavating, grading, hauling, and various activities needed to construct the Project. During construction, the Project could generate pollutants such as hydrocarbons, oxides of nitrogen, carbon monoxide, and suspended PM. A major source of PM would be windblown dust generated during construction activities. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Vehicles leaving the site could deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM10 emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM10 emissions would depend on soil moisture, the silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Operational Emissions

The pipeline and stormwater basin are passive in nature and will not generate any on-site emissions.

Total Project Emissions

The estimated annual construction emissions are provided below. The California Emissions Estimator (CalEEMod), Version 2016.3.2, was used to estimate construction emissions resulting from basin construction while the pipeline construction emissions were estimated with the Roadway Construction Emissions Model (version 9.0). It is important to note that all excavated soils will remain on-site. It was

[5] San Joaquin Valley Air Control District – Air Quality Threshold of Significance – Criteria Pollutants. http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf. Accessed February 2020.

also assumed that basin construction would take approximately six months, while it will likely only take three months, resulting in conservative estimated basin construction emissions. Modeling results are provided in Table 2 and the CalEEMod output files and the Roadway Construction Emissions Model output files are provided in Appendix A.

Table 2 - Proposed Project Construction and Operation Emissions

	VOC (ROG) (tons/year)	NO_x (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year
2020 Basin Construction Emissions	0.3886	4.2602	0.8221	0.4973
2020 Pipeline Construction Emissions	0.29	3.06	0.42	0.19
Total Project Emissions	**0.6786**	**7.3202**	**1.2421**	**0.6873**
Annual Threshold of Significance	10	10	15	15
Significant?	**No**	**No**	**No**	**No**

Source: CalEEMod results (Appendix A). Crawford & Bowen Planning (2020)

As demonstrated in Table 2, estimated construction emissions would not exceed the SJVAPCD's significance thresholds for ROG, NOx, PM_{10}, and $PM_{2.5}$. As a result, the Project uses would not conflict with emissions inventories contained in regional air quality attainment plans and would not result in a significant contribution to the region's air quality non-attainment status[6].

Any impacts to air resources would be considered ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. The proposed Project is located in an industrial portion of the City of Woodlake. During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the Project site. The potential for diesel odor impacts is therefore considered less than significant.

As such, the proposed Project is not expected to produce any offensive odors that would result in frequent odor complaints. Any impacts would be ***less than significant.***

Mitigation Measures: None are required.

[6] San Joaquin Valley Air Pollution Control District. Guide to Assessing and Mitigating Air Quality Impacts. March 19, 2015. Page 65. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Accessed February 2020.

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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The proposed Project site is located in a portion of the central San Joaquin Valley that has, for decades, experienced intensive agricultural and urban disturbances. Current agricultural endeavors in the region include dairies, groves, and row crops.

Like most of California, the Central San Joaquin Valley experiences a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures usually exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely raise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation within the proposed Project site is about 10 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain and storm-water readily infiltrates the soils of the surrounding the sites.

Native plant and animal species once abundant in the region have become locally extirpated or have experienced large reductions in their populations due to conversion of upland, riparian, and aquatic habitats to agricultural and urban uses. Remaining native habitats are particularly valuable to native wildlife species including special status species that still persist in the region. According to the Woodlake General Plan, most of the open space in the Woodlake area is dominated by agriculture. Citrus, olives, and grazing land are the dominant uses, which may attract the San Joaquin kit fox and burrowing owls.

A Biological Resource Assessment was prepared for the proposed Project by Colibri Ecological Consulting, LLC in March of 2020. The following descriptions and subsequent impact analysis is based on observations and expertise of Colibri Ecological Consulting. The Assessment is provided in Appendix B.

The proposed Project site consists of a citrus orchard that is routinely sprayed with herbicides, dirt and paved surface streets, and a paved walking trail surrounded by agricultural, industrial, and residential

development. The new stormwater basin will be constructed in the citrus orchard, which is bordered to the north by citrus orchards and residential development, to the east by industrial development and a recently disked fallow field that supported ruderal vegetation, to the south by a previously disturbed field that supported nonnative annual grassland, and to the west by citrus orchards and industrial development. The northern section of new pipeline will run under paved surface streets, under a previously disturbed dirt road at the western terminus of Bravo Avenue, and eventually under a paved walking path leading east to the Manzanillo Pump Station. Bravo Lake, a permanent, leveed waterbody is immediately south of the Manzanillo Pump Station and about 0.3 miles east of the new stormwater basin site. The southern section of new pipeline will be installed under dirt and paved roads. It is bordered to the north by a recently disked fallow field that supports ruderal vegetation and residential development, to the east by residential development and Bravo Lake, to the south by a large detention basin, and to the west by a previously disturbed field that supported nonnative annual grassland. Industrial Ditch, a highly disturbed, dirt-lined intermittent drainage largely devoid of vegetation, carries water from north to south through the middle-western portion of the Project site, where the new stormwater basin will be installed, and forms a small semi-permanent wetland at the southern boundary of the Project site.

Special Status Species

Two special-status species could occur on or near the Project site based on the presence of habitat and/or occurrence in the California Natural Diversity Database (CNDDB) records from within five miles. These two species are described below.

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

One CNDDB record, from 2018, is known from within five miles of the Project site. Although this species was not detected during the reconnaissance survey, which was conducted outside of the blooming period, aquatic habitat on the property could support this species. Due low habitat quality, however, its probability of occurrence is low.

Northwestern pond turtle (*Actinemys marmorata*). Northwestern pond turtle (family Emydidae) is California's only native freshwater turtle. It is recognized as a Species of Special Concern by the CDFW. This species is long-lived, diurnal, and aquatic. It occurs in ponds, lakes, rivers, creeks, marshes, and irrigation ditches and requires exposed banks, logs, rocks, or cattail mats for basking. Commercial harvesting beginning in the 19th century, wetland destruction and degradation in the early 20th century,

and introduction of nonnative species including other turtle species and bullfrogs are the primary contributors to population declines. Mating occurs in April and May, after which females travel onto land to dig a nest, usually along stream or pond banks.

Although there are no CNDDB records known from within five miles of the Project site, Bravo Lake and the small semi-permanent wetland along Industrial Ditch on the Project site provide potential aquatic habitat, and the nonnative grassland south of the Project site could represent potential nesting habitat. Due low habitat quality, however, its probability of occurrence is low.

Nesting Birds and the Migratory Bird Treaty Act

Migratory birds could nest on or near the Project site. Species that may nest on or near the Project site include but are not limited to California scrub-jay (*Aphelocoma californica*), house finch (*Haemorhous mexicanus*), and northern mockingbird (*Mimus polyglottos*).

Regulated Habitats

Two potentially regulated habitats (Industrial Ditch and an unnamed irrigation canal) were found on or within 50 feet of the Project site. Industrial Ditch is a constructed intermittent drainage that flows north to south through the middle-western portion of the Project site where the new stormwater basin will be constructed. It forms a small semi-permanent wetland at the southern Project site boundary, then drains to Little Bravo Lake, Wutchumna Ditch, and eventually the St. Johns River. Industrial Ditch is likely under the jurisdiction of the US Army Corps of Engineers, State Water Resources Control Board, and California Department of Fish and Wildlife. An unnamed, excavated irrigation canal associated with a large detention basin was 10 feet south of the southern segment of new pipeline alignment that will connect the new stormwater basin to existing infrastructure along the Deltha Avenue alignment. However, construction of the new pipeline will be confined to existing dirt and paved roads.

According to the Wild and Scenic Rivers Act, no waterways on or near the proposed Project site retain a wild and scenic classification. 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 within a FEMA-designated flood zone classified as Zone X, otherwise described as "Other Flood Areas". Parcels within Zone X have either (1) a 0.2% annual chance of flood during a 100-year flood event, (2) a 1% annual chance of flood (during a 100-year flood event). The semi-permanent wetland along Industrial Ditch is classified as Zone A. Parcels within Zone A are without base flood elevation and subject to inundation by the 1-percent-annualchance flood.

RESPONSES

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

Less than Significant Impact with Mitigation Incorporation. The proposed Project could substantially impact two special-status species: Sanford's arrowhead (CNPS CRPR 1B.2) and northwestern pond turtle, a California Species of Special Concern. Construction disturbance could result in the incidental loss of Sanford's arrowhead or northwestern pond turtle. Such loss could constitute a significant impact. As such, implementation of Mitigation Measure BIO-1 and BIO-2 will ensure that any impacts remain ***less than significant***.

Mitigation Measures:

BIO-1

A pre-construction clearance survey shall be conducted by a qualified biologist to ensure that northwestern pond turtle will not be impacted during Project construction. The pre-construction clearance survey shall be conducted no more than 14 days prior to the start of construction activities. During this survey, the qualified biologist shall search all aquatic habitat and all potential nesting habitat on the Project site for active turtle nests. If a turtle is found, it will be allowed to the leave the area on its own. If an active turtle nest is found, the qualified biologist shall determine the extent of a construction-free buffer to be established and maintained around the nest for the duration of the nesting cycle. The biologist shall then work with construction personnel to install wildlife exclusion fencing along the buffer. This fencing should be a minimum of 36 inches tall and towed-in 6 inches below ground prior to construction activities. If fencing cannot be toed-in, the bottom of the fence will be weighted down with a continuous line of long, narrow sand bags or similar, to ensure there are no gaps under the fencing where wildlife could enter. One-way exit funnels directed away from construction activities will be installed to allow turtles and other small wildlife to exit the fenced enclosure.

BIO-2

A rare plant survey for Stanford's arrowhead shall be conducted by a qualified biologist during the appropriate season (May to October). If this species is detected, a minimum 50-foot avoidance buffer shall be implemented to avoid impacts to the extent practicable. If impacts are unavoidable, salvage and relocate the plants in consultation with CDFW.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant Impact with Mitigation. The proposed Project will permanently impact Industrial Ditch and its associated semi-permanent wetland at the southern Project site boundary. As Industrial Ditch is hydrologically connected to the St. Johns River, a navigable water, Industrial Ditch and its associated semi-permanent wetland are under the jurisdiction of the USACE and therefore subject to provisions of the Clean Water Act (CWA). Construction of the new stormwater basin will permanently impact roughly 1000 linear feet of Industrial Ditch, including roughly 120 linear feet of semi-permanent state and federally protected wetland. Such loss could constitute a significant impact. Implementation of Mitigation Measure BIO-3 and BIO-4 will ensure potential impacts to federally protected wetlands remain at the ***less than significant*** level.

Mitigation Measures:

BIO-3

Obtain a CWA Section 404 Nationwide Permit in consultation with the USACE for work impacting Industrial Ditch and its associated semi-permanent wetland.

BIO-4

Obtain a CWA Section 401 water quality certification from the SWRCB for work impacting Industrial Ditch and its associated semi-permanent wetland.

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

Less Than Significant Impact with Mitigation. The proposed Project has the potential to impede the use of nursery sites for native birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC). Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile

eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort can be considered take under the MBTA and CFGC. 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 excavating, trenching, and grading that disturb a nesting bird on the Project site or immediately adjacent to the construction zone could also constitute a significant impact. As such, implementation of Mitigation Measure BIO-5 will reduce potential impacts to ***less than significant*** levels.

Mitigation Measures:

BIO-5

To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August. If it is not possible to schedule construction between September and January, a pre-construction clearance survey for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction clearance survey shall be conducted no more than 14 days prior to the start of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas, including within 250 feet in the case of raptor 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 failed for non-construction related reasons.

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

No Impact. The City of Woodlake's General Plan includes policies for the protection of biological resources. The proposed Project would not conflict with any of the adopted policies. There is ***no impact.***

Mitigation Measures: None are required.

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

No Impact. The proposed Project site is not within an area set aside for the conservation of habitat or sensitive plant or animal species pursuant to a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. As such, there is ***no impact***.

Mitigation Measures: None are required.

V. CULTURAL RESOURCES

Would the project:

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

ENVIRONMENTAL SETTING

An intensive Class III cultural resources inventory/Phase I survey was conducted for the proposed Project, by ASM Affiliates, Inc., with David S. Whitley, Ph.D., RPA, serving as principal investigator. The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and the California Environmental Quality Act and is provided as Appendix C of this document.

The area of potential e for the Project consists of the area of potential ground surface disturbance resulting from the excavation of the stormwater basin and trenching for 4,611-feet (ft) of 48" pipeline, including lay-down and staging areas. The horizontal APE for the stormwater basin is 17-acres (ac) in size; the APE for the pipeline trench, using a 15-meter (m) buffer on both sides of the route, is 13-ac, yielding a total horizontal APE of 30-ac. The vertical APE is the maximum limit of ground surface excavation, estimated at 10-feet.

A record search of site files and maps was conducted at the Southern San Joaquin Valley Archaeological Information Center (IC), California State University, Bakersfield. A Sacred Lands File Request was also submitted to the Native American Heritage Commission (NAHC). These investigations determined that small portions of the Project APE had been previously surveyed, and that segments of two historic structures, both rail grades, are known to exist within it.

The Class III inventory/Phase I survey fieldwork was conducted on 16 March 2020 with parallel transects spaced at 15-meter intervals walked across the approximately 30-acre APE. Because the APE involves a

pipeline along existing paved roads, both sides of the roads were surveyed. Orchard rows were walked within the proposed stormwater basin portion of the APE. The two previously identified cultural resources, segments of the Visalia Electric and Atchison Topeka and Santa Fe Railroad grades, were relocated. Both linear resources segments had been destroyed within the Project APE. They thus lack integrity of design, setting, materials, workmanship and feeling and are recommended as not National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) eligible or significant.

No additional cultural resources were identified within the Project APE.

RESPONSES

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

No Impact. As discussed above, no historic resources were identified within or adjacent to the project site. There is ***no impact***.

Mitigation Measures: None are required.

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

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

Less Than Significant Impact With Mitigation. The project area is highly disturbed, consisting of citrus orchards. There are no known or visible cultural or archaeological resources, paleontological resources, or human remains that exist on the surface of the project area. Therefore, it is determined that the project has low potential to impact any sensitive resources and no further cultural resources work is required unless project plans change to include work not currently identified in the project description.

Although no cultural or archaeological resources, paleontological resources or human remains have been identified in the project area, the possibility exists that such resources or remains may be discovered during Project site preparation, excavation and/or grading activities. Mitigation Measures CUL – 1 and CUL – 2 will be implemented to ensure that Project will result in ***less than significant impacts with mitigation***.

Mitigation Measures:

CUL – 1 Should evidence of prehistoric archeological resources be discovered during construction, the contractor shall halt all work within 25 feet of the find and the resource shall be evaluated by a qualified archaeologist. If evidence of any archaeological, cultural, and/or historical deposits is found, hand excavation and/or mechanical excavation shall proceed to evaluate the deposits for determination of significance as defined by the CEQA guidelines. The archaeologist shall submit reports, to the satisfaction of the City of Woodlake, describing the testing program and subsequent results. These reports shall identify any program mitigation that the project proponent shall complete in order to mitigate archaeological impacts (including resource recovery and/or avoidance testing and analysis, removal, reburial, and curation of archaeological resources).

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

VI. ENERGY

Would the project:

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

ENVIRONMENTAL SETTING

California's total energy consumption is second-highest in the nation, but, in 2016, the state's per capita energy consumption ranked 48th, due in part to its mild climate and its energy efficiency programs. In 2017, California ranked second in the nation in conventional hydroelectric generation and first as a producer of electricity from solar, geothermal, and biomass resources while also in 2017, solar PV and solar thermal installations provided about 16% of California's net electricity generation.[7]

Energy usage is typically quantified using the British thermal unit (BTU). As a point of reference, the approximately amounts of energy contained in common energy sources are as follows:

Energy Source	BTUs[8]
Gasoline	120,429 per gallon
Natural Gas	1,037 per cubic foot
Electricity	3,412 per kilowatt-hour

[7] U.S. Energy Information Administration. Independent Statistics and Analysis. California Profile Overview. https://www.eia.gov/state/?sid=CA#tabs-1. Accessed February 2020.
[8] U.S. Energy Information Administration. Energy Units and Calculators Explained. https://www.eia.gov/energyexplained/index.php?page=about_energy_units. Accessed February 2020.

California electrical consumption in 2016 was 7,830.8 trillion BTU[9], as provided in Table 3, while total electrical consumption by Tulare County in 2017 was 14.530 trillion BTU.[10]

Table 3 – 2016 California Energy Consumption[11]

End User	BTU of energy consumed (in trillions)	Percentage of total consumption
Residential	1,384.4	17.7
Commercial	1,477.2	18.9
Industrial	1,854.3	23.7
Transportation	3,114.9	39.8
Total	**7,830.8**	--

The California Department of Transportation (Caltrans) reports that approximately 25.1 million automobiles, 5.7 million trucks, and 889,024 motorcycles were registered in the state in 2017, resulting in a total estimated 339.8 billion vehicles miles traveled (VMT).[12] Within Tulare County, an estimated 3.7 million vehicle miles were traveled in 2017 for an average of 10,099 miles per day.[13]

Applicable Regulations

California Energy Code (Title 24, Part 6, Building Energy Efficiency Standards)

California Code of Regulations Title 24, Part 6 comprises the California Energy Code, which was adopted to ensure that building construction, system design and installation achieve energy efficiency. The California Energy Code was first established in 1978 by the CEC in response to a legislative mandate to reduce California's energy consumption, and apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and non-residential buildings. The standards are updated periodically to increase the baseline energy efficiency requirements. The 2013 Building Energy Efficiency Standards focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings and include requirements to enable both demand reductions during critical peak periods and future solar electric and thermal system installations. Although it was not originally intended to reduce greenhouse gas (GHG) emissions, electricity production

[9] U.S. Energy Information Administration. Independent Statistics and Analysis. California Profile Overview. https://www.eia.gov/state/?sid=CA#tabs-1. Accessed February 2020.
[10] California Energy Commission. Electricity Consumption by County. http://ecdms.energy.ca.gov/elecbycounty.aspx. Accessed February 2020.
[11] U.S. Energy Information Administration. Independent Statistics and Analysis. California Profile Overview. https://www.eia.gov/state/?sid=CA#tabs-1. Accessed February 2020.
[12] Caltrans. 2017. California Transportation Quick Facts. http://www.dot.ca.gov/drisi/library/qf/qf2017.pdf. Accessed February 2020.
[13] Caltrans. 2017. Tulare County Transportation Quick Facts. http://www.dot.ca.gov/drisi/library/qfco/tul/tul2017.pdf. Accessed February 2020.

by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

California Green Building Standards Code (Title 24, Part II, CALGreen)

The California Building Standards Commission adopted the California Green Buildings Standards Code (CALGreen in Part 11 of the Title 24 Building Standards Code) for all new construction statewide on July 17, 2008. Originally a volunteer measure, the code became mandatory in 2010 and the most recent update (2019) will go into effect on January 1, 2020. CALGreen sets targets for energy efficiency, water consumption, dual plumbing systems for potable and recyclable water, diversion of construction waste from landfills, and use of environmentally sensitive materials in construction and design, including eco-friendly flooring, carpeting, paint, coatings, thermal insulation, and acoustical wall and ceiling panels. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; water use; weather resistance and moisture management; construction waste reduction, disposal, and recycling; building maintenance and operation; pollutant control; indoor air quality; environmental comfort; and outdoor air quality. Mandatory measures for residential development pertain to green building; planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; environmental quality; and installer and special inspector qualifications.

Clean Energy and Pollution Reduction Act (SB 350)

The Clean Energy and Pollution Reduction Act (SB 350) was passed by California Governor Brown on October 7, 2015, and establishes new clean energy, clean air, and greenhouse gas reduction goals for the year 2030 and beyond. SB 350 establishes a greenhouse gas reduction target of 40 percent below 1990 levels for the State of California, further enhancing the ability for the state to meet the goal of reducing greenhouse gas emissions by 80 percent below 1990 levels by the year 2050.

Renewable Portfolio Standard (SB 1078 and SB 107)

Established in 2002 under SB 1078, the state's Renewables Portfolio Standard (RPS) was amended under SB 107 to require accelerated energy reduction goals by requiring that by the year 2010, 20 percent of electricity sales in the state be served by renewable energy resources. In years following its adoption, Executive Order S-14-08 was signed, requiring electricity retail sellers to provide 33 percent of their service loads with renewable energy by the year 2020. In 2011, SB X1-2 was signed, aligning the RPS target with the 33 percent requirement by the year 2020. This new RPS applied to all state electricity retailers, including publicly owned utilities, investor-owned utilities, electrical service providers, and community choice aggregators. All entities included under the RPS were required to adopt the RPS 20 percent by year 2020 reduction goal by the end of 2013, adopt a reduction goal of 25 percent by the end

of 2016, and meet the 33 percent reduction goal by the end of 2020. In addition, the Air Resources Board, under Executive Order S-21-09, was required to adopt regulations consistent with these 33 percent renewable energy targets.

RESPONSES

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

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

Less Than Significant Impact. The proposed Project includes construction and operation of a stormwater retention basin, 800 ft wide and 1,000 ft long, and approximately 5,541 linear feet of associated pipeline. The Project at build-out may consume high amounts of energy in the short-term during Project construction; however, the basin and associated pipeline are passive and will not require substantial amounts of energy during Project operation.

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

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

Mitigation Measures: None are required.

VII. GEOLOGY AND SOILS

Would the project:

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

	creating substantial direct or indirect risks to life or property?				
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The City of Woodlake is situated along the western slope of a northwest-trending belt of rocks comprising the Sierra Nevada and within the southern portion of the Cascade Range. The Sierra Nevada geomorphic province is primarily composed of cretaceous granitic plutons and remnants of Paleozoic and Mesozoic metavolcanic and metasedimentary rocks, and Cenozoic volcan and sedimentary rocks.

There are no known active earthquake faults in the City of Woodlake. According to the Woodlake General Plan, the nearest active faults are the San Andreas, 65 miles west; the Owens Valley, 75 miles east; and the White Wolf; 75 miles south.

According to the City's General Plan, much of the Project area has soils with high clay content that can expand and contract as water conditions change.

RESPONSES

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

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

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

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

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

Mitigation Measures: None are required.

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

Less than Significant Impact. The proposed Project will construct and operate a stormwater retention basin. The Project site has a generally flat topography and is in an established urban area. Project features would result in loss of topsoil, as the depth of the basin must be excavated and soil removed. Any soil removed from the basin site will be spread over the adjacent area to the west and northwest of the basin. The basin will be designed and sloped to minimize any resulting soil erosion. Therefore, the impact is ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. As described in Responses (a.iii) and (a.iv) above, the proposed Project would require a substantial grade change; however, specific design parameters will prevent any landslides, lateral spreading, subsidence, liquification or collapse of the retention basin or the surrounding areas. Any impacts would be ***less than significant.***

Mitigation Measures: None are required.

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

Less than Significant Impact. See Responses (c) and (a-ii). 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?

Less than Significant Impact. The proposed Project does not include the installation of a septic system. Therefore, there would be ***no impact.***

Mitigation Measures: None are required.

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

Less Than Significant Impact. As identified in the previous cultural studies perform for the project site, there are no known paleontological resources on or near the site. (See Section V. for more details). Mitigation measures have been added that will protect unknown (buried) resources during construction, including paleontological resources. There are no unique geological features on site or in the area. Therefore, there is a ***less than significant impact.***

Mitigation Measures: None are required.

VIII. GREENHOUSE GAS EMISSIONS

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

ENVIRONMENTAL SETTING

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 (CO_2), methane (CH_4), 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 TACs (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, 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.

RESPONSES

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

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

Less Than Significant Impact. The U.S. Environmental Protection Agency published a rule for the mandatory reporting of greenhouse gases from sources that in general emit 25,000 metric tons or more of carbon dioxide (CO2) per year. As shown in the modeling results (Appendix A), the Project will produce the following CO2:

2020 Basin Construction	452.10 MT/yr
2020 Pipeline Construction	477.80 MT/yr
Total Project Construction Emissions	929.90 MT/yr

This represents less than four percent of the reporting threshold. As such, any impacts resulting from conflicting a GHG plan, policy, or regulation, or significantly impacting the environment as a result of project development is considered ***less than significant.***

Mitigation Measures: None are required.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

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

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

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

ENVIRONMENTAL SETTING

The area immediately surrounding the proposed Project consists of industrial, commercial, agricultural and some single-family residential uses. The site is currently utilized for orchard cultivation.

RESPONSES

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

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

Less than Significant Impact. This impact is associated with hazards caused by the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Proposed Project construction activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. Transportation, storage, use, and disposal of hazardous materials during construction activities would be required to comply with applicable federal, state, and local statutes and regulations. Compliance would ensure that human health and the environment are not exposed to hazardous materials. In addition, the Project would be required to comply with the National Pollutant Discharge Elimination System (NPDES) permit program through the submission and implementation of a Stormwater Pollution Prevention Plan during construction activities to prevent contaminated runoff from leaving the project site. Therefore, no significant impacts would occur during construction activities.

The operational phase of the proposed Project would occur after construction is completed. The proposed Project includes land uses that are considered compatible with the surrounding uses. None of these land uses routinely transport, use, or dispose of hazardous materials, or present a reasonably foreseeable release of hazardous materials, with the potential exception of common commercial grade hazardous materials such as household and commercial cleaners, paint, etc. The proposed Project would not create a significant hazard through the routine transport, use, or disposal of hazardous materials, nor would a significant hazard to the public or to the environment through the reasonably foreseeable upset and accidental conditions involving the likely release of hazardous materials into the environment occur. Therefore, the proposed Project will not create a significant hazard to the public or the environment and 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?

No Impact. No schools are located within 0.25 mile of the Project site. This condition precludes the possibility of activities associated with the proposed Project exposing schools within a 0.25-mile radius of the project site to hazardous materials. ***No impact*** would occur.

Mitigation Measures: None are required.

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

No Impact. The proposed Project site is not located on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 (Geotracker and DTSC Envirostor databases – accessed in February 2020).[14] 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.

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[14] California Department of Toxic Substances Control. Envirostor Database. http://www.envirostor.dtsc.ca.gov/public/map/?myaddress=woodlake+ca. Accessed February 2020.

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

Less than Significant Impact. There are no private airstrips in the Project vicinity. The Woodlake Municipal Airport is located 0.6 miles south of the site. The proposed site is located inside the Airport Land Use Plan's Safety Zone 6 (Traffic Pattern Zone).[15] However, the proposed Project does not include residential development, which would require adherence to restrictive development policies provided by the ALUC. The Tulare County Airport Land Use Compatibility Matrix identifies "Public Utility Facilities", under the Institutional, Public and Quasi-Public land use category, as compatible land uses within Safety Zone 6. Furthermore, the proposed land use would not substantially contribute to the severity of an aircraft accident nor result in a substantial safety hazard for people residing or working in the Project area. Thus, any impacts are ***less than significant***.

Mitigation Measures: None are required.

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

No Impact. The Project will not interfere with any adopted emergency response or evacuation plan. There is ***no impact.***

Mitigation Measures: None are required.

g. 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?

No Impact. There are no wildlands on or near the Project site. There is ***no impact***.

Mitigation Measures: None are required.

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[15] Tulare County Comprehensive Airport Land Use Plan. December 2012. https://tularecounty.ca.gov/rma/index.cfm/rma-documents/planning-documents/tulare-county-comprehensive-airport-land-use-plan/. Accessed February 2020.

X. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i. Result in substantial erosion or siltation on- or off- site;	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. impede or redirect flood flows?	☐	☐	☒	☐

X. HYDROLOGY AND WATER QUALITY

Would the project:

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

ENVIRONMENTAL SETTING

The City of Woodlake obtains its water supply from a vast aquifer underlying the San Joaquin Valley. The City provides water service to all developed areas within the City and the unincorporated county service area called Wells Tract, which contains approximately 50 residential dwellings.

Water is supplied to the City by five wells that are located in the southern portion of the City; adjacent to the St. Johns River. The yield of city wells ranges from 350 to 1,500 gallons per minute.

RESPONSES

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

Less Than Significant Impact. The Project has the potential to impact water quality standards and/or waste discharge requirements during construction (temporary impacts) and operation. Impacts are discussed below.

Construction

Although the proposed Project site is relatively small in scale, grading, excavation and loading activities associated with construction activities could temporarily increase runoff, erosion, and sedimentation. Construction activities also could result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas.

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

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

In accordance with the National Pollution Discharge Elimination System (NPDES) Stormwater Program, the Project will be required to comply with existing regulatory requirements to prepare a SWPPP designed to control erosion and the loss of topsoil to the extent practicable using BMPs that the Regional Water Quality Control Board (RWQCB) has deemed effective in controlling erosion, sedimentation, runoff during construction activities. The specific controls are subject to the review and approval by the RWQCB and are an existing regulatory requirement.

Operation

During operation, the stormwater detention basin will constitute a significant contribution to the overall improvement of the City of Woodlake's storm drain system.

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

Mitigation Measures: None are required.

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

Less than Significant Impact. Project demands for groundwater resources would not substantially deplete groundwater supplies and/or otherwise interfere with groundwater recharge efforts being implemented by the City of Woodlake; rather it would increase the ability of the City to increase groundwater recharge activity. Any impacts would be ***less than significant***.

Mitigation Measures: None are required.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   i. result in substantial erosion or siltation on- or offsite;

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

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

   iv. impede or redirect flood flows?

The proposed Project includes permanent changes to the existing stormwater drainage pattern of the area; it is part of a phased improvement plan to the City of Woodlake's existing storm drain system. Permanent pipes will be laid, the stormwater basin excavated and constructed, and storm water redirected to the completed basin site. Existing trees and wind machines will be removed; however; the two existing wells will remain onsite. The proposed Project will be required to comply with existing regulatory requirements to prepare a SWPPP during construction, which will limit on or offsite erosion or siltation. The Project would not otherwise degrade water quality. The project will have a ***less than significant impact.***

Mitigation Measures: None required.

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

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

Less than Significant Impact. The proposed stormwater basin is located mostly outside the Flood Inundation Area, defined by the City of Woodlake Special Flood Hazard Area Map. There is a small portion of the south-central part of the basin site which may be considered to lie in Zone A, or the Special Flood Hazard Area[16]; however, the Project site is designed to handle stormwater flows.

The City of Woodlake is located inside the Terminus Dam inundation area. If the Terminus Dam failed while at full capacity, its floodwaters would arrive in Woodlake within approximately six hours. The Project is located inside the Dam Inundation Area, defined by the City of Woodlake Dam Inundation Area Map. Dam failure has been adequately planned for through the Tulare County MJLHMP, which the proposed Project is required to be in compliance with. Project implementation will not conflict with any water quality control plans or sustainable groundwater management plan. Therefore, any impacts are ***less than significant***.

Mitigation Measures: None are required.

[16] Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan. March, 2018. http://www.dinuba.org/images/2018/Tulare_County_MJLHMP-COMP-2018.pdf. Page B-21.Accessed February 2020.

XI. LAND USE AND PLANNING

Would the project:

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

ENVIRONMENTAL SETTING

The proposed Project site is in the southwestern portion of the City of Woodlake. The proposed basin is located in an agricultural area while the pipeline will pass through established residential neighborhoods and commercial areas of the City. The basin site is currently being utilized for orchards, see Figure 3 – Aerial Map. The site is zoned Light Industrial and the General Plan Land Use Designation is Agriculture.

RESPONSES

a. Physically divide an established community?

No Impact. The construction and operation of the Project would not cause any land use changes in the surrounding vicinity nor would it divide an established community, as public utility use within an industrial area is considered acceptable. ***No impacts*** would occur as a result of this Project.

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 includes construction and operation of a stormwater retention basin. The immediate vicinity of the proposed Project site is comprised of industrial, commercial, agricultural

and residential land uses. The area is highly disturbed with agricultural and urban uses. The proposed Project has no characteristics that would physically divide the City of Woodlake. Access to the existing surrounding establishments will remain.

The proposed stormwater retention basin would not conflict with current zoning in and around the Project site. Therefore, there is ***no impact.***

Mitigation Measures: None are required.

XII. MINERAL RESOURCES

Would the project:

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

ENVIRONMENTAL SETTING

There are no known mineral resources within the planning area and no known mining of mineral resources occurs in the City of Woodlake. The closest significant mineral resources consist of sand and gravel deposits along the St. Johns River southeast of Woodlake, near the Sierra Nevada foothills.[17]

RESPONSES

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

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

No Impact. There are no known mineral resources in the proposed Project area and the site is not included in a State classified mineral resource zones. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

[17] City of Woodlake General Plan. Open Space, Parks, Recreation and Conservation Element. Page 7.

XIII. NOISE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Project site is located partially within the City of Woodlake in a commercial, agricultural and residential area, see Figure 2 – Site Aerial.

RESPONSES

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

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

Less than Significant Impact.

Short-term (Construction) Noise Impacts

Proposed Project construction related activities will involve temporary noise sources. Typical construction related equipment include graders, trenchers, small tractors and excavators. During the proposed Project construction, noise from construction related activities will contribute to the noise environment in the immediate vicinity. Activities involved in construction will generate maximum noise levels, as indicated in Table 5, ranging from 79 to 91 dBA at a distance of 50 feet, without feasible noise control (e.g., mufflers) and ranging from 75 to 80 dBA at a distance of 50 feet, with feasible noise controls.

Table 5
Typical Construction Noise Levels

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

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

In addition, construction activities would not occur between the hours of 10:00 PM and 7:00 AM, in accordance with Woodlake Municipal Code Section 8.24.020, which limits work "between the hours of ten p.m. of one day and seven a.m. of the following day…"

Long-term (Operational) Noise Impacts

The primary source of on-going noise from the proposed Project will be minimal as both the pipeline and stormwater basin are passive in nature and will not create any on-site noise. As such, any impacts would be ***less than significant***.

Mitigation Measures: None are required.

c. For a project located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The Project is located within the Woodlake Airport airport land use plan but is located outside the CNEL contours. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

XIV. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Induce substantial 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The City of Woodlake's 2000 population was 6,651, up from the 1990 census figure of 5,678. The State Department of Finance, which provides population projections for cities and counties in California, estimated Woodlake's population to be 7,524 on January 1, 2008.[18]

The proposed basin is located in an agricultural area while the pipeline will pass through established residential neighborhoods and commercial areas of the City.

RESPONSESs

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 people or housing, necessitating the construction of replacement housing elsewhere?

[18] City of Woodlake General Plan Draft Environmental Impact Report. Page 21.

No Impact. There are no new homes associated with the proposed Project and there are no residential structures currently on-site. The proposed Project would be a public utilities operation that would temporarily provide construction jobs in the Woodlake area, which could be readily filled by the existing employment base, given the City's existing unemployment rates. The proposed Project will not affect any regional population, housing, or employment projections anticipated by City policy documents. There is ***no impact***.

Mitigation Measures: None are required.

XV. PUBLIC SERVICES

Would the project:

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

ENVIRONMENTAL SETTING

The proposed Project site is located in an area that is already served by public service systems. The City of Woodlake Fire Department provides the city and the surrounding area with fire protection services. The Fire Department is less than one mile northeast of the proposed Project basin site. The Woodlake Police Department is also located approximately one mile northeast of the proposed Project basin site. The Woodlake Union School District and Tulare County Office of Education serves the Project area and the City provides several types of parks and other public facilities.

RESPONSES

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the

construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

Less than Significant Impact. The proposed Project site will continue to be served by the City of Woodlake Fire Department, which is less than one mile northeast of the proposed Project basin site. No additional fire personnel or equipment is anticipated, as the site is already served by the Fire Station. The impact is ***less than significant***.

Police Protection?

Less than Significant Impact. The proposed Project will continue to be served by the City of Woodlake Police Department. No additional police personnel or equipment is anticipated. The impact is ***less than significant.***

Schools?

No Impact. The direct increase in demand for schools is normally associated with new residential projects that bring new families with school-aged children to a region. The proposed Project does not contain any residential uses. The proposed Project, therefore, would not result in an influx of new students in the Project area and is not expected to result in an increased demand upon District resources and would not require the construction of new facilities. There is ***no impact***.

Parks?

No Impact. The Project would not result in an increase in demand for parks and recreation facilities because it would not result in an increase in population. Accordingly, the proposed Project would have ***no impacts*** on parks.

Other public facilities?

No Impact. The proposed Project is within the land use and growth projections identified in the City's General Plan and other infrastructure studies. The Project, therefore, would not result in increased demand for, or impacts on, other public facilities such as library services. Accordingly, ***no impact*** would occur.

Mitigation Measures: None are required.

XVI. RECREATION

Would the project:

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

ENVIRONMENTAL SETTING

The City of Woodlake currently has two developed park sites and one privately owned park site, located in Olivewood Estates. Willow Court Park, containing 3.91 acres, contains a baseball field, playground equipment and a low elevation area designated for storm water detention. Miller-Brown Park, containing 6.74 acres, houses playground equipment, picnic arbors, a skate park feature, and a basketball court. A small watercourse traverses the area. In addition to the city's parks, the athletic fields on the campuses of Woodlake's two school districts provide recreational opportunities after school hours.

RESPONSES

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

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

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

Mitigation Measures: None are required.

XVII. TRANSPORTATION/ TRAFFIC

Would the project:

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

ENVIRONMENTAL SETTING

The proposed Project is located north of Little Bravo Lake, south of W. Ropes Avenue and northwest of Mulberry Street on APNs 060-170-016 and -015. Woodlake is bisected by SR 216 and SR 245 and the City is situated five miles north of SR 198. The proposed Project is approximately 38 acres while the stormwater basin will be approximately 17 acres in size.

RESPONSES

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

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

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

d. Result in inadequate emergency access?

Less Than Significant Impact. The City of Woodlake intends to design and construct a stormwater retention basin and the associated improvements. There would be no permanent staff to remain posted onsite. Any personnel assigned to maintenance of the basin would be expected to generate minimal vehicle trips to and from the site. This operational aspect would not deteriorate the performance of the existing circulation system. The Project will not conflict with any circulation program, plan, ordinance or policy. Emergency access will not be impacted, nor will the site plan increase hazards to the local roadways. Therefore, this impact is ***less than significant***.

XVIII. TRIBAL 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 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 the Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

RESPONSES

a). Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

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

Less than Significant Impact. A Tribal Cultural Resource (TCR) is defined under Public Resources Code section 21074 as a site, feature, place, cultural landscape that is geographically defined in terms of size and scope, sacred place, and object with cultural value to a California Native American tribe that are either included and that is listed or eligible for inclusion in the California Register of Historic Resources or in a local register of historical resources, or if the City of Woodlake, acting as the Lead Agency, supported by substantial evidence, chooses at its discretion to treat the resource as a TCR. As discussed above, under Section V, Cultural Resources, criteria (b) and (d), no known archeological resources, ethnographic sites or Native American remains are located on the proposed Project site. As discussed under criterion (b) implementation of Mitigation Measure CUL-1 would reduce impacts to unknown archaeological deposits, including TCRs, to a less than significant level. As discussed under criterion (d), compliance with California Health and Safety Code Section 7050.5 would reduce the likelihood of disturbing or discovering human remains, including those of Native Americans.

The Native American Heritage Commission (NAHC) has performed a Sacred Lands File search for sites located on or near the Project site, with negative results. The NAHC also provided a consultation list of tribal governments with traditional lands or cultural places located within the project area. An opportunity has been provided to Native American tribes listed by the Native American Heritage Commission during the CEQA process as required by AB 52. A response was received from the Santa Rosa Rancheria requesting that they be retained to provide a Worker Environmental Training Program to the construction crew prior to groundbreaking, which will be made a condition of approval. No other responses were received by the City in response to the consultation request within the mandatory response timeframes; therefore, this Initial Study has been completed consistent and compliant with AB 52. Any impacts to TCR would be considered ***less than significant***.

Mitigation Measures: No additional measures are required.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

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

ENVIRONMENTAL SETTING

The Visalia Landfill plant is approximately 15.5 miles southwest of the proposed Project site, while the Woodlake Wastewater Treatment Plant is located less than one half-mile southeast of the site.

RESPONSES

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

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

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

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

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

Less than Significant Impact. The proposed Project includes the construction and operation of a stormwater retention basin and the associated improvements. The proposed Project would not require service for sewage disposal, water, or solid waste disposal. The City of Woodlake's utilities and service systems would not be affected by the construction and operation of the stormwater retention basin. Rather, the City's stormwater retention capabilities will be greatly improved upon completion of the Project. Any impacts would be ***less than significant***.

Mitigation Measures: None are required.

XX. WILDFIRE

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

ENVIRONMENTAL SETTING

Human activities such as smoking, debris burning, and equipment operation are the major causes of wildland fires. Within Tulare County, over 1,029,130 acres (33% of the total area) are classified as "Very High" fire threat and approximately 454,680 acres (15% of the total area) are classified as "High" fire threat. The portion of the county that transitions from the valley floor into the foothills and mountains is characterized by high to very high threat of wildland fires.[19] While the City of Woodlake is nestled at the base of the foothills, the majority of the City is developed into urban uses or in active agriculture, severely

[19] Tulare County General Plan Background Report. February 2010. Page 8-21.

reducing the risk of wildland fire. According to the Tulare County Background Report Figure 8-2, the majority of the City has no threat of wildfire. The proposed Project basin site is relatively flat in an area actively utilized with primarily commercial, agricultural and residential uses.

RESPONSES

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

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

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

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

Less Than Significant Impact. The proposed Project is located in an area developed with commercial, agricultural and residential uses, which precludes the risk of wildfire. The area is flat in nature which would limit the risk of downslope flooding and landslides, and limit any wildfire spread.

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

Mitigation Measures: None are required.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Does the project have the potential to 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?	☐	☒	☐	☐

RESPONSES

a. <u>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</u>

the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

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

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

Less than Significant Impact. CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the Project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The proposed Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increase need for housing, increase in traffic, air pollutants, etc.). The impact is ***less than significant***.

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

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

LIST OF PREPARERS

Crawford & Bowen Planning, Inc.

- Emily Bowen, LEED AP, Principal Environmental Planner
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- Jeff N. Davis, Principal Scientist

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Persons and Agencies Consulted

City of Woodlake

- Jason Waters, Community Services Director
- Rebecca Griswold, Planner I

Appendix A

CalEEMod Output Files

Woodlake Stormwater Basin Project

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	17.00	Acre	17.00	740,520.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2021
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project includes the construction of a 17-acre stormwater basin.

Construction Phase - The project does not include the construction of any structures as it is the excavation of soil for a stormwater basin.

Grading - Excavation material will be spread on the remaining 21 acres of the 38-acre site.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	161.00
tblConstructionPhase	PhaseEndDate	6/16/2020	12/16/2020
tblGrading	AcresOfGrading	402.50	75.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3886	4.2602	2.7521	5.3900e-003	0.6360	0.1861	0.8221	0.3260	0.1712	0.4973	0.0000	474.1043	474.1043	0.1478	0.0000	477.7987
Maximum	**0.3886**	**4.2602**	**2.7521**	**5.3900e-003**	**0.6360**	**0.1861**	**0.8221**	**0.3260**	**0.1712**	**0.4973**	**0.0000**	**474.1043**	**474.1043**	**0.1478**	**0.0000**	**477.7987**

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					
2020	0.3886	4.2602	2.7521	5.3900e-003	0.6360	0.1861	0.8221	0.3260	0.1712	0.4973	0.0000	474.1037	474.1037	0.1478	0.0000	477.7981
Maximum	**0.3886**	**4.2602**	**2.7521**	**5.3900e-003**	**0.6360**	**0.1861**	**0.8221**	**0.3260**	**0.1712**	**0.4973**	**0.0000**	**474.1037**	**474.1037**	**0.1478**	**0.0000**	**477.7981**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-25-2020**	**6-24-2020**	1.2130	1.2130
2	**6-25-2020**	**9-24-2020**	1.8024	1.8024
3	**9-25-2020**	**9-30-2020**	0.1175	0.1175
		Highest	1.8024	1.8024

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	0.0633	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0633**	**0.0000**	**1.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.0000e-004**	**3.0000e-004**	**0.0000**	**0.0000**	**3.2000e-004**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0633	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0633**	**0.0000**	**1.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.0000e-004**	**3.0000e-004**	**0.0000**	**0.0000**	**3.2000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/22/2020	5/5/2020	5	10	
2	Grading	Grading	5/6/2020	12/16/2020	5	161	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 17

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	2	8.00	158	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

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
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2020

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	3.8000e-004	3.8000e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1300e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.9948	0.9948	3.0000e-005	0.0000	0.9955
Total	**5.3000e-004**	**3.8000e-004**	**3.8000e-003**	**1.0000e-005**	**1.1200e-003**	**1.0000e-005**	**1.1300e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9948**	**0.9948**	**3.0000e-005**	**0.0000**	**0.9955**

3.2 Site Preparation - 2020

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	3.8000e-004	3.8000e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1300e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.9948	0.9948	3.0000e-005	0.0000	0.9955
Total	**5.3000e-004**	**3.8000e-004**	**3.8000e-003**	**1.0000e-005**	**1.1200e-003**	**1.0000e-005**	**1.1300e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9948**	**0.9948**	**3.0000e-005**	**0.0000**	**0.9955**

3.3 Grading - 2020

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					0.5246	0.0000	0.5246	0.2708	0.0000	0.2708	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3582	4.0409	2.5726	4.9900e-003		0.1750	0.1750		0.1610	0.1610	0.0000	438.5986	438.5986	0.1419	0.0000	442.1449
Total	**0.3582**	**4.0409**	**2.5726**	**4.9900e-003**	**0.5246**	**0.1750**	**0.6996**	**0.2708**	**0.1610**	**0.4318**	**0.0000**	**438.5986**	**438.5986**	**0.1419**	**0.0000**	**442.1449**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4800e-003	6.8500e-003	0.0681	2.0000e-004	0.0200	1.4000e-004	0.0202	5.3200e-003	1.3000e-004	5.4400e-003	0.0000	17.7956	17.7956	4.9000e-004	0.0000	17.8079
Total	**9.4800e-003**	**6.8500e-003**	**0.0681**	**2.0000e-004**	**0.0200**	**1.4000e-004**	**0.0202**	**5.3200e-003**	**1.3000e-004**	**5.4400e-003**	**0.0000**	**17.7956**	**17.7956**	**4.9000e-004**	**0.0000**	**17.8079**

3.3 Grading - 2020

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					0.5246	0.0000	0.5246	0.2708	0.0000	0.2708	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3582	4.0409	2.5726	4.9900e-003		0.1750	0.1750		0.1610	0.1610	0.0000	438.5980	438.5980	0.1419	0.0000	442.1443
Total	**0.3582**	**4.0409**	**2.5726**	**4.9900e-003**	**0.5246**	**0.1750**	**0.6996**	**0.2708**	**0.1610**	**0.4318**	**0.0000**	**438.5980**	**438.5980**	**0.1419**	**0.0000**	**442.1443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4800e-003	6.8500e-003	0.0681	2.0000e-004	0.0200	1.4000e-004	0.0202	5.3200e-003	1.3000e-004	5.4400e-003	0.0000	17.7956	17.7956	4.9000e-004	0.0000	17.8079
Total	**9.4800e-003**	**6.8500e-003**	**0.0681**	**2.0000e-004**	**0.0200**	**1.4000e-004**	**0.0202**	**5.3200e-003**	**1.3000e-004**	**5.4400e-003**	**0.0000**	**17.7956**	**17.7956**	**4.9000e-004**	**0.0000**	**17.8079**

4.0 Operational Detail - Mobile

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	0.506092	0.032602	0.169295	0.124521	0.019914	0.005374	0.021664	0.110051	0.001797	0.001623	0.005307	0.000969	0.000792

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0633	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Unmitigated	0.0633	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0155					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0479					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Total	**0.0633**	**0.0000**	**1.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.0000e-004**	**3.0000e-004**	**0.0000**	**0.0000**	**3.2000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0155					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0479					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Total	**0.0633**	**0.0000**	**1.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.0000e-004**	**3.0000e-004**	**0.0000**	**0.0000**	**3.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other 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

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 9.0.0

Daily Emission Estimates for -> Woodlake Stormwater Pipeline

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	1.31	10.95	13.75	5.60	0.60	5.00	1.57	0.53	1.04	0.02	2,317.66	0.59	0.05	2,347.26
Grading/Excavation	6.23	49.12	69.48	8.04	3.04	5.00	3.79	2.75	1.04	0.10	9,822.75	2.88	0.13	9,932.71
Drainage/Utilities/Sub-Grade	3.72	31.53	37.21	6.81	1.81	5.00	2.72	1.68	1.04	0.06	5,840.05	1.22	0.08	5,895.78
Paving	1.79	18.57	16.96	1.01	1.01	0.00	0.90	0.90	0.00	0.03	2,973.65	0.76	0.06	3,010.14
Maximum (pounds/day)	6.23	49.12	69.48	8.04	3.04	5.00	3.79	2.75	1.04	0.10	9,822.75	2.88	0.13	9,932.71
Total (tons/construction project)	0.29	2.34	3.06	0.42	0.14	0.28	0.19	0.13	0.06	0.00	452.10	0.12	0.01	457.03

Notes:

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

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	320	40
Grading/Excavation	0	0	0	0	920	40
Drainage/Utilities/Sub-Grade	0	0	0	0	680	40
Paving	0	0	0	0	520	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 -> Woodlake Stormwater Pipeline

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.07	0.09	0.04	0.00	0.03	0.01	0.00	0.01	0.00	15.30	0.00	0.00	14.05
Grading/Excavation	0.19	1.46	2.06	0.24	0.09	0.15	0.11	0.08	0.03	0.00	291.74	0.09	0.00	267.62
Drainage/Utilities/Sub-Grade	0.07	0.62	0.74	0.13	0.04	0.10	0.05	0.03	0.02	0.00	115.63	0.02	0.00	105.90
Paving	0.02	0.18	0.17	0.01	0.01	0.00	0.01	0.01	0.00	0.00	29.44	0.01	0.00	27.03
Maximum (tons/phase)	0.19	1.46	2.06	0.24	0.09	0.15	0.11	0.08	0.03	0.00	291.74	0.09	0.00	267.62
Total (tons/construction project)	0.29	2.34	3.06	0.42	0.14	0.28	0.19	0.13	0.06	0.00	452.10	0.12	0.01	414.62

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 Resource Assessment

Biological Resource Assessment

Woodlake Stormwater Basin Project

Tulare County, California

PREPARED FOR:

The City of Woodlake
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Woodlake, CA 93286

PREPARED BY:

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March 2020

Contents

Figures

Tables

Appendices

Executive Summary

The City of Woodlake (City) proposes to (1) construct a 17-acre stormwater basin on a 38-acre site southeast of the intersection of Ropes Avenue and Mulberry Street; (2) install 4611 linear feet of 48-inch pipeline from the new basin north to the Bravo Avenue alignment, east along Bravo Avenue to Magnolia Street, north on Magnolia Street to just south of Avenue 344, then east along the north edge of Bravo Lake to the Manzanillo Pump Station; and (3) install about 930 linear feet of pipeline from the new basin along the Deltha Avenue alignment to Palm Street. The purpose of this project (Project) is to improve capacity for stormwater collection in the City. Because the Project is expected to receive state and federal funding, it must meet environmental documentation and review requirements under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

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

This biological resource assessment 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 effects of the Project on biological resources and regulated habitats, and measures to reduce those potential effects to a less-than-significant level under CEQA and NEPA.

We concluded the Project could impact two non-listed, special-status species and nesting migratory birds, but effects can be reduced to less-than-significant levels with mitigation. We also conculded the Project could impact Industrial Ditch and its associated semi-permanent wetland, a habitat regulated by the United States Army Corps of Engineers, the California Department of Fish and Wildlife, and the State Water Resources Control Board.

Abbreviations

Abbreviation	Definition
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
FE	Federally listed as Endangered
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FP	Fully Protected
FT	Federally listed as Threatened
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
SE	State-listed as Endangered
SSSC	State Species of Special Concern
ST	State-listed as Threatened
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

1.1 Background

The City of Woodlake (City) proposes to (1) construct a 17-acre stormwater basin on a 38-acre site southeast of the intersection of Ropes Avenue and Mulberry Street; (2) install 4611 linear feet of 48-inch pipeline from the new basin north to the Bravo Avenue alignment, east along Bravo Avenue to Magnolia Street, north on Magnolia Street to just south of Avenue 344, then east along the north edge of Bravo Lake to the Manzanillo Pump Station; and (3) install about 930 linear feet of pipeline from the new basin along the Deltha Avenue alignment to Palm Street. The Project site currently supports a citrus orchard. The City will fund this Project through the Community Development Block Grant Program. This Project will help the City improve capacity for stormwater collection in accordance with the phased improvements plan as described in the City of Woodlake Stormwater Master Plan.

Because the Project is expected to receive state and federal funding, it must meet environmental documentation and review requirements under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

The purpose of this biological resource assessment is to determine whether the Project will affect state- or federally protected resources pursuant to CEQA and NEPA 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 federal 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 assessment also addresses Project-related impacts to regulated habitats, which are those under the jurisdiction of the United States Army Corps of Engineers (USACE), State Water Resources Control Board (SWRCB), or California Department of Fish and Wildlife (CDFW), as well as those addressed under the Wild and Scenic Rivers Act, Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), and Executive Order 11988 pertaining to floodplain management.

1.2 Project Description

The Project will involve constructing a 17-acre stormwater basin (roughly 800 feet by 1000 feet) on a 38-acre site southeast of the intersection of Ropes Avenue and Mulberry Street; the installation of 4611 linear feet of 48-inch pipeline from the new basin north to the Bravo Avenue alignment, east along Bravo Avenue to Magnolia Street, north on Magnolia Street to just south of Avenue 344, then east along the north edge of Bravo Lake to the Manzanillo Pump Station; and the installation of about 930 linear feet of pipeline from the new basin along the Deltha

Avenue alignment to Palm Street. The new stormwater basin will retain stormwater pumped from the Manzanillo Pump Station through the new pipeline and from runoff from Industrial Ditch and the new Deltha Avenue pipeline.

The new stormwater basin is designed to accommodate a rainfall intensity that corresponds to the 10-day storm event with 25-year occurrence frequency. In the case that a higher intensity storm is encountered, the excess stormwater will be allowed to overflow into the existing Industrial Ditch that flows to the south and feeds Little Bravo Lake. The basin bottom will be designed to allow for water percolation into the ground.

1.3 Project Location

The new stormwater basin site is a 38-acre parcel bounded by Ropes Avenue to the north, Acacia Avenue to the east, Deltha Avenue to the south, and Rice Avenue to the west, in the City of Woodlake, Tulare County, California (Figure 1). The new 48-inch pipelines will connect the new stormwater basin to the Manzanillo Pump Station on the north edge of Bravo Lake and to existing infrastructure at Deltha Avenue at its intersection with Palm Avenue (Figure 2). The 38-acre parcel currently supports a citrus orchard. It also supports Industrial Ditch, a highly disturbed intermittent ditch that flows north to south through the middle-western portion of the parcel. The ditch forms a small semi-permanent wetland at the southern end of the site of the new stormwater basin before eventually draining to Little Bravo Lake to the south (Figure 2). The new stormwater basin site is bordered by orchards and industrial development to the north and west, industrial development and a fallow disked field to the east, and a disturbed field that supports nonnative annual grassland and Little Bravo Lake to the south. The new pipeline will be installed largely in existing paved roadways except for a 280-foot section that will be installed in a dirt road that runs through a fallow field with nonnative ruderal vegetation at the western terminus of Bravo Avenue. The two new pipeline segments are surrounded by agricultural, industrial, and residential development (Figure 2). The Project site is at an elevation of 430 feet above mean sea level in the San Joaquin Valley at the western foot of the Sierra Nevada.

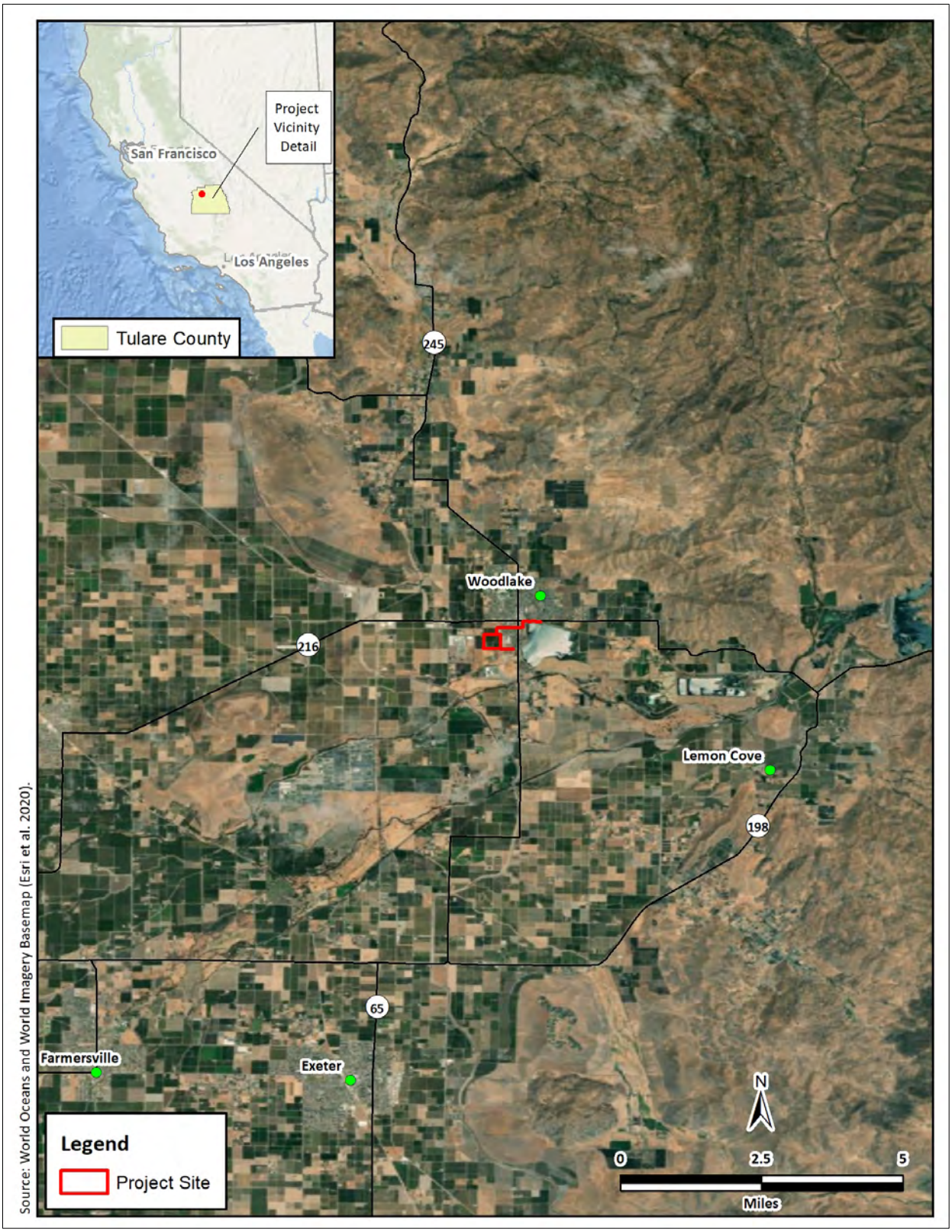

Figure 1. Project Site vicinity map.

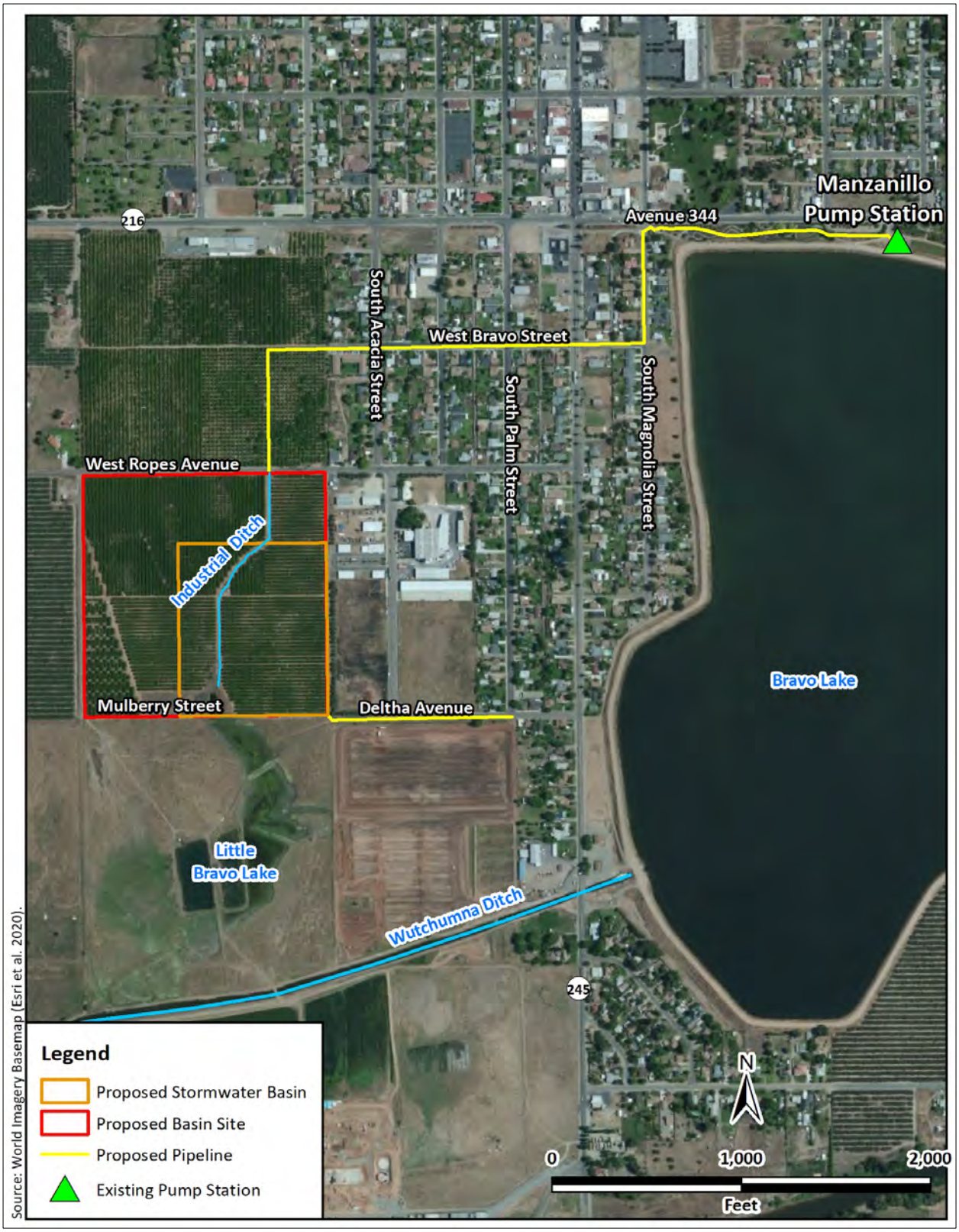

Figure 2. Project site map.

1.4 Purpose and Need

The purpose of the Project is to increase stormwater collection capacity in the City as part of the phased improvements plan described in the City of Woodlake Stormwater Master Plan. The Project is needed because the current stormwater collection capacity is inadequate.

1.5 Consultation History

Lists of all species listed or proposed for listing as threatened or endangered and all designated or proposed critical habitat under the FESA that could occur near the Project site were obtained by Colibri Associate Scientist Joe Medley from the United States Fish and Wildlife Service (USFWS) website (https://ecos.fws.gov/ipac/) on 25 February 2020 (Appendix A).

1.6 Regulatory Framework

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

1.6.1 Federal Requirements

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

National Environmental Policy Act. The purposes of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. §§ 4321–4347), including all relevant subsequent guidelines and regulations, include encouraging "harmony between [humans] and their

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

Migratory Bird Treaty Act. The federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 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 U.S.C. § 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 C.F.R. 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 C.F.R. part 328.3). Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* and related Regional Supplement (USACE 1987 and 2008). Construction activities, including direct removal, filling, hydrologic disruption, or other means in jurisdictional waters are regulated by the USACE. The placement of dredged or fill material into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.

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

Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (Public law 94-265; Statutes at Large 90 Stat. 331; 16 U.S.C. ch. 38 § 1801 et seq.) establishes a management system for national marine and estuarine fishery resources. This legislation requires that all federal agencies consult the NMFS regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect "essential fish habitat (EFH)." EFH is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Magnuson-Stevens Act states that migratory routes to and from anadromous fish spawning grounds are considered EFH. The phrase "adversely affect" refers to any effect that reduces the quality or quantity of EFH. Federal activities that occur outside of EFH, but which may affect EFH must also be considered. The Act applies to salmon species, groundfish species, highly migratory species such as tuna, and coastal pelagic species such as anchovies.

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

1.6.2 State Requirements

California Endangered Species Act. The California Endangered Species Act (CESA) of 1970 (Fish and Game Code § 2050 et seq. and California Code of Regulations (C.C.R.) Title 14, Subsection 670.2, 670.51) prohibits the take of species listed under CESA (14 C.C.R. 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 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 §§ 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 a USFWS species list for the Project site (USFWS 2020, Appendix A). In addition, we searched the California Natural Diversity Data Base (CNDDB, CNDDB 2020) and the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2020) for records of special-status plant and animal species near the Project site. Regional lists of special-status species were compiled using USFWS, CNDDB, and CNPS database searches confined to the Woodlake 7.5-minute United States Geological Survey (USGS) topographic quad, which encompasses the Project site, and the eight surrounding quads (Auckland, Chickencoop Canyon, Exeter, Ivanhoe, Kaweah, Rocky Hill, Shadequarter Mtn., and Stokes Mtn.). Local lists of special-status species were compiled using CNDDB records from within 5 miles of the Project site. Species that lack a special-status designation by state or federal regulatory agencies were omitted from the final list. Species for which the Project site does not provide habitat were eliminated from further consideration. We also reviewed aerial imagery from Google Earth (Google 2020) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2020), and relevant literature.

2.2 Reconnaissance Survey

Associate Scientist Joe Medley and Field Scientists Jacob Smith and Wendy Murillo conducted a field reconnaissance survey of the Project site on 27 February 2020. The Project site and a 50-foot buffer surrounding the Project site (Figure 3) were walked and thoroughly inspected to evaluate and document the potential for the area to support federally or state-protected resources. All plants except those under cultivation or planted in residential areas and all animals (vertebrate wildlife species) observed within the survey area were identified and documented. The survey area was evaluated for the presence of regulated habitats, including lakes, streams, and other waters using methods described in the *Wetlands Delineation Manual* and regional supplement (USACE 1987, 2008) and as defined by the CDFW (https://www.wildlife.ca.gov/conservation/lsa). The survey area also included a 0.5-mile buffer around the Project site to evaluate the presence of potential nest trees for special-status raptors (Figure 3).

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 the habitat in the region, (6) distribution and population levels of the species, (7) cumulative effects of the Project and any future activities in the area, and (8) the potential to mitigate any adverse effects.

Factors considered in evaluating the effects of the Project on 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 affect such habitats.

2.3.2 Significance Criteria

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

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

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

e) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS.

f) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

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

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

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

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

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

Figure 3. Reconnaissance survey area map.

3.0 Results

3.1 Desktop Review

The USFWS species list for the Project (USFWS 2020a, Table 1, Appendix A) included 11 species listed as threatened or endangered under the FESA. Those species include the endangered Greene's tuctoria (*Tuctoria greenei*), the threatened San Joaquin adobe sunburst (*Psuedobahia peirsonii*), the threatened San Joaquin orcutt grass (*Orcuttia inaequalis*), the endangered Conservancy fairy shrimp (*Branchinecta conservatio*), the threatened Delta smelt (*Hypomesus transpacificus*), the endangered blunt-nosed leopard lizard (*Gambelia silus*), the threatened California red-legged frog (*Rana draytonii*), the threatened California tiger salamander (*Ambystoma californiense*), the threatened giant garter snake (*Thamnophis gigas*), the endangered California condor (*Gymnogyps californianus*), and the endangered San Joaquin kit fox (*Vulpes macrotis mutica*). None of these species could occur on or near the Project site because the area lacks habitat for these species or is outside their current known range (Table 1). As identified in the USFWS species list (USFWS 2020a, Appendix A), the Project site does not occur in USFWS-designated Critical Habitat for any species.

Searching the CNDDB (CNDDB 2020) for records of special-status species from within the Woodlake 7.5-minute USGS topographic quad and the eight surrounding quads produced 196 records of 44 species (Table 1, Appendix B). Of those species, five are not considered further because state or federal regulatory agencies do not recognize them through special designation (Appendix A). Of the remaining 39 special-status species, 17 are known from within 5 miles of the property (Table 1, Figure 3). Of those 17 species, one could occur on or near the property. One additional species known from outside the 5-mile radius from the property could occur on or near the property based on the presence of habitat that could support the species (Table 1). All other special-status species are considered absent because the property is outside their current known range, the property lacks habitat for them, they were not detected during the reconnaissance survey, or a combination thereof.

Searching the CNPS inventory of rare and endangered plants of California yielded 19 species with a CRPR (CNPS 2020, Appendix C), 16 of which have of a rank of 1B (Table 1). Of those 19 species, one could occur on or near the Project site. The remaining species are not expected to occur on or near the Project site due to a lack of habitat or a lack of records from within 5 miles (Table 1).

The property is underlain by San Joaquin loam 0-9% slopes and Porterville clay 0-2% slopes (NRCS 2020).

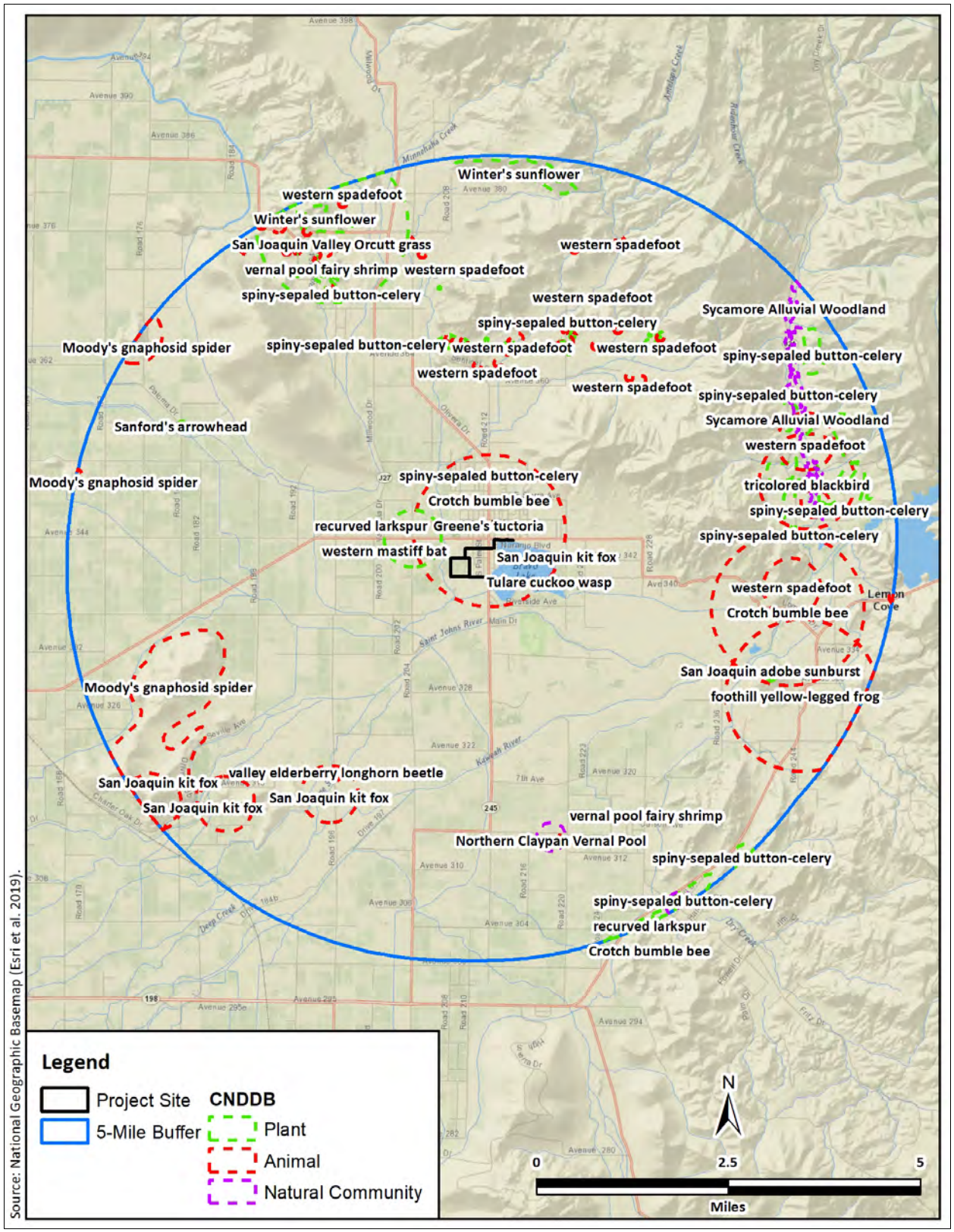

Figure 4. CNDDB occurrence map.

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

Species	Status[1]	Habitat	Potential Occur[2]
Federally and State-Listed Endangered or Threatened Species			
Green's tuctoria[3] (*Tuctoria greenei*)	FE, SR, 1B.1	Vernal pools below 3445 feet elevation.	**None**. Habitat lacking; no vernal pools on or near the Project site.
Hoover's spurge (*Euphorbia hooveri*)	FT, 1B.2	Vernal pools from sea level to 820 feet elevation.	**None**. Habitat lacking; no vernal pools on or near the Project site.
Kaweah brodiaea[3] (*Brodiaea insignis*)	SE, 1B.2	Granitic soil or clay in foothill woodland at 656–1640 feet elevation.	**None**. Habitat lacking; the Project site is below known elevation range.
San Joaquin Valley Orcutt grass[3] (*Orcuttia inaequalis*)	FT, SE, 1B.1	Vernal pools at or below 2625 feet elevation.	**None**. Habitat lacking; no vernal pools on or near the Project site.
San Joaquin adobe sunburst[3] (*Pseudobahia peirsonii*)	FT, SE, 1B.1	Grassland with bare, dark clay soils at 328–2953 feet elevation.	**None**. Habitat lacking; no grassland on the Project site.
Striped adobe-lily (*Fritillaria striata*)	ST, 1B.1	Adobe clay soils in the southern Sierra Nevada foothills below 3280 feet elevation.	**None**. Habitat lacking; Project site is outside current known range and lacks adobe clay soils.
Crotch bumble bee[3] (*Bombus crotchii*)	SCT	Open grassland and scrub where it forages on a wide range of floral resources, especially those with open flowers and short corollas; like most bumble bees, it likely nests underground.	**None.** Habitat lacking; no grassland on the Project site. Although this species was historically common in the Central Valley, it is now apparently mostly absent.
Vernal pool fairy shrimp[3] (*Branchinecta lynchi*)	FT	Vernal pools; some artificial depressions, stock ponds, vernal swales, ephemeral drainages, and seasonal wetlands.	**None**. Habitat lacking; no vernal pools or seasonal wetlands on the Project site; Project site is highly disturbed.

Species	Status[1]	Habitat	Potential Occur[2]
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Vernal pools, clay flats, alkaline pools, and ephemeral stock tanks.	**None**. Habitat lacking; no vernal pools on the Project site.
Valley elderberry longhorn beetle[3] (*Desmocerus californicus dimorphus*)	FT	Elderberry (*Sambucus* sp.) plants having basal stem diameter greater than 1" at ground level.	**None**. The Project site is outside the current known range of this species.
California tiger salamander (*Ambystoma californiense*)	FT, ST	Vernal pools or seasonal ponds for breeding; small mammal burrows for upland refugia.	**None**. Habitat lacking; no records from within 5 miles; the Project site lacks vernal pools and is highly disturbed.
Foothill yellow-legged frog[3] (*Rana boylii*)	SCT, SSSC	Perennial rocky streams and rivers with rocky substrates; open, sunny banks in forests, chaparral, and woodlands.	**None**. Habitat lacking; no perennial streams on the Project site.
California condor (*Gymnogyps californianus*)	FE, SE, FP	Mountain and foothill rangeland with cliffs for nesting and grassland and open woodland for foraging.	**None**. Habitat lacking; the Project site is about 2 miles west of potential foothill habitat.
Bald eagle (*Haliaeetus leucocephalus*)	SE, FP	Large trees for nesting near permanent water.	**None**. While large trees near the Project site could support nesting, and a permanent water body (Bravo Lake) is immediately south of the Manzanillo Pump Station, disturbance associated with nearby residential and agricultural development likely precludes this species.
Tricolored blackbird[3] (*Agelaius tricolor*)	ST	Freshwater emergent wetlands, agricultural fields, irrigated pastures, grassland,	**None**. The Project site supports a small semi-permanent freshwater wetland at the southern

Species	Status[1]	Habitat	Potential Occur[2]
		and silage fields near dairies.	boundary; however, this wetland lacks dense cattail and bulrush thickets required by this species for nesting.
Willow flycatcher (*Empidonax traillii*)	SE	Riparian forest and wet meadow habitats in the Sierra Nevada mountains at 2000–8000 feet elevation.	**None**. Habitat lacking; Project site is below known elevation range.
San Joaquin kit fox[3] (*Vulpes macrotis mutica*)	FE, ST	Grassland and upland scrub.	**None**. Habitat lacking; Project site is highly disturbed and outside current known range.
State Species of Special Concern			
Northern California legless lizard (*Anniella pulchra*)	SSSC	Moist, warm loose sand with vegetative cover.	**None**. Habitat lacking; no sandy soils on the Project site.
Northern leopard frog (*Lithobates pipiens*)	SSSC	Wet meadows, canals, bogs, marshes, and reservoirs in grassland, forest, and woodland.	**None**. The Project site is outside the current known native range for this species; an introduced population is known from far northwestern Tulare County.
Northwestern pond turtle (*Actinemys marmorata*)	SSSC	Ponds, rivers, marshes, streams, and irrigation ditches, usually with aquatic vegetation. Need basking sites and suitable upland habitat for egg laying.	**Low**. Bravo Lake, immediately south of the Manzanillo Pump Station, and a small semi-permanent wetland at the southern boundary of the Project site could support this species.
Western spadefoot[3] (*Spea hammondii*)	SSSC	Open areas with sandy or gravelly soil that allow rain pools to gather for breeding.	**None**. Habitat lacking; Project site is heavily disturbed and lacks soils that support seasonal rain pools.
Burrowing owl (*Athene cunicularia*)	SSSC	Grassland and upland scrub with friable soil; some agricultural or	**None**. While several ground squirrel burrows were present on the

Species	Status[1]	Habitat	Potential Occur[2]
		other developed and disturbed areas with ground squirrel burrows.	margins of the Project site, habitat is lacking on the Project site due to agricultural and residential development. Nonnative annual grassland immediately south of the Project site is unlikely to support this species due to highly disturbed site conditions.
American badger (*Taxidea taxus*)	SSSC	Variable. Open, dry areas with friable soils and small mammal populations in grassland, conifer forest, and desert.	**None**. Surrounding residential and agricultural development likely precludes this species from occurring on the Project site.
Pallid bat (*Antrozous pallidus*)	SSSC	Arid or semi-arid locations in rocky areas and sparsely vegetated grassland near water. Rock crevices, caves, mine shafts, bridges, buildings, and tree hollows for roosting.	**None**. Although marginal foraging habitat is present immediately south of Project site, the Project site lacks roosting habitat required by this species.
Western mastiff bat[3] (*Eumops perotis californicus*)	SSSC	Rock crevices in cliff faces, large boulders, granite slabs, or columnar basalt.	**None**. Habitat lacking; no rock outcrops or crevice habitat present on the Project site.
California Rare Plants			
American manna grass (*Glyceria grandis*)	2B.3	Wet places, meadows, lake and stream margins below 6890 feet elevation.	**None**. Project site is outside current known range; not detected during reconnaissance survey.
Calico monkeyflower[3] (*Diplaucus pictus*)	1B.2	Bare, sunny, shrubby areas around granite outcrops in the southern Sierra Nevada mountains at	**None**. Habitat lacking; Project site is below elevation range; no granite outcrops.

Species	Status[1]	Habitat	Potential Occur[2]
		442–4101 feet elevation.	
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	1B.1	Saline areas and vernal pools below 3280 feet elevation.	**None**. Habitat lacking; no saline areas or vernal pools on the Project site. Not known from within 5 miles.
Earlimart orache (*Atriplex cordulata* var. *erecticaulis*)	1B.2	Saline or alkaline soils in the Central Valley below 230 feet elevation.	**None**. Project site lacks the saline or alkaline soils this species requires, is above known elevation range, and is more than 5 miles from the nearest known occurrence.
Kaweah monkeyflower (*Erythranthe norrisii*)	1B.3	Marble crevices in the Kaweah River and Kings River drainages at 1969–4265 feet elevation.	**None**. Habitat lacking; the Project site is outside the known elevation range for this species.
Lesser saltscale (*Atriplex minuscula*)	1B.1	Saline or alkaline soils in the San Joaquin Valley below 328 feet elevation.	**None**. Project site lacks the saline or alkaline soils this species requires and is more than 5 miles from the nearest known occurrence.
Madera leptosiphon (*Leptosiphon serrulatus*)	1B.2	Woodland and chaparral openings at 984–4265 feet elevation.	**None.** Habitat lacking; Property is below known elevation range.
Mouse buckwheat (*Eriogonum nudum* var. *murinum*)	1B.2	Sandy soils in the Kaweah River drainage at 1312–2297 feet elevation.	**None**. Habitat lacking; Project site is below known elevation range for this species.
Recurved larkspur[3] (*Delphinium recurvatum*)	1B.2	Poorly drained, fine, alkaline soils in grassland and saltbush scrub at 98–1969 feet elevation.	**None**. Habitat lacking; Project site lacks alkaline soils, grassland, and saltbush scrub.
Sanford's arrowhead[3] (*Sagittaria sanfordii*)	1B.2	Ponds and ditches at sea level to 650 feet elevation.	**Low**. Industrial Ditch and the small semi-permanent wetland at the southern

Species	Status[1]	Habitat	Potential Occur[2]
			border of the Project site could support this species.
Sierra Nevada monkeyflower (*Erythranthe sierrae*)	4.2	Granitic soils in vernally wet depressions and edges of creeks at 656–6889 feet elevation.	**None**. Habitat lacking; the Project site is below the known elevation range for this species.
Spiny-sepaled button-celery[3] (*Eryngium spinosepalum*)	1B.2	Vernal pools, swales, and roadside ditches in valley and foothill grassland at 328–4166 feet elevation.	**None**. Habitat lacking; Project site lacks vernal pools and grassland.
Vernal barley (*Hordeum intercedens*)	3.2	Vernal pools and dry, saline streambeds and alkaline flats below 1640 feet elevation.	**None**. Habitat lacking; Project site lacks vernal pools, saline streambeds, and alkaline flats.
Vernal pool smallscale (*Atriplex persistens*)	1B.2	Alkaline vernal pools in the Central Valley below 377 feet elevation.	**None**. Habitat lacking; Project site lacks vernal pools and is more than 5 miles from the nearest known occurrence.
Winter's sunflower[3] (*Helianthus winteri*)	1B.2	Steep, south-facing grassy slopes, rock outcrops, and road cuts at 590–1509 feet elevation.	**None**. Habitat lacking; the Project site is flat and below the known elevation range for this species.

CNDDB (2020), CNPS (2020).

Status[1]	**Potential to Occur**[2]	
CNDDB = Recognized by the CNDDB, other state or federal agencies, or conservation groups as rare or imperiled.	None:	Species or sign not observed; conditions unsuitable for occurrence.
FE = Federally listed Endangered	Low:	Species or sign not observed; conditions marginal for occurrence.
FT = Federally listed Threatened		
FP = State Fully Protected		
SCT = State Candidate for listing as Threatened		
SE = State-listed Endangered		
SR = State-designated as Rare		
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).
2B – plants rare, threatened, or endangered in California but more common elsewhere.	0.2 – moderately threatened in California (20-80% of occurrences).
3 – plants about which more information is needed.	
4 – plants of limited distribution.	0.3 – not very threatened in California (<20% of occurrences).

3.2 Reconnaissance Survey

3.2.1 Land Use and Habitats

The Project site consists of a citrus orchard that is routinely sprayed with herbicides, dirt and paved surface streets, and a paved walking trail (Figures 5 through 13) surrounded by agricultural, industrial, and residential development. The new stormwater basin will be constructed in the citrus orchard, which is bordered to the north by citrus orchards and residential development, to the east by industrial development and a recently disked fallow field that supported ruderal vegetation, to the south by a previously disturbed field that supported nonnative annual grassland, and to the west by citrus orchards and industrial development. The northern section of new pipeline will run under paved surface streets (Figure 6), under a previously disturbed dirt road at the western terminus of Bravo Avenue (Figure 7), and eventually under a paved walking path leading east to the Manzanillo Pump Station (Figures 8 and 9). Bravo Lake, a permanent, leveed waterbody is immediately south of the Manzanillo Pump Station and about 0.3 miles east of the new stormwater basin site (Figure 9). The southern section of new pipeline will be installed under dirt (Figure 10) and paved roads (Figure 11). It is bordered to the north by a recently disked fallow field that supports ruderal vegetation and residential development, to the east by residential development and Bravo Lake, to the south by a large detention basin, and to the west

by a previously disturbed field that supported nonnative annual grassland. Industrial Ditch, a highly disturbed, dirt-lined intermittent drainage largely devoid of vegetation, carries water from north to south through the middle-western portion of the Project site, where the new stormwater basin will be installed, and forms a small semi-permanent wetland at the southern boundary of the Project site (Figures 12 and 13).

Figure 5. Photograph of the Project site, looking west, showing a citrus orchard where the new stormwater basin will be constructed.

Figure 6. Photograph of the Project site, looking north, showing the alignment of the northern section of new pipeline that will be installed under paved surface streets.

Figure 7. Photograph of the Project site, looking southwest, showing the alignment of the northern section of new pipeline that will be installed under a dirt road.

Figure 8. Photograph of the Project site, looking east, showing the alignment of the northern section of new pipeline that will be installed under a paved walking trail that leads to the Manzanillo Pump Station.

Figure 9. Panoramic photograph of the Project site, looking west, showing Bravo Lake (left), the alignment of the northern section of new pipeline that will be installed under a paved walking trail (right of levee), and Manzanillo Pump Station (right).

Figure 10. Photograph of the Project site, looking east, showing the alignment of the southern section of new pipeline that will be installed under a dirt road immediately east of the new stormwater basin.

Figure 11. Photograph of the Project site, looking west, showing the alignment of the southern section of the new pipeline that will be installed under a paved road, surrounding residential development (right), and an existing detention basin (left).

Figure 12. Photograph of the Project site, looking northeast, showing Industrial Ditch and a citrus orchard where the new stormwater basin will be constructed.

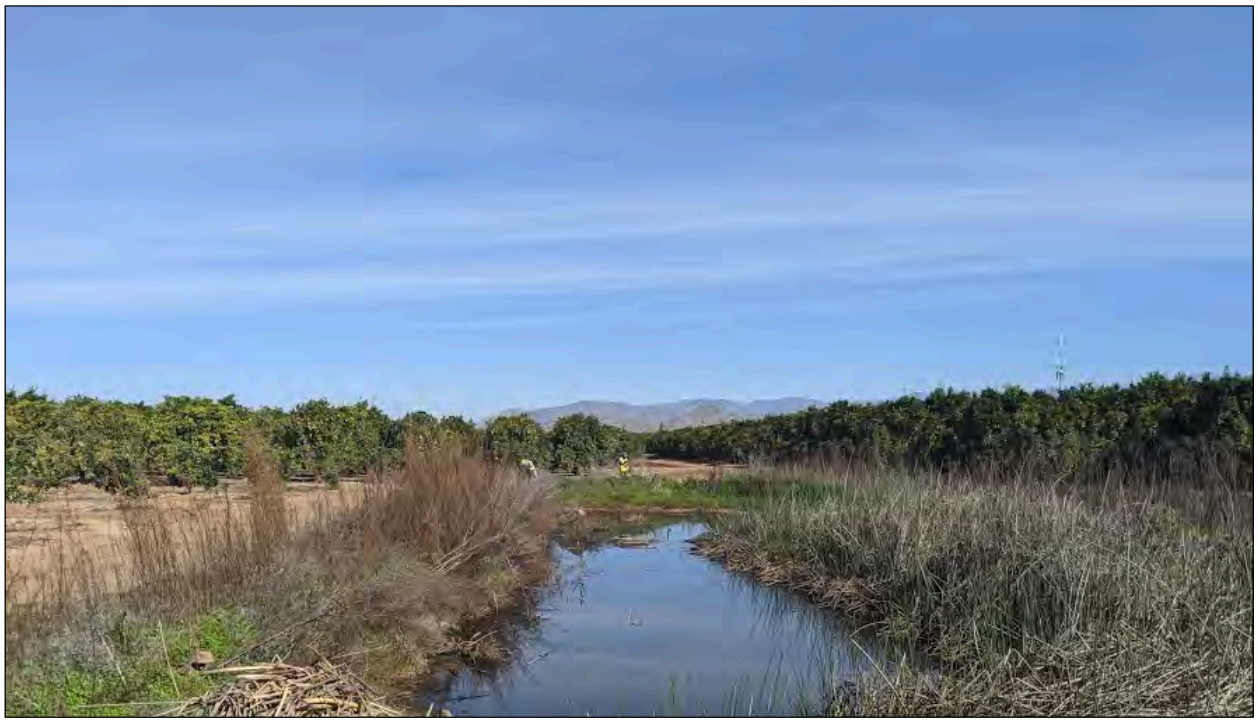

Figure 13. Photograph of the Project site, looking north, showing a small semi-permanent wetland and surrounding citrus orchard at the southern Project site boundary where the new stormwater basin will be constructed.

3.2.2 Plant and Animal Species Observed

The margins of the Project site supported native and nonnative ruderal herbaceous plants including field hedge parsley (*Torilis arvensis*), tumbleweed (*Amaranthus albus*), bull thistle (*Cirsium vulgare*), Canada horseweed (*Erigeron canadensis*), prickly lettuce (*Lactuca serriola*), and common fiddleneck (*Amsinckia intermedia*). The small semi-permanent wetland at the southern Project site boundary supported hydrophytic plants including tule (*Schoenoplectus acutus*), Common bog rush (*Juncus effusus* ssp. *effusus*), and seep monkeyflower (*Erythranthe guttata*). In all, 47 plant species (13 native, 34 nonnative) were found during the survey (Table 2). A total of two reptile species, 25 bird species, and four 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 Amanaranthaceae		
Tumbleweed	*Amaranthus albus*	Nonnative
Family Apiaceae		
Field hedge parsley	*Torilis arvensis*	Nonnative
Family Arecaceae		
Date palm	*Phoenix dactylifera*	Nonnative
Family Asteraceae		
Bull thistle	*Cirsium vulgare*	Nonnative
Canada horseweed	*Erigeron canadensis*	Native
Common dandelion	*Taraxacum officinale*	Nonnative
Common groundsel	*Senecio vulgaris*	Nonnative
Common sow thistle	*Sonchus oleraceus*	Nonnative
Milk thistle	*Silybum marianum*	Nonnative
Prickly lettuce	*Lactuca serriola*	Nonnative
Rough cocklebur	*Xanthium strumarium*	Native
Sow thistle	*Sonchus asper*	Nonnative
Yarrow	*Achillea millefolium*	Native
Family Boraginaceae		
Common fiddleneck	*Amsinckia intermedia*	Native
Family Brassicaceae		
Black mustard	*Brassica nigra*	Nonnative
Charlock	*Sinapsis arvensis*	Nonnative
Wild raddish	*Raphanus sativus*	Nonnative
Shepherd's purse	*Capsella bursa-pastoris*	Nonnative
Family Crassulaceae		
Sand pygmy weed	*Crassula connata*	Native
Family Cyperaceae		

Common Name	Scientific Name	Status
Tall cyperus	*Cyperus eragrostis*	Native
Tule	*Schoenoplectus acutus*	Native
Family Euphorbiaceae		
Dove weed	*Croton setiger*	Native
Family Fabaceae		
Annual yellow sweetclover	*Melilotus indicus*	Nonnative
Burclover	*Medicago polymorpha*	Nonnative
Narrow-leaved vetch	*Vicia sativa* ssp. *nigra*	Nonnative
White clover	*Trifolium repens*	Nonnative
Family Geraniaceae		
Broadleaf filaree	*Erodium botrys*	Nonnative
Carolina geranium	*Geranium carolinianum*	Nonnative
Cutleaf geranium	*Geranium dissectum*	Nonnative
Redstem stork's bill	*Erodium cicutarium*	Nonnative
Family Juncaceae		
Common bog rush	*Juncus effusus* ssp. *effusus*	Native
Family Lamiaceae		
Cheeseweed	*Malva parviflora*	Nonnative
Henbit deadnettle	*Lamium amplexicaule*	Nonnative
White horehound	*Marrubium vulgare*	Nonnative
Family Onagraceae		
Fringed willowherb	*Epilobium ciliatum*	Native
Family Phrymaceae		
Seep monkeyflower	*Erythranthe guttata*	Native
Family Poaceae		
Annual beardgrass	*Polypogon monspeliensis*	Nonnative
Annual bluegrass	*Poa annua*	Nonnative
Bermuda grass	*Cynodon dactylon*	Nonnative
Dallis grass	*Paspalum dilatatum*	Nonnative
Italian ryegrass	*Festuca perennis*	Nonnative
Johnsongrass	*Sorghum halepense*	Nonnative
Ripgut brome	*Bromus diandrus*	Nonnative
Saltgrass	*Distichlis spicata*	Native
Family Polygonaceae		
Curly dock	*Rumex crispus*	Nonnative
Family Solanaceae		
Jimson weed	*Datura wrightii*	Native
White horse-nettle	*Solanum elaeagnifolium*	Nonnative
Reptiles		
Family Phrynosomatidae		

Common Name	Scientific Name	Status
Common side-blotched lizard	*Uta stansburiana*	None
Western fence lizard	*Sceloporus occidentalis*	None
Birds		
Family Accipitridae		
Red-shouldered hawk	*Buteo lineatus*	MBTA, CFGC
Red-tailed hawk	*Buteo jamaicensis*	MBTA, CFGC
Sharp-shinned hawk	*Accipiter striatus*	MBTA, CFGC
Family Aegithalidae		
Bushtit	*Psaltriparus minimus*	MBTA, CFGC
Family Anatidae		
Ruddy duck	*Oxyura jamaicensis*	MBTA, CFGC
Family Ardeidae		
Great egret	*Ardea alba*	MBTA, CFGC
Family Bombycillidae		
Cedar waxwing	*Bombycilla cedrorum*	MBTA, CFGC
Family Cathartidae		
Turkey vulture	*Cathartes aura*	MBTA, CFGC
Family Columbidae		
Mourning dove	*Zenaida macroura*	MBTA, CFGC
Rock pigeon	*Columba livia*	None
Family Corvidae		
American crow	*Corvus brachyrhynchos*	MBTA, CFGC
California scrub-jay	*Aphelocoma californica*	MBTA, CFGC
Family Fringillidae		
House finch	*Haemorhous mexicanus*	MBTA, CFGC
Family Icteridae		
Brewer's blackbird	*Euphagus cyanocephalus*	MBTA, CFGC
Family Mimidae		
Northern mockingbird	*Mimus polyglottos*	MBTA, CFGC
Family Podicipedidae		
Eared grebe	*Podiceps nigricollis*	MBTA, CFGC
Western grebe	*Aechmophorus occidentalis*	MBTA, CFGC
Family Parulidae		
Yellow-rumped warbler	*Setophaga coronata*	MBTA, CFGC
Family Passerellidae		
California towhee	*Melozone crissalis*	MBTA, CFGC
White-crowned sparrow	*Zonatrichia leucophrys*	MBTA, CFGC
Family Passeridae		
House sparrow	*Passer domesticus*	None
Family Picidae		

Common Name	Scientific Name	Status
Nuttall's woodpecker	*Dryobates nuttallii*	MBTA, CFGC
Family Trochilidae		
Anna's hummingbird	*Calypte anna*	MBTA, CFGC
Family Turdidae		
Western bluebird	*Sialia mexicana*	MBTA, CFGC
Family Tyrannidae		
Black phoebe	*Sayornis nigricans*	MBTA, CFGC
Mammals		
Family Didelphidae		
Virginia opossum	*Didelphis virginiana*	None
Family Leporidae		
Desert cottontail	*Sylvilagus audubonii*	None
Family Mephitidae		
Striped skunk	*Mephitis mephitis*	None
Family Sciuridae		
California ground squirrel	*Otospermophilus beecheyi*	None

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

3.2.3 Special-Status Species

Two special-status species could occur on or near the Project site based on the presence of habitat and/or CNDDB occurrence records from within 5 miles (Table 1). These two species are described below.

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

One CNDDB record, from 2018, is known from within 5 miles of the Project site (CNDDB 2020). Although this species was not detected during the reconnaissance survey, which was conducted outside of the blooming period, aquatic habitat on the property could support this species. Due low habitat quality, however, its probability of occurrence is low.

Northwestern pond turtle (*Actinemys marmorata*) (SSSC). Northwestern pond turtle (family Emydidae) is California's only native freshwater turtle. It is recognized as a Species of Special Concern by the CDFW (CDFW 2019). This species is long-lived, diurnal, and aquatic (Nafis 2020). It occurs in ponds, lakes, rivers, creeks, marshes, and irrigation ditches and requires exposed banks, logs, rocks, or cattail mats for basking (Nafis 2020). Commercial harvesting beginning in the 19th century, wetland destruction and degradation in the early 20th century, and introduction

of nonnative species including other turtle species and bullfrogs are the primary contributors to population declines (Nafis 2020). Mating occurs in April and May, after which females travel onto land to dig a nest, usually along stream or pond banks (Nafis 2020).

Although there are no CNDDB records known from within 5 miles of the Project site (CNDDB 2020), Bravo Lake and the small semi-permanent wetland along Industrial Ditch on the Project site provide potential aquatic habitat, and the nonnative grassland south of the Project site could represent potential nesting habitat. Due low habitat quality, however, its probability of occurrence is low.

3.2.4 Nesting Birds and the Migratory Bird Treaty Act

Migratory birds could nest on or near the Project site. Species that may nest on or near the Project site include but are not limited to California scrub-jay (*Aphelocoma californica*), house finch (*Haemorhous mexicanus*), and northern mockingbird (*Mimus polyglottos*).

3.2.5 Regulated Habitats

Two potentially regulated habitats (Industrial Ditch and an unnamed irrigation canal) were found on or within 50 feet of the Project site. Industrial Ditch is a cnstructed intermittent drainage that flows north to south through the middle-western portion of the Project site where the new stormwater basin will be constructed (Figures 12 and 13). It forms a small semi-permanent wetland at the southern Project site boundary, then drains to Little Bravo Lake, Wutchumna Ditch, and eventually the St. Johns River. Industrial Ditch is likely under the jurisdiction of the USACE, SWRCB, and CDFW. Industrial Ditch and its associated semi-permanent wetland will be impacted by the Project. An unnamed, excavated irrigation canal associated with a large detention basin was 10 feet south of the southern segment of new pipeline alignment that will connect the new stormwater basin to existing infrastructure along the Deltha Avenue alignment. However, construction of the new pipeline will be confined to existing dirt and paved roads. Therefore, no impacts to this feature are anticipated.

According to the Wild and Scenic Rivers Act, no waterways on or near the Project site retain a wild and scenic classification (USFWS 2020b).

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

The Project site is within a FEMA-designated flood zone classified as Zone X, otherwise described as “Other Flood Areas”. Parcels within Zone X have either (1) a 0.2% annual chance of flood during a 100-year flood event, (2) a 1% annual chance of flood (during a 100-year flood event)

with average depths of < 1 foot or with drainage areas less than 1 square mile, or (3) areas protected by levees from a 1% annual chance of flooding during a 100-year flood event (FEMA 2020). The semi-permanent wetland along Industrial Ditch is classified as Zone A. Parcels within Zone A are without base flood elevation and subject to inundation by the 1-percent-annual-chance flood (FEMA 2020).

4.0 Environmental Effects

4.1 Effects Determinations

4.1.1 Critical Habitat

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

4.1.2 Special-Status Species

We conclude the Project **may affect but is not likely to adversely affect** two special-status species: Sanford's arrowhead and northwestern pond turtle. The Project is not expected to affect any other special-status species due to the lack of habitat or known occurrence records for those species near the Project site.

4.1.3 Migratory Birds

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

4.1.4 Regulated Habitats

We conclude the Project **may affect and is likely to adversely affect** one regulated habitat. This habitat consists of Industrial Ditch and its associated semi-permanent wetland at the southern boundary of the Project site.

4.2 Significance Determinations

This Project, which will result in permanent and temporary impacts to developed and disturbed land cover, a channelized ditch and a small semi-permanent wetland will not: (1) substantially reduce the habitat of a fish or wildlife species (criterion a) as disturbed land cover is regionally abundant and ubiquitous; (2) cause a fish or wildlife population to drop below self-sustaining levels (criterion b) as no such potentially vulnerable population is known from the area; (3) threaten to eliminate a plant or animal community (criterion c) as no such potentially vulnerable communities are known from the area; (4) substantially reduce the number or restrict the range of a rare or endangered plant or animal (criterion d) as no such potentially vulnerable species are known from the area; (5) have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (criterion f) as no riparian habitat or other sensitive natural community was

present in the survey area; (6) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (criterion i) as no native or heritage trees or biologically sensitive areas will be impacted; or (7) conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan (criterion j) as no such plan has been adopted. Thus, these significance criteria are not analyzed further.

The remaining statutorily defined criteria provided the framework for criteria BIO1 through BIO3 below. These criteria are used to assess the impacts to biological resources stemming from the Project and provide the basis for determinations of significance:

- Criterion BIO1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS (significance criterion e).

- Criterion BIO2: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (significance criterion h).

- Criterion BIO3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (significance criterion g).

4.2.1 Direct and Indirect Impacts

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

The Project could substantially impact two special-status species: Sanford's arrowhead (CNPS CRPR 1B.2) northwestern pond turtle, a California Species of Special Concern. Construction disturbance could result in the incidental loss of Sanford's arrowhead or northwestern pond turtle. Such loss could constitute a significant impact. We recommend that Mitigation Measures B1–B2 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

Mitigation Measure B1. Protect northwestern pond turtle.

1. A pre-construction clearance survey shall be conducted by a qualified biologist to ensure that northwestern pond turtle will not be impacted during Project

construction. The pre-construction clearance survey shall be conducted no more than 14 days prior to the start of construction activities. During this survey, the qualified biologist shall search all aquatic habitat and all potential nesting habitat on the Project site for active turtle nests. If a turtle is found, it will be allowed to the leave the area on its own. If an active turtle nest is found, the qualified biologist shall determine the extent of a construction-free buffer to be established and maintained around the nest for the duration of the nesting cycle. The biologist shall then work with construction personnel to install wildlife exclusion fencing along the buffer. This fencing should be a minimum of 36 inches tall and towed-in 6 inches below ground prior to construction activities. If fencing cannot be toed-in, the bottom of the fence will be weighted down with a continuous line of long, narrow sand bags or similar, to ensure there are no gaps under the fencing where wildlife could enter. One-way exit funnels directed away from construction activities will be installed to allow turtles and other small wildlife to exit the fenced enclosure.

Mitigation Measure B2. Protect Sanford's arrowhead.

2. A rare plant survey for Sanford's arrowhead shall be conducted by a qualified biologist during the appropriate season (May to October). If this species is detected, implement a minimum 50-foot avoidance buffer and avoid impacts to the extent practicable. If impacts are unavoidable, salvage and relocate the plants in consultation with CDFW.

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

The Project has the potential to impede the use of nursery sites for native birds protected under the MBTA and CFGC. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort can be considered take under the MBTA and CFGC. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region. Construction activities such as excavating, trenching, and grading that disturb a nesting bird on the Project site or immediately adjacent to the construction zone could constitute a significant effect. We recommend that the mitigation measure B3 (below) be included in the conditions of approval to reduce the potential effect to a less-than-significant level.

Mitigation Measure B3. Protect nesting birds.

3. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.

4. If it is not possible to schedule construction between September and January, a pre-construction clearance survey for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction clearance survey shall be conducted no more than 14 days prior to the start of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas, including within 250 feet in the case of raptor 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 failed for non-construction related reasons.

4.2.1.3 Potential Impact #3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (Criterion BIO3)

The Project will permanently impact Industrial Ditch and its associated semi-permanent wetland at the southern Project site boundary. As Industrial Ditch is hydrologically connected to the St. Johns River, a navigable water, Industrial Ditch and its associated semi-permanent wetland are under the jurisdiction of the USACE and therefore subject to provisions of the Clean Water Act (CWA). Construction of the new stormwater basin will permanently impact roughly 1000 linear feet of Industrial Ditch, including roughly 120 linear feet of semi-permanent state and federally protected wetland. Such loss could constitute a significant impact. We recommend that the mitigation measure B4 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

Mitigation Measure B4. Obtain permits from the USACE and the SWRCB for impacts to jurisdictional waters.

5. Obtain a CWA Section 404 Nationwide Permit in consultation with the USACE for work impacting Industrial Ditch and its associated semi-permanent wetland.

6. Obtain a CWA Section 401 water quality certification from the SWRCB for work impacting Industrial Ditch and its associated semi-permanent wetland.

4.2.2 Cumulative Effects

The Project involves constructing a new stormwater basin and pipeline infrastructure to meet the growing needs of the community. Implementing the Project will likely facilitate development in similar areas of the City. However, as such development will likely occur in areas previously developed for agriculture or industry, the cumulative effects on biological resources are expected to be negligible.

4.2.3 Unavoidable Significant Adverse Effects

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

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Appendix A. USFWS list of threatened and endangered species 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:
Consultation Code: 08ESMF00-2020-SLI-1137
Event Code: 08ESMF00-2020-E-03632
Project Name: Woodlake stormwater basin

February 24, 2020

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 08ESMF00-2020-SLI-1137

Event Code: 08ESMF00-2020-E-03632

Project Name: Woodlake stormwater basin

Project Type: WATER SUPPLY / DELIVERY

Project Description: The City of Woodlake proposes to (1) construct a 17-acre stormwater basin on a 38-acre site southeast of the intersection of Ropes Avenue and Mulberry Street; (2) install 4611 linear feet of 48-inch pipeline from the new basin north to the Bravo Avenue alignment, east along Bravo Avenue to Magnolia Street, north on Magnolia Street to just south of Avenue 344, then east along the north edge of Bravo Lake to the Manzanillo Pump Station; and (3) install about 930 linear feet of pipeline from the new basin along the Deltha Avenue alignment to Palm Street.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.40984283833346N119.10301307337312W

Counties: Tulare, CA

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Mammals

NAME	STATUS
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered

Reptiles

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

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

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

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered

Flowering Plants

NAME	STATUS
Greene's Tuctoria *Tuctoria greenei* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1573	Endangered
San Joaquin Adobe Sunburst *Pseudobahia peirsonii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2931	Threatened
San Joaquin Orcutt Grass *Orcuttia inaequalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5506	Threatened

Critical habitats

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

Appendix B. CNDDB occurrence records.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Woodlake (3611941) OR Auckland (3611951) OR Chickencoop Canyon (3611838) OR Exeter (3611932) OR Ivanhoe (3611942) OR Kaweah (3611848) OR Rocky Hill (3611931) OR Shadequarter Mtn. (3611858) OR Stokes Mtn. (3611952))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes OR Fungi)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	505 540	955 S:2	0	0	0	0	0	2	0	2	2	0	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	345 347	1231 S:2	0	1	1	0	0	0	1	1	2	0	0
Anniella pulchra northern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	377 1,000	375 S:2	1	0	0	0	0	1	1	1	2	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	368 368	420 S:1	1	0	0	0	0	0	0	1	1	0	0
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	500 500	155 S:1	0	0	0	0	0	1	1	0	1	0	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	343 343	1989 S:1	1	0	0	0	0	0	0	1	1	0	0
Atriplex cordulata var. erecticaulis Earlimart orache	G3T1 S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	335 335	21 S:1	1	0	0	0	0	0	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Atriplex minuscula lesser saltscale	G2 S2	None None	Rare Plant Rank - 1B.1	335 335	52 S:1	0	1	0	0	0	0	0	1	1	0	0
Atriplex persistens vernal pool smallscale	G2 S2	None None	Rare Plant Rank - 1B.2	345 355	41 S:2	2	0	0	0	0	0	0	2	2	0	0
Batrachoseps regius Kings River slender salamander	G2 S2S3	None None	IUCN_VU-Vulnerable USFS_S-Sensitive	2,000 5,500	14 S:2	0	0	0	0	0	2	2	0	2	0	0
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None Candidate Endangered		450 1,000	234 S:5	0	0	0	0	0	5	5	0	5	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	335 950	770 S:19	2	3	0	0	0	14	6	13	19	0	0
Brodiaea insignis Kaweah brodiaea	G1 S1	None Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	560 3,300	27 S:11	2	4	2	0	0	3	10	1	11	0	0
Chrysis tularensis Tulare cuckoo wasp	G1G2 S1S2	None None		450 450	5 S:1	0	0	0	0	0	1	1	0	1	0	0
Delphinium recurvatum recurved larkspur	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	340 440	120 S:4	0	0	0	0	1	3	2	2	3	0	1
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	Threatened None		405 960	271 S:2	0	0	1	0	0	1	2	0	2	0	0
Diplacus pictus calico monkeyflower	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	600 600	73 S:1	0	0	0	0	0	1	1	0	1	0	0
Empidonax traillii willow flycatcher	G5 S1S2	None Endangered	IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	570 570	90 S:1	0	0	0	0	0	1	1	0	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	70 1,000	1385 S:3	0	0	0	0	0	3	3	0	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Eriogonum nudum var. murinum mouse buckwheat	G5T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	1,280 3,400	11 S:4	0	0	0	0	0	4	4	0	4	0	0
Eryngium spinosepalum spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2	335 2,000	108 S:20	3	9	2	0	1	5	11	9	19	1	0
Erythranthe norrisii Kaweah monkeyflower	G2 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,200 2,700	8 S:2	0	0	0	0	0	2	2	0	2	0	0
Eumops perotis californicus western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	450 940	296 S:5	0	0	0	0	0	5	5	0	5	0	0
Euphorbia hooveri Hoover's spurge	G1 S1	Threatened None	Rare Plant Rank - 1B.2	335 345	29 S:2	0	0	2	0	0	0	0	2	2	0	0
Fritillaria striata striped adobe-lily	G1 S1	None Threatened	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture USFS_S-Sensitive		23 S:1	0	0	0	0	1	0	1	0	0	0	1
Glyceria grandis American manna grass	G5 S3	None None	Rare Plant Rank - 2B.3		10 S:1	0	0	0	0	0	1	1	0	1	0	0
Gymnogyps californianus California condor	G1 S1	Endangered Endangered	CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_CR-Critically Endangered NABCI_RWL-Red Watch List	1,000 1,000	13 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Haliaeetus leucocephalus bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	912 912	327 S:1	0	1	0	0	0	0	0	1	1	0	0
Helianthus winteri Winter's sunflower	G2? S2?	None None	Rare Plant Rank - 1B.2	460 2,500	55 S:32	6	20	4	1	0	1	0	32	32	0	0
Lasthenia glabrata ssp. coulteri Coulter's goldfields	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	350 350	111 S:1	0	0	0	0	0	1	0	1	1	0	0
Lepidurus packardi vernal pool tadpole shrimp	G4 S3S4	Endangered None	IUCN_EN-Endangered	340 345	325 S:2	0	1	0	0	0	1	1	1	2	0	0
Leptosiphon serrulatus Madera leptosiphon	G3 S3	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	1,000 3,500	27 S:2	0	0	0	0	0	2	2	0	2	0	0
Lithobates pipiens northern leopard frog	G5 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern		19 S:1	0	0	0	0	0	1	1	0	1	0	0
Lytta moesta moestan blister beetle	G2 S2	None None		1,000 1,000	12 S:1	0	0	0	0	0	1	1	0	0	1	0
Lytta morrisoni Morrison's blister beetle	G1G2 S1S2	None None		960 960	10 S:1	0	0	0	0	0	1	1	0	0	1	0
Orcuttia inaequalis San Joaquin Valley Orcutt grass	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1	515 515	47 S:1	0	0	0	0	1	0	1	0	0	0	1
Pseudobahia peirsonii San Joaquin adobe sunburst	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	600 1,420	51 S:3	0	0	0	1	0	2	3	0	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Rana boylii foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	520 2,211	2468 S:10	0	0	0	0	10	0	10	0	0	0	10
Sagittaria sanfordii Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	400 400	126 S:1	0	0	1	0	0	0	0	1	1	0	0
Spea hammondii western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	0 743	1247 S:29	0	26	1	0	0	2	2	27	29	0	0
Talanites moodyae Moody's gnaphosid spider	G1G2 S1S2	None None		400 1,200	6 S:4	0	0	0	0	0	4	4	0	4	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	370 370	592 S:1	0	0	1	0	0	0	1	0	1	0	0
Tuctoria greenei Greene's tuctoria	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1	450 450	50 S:1	0	0	0	0	1	0	1	0	0	0	1
Vulpes macrotis mutica San Joaquin kit fox	G4T2 S2	Endangered Threatened		345 720	1018 S:7	0	0	0	0	0	7	7	0	7	0	0

Appendix C. CNPS plant list.

CNPS California Native Plant Society

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

Plant List

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

Search Criteria

Found in Quads 3611952, 3611951, 3611858, 3611942, 3611941, 3611848, 3611932 3611931 and 3611838;

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. erecticaulis	Earlimart orache	Chenopodiaceae	annual herb	Aug-Sep(Nov)	1B.2	S1	G3T1
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
Brodiaea insignis	Kaweah brodiaea	Themidaceae	perennial bulbiferous herb	Apr-Jun	1B.2	S1	G1
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Diplacus pictus	calico monkeyflower	Phrymaceae	annual herb	Mar-May	1B.2	S2	G2
Eriogonum nudum var. murinum	mouse buckwheat	Polygonaceae	perennial herb	Jun-Nov	1B.2	S2	G5T2
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Erythranthe norrisii	Kaweah monkeyflower	Phrymaceae	annual herb	Mar-May	1B.3	S2	G2
Erythranthe sierrae	Sierra Nevada monkeyflower	Phrymaceae	annual herb	Mar-Jul	4.2	S2	G2
Euphorbia hooveri	Hoover's spurge	Euphorbiaceae	annual herb	Jul-Sep(Oct)	1B.2	S1	G1
Glyceria grandis	American manna grass	Poaceae	perennial rhizomatous herb	Jun-Aug	2B.3	S3	G5
Helianthus winteri	Winter’s sunflower	Asteraceae	perennial shrub	Jan-Dec	1B.2	S2?	G2?
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	3.2	S3S4	G3G4
Leptosiphon serrulatus	Madera leptosiphon	Polemoniaceae	annual herb	Apr-May	1B.2	S3	G3
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
Pseudobahia peirsonii	San Joaquin adobe sunburst	Asteraceae	annual herb	Feb-Apr	1B.1	S1	G1

Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 26 February 2020].

Search the Inventory
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Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

Appendix C

Cultural Resource Assessment

CLASS III INVENTORY/PHASE I SURVEY, WOODLAKE STORMWATER BASIN PROJECT, CITY OF WOODLAKE, TULARE COUNTY, CALIFORNIA

Prepared for:

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

Prepared by:

David S. Whitley, Ph.D., RPA

and

Robert Azpitarte, B.A.

ASM Affiliates, Inc.
20424 West Valley Blvd., Suite A
Tehachapi, California 93561

March 2020

PN 34550.00

TABLE OF CONTENTS

Chapter **Page**

LIST OF FIGURES

Page

LIST OF TABLES

Page

MANAGEMENT SUMMARY

An intensive Class III cultural resources inventory/Phase I survey was conducted for the Woodlake Stormwater Basin Project (Project), which involves the removal of an existing orchard, the excavation of a new stormwater basin and the construction of an associated 48-inch diameter pipeline. The Project area of potential effect (APE) is located in Woodlake, west of Bravo Lake, Tulare County, California. ASM Affiliates, Inc., conducted this study, with David S. Whitley, Ph.D., RPA, serving as principal investigator. The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and the California Environmental Quality Act.

The APE for the Project consists of the area of potential ground surface disturbance resulting from the excavation of the stormwater basin and trenching for 4,611-feet (ft) of 48" pipeline, including lay-down and staging areas. The horizontal APE for the stormwater basin is 38-acres (ac) in size; the APE for the pipeline trench, using a 15-meter (m) buffer on both sides of the route, is 9.5-ac, yielding a total horizontal APE of 47.5-ac. The vertical APE is the maximum limit of ground surface excavation, estimated at 10-feet.

A record search of site files and maps was conducted at the Southern San Joaquin Valley Archaeological Information Center (IC), California State University, Bakersfield. A Sacred Lands File Request was also submitted to the Native American Heritage Commission (NAHC). These investigations determined that small portions of the Project APE had been previously surveyed, and that segments of two historic structures, both rail grades, are known to exist within it.

The Class III inventory/Phase I survey fieldwork was conducted on 16 March 2020 with parallel transects spaced at 15-meter intervals walked across the approximately 47.5-acre APE. Because the APE involves a pipeline along existing paved roads, both sides of the roads were surveyed. Orchard rows were walked within the proposed stormwater basin portion of the APE. The two previously identified cultural resources, segments of the Visalia Electric and Atchison Topeka and Santa Fe Railroad grades, were relocated. Both linear resources segments had been destroyed within the Project APE. They thus lack integrity of design, setting, materials, workmanship and feeling and are recommended as not National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) eligible or significant.

No additional cultural resources were identified within the Project APE. Based on these findings, the proposed Woodlake Stormwater Basin Project does not have the potential to result in adverse impacts or effects to historical resources or historic properties, and a determination of no significant impact under CEQA and no adverse effect under Section 106 is recommended. In the unlikely event that cultural resources are identified during the project, work should be halted within a 100-foot radius of the find. It is recommended that a qualified archaeologist be contacted to evaluate the newly discovered resource.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates, Inc., was retained by Crawford & Bowen Planning to conduct an intensive Class III inventory/Phase I cultural resources survey for the Woodlake Stormwater Basin Project. This Project is located in the City of Woodlake, Tulare County, California (Figure 1). The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Protection Act (CEQA). The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historical resources or historic properties do not occur as a result of project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the project zone and/or whether the area had been previously and systematically studied by archaeologists;
- An on-foot, intensive inventory of the study area to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

David S. Whitley, Ph.D., RPA, served as principal investigator and Robert Azpitarte, B.A., ASM Associate Archaeologist, conducted the fieldwork.

This document constitutes a report on the Class III inventory/Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; Native American outreach; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the study area.

1.1 PROJECT LOCATION

The Woodlake Stormwater Basin Project is located within the city limits of Woodlake, California. This places the Project on the open flats of the San Joaquin Valley, a short distance west of the foothills of the Sierra Nevada foothills. Elevation within the Project area, which is flat, is approximately 430-ft above mean sea level for the stormwater basin, which lies immediately west of Mulberry Street and is in an active orchard, west of Bravo Lake. The pipeline route runs from the proposed basin north along South Oak Street to West Bravo Avenue. It turns east heading to South Magnolia Street where it again turns and continues north to Avenue 344 (Hwy. 216). The pipeline then extends along the south side of this road to the Manzanillo Pump Station, immediately north of Bravo Lake.

1.2 PROJECT DESCRIPTION AND APE

The Woodlake Stormwater Basin Project will comprise the excavation of a new stormwater basin and the construction of an associated 48-inch diameter pipeline connecting to an existing pump station adjacent to Bravo Lake. The Project APE consists of the area of potential ground surface disturbance resulting from the excavation of the stormwater basin and trenching for 4,611-feet (ft) of 48" pipeline, including lay-down and staging areas. The horizontal APE for the stormwater basin is 38-acres (ac) in size; the APE for the pipeline trench, using a 15-meter (m) buffer on both sides of the route, is 9.5-ac, yielding a total horizontal APE of 47.5-ac. The vertical APE is the maximum limit of ground surface excavation, estimated at 10-feet.

1.3 REGULATORY CONTEXT

1.3.1 CEQA

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

(A) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Are associated with the lives of persons important in our past;

(C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

(D) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

1.3.2 NHPA Section 106

NHPA Section 106 is applicable to federal undertakings, including projects financed or permitted by federal agencies regardless of whether the activities occur on federally managed or privately-owned land. Its purpose is to determine whether adverse effects will occur to significant cultural resources, defined as "historical properties" that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for NRHP eligibility are defined at 36 CFR § 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:
>
> (A) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) are associated with the lives of persons significant in our past; or
>
> (C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (D) have yielded or may be likely to yield, information important in prehistory or history.

There are, however, restrictions on the kinds of historical properties that can be NRHP listed. These have been identified by the Advisory Council on Historic Preservation (ACHP), as follows:

> Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
>
> (a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or

(b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or

(c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.

(d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

(e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or

(f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

(g) A property achieving significance within the past 50 years if it is of exceptional importance. (http://www.achp.gov/nrcriteria.html).

Federal guidelines provide additional directions for evaluating resources. Following *National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation* (National Park Service 1995), significant cultural resources must maintain integrity:

> "Integrity is the ability of a property to convey its significance. To be listed in the National Register of Historic Places, a property must not only be shown to be significant under the National Register criteria, but it also must have integrity" (ibid:44).

Seven aspects or qualities of cultural resources, in various combinations, define integrity. Significant cultural resources possess several, usually most, of these seven qualities. The seven qualities of integrity are location, design, setting, materials, workmanship, feeling, and/or association (ibid). Which aspects of integrity are pertinent to the significance-determination of a specific resource depends on the criterion under which it may be eligible. For example, location would not be an important quality of integrity for a historic ship, nor would workmanship be critical for an archaeological site.

The National Park Service then further specifies that:

> "Archeological sites eligible under Criteria A and B must be in overall good condition with excellent preservation of features, artifacts, and spatial relationships to the extent that these remains are able to convey important associations with events or persons…Archeological sites eligible under Criterion C …[must have] remains [that] are able to illustrate a site type, time period, method of construction, or work of a master…under Criterion D, integrity is based upon the property's potential to yield specific data that addresses important research questions" (ibid:46).

Note that, for archaeological sites, under Criterion D "only the *potential* to yield information is required," whereas for Criteria A, B and C, "the site must have demonstrated its ability to convey its significance" (ibid:48; emphasis in original).

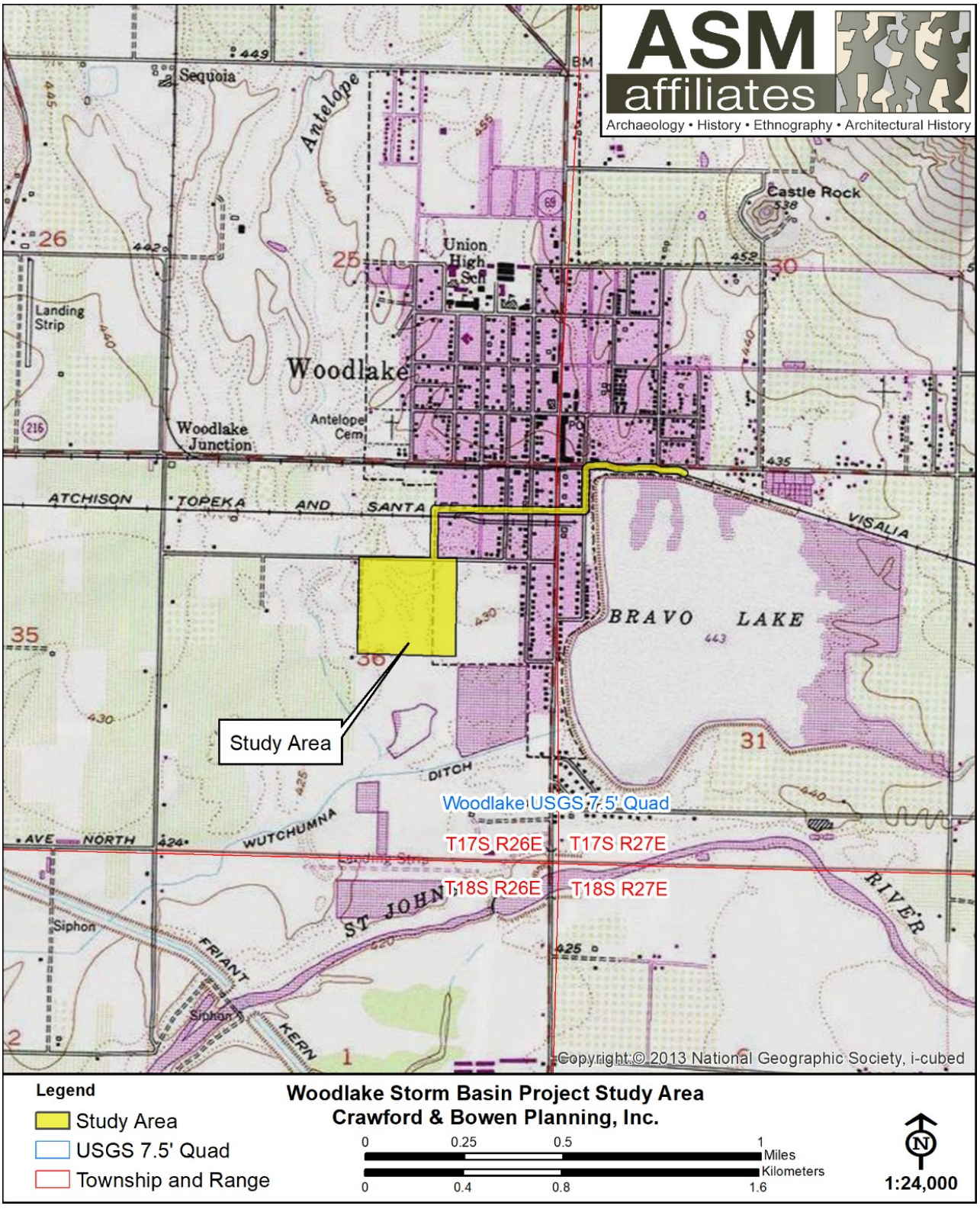

Figure 1. Location of the Woodlake Stormwater Basin Project, Tulare County, California.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 GEOARCHAEOLOGICAL SENSITIVITY AND ENVIRONMENTAL BACKGROUND

As noted above, the 47.5-ac APE is located on the open flats of the San Joaquin Valley, west of the Sierra Nevada foothills. The so-called Antelope Valley is immediately to the north. Bravo Lake, a natural pond, is located east of the proposed stormwater basin. The dry St. John's riverbed is located roughly a half-mile south of the basin. This drainage is an offshoot tributary of the Kaweah River, located further to the south.

According to the geoarchaeological model developed by Meyer et al. (2010), the Project APE, located north of the St. John's River, has a Very Low potential for buried archaeological deposits. Meyer et al.'s study involved first determining the location and ages of late Pleistocene (>25,000 years old) landforms in the southern San Joaquin Valley. These were identified by combining a synthesis of 2,400 published paleontological, soils and archaeological chronometric dates with geoarchaeological field testing. The ages of surface landforms were then mapped to provide an assessment for the potential for buried archaeological deposits. These ages were derived primarily from the Soil Survey Geographic Database (SSURGO) and the State Soils Geographic (STATSGO) database. A series of maps were created from this information that ranked locations in 7 ordinal classes for sensitivity for buried soils, from Very Low to Very High. Buried sites and cultural resources are therefore considered to be unlikely within the Project APE.

Prior to the appearance of agriculture, starting in the nineteenth century, this location would have been prairie grasslands, grading into tree savannas as one continued into the foothills to the east (Preston 1981; Schoenherr 1992). Historically, and likely prehistorically, riparian environments would have been present along the Kaweah River and around Bravo Lake. St. John's River, in contrast, appears to have been seasonal. The study area and immediate surroundings have been farmed and grazed for many years and little to no native vegetation is present. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the study area prior to cultivation.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), Latta (1977) and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro-Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the

Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north. The result is an unfortunate scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous life-ways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

Following Kroeber (1925: Plate 47), the project location most likely lies in *Wukchamni Yokuts* territory. A series of historical named sites are located in the Project vicinity:

- *Pachakish*, a bedrock mortar station, is located north of Lemon Cove along the toe slopes of the Sierra Nevada foothills (Latta 1977: 184-5).
- The village of *Hoganu* (also called *Hawcunu* or *Diapnushu*; see Gayton 1930:378, 1948: 56, 58-59, 129; Latta 1977:185) is located at the bridge across the Kaweah River, roughly 0.5-mi north of the Project area.
- Two pictograph sites at Steve Barton Point, on the north site of the Kaweah River, were known as *Moiyak*, which translates as "whirlwind place" (Whitley 2006).

The Yokuts settlement pattern was largely consistent, regardless of specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa AD 1800), with dispersal phase family camps located at elevated spots on the valley floor and near gathering areas in the foothills.

The Yokuts settlement pattern was largely consistent, regardless of specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa AD 1800), with dispersal phase family camps located at elevated spots on the valley floor and near gathering areas in the foothills.

Most Yokuts groups, again regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 peoples (Kroeber 1925).

Each tribelet was headed by a chief who was assisted by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to most Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region,

depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokuts people continue to reside in the southern San Joaquin Valley today.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The San Joaquin Valley region has received minimal archaeological attention compared to other areas of the state. In part this is because the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's pre is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981). Based on these sources, the general prehistory of the region can be outlined as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 years before present (YBP). Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper.

Both fluted and stemmed points are particularly common around lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far west at the same time; little else is known about these earliest peoples. Over 250 fluted points have been recovered from the Witt Site (CA-KIN-32), located along the western shoreline of ancient

Tulare Lake west of the study area, demonstrating the importance of this early occupation in the San Joaquin Valley specifically (see Fenenga 1993). Additional finds consist of a Clovis-like projectile point discovered in a flash-flood cut-bank near White Oak Lodge in 1953 on Tejon Ranch (Glennan 1987a, 1987b). More recently, a similar fluted point was found near Bakersfield (Zimmerman et al. 1989). Although human occupation of the state is well-established during the Late Pleistocene, relatively little can be inferred about the nature and distribution of this occupation with a few exceptions. First, little evidence exists to support the idea that people at that time were big-game hunters, similar to those found on the Great Plains. Second, the western Mojave Desert evidence suggests small, very mobile populations that left a minimal archaeological signature. The evidence from the ancient Tulare Lake shore, in contrast, suggests much more substantial population and settlements which, instead of relying on big game hunting, were tied to the lacustrine lake edge. Variability in subsistence and settlement patterns is thus apparent in California, in contrast to the Great Plains.

Substantial evidence for human occupation across California, however, first occurs during the middle Holocene, roughly 7,500 to 4,000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with tool-kits dominated by mullers and grindstones (manos and metates). Additionally, little evidence for Early Horizon occupation exists in most inland portions of the state, partly due to a severe cold and dry paleoclimatic period occurring at this time, although a site deposit dating to this age has been identified along the ancient Buena Vista shoreline in Kern County to the south (Rosenthal et al. 2007). Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4,000 YBP during the *Middle Horizon* (or Intermediate Period). This period is known climatically as the Holocene Maximum (circa 3,800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. It was marked archaeologically by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian speaking peoples (including the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California, the Takic speaking groups that include the Gabrielino/Fernandeño, Tataviam and Kitanemuk, may have moved into the region at that time (Sutton 2009, rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King

et al n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall Ranch near Valencia, appears to date to the Intermediate Period (W & S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3,500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W & S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W & S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W & S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major southern California-wide occurrence and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W & S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the study area, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1,500 and 800 YBP, with a growing archaeological consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizons transition (AD 800 to 1200) in the understanding of south-central California prehistory. This corresponds to the so-called Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about A.D. 1860. It included major droughts matched by intermittent “mega-floods,” and resulted in demographic disturbances across much of the west (Jones et al. 1999). It is believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90% of the interior populations in some regions, including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of peoples into fewer but larger villages in more favorable locations. Population along the Santa Barbara coast appears to have spiked at about the same time that it collapsed on the Carrizo Plain (ibid). Along Buena Vista Lake, in Kern County, population appears to have been increasingly concentrated towards the later end of the Medieval Climatic Anomaly (Culleton 2006), and population intensification also appears to have occurred in the well-watered Tehachapi Mountains during this same period (W & S Consultants 2006).

What is then clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierras and the Mojave Desert. Many of these sites are found at locations that lack existing or known historical fresh water sources. Late Horizon sites, in contrast, are typically concentrated in areas where fresh water was available during the historical period, if not currently.

One extensively studied site that shows evidence of intensive occupation during the Middle-Late Horizons transition (~1,500 – 500 YBP) is the Redtfeldt Mound (CA-KIN-66/H), located northwest of the current study area, near the north shore of ancient Tulare Lake. There, Siefkin

(1999) reported on human burials and a host of artifacts and ecofacts excavated from a modest-sized mound. He found that both Middle Horizon and Middle-Late Horizons transition occupations were more intensive than Late Horizon occupations, which were sporadic and less intensive (Siefkin 1999:110-111).

The Late Horizon can then be understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic life-ways recorded by anthropologists extend roughly 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms appears to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

2.4 HISTORICAL BACKGROUND

Spanish explorers first visited the San Joaquin Valley in 1772, but its lengthy distance from the missions and presidios along the Pacific Coast delayed permanent settlement for many years, including during the Mexican period of control over the Californian region. In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley (JRP Historical Consulting 2009). The Mexican government granted the first ranchos in the southern part of the San Joaquin Valley in the early 1840s, but these did not result in permanent settlement. It was not until the annexation of California in 1848 that the exploitation of the southern San Joaquin Valley began (Pacific Legacy 2006).

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly. Some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns. Ranchers grazed cattle and sheep, and farmers dry-farmed or used limited irrigation to grow grain crops, leading to the creation of small agricultural communities throughout the valley (JRP Historical Consulting 2009).

After the American annexation of California, the southern San Joaquin Valley became significant as a center of food production for this new influx of people in California. The expansive unfenced and principally public foothill spaces were well suited for grazing both sheep and cattle (Boyd 1997). As the Sierra Nevada gold rush presented extensive financial opportunities, ranchers introduced new breeds of livestock, consisting of cattle, sheep and pig (Boyd 1997).

With the increase of ranching in the southern San Joaquin came the dramatic change in the landscape, as non-native grasses more beneficial for grazing and pasture replaced native flora (Preston 1981). After the passing of the Arkansas Act in 1850, efforts were made to reclaim small

tracts of land in order to create more usable spaces for ranching. Eventually, as farming supplanted ranching as a more profitable enterprise, large tracts of land began to be reclaimed for agricultural use, aided in part by the extension of the railroad in the 1870s (Pacific Legacy 2006).

Following the passage of state wide 'No-Fence' laws in 1874, ranching practices began to decline, while farming expanded in the San Joaquin Valley in both large land holdings and smaller, subdivided properties. As the farming population grew, so did the demand for irrigation. Settlers began reclamation of swampland in 1866. Grants were given subsequently to individuals who had both the resources and the finances to undertake land reclamation. Three competing partnerships developed during this period which had a great impact on control of water, land reclamation and ultimately agricultural development in the San Joaquin Valley: Livermore and Chester, Haggin and Carr, and Miller and Lux, perhaps the most famous of the enterprises. Livermore and Chester were responsible, among other things, for developing the large Hollister plow (three feet wide by two feet deep), pulled by a 40-mule team, which was used for ditch digging. Haggin and Carr were largely responsible for reclaiming the beds of the Buena Vista and Kern lakes, and for creating the Calloway Canal, which drained through Bakersfield to Goose Lake (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the rights to over 22,000 square miles. They recognized early-on that control of water would have important economic implications, and they played a major role in the water development of the state. They controlled, for example, over 100 miles of the San Joaquin River with the San Joaquin and Kings River Canal and Irrigation System. They were also embroiled for many years in litigation against Haggin and Carr over control of the water rights to the Kern River. Descendants of Henry Miller continue to play a major role in California water rights, with his great grandson, George Nickel, Jr., the first to develop the concept of water banking, thus creating a system to buy and sell water (http://exiledonline.com/california-class-war-history-meet-the-oligarch-family-thats-been-scamming-taxpayers-for-150-years-and-counting/).

The nearby town of Visalia, originally called Four Creeks, was founded in 1852 and is believed to be the earliest settlement in the San Joaquin Valley between Los Angeles and the Stockton area. It was made the county seat of Tulare County in 1853 and became a stop on the Butterfield Overland Mail stage route, which ran from Los Angeles to Stockton, in 1858. The Kaweah Delta area was the initial emphasis of settlement in the San Joaquin but, as irrigation and intensive agricultural developed, the focus of settlement shifted to the Kings Delta, especially the Mussel Sloughs area. By 1879, there were 61,200-ac irrigated by the Kings River, 22,000-ac by the Kaweah and only 4,500-ac by the Tule.

Woodlake was established by Gilbert F. Stevenson, a southern California developer, in 1912, through his "Woodlake Townsite Company." He had optioned 13,000-acres in the immediate area, hoping to establish citrus orchards and, through active marketing, a town. He also donated three miles of right-of-way to the Visalia Electric Railway, connecting the townsite to Visalia to the west. Stevenson built levees around the Bravo Lake (also sometimes called Wood Lake) along with recreational facilities to help attract new residents. Stevenson lost his fortune during the Depression but Woodlake continued to grow. It was incorporated in 1940 and continues to be primarily an agricultural community (http://www.cityofwoodlake.com/our-mission/; accessed 3/18/2020).

With increasing farming demand in the twentieth century, the Central Valley Project (CVP) was developed to supply water to Fresno, Tulare, and Kern counties. Terminus Dam, which created Lake Kaweah, was completed as part of the CVP in 1962 and is a short distance east of Woodlake. It supplies water for the Friant-Kern Canal. The Friant-Kern Canal was constructed between 1945 and 1951 and is approximately 152 miles in length (Preston 1981).

2.5 RESEARCH DESIGN

2.5.1 Pre-Contact Archaeology

Previous research and the nature of the pre-contact archaeological record suggest two significant NRHP themes, both of which fall under the general Pre-Contact Archaeology area of significance. These are the Expansion of Pre-Contact Populations and Their Adaptation to New Environments; and Adaptation to Changing Environmental Conditions.

The Expansion of Pre-Contact Populations and Their Adaptation to New Environments theme primarily concerns the Middle Horizon/Holocene Maximum. Its period of significance runs from about 4,000 to 1,500 YBP. It involves a period during which the prehistoric population appears to have expanded into a variety of new regions, developing new adaptive strategies in the process.

The Adaptation to Changing Environmental Conditions theme is partly related to the Holocene Maximum, but especially to the Medieval Climatic Anomaly. The period of significance for this theme, accordingly, extends from about 4,000 to 800 YBP. This theme involves the apparent collapse of many inland populations, presumably with population movements to better environments such as the coast. It is not yet known whether the southern San Joaquin Valley, with its system of lakes, sloughs and swamps, experienced population decline or, more likely, population increase due to the relatively favorable conditions of this region during this period of environmental stress.

The range of site types that are present in this region include:

- Villages, primarily located on or near permanent water sources, occupied by large groups during the winter aggregation season;
- Seasonal camps, again typically located at water sources, occupied during other parts of the year tied to locally and seasonally available food sources;
- Special activity areas, especially plant processing locations containing bedrock mortars (BRMs), commonly (though not exclusively) near existing oak woodlands, and invariably at bedrock outcrops or exposed boulders;
- Stone quarries and tool workshops, occurring in three general contexts: at or below naturally occurring chert exposures on the eastern front of the Temblor Range; at quartzite cobble exposures, often on hills or ridges; and, for soapstone in the western Sierra Nevada foothills, at exposures of steatite-grade talc-schist;
- Ritual sites, most commonly pictographs (rock art) found at rockshelters or large exposed boulders, and cemeteries, both commonly associated with villages; and

- A variety of small lithic scatters (low density surface scatters of stone tools).

The first requisites in any research design are the definition of site age/chronology and site function. The ability to determine either of these basic kinds of information may vary between survey and test excavation projects, and due to the nature of the sites themselves. BRM sites without associated artifacts, for example, may not be datable beyond the assumption that they post-date the Early Horizon and are thus less than roughly 4,000 years old.

A second fundamental issue involves the place of site in the settlement system, especially with respect to water sources. Because the locations of the water sources have sometimes changed over time, villages and camps are not exclusively associated with existing (or known historical) water sources (W&S Consultants 2006). The size and locations of the region's lakes, sloughs and delta channels, to cite the most obvious example, changed significantly during the last 12,000 years due to major paleoclimatic shifts. This altered the area's hydrology and thus prehistoric settlement patterns. The western shoreline of Tulare Lake was relatively stable, because it abutted the Kettleman Hills. But the northern, southern and eastern shorelines comprised the near-flat valley floor. Relatively minor fluctuations up or down in the lake level resulted in very significant changes in the areal expression of the lake on these three sides, and therefore the locations of villages and camps. Although perhaps not as systematic, similar changes occurred with respect to stream channels and sloughs, and potential site locations associated with them. This circumstance has implications for predicting site locations and archaeological sensitivity. Site sensitivity is then hardest to predict in the open valley floor, where changes in stream courses and lake levels occurred on numerous occasions.

Nonetheless, the position of San Joaquin Valley prehistory relative to the changing settlement and demographic patterns seen in surrounding areas is still somewhat unknown (cf. Siefkin 1999), including to the two NRHP themes identified above. The presence of large lake systems in the valley bottoms can be expected to have mediated some of the effects of desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007), environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is another primary regional research objective.

Archaeological sites would primarily be evaluated for NRHP eligibility under Criterion D, research potential.

2.5.2 Historical Archaeology: Native American

Less research has been conducted on the regional historical archaeological record, both Native American and Euro-American. For Native American historical sites, the ethnographic and ethnohistoric periods in the southern San Joaquin Valley extended from first Euro-American contact, in AD 1772, to circa 1900, when tribal populations were first consolidated on reservations. The major significant historic NRHP themes during this period of significance involve the related topics of Historic-Aboriginal Archaeology, and Native American Ethnic Heritage. More

specifically, these concern the Adaptation of the Indigenous Population to Euro-American Encroachment and Settlement, and their Acculturation to Western Society. These processes included the impact of missionization on the San Joaquin Valley (circa 1800 to about 1845); the introduction of the horse and the development of a San Joaquin Valley "horse culture," including raiding onto the coast and Los Angeles Basin (after about 1810); the use of the region as a refuge for mission neophyte escapees (after 1820); responses to epidemics from introduced diseases (especially in the 1830s); armed resistance to Euro-American encroachment (in the 1840s and early 1850s); the origins of the reservation system and the development of new tribal organizations and ethnic identities; and, ultimately, the adoption of the Euro-American society's economic system and subsistence practices, and acculturation into that society.

Site types that have been identified in the region dating to the ethnographic/ethnohistoric period of significance primarily include villages and habitations, some of which contain cemeteries and rock art (including pictographs and cupules). Dispersed farmsteads, dating specifically from the reservation period or post-1853, would also be expected. The different social processes associated with this historical theme may be manifest in the material cultural record in terms of changing settlement patterns and village organization (from traditional nucleated villages to single family dispersed farmsteads); the breakdown of traditional trading networks with their replacement by new economic relationships; changing subsistence practices, especially the introduction of agriculture initially via escaped mission neophytes; the use of Euro-American artifacts and materials rather than traditional tools and materials; and, possibly, changing mortuary practices.

Inasmuch as culture change is a primary intellectual interest in archaeology, ethnographic villages and habitations may be NRHP eligible under Criterion D, research potential. Rock art sites, especially pictographs, may be eligible under Criterion C as examples of artistic mastery. They may also be eligible under Criterion A, association with events contributing to broad patterns of history. Ethnographic sites, further, may be NRHP eligible as Traditional Cultural Properties due to potential continued connections to tribal descendants, and their resulting importance in traditional practices and beliefs, including their significance for historical memory, tribal- and self-identity formation, and tribal education.

For Criteria A, C and D, eligibility requires site integrity (including the ability to convey historical association for Criterion A). These may include intact archaeological deposits for Criterion D, as well as setting and feel for Criteria C and A. Historical properties may lack physical integrity, as normally understood in heritage management, but still retain their significance to Native American tribes as Traditional Cultural Properties if they retain their tribal associations and uses.

2.5.3 Historical Archaeology: Euro-American

Approaches to historical Euro-American archaeological research relevant to the region have been summarized by Caltrans (1999, 2000, 2007, 2008). These concern the general topics of historical landscapes, agriculture and farming, irrigation (water conveyance systems), and mining. Caltrans has also identified an evaluation matrix aiding determinations of eligibility. The identified research issues include site structure and land-use (lay-out, land use, feature function); economics (self-sufficiency, consumer behavior, wealth indicators); technology and science (innovations, methods); ethnicity and cultural diversity (religion, race); household composition and lifeways

(gender, children); and labor relations. Principles useful for determining the research potential of an individual site or feature are conceptualized in terms of the mnemonic AIMS-R, as follows:

> 1. *Association* refers to the ability to link an assemblage of artifacts, ecofacts, and other cultural remains with an individual household, an ethnic or socioeconomic group, or a specific activity or property use.
>
> 2. *Integrit*y addresses the physical condition of the deposit, referring to the intact nature of the archaeological remains. In order for a feature to be most useful, it should be in much the same state as when it was deposited. However, even disturbed deposits can yield important information (e.g., a tightly dated deposit with an unequivocal association).
>
> 3. *Materials* refers to the number and variety of artifacts present. Large assemblages provide more secure interpretations as there are more datable items to determine when the deposit was made, and the collection will be more representative of the household, or activity. Likewise, the interpretive potential of a deposit is generally increased with the diversity of its contents, although the lack of diversity in certain assemblages also may signal important behavioral or consumer patterns.
>
> 4. *Stratigraphy* refers to the vertically or horizontally discrete depositional units that are distinguishable. Remains from an archaeological feature with a complex stratigraphic sequence representative of several events over time can have the added advantage of providing an independent chronological check on artifact diagnosis and the interpretation of the sequence of environmental or sociocultural events.
>
> 5. *Rarity* refers to remains linked to household types or activities that are uncommon. Because they are scarce, they may have importance even in cases where they otherwise fail to meet other thresholds of importance (Caltrans 2007:209).

For agricultural sites, Caltrans (2007) has identified six themes to guide research: Site Structure and Land Use Pattern; Economic Strategies; Ethnicity and Cultural Adaptation; Agricultural Technology and Science; Household Composition and Lifeways; and Labor History. Expected site types would include farm and ranch homesteads and facilities, line camps, and refuse dumps. In general terms, historical Euro-American archaeological sites would be evaluated for NRHP eligibility under Criterion D, research potential. However, they also potentially could be eligible under Criteria A and B for their associate values with major historical trends or individuals. Historical landscapes might also be considered.

Historical structures, which are most likely to be pertinent to the current study area, are typically evaluated for NRHP eligibility under Criteria A and/or B, for their associate values with major historical trends or individuals, and C for potential design or engineering importance. Water conveyance systems comprise a particular sub-set of historical structures that warrant discussion in light of the known presence of one such resource within the Project APE.

3. ARCHIVAL RECORDS SEARCH

3.1 ARCHIVAL RECORDS SEARCH

In order to determine whether the Woodlake Stormwater Basin Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known to exist on any of them, an archival records search was conducted by the staff of the Southern San Joaquin Valley Information Center (IC) on 2 March 2020 (Confidential Appendix A). The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study areas; (ii) if the project area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the field project was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest.

According to the IC record search, four previous archaeological surveys had been completed that covered portions of the pipeline route (Table 1); the stormwater basin had not been previously surveyed. As a result of these studies, two historic structures had been identified within the pipeline APE: segments of the Visalia Electric (P-54-004034) and the Atchison Topeka and Santa Fe Railroad (P-54-004632) grades. A third resource, the Bravo Lake berm (P-54-004033), built by Gilbert F. Stevenson, is immediately outside of the pipeline route APE. An additional nine previous archaeological surveys had been conducted within 0.5 mi of the APE as a whole (Table 2). These studies resulted in the recording of one additional cultural resource, the historical Wutchumna Ditch (P-54-004875), south of Bravo Lake.

Table 1. Survey Reports within the Study Area

Report No.	Year	Author (s)/Affiliation	Title
TU-00423	1994	J Miller/Peak & Associates, Inc.	Cultural Resources Assessment of the Proposed Woodlake Valley Apartments I and II, Woodlake, Tulare County, California
TU-01013	1999	K Hovey and W Tackett/ Caltrans	Negative Archaeological Survey Report to Construct an Asphalt Concrete Overlay and Shoulder Backing on State Route 245 from State Route 198 to State Route 201 In Tulare County, California
TU-01445	2010	S Hudlow/ Hudlow Cultural Resource Associates	A Phase I Cultural Resource Survey for Woodlake Village II, City of Woodlake, California
TU-01813	2017	KD Thomas / Helix Environmental	Cultural Resources Records Search and Site Visit Results for AT&T Mobility, LLC Candidate CVL03488 (Acacia Street), 353 South Acacia Street, Woodlake, Tulare County, California (/ebI Project # 6117002307

Table 2. Survey Reports within 0.5-miles of the Study Area

Report No.	Year	Author (s)/Affiliation	Title
TU-00008	1997	JS Kus /California State University, Fresno	Negative Archaeological Survey Report for the Woodlake Self-Help Project
TU-00014	1996	JS Kus and CA Mader /California State University, Fresno	Negative Archaeological Survey Report for the Woodlake HOME-95 Project
TU-00015	1995	JS Kus and CA Mader /California State University, Fresno	Negative Archaeological Survey Report for the Proposed Development of a Parcel of Land at 248 Valencia Blvd. (State Highway 65) in the City of Woodlake, Tulare County, California
TU-00016	1996	JS Kus and CA Mader /California State University, Fresno	Negative Archaeological Survey Report for the Woodlake BEGIN Project
TU-00409	1981	D O'Connor / Caltrans	Archaeological Survey Report for Grade Raising Project Between Road 204 and Cypress Street, Near Woodlake, Tulare County, California
TU-01196	2004	JS Kus / James S. Kus & Associates	Negative Archaeological Survey Report for the Woodlake Wastewater Treatment Facility Expansion
TU-01389	2009	RE Parr / Cal Heritage	Cultural Resource Assessment for the Replacement of Seven Deteriorated Power Poles on the Southern California Edison Company Aurora, Elk, Merryman, Milk, Redbanks, and Sargent 12kV Circuits, Tulare County, California
TU-01392	2009	AM Greenwald and K Goetter / LSA Associates, Inc.	Cultural and Paleontological Resources Study for the Woodlake Wastewater Treatment Facility Project, Woodlake, Tulare County, California
TU-01394	2009	RE Parr / Cal Heritage	Cultural Resource Assessment for the Replacement of Eleven Deteriorated Power Poles on the Southern California Edison Company Bravo, Cairns, Campbell, Homer, Merryman, and Redbanks 12 kV Circuits Tulare County, California

A records search was also conducted at the Native American Heritage Commission (NAHC) Sacred Lands File (Confidential Appendix A). No sacred sites or tribal cultural resources were known in or in the vicinity of the APE. Outreach letters were then sent to the tribal contact list provided by the NAHC by the City of Woodlake.

Based on the record search results, the Project APE was considered to have low archaeological sensitivity.

4. METHODS AND RESULTS

4.1 FIELD METHODS

An intensive Class III inventor/Phase I survey of the APE was conducted by Robert Azpitarte, B.A., ASM Associate Archaeologist on 16 March 2020. The field methods employed included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation Instructions for Recording Historic Resources, using DPR 523 forms. Parallel survey transects spaced at 15-m apart were employed for the inventory. These covered the entirety of the approximately 38-ac stormwater basin APE. Because the pipeline route APE will follow existing paved roads, both sides of these roads were surveyed. Where grass lawns or other alterations were present, open/exposed areas in the immediate vicinity were purposely examined to ensure ground surface visibility, with transect spacing reduced in these locations. Visibility overall was moderate to good, and adequate for Phase I survey/Class III inventory standards.

4.2 SURVEY RESULTS

The Project APE includes both existing citrus orchards, in the stormwater basin area (Figure 2), and developed city streets for most of the pipeline route (Figure 3). The eastern terminus of the pipeline is the existing Manzanillo Pumping Station, itself within a park bordering the north shore of Bravo Lake (Figure 4). The locations of the segments of two previously recorded cultural resources were identified within the APE and their existing site records were updated (Confidential; Appendix B). No other cultural resources of any kind are present within the project APE.

The two previously recorded historical structures are described below.

4.2.1 Previously Recorded Resources

P-54-004034 (Visalia Electric Railroad)

P-54-004034 consists of the early 20th century Visalia Electric Railroad grade. The resource was originally recorded by Caltrans in 1999, with other portions of the rail grade subsequently recorded in the last 21 years. According to Preston (1981), the railroad operated from 1905 to 1924, when the rise of automobile ownership made it obsolete.

According to the IC records, a short segment of the rail grade, measuring approximately 1,400-ft (east-west) in length, was located within the APE. This mapping was likely based on the plotted location of the grade on the 1952 USGS Woodlake 1: 24,000 topographical quadrangle. No evidence of this historical structure was in fact present within the APE. All elements of the rail grade had been removed (i.e. ballast base, rail ties, cross beams) within the APE. The mapped location of this rail grade has been turned into a botanical garden and park walkways for the community, alongside Bravo Lake. The segment of the resource within the APE no longer exists and will not be affected by proposed construction.

P-54-004632 (Atchison Topeka and Santa Fe Railroad)

P-54-004632 consists of the Atchison Topeka and Santa Fe (ATSF) Railroad grade, an early 20th century structure. The resource was originally recorded by William Self Associates in 1995, with other portions of the rail grade subsequently recorded in the last 25 years. According to JRP Consulting (2009), construction of the rail grade began around 1915 specifically for orange grower transportation. The ATSF began abandoning the line in 1969 and it is now out of service.

During the current study a short segment of the rail grade, measuring approximately 100-ft (east-west) in length at the north end of S. Oaks Street, had been mapped by the IC within the APE, again likely following earlier plotted map locations. No evidence of the rail grade was however observed at this location. All elements of the rail grade have been removed (i.e., ballast base, rail ties, cross beams) and the location within the APE now consists of an asphalt road and orange grove. The segment of the resource no longer exists and will not be affected by proposed construction.

Figure 2. Approximate center of the proposed stormwater basin, looking west.

Figure 3. Pipeline corridor at corner of Bravo Avenue and Oak Street, looking south.

Figure 4. Eastern terminus of the pipeline route at the Manzanillo Pump Station. APE runs through center-left of photo; historic Bravo Lake berm and Bravo Lake, both outside of APE, to right.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

An intensive Class III inventory/Phase I cultural resources survey was conducted for the Woodlake Stormwater Basin Project, City of Woodlake, Tulare County, California. which involves the removal of an existing orchard, the excavation of a new stormwater basin and the construction of an associated 48-inch diameter pipeline that extends approximately 4,611-ft to an existing pump station.

A Class III inventory/Phase I was completed using 15-m transects covering the stormwater basin APE, with 15-m transects walked on both sides of the roads following the pipeline route APE. Two historical structures, both rail grades, had been recorded within the pipeline portion of the APE. Both linear resources segments had been destroyed within the Project APE. They thus lack integrity of design, setting, materials, workmanship and feeling and are recommended as not National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) eligible or significant.

No additional cultural resources were identified within the Project APE.

5.2 RECOMMENDATIONS

The proposed Project, accordingly, does not have the potential to result in adverse impacts or effects to significant or unique historical resources or historic properties. No additional cultural resources studies are recommended for this Project. In the unlikely event that cultural resources are uncovered during the construction of this Project, however, it is recommended that an archaeologist be contacted to assess the discovery.

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