

CEQA Plus Initial Study and Mitigated Negative Declaration
Isleton Wastewater Treatment System Improvement Project
City of Isleton, California

Appendix

Appendix A

**Isleton Wastewater Treatment System
Improvement Project – Emissions Memorandum**

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Subject: Isleton Wastewater Treatment System Improvement Project – Emissions Memorandum

PURPOSE

This memorandum documents the results of an Air Quality and Greenhouse Gas (GHG) Emissions Impact Assessment completed for the Isleton Wastewater Treatment System Improvement Project (Project). This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the Sacramento Metropolitan Air Quality Management District (SMAQMD). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations. The purpose of this assessment is to estimate Project-generated criteria air pollutants and GHG emissions attributable to the Project and to determine the level of impact the Project would have on the environment.

PROJECT DESCRIPTION

The Proposed Project includes sanitary sewer improvements, storm drain reconnections and equipment upgrades to the City of Isleton wastewater treatment system. Specifically, the proposed improvements and upgrades involves the replacement of approximately 5,425 linear feet of wastewater gravity pipeline, replacement of 25 manhole covers, and abandonment of 1,200 linear feet of wastewater gravity pipeline. Storm drain reconnections would include approximately 1,200 linear feet of new storm drainpipe, nine manholes and two drain inlet connections. Equipment upgrades at the City's wastewater treatment facility would generally include installation of a new backup generator, new aerators, blowers and other electrical necessary equipment. The sanitary sewer improvements and storm drain reconnections would occur in segments within the city limits, which are bound on the east by West Tyler Island Bridge Road, the south by 6th Street, the north by the Sacramento River and on the West by a canal west of Georgiana Court.

The Project proposes to abandon in place portions of the existing pipeline while removing other portions. Most of the construction would occur within the existing right-of-way (ROW) of the streets, with the exception of four segments. One segment of sanitary sewer replacement is within an easement that traverses along private property from Third Avenue to Fourth Avenue. One segment of storm drain installation is within an easement from the trailer park east of Miners Court south to Third Avenue. The remaining two segments are to be abandoned and run east from Gaswell Road to F Street and from F Street to G Street. It is anticipated that installation would be completed by open trenching, but pipe bursting or boring may be utilized in areas where work area is limited in easements.

On average, there will be 10 construction workers at the Project Site while construction activities are occurring. Construction is anticipated to start in July of 2025 and take approximately 100 days to complete. Installation would be completed mostly by open trenching. The trenches are anticipated to be on average

8 feet deep and 3 feet wide, sometimes reaching 12 feet in depth. All trenches will be backfilled with existing native soils or a combination of new AB, AC, and pipe bedding material. For the area where trenching is required in the street travel way, the asphalt and fill material would be repaired per City standards.

Approximately 3,000 cubic yards of import and 2,000 cubic yards of export soil material would be required to complete the Project. This includes export of excavation from pipe zone and roadway material in the trench zone and the import of new AB, AC, and pipe bedding material. Most of the trench material would be reused in the backfill of the trench.

AIR QUALITY ANALYSIS

Environmental Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the Sacramento Valley Air Basin (SVAB), which encompasses the Project Site, pursuant to the regulatory authority of the SMAQMD.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project Area.

Sacramento Valley Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Project Site is located in the SVAB, which is under the jurisdiction of the SMAQMD. The air basin is relatively flat, bordered by mountains to the east, west, and north and by the San Joaquin Valley to the south. Air flows into the SVAB through the Carquinez Strait, moving across the Sacramento Delta, and bringing pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. Characteristic of SVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storm systems. From May to October, the region's intense heat and sunlight lead to high ozone pollutant concentrations. Summer inversions are strong and frequent but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

Meteorological Influences on Air Quality

Regional flow patterns affect air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. However, the mountains surrounding the SVAB can create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right and a temperature inversion exists. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical air flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the valley is characterized by stagnant morning air or light winds, with the delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the valley. During about half of the days from July to

September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing the prevailing wind patterns to move north and carry the pollutants out of the valley, the Schultz Eddy causes the wind pattern to circle back south. This phenomenon exacerbates the pollution levels in the area and increases the likelihood of exceeding federal or state standards.

Criteria Air Pollutants

Both the U.S. Environmental Protection Agency (USEPA) and the CARB have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants representing safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called “criteria” pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are O₃ (precursor emissions include nitrogen oxide (NO_x) and reactive organic gases (ROG)), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The Isleton portion of the SVAB is designated as a nonattainment area for the federal O₃ and PM_{2.5} standards and is also a nonattainment area for the state standards for O₃ and PM₁₀ (CARB 2019).

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Additionally, diesel engines emit a complex mixture of air pollutants composed of gaseous and solid material. The solid emissions in diesel exhaust are known as diesel particulate matter (DPM). In 1998, California identified DPM as a TAC based on its potential to cause cancer, premature death, and other health problems (e.g., asthma attacks and other respiratory symptoms). Those most vulnerable are children (whose lungs are still developing) and the elderly (who may have other serious health problems). Overall, diesel engine emissions are responsible for the majority of California’s known cancer risk from outdoor air pollutants. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The Project Site spans many different locations throughout Isleton, which is primarily made up of sensitive residential receptors. Virtually all aspects of Project implementation would involve construction activity occurring adjacent to these land uses.

Regulatory Setting

Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the National Ambient Air Quality Standards (NAAQS), with states retaining the option to adopt more stringent standards or to include other specific pollutants.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those “sensitive receptors” most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation.

State

California Clean Air Act

The California Clean Air Act (CCAA) allows the state to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the California Ambient Air Quality Standards (CAAQS). CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions

standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The federal CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

The SMAQMD 2017 *Sacramento Regional 2008 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (including 2018 updates), the *PM₁₀ Implementation/Maintenance Plan and Re-Designation Request* (2010), and *PM_{2.5} Implementation/Maintenance Plan and Re-designation Request for Sacramento PM_{2.5} Nonattainment Area* (2013) are relevant air quality attainment plans and reports that constitute the SIP for the Sacramento County portion of the SVAB. These air quality planning documents present comprehensive strategies to reduce the O₃ precursor pollutants (ROG and NO_x) as well as PM emissions from stationary, area, mobile, and indirect sources.

Local

Sacramento Metropolitan Air Quality Management District

The SMAQMD is the air pollution control agency for Sacramento County, including the Project Site. The agency's primary responsibility is ensuring that the NAAQS and CAAQS are attained and maintained in the Sacramento County portion of the SVAB. The SMAQMD coordinates the work of government agencies, businesses, and private citizens to achieve and maintain healthy air quality for the Sacramento area. The SMAQMD develops market-based programs to reduce emissions associated with mobile sources, processes permits, ensures compliance with permit conditions and with SMAQMD rules and regulations, and conducts long-term planning related to air quality. The SMAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities.

The following is a list of noteworthy SMAQMD rules that are required of construction activities associated with the Proposed Project:

- **Rule 201: General Permit Requirements.** Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator,

boiler, or heater should contact the SMAQMD early to determine if a permit is required, and to begin the permit application process. Other general types of uses that require a permit include, but are not limited to, dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower is required to have a SMAQMD permit or a CARB portable equipment registration (PERP).

- **Rule 402: Nuisance.** The purpose of this rule is to limit emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
- **Rule 403: Fugitive Dust.** The purpose of this rule is to require that reasonable precautions be taken so as not to cause or allow the emissions of fugitive dust from non-combustion sources from being airborne beyond the property line from which the emission originates.

Standards of Significance

Sacramento Metropolitan Air Quality Management District

The impact analysis provided below considers the California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The significance criteria established by the applicable air quality management or air pollution control district (SMAQMD) may be relied upon to make impact determinations. According to the SMAQMD, an air quality impact is considered significant if the Proposed Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SMAQMD has established thresholds of significance for air quality for construction and operational activities of land use development projects such as that proposed, as shown in Table 1.

Table 1. Sacramento Metropolitan Air Quality Management District Regional Significance Thresholds				
Air Pollutant	Construction Activities		Operations	
Reactive Organic Gas	-		65 pounds/day	
Nitrogen Oxide	85 pounds/day		65 pounds/day	
Carbon Monoxide	-		-	
Sulfur Oxide	-		-	
Coarse Particulate Matter	80 pounds/day (If all feasible BACT/BMP applied)	14.6 tons/year	80 pounds/day (If all feasible BACT/BMP applied)	14.6 tons/year
Fine Particulate Matter	82 pounds/day (If all feasible BACT/BMP applied)	15 tons/year	82 pounds/day (If all feasible BACT/BMP applied)	15 tons/year

Source: SMAQMD 2020

Notes: BACT = best available control technology; BMP = best management practices

United States Environmental Protection Agency Conformity Determination Analysis

General Conformity ensures that the actions taken by federal agencies do not interfere with a state’s plans to attain and maintain national standards for air quality.

Established under the Clean Air Act (section 176(c)(4)), the General Conformity rule plays an important role in helping states improve air quality in those areas that do not meet the NAAQS. Under the General Conformity rule, federal agencies must work with state and local governments in a nonattainment or maintenance area to ensure that federal actions conform to the air quality plans established in the applicable state or tribal implementation plan. The overall purpose of the General Conformity rule is to ensure that:

- Federal activities do not cause or contribute to new violations of NAAQS;
- Actions do not worsen existing violations of the NAAQS; and
- Attainment of the NAAQS is not delayed.

The General Conformity process begins with an “applicability analysis,” whereby it must be determined how and to what degree the Conformity Rules apply. According to USEPA’s General Conformity Guidance: Questions and Answers (1994), before any approval is given for a Federal Action to go forward, the federal agency must apply the applicability requirements found at 40 CFR § 93.153 to the Federal Action and/or determine on a pollutant-by-pollutant basis, whether a determination of General Conformity is required. During the applicability analysis, the federal agency determines the following:

- Whether the action will occur in a nonattainment or maintenance area;
- Whether one or more of the specific exemptions apply to the action;
- Whether the federal agency has included the action on its list of presumed-to-conform actions;
- Whether the total direct and indirect emissions are below or above the de minimis levels; and/or
- Where a facility has an emissions budget approved by the State or Tribe as part of the State Implementation Plan or Tribal Implementation Plan, the federal agency determines that the emissions from the proposed action are within the budget.

The General Conformity Rule allows for exemptions for emissions that are not reasonably foreseeable, will not result in an increase in emissions, are below de minimis limits, are the result of emergency actions, are included in stationary source air permits, are for routine maintenance and repair of existing structures, or are included in a transportation conformity determination undertaken by Federal Highway Administration or Federal Transit Administration (40 CFR 93.153(c)).

A conformity determination would be required if the annual emissions of non-attainment pollutants generated by the Proposed Project were to exceed the General Conformity de minimis thresholds. The de minimis limits represent a level of emissions that the USEPA has determined will have only de minimis impacts to the air quality of an area and are thus exempted from the General Conformity Rule. If the overall predicted increase in emissions of a criteria pollutant due to a federal action in a nonattainment area exceeds the de minimis limits as shown in Table 2, the lead federal agency is required to make a conformity determination. As previously described, the Project Site is located in the Sacramento County portion of the SVAB. Table 2 lists the attainment status for each criteria air pollutant and the De Minimis threshold based on the NAAQS designation and classification.

Table 2. Federal General Conformity <i>De Minimis</i> Emissions Levels in Sacramento County			
Pollutant	Attainment Status	Classification	USEPA General Conformity Threshold (tons/year)
VOC (O ₃ precursor)	Nonattainment	Serious	50
NO _x (O ₃ precursor)	Nonattainment	Serious	50
PM ₁₀	Attainment	Maintenance	100
PM _{2.5}	Nonattainment	Moderate	100
CO	Unclassified/Attainment	Maintenance	100
NO ₂	Unclassified/Attainment	N/A	100
SO ₂	Unclassified/Attainment	N/A	100

Source: USEPA 2020

Methodology

Air quality impacts were assessed in accordance with methodologies recommended by the SMAQMD. Project construction emissions were modeled using the Roadway Construction Emissions Model (RCEM), version 9.0.0. RCEM is a spreadsheet-based model that is able to estimate exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips as well as fugitive dust from the construction of a new roadway, road widening, roadway overpass, levee or pipeline projects. Operational emissions are addressed qualitatively.

Air Quality Impact Discussion

Would the Project Conflict with or Obstruct Implementation of the Applicable Air Quality Plan?

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the NAAQS and CAAQS. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

As previously mentioned, the Project Site is located within the Sacramento County portion of the SVAB, which is under the jurisdiction of the SMAQMD. The SMAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the SVAB is in nonattainment. The SMAQMD is required to submit air quality plans and rate-of-progress milestone evaluations in accordance with the federal Clean Air Act. The SMAQMD air quality attainment plans and reports, which include the *2017 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (2018), the *PM₁₀ Implementation/Maintenance Plan and Re-Designation Request* (2010), and *PM_{2.5} Implementation/Maintenance Plan and Re-designation Request for Sacramento PM_{2.5} Nonattainment Area* (2013), present comprehensive strategies to reduce the O₃ precursor pollutants (ROG and NO_x) as well as PM emissions from stationary, area, mobile, and indirect sources. These air quality plan and their associated emission-reducing control measures are based on information derived from projected growth in Sacramento County in order to project future emissions and then determine strategies and regulatory controls for the reduction of emissions. Growth projections are based on the general plans developed by Sacramento County and the incorporated cities in the county, including the City of Isleton. As such, projects that propose development consistent with the growth anticipated by the respective general plan of the jurisdiction in which the proposed development is located would be consistent with SMAQMD air quality planning. In the event that a project would propose a development that is less dense than that associated with the general plan, the project would likewise be consistent with the SMAQMD air quality plans. If a project, however, proposes a development that is denser than that assumed in the general plan, the project may be in conflict with SMAQMD air quality planning efforts and could therefore result in a significant impact on air quality.

Growth projections for Sacramento County in the Project area are based on the City of Isleton General Plan. As such, projects in the city that propose development consistent with the growth anticipated by the General Plan would be consistent with SMAQMD's air quality planning efforts. The Project does not include development of new housing or employment centers and would not induce population or employment growth. Rather, the Project proposes upgrades to the City of Isleton wastewater treatment system for the purpose of accommodating existing wastewater flows. Therefore, the Project would not affect local plans for population growth and the Proposed Project would be considered consistent with the population, housing, and employment growth projections utilized in the preparation of SMAQMD air quality planning efforts. Furthermore, as described in detail below, the Project would not exceed the SMAQMD's short-term construction or long-term operational thresholds and in turn would not violate any air quality standards, and thus would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment.

Would the Project Result in a Cumulative 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?

Project Construction Emissions

Emissions associated with Project construction would be temporary and short-term but have the potential to represent a significant air quality impact. Two basic sources of short-term emissions will be generated through Project construction: operation of the heavy-duty equipment (i.e., excavators, loaders, haul trucks) and the creation of fugitive dust during clearing and grading. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to SMAQMD Rule 403, which, as previously described, requires taking reasonable precautions to prevent the emissions of fugitive dust, such as using water and limiting vehicle speeds, where possible, for control of dust during the clearing of land and other construction activities.

Construction-generated emissions associated the Proposed Project were calculated using the RCEM model. Attachment A provides more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily emissions attributable to Project construction are summarized in Table 3. Such emissions are short-term and of temporary duration, lasting only as long as Project construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SMAQMD's thresholds of significance.

Table 3. Construction-Related Emissions						
Construction Year	ROG	NO_x	CO	SO₂	PM₁₀	PM_{2.5}
Daily (pounds per day)						
Construction	3.73	41.73	39.01	0.14	6.41	2.46
<i>SMAQMD Daily Significance Threshold</i>	-	85 pounds/day	-	-	80 pounds/day <i>If all feasible BACT/BMP applied</i>	82 pounds/day <i>If all feasible BACT/BMP applied</i>
Exceed SMAQMD Daily Threshold?	No	No	No	No	No	No
Annual (tons per year)						
Construction	0.1	1.5	1.5	0.0	0.2	0.1
<i>SMAQMD Annual Significance Threshold</i>	-	-	-	-	14.6 tons/year	15 tons/year
Exceed SMAQMD Annual Threshold?	No	No	No	No	No	No

Source: RCEM version 9.0.0. Refer to Attachment A for Model Data Outputs.

Notes: Emission calculations account for the import of 3,000 cubic yards of soil, export of 2,000 cubic yards of soil, import of 2,000 cubic yards of asphalt material and export of 2,000 cubic yards of asphalt material during Project implementation.

As shown in Table 3, emissions generated during Project construction would not exceed the SMAQMD's daily or annual thresholds of significance with the implementation of Basic Construction Emission Control Practices, known as BMPs. To ensure implementation of BMPs during Project construction, Mitigation Measure AQ-1 is required.

Mitigation

AQ-1: Implement SMAQMD Basic and Enhanced Construction Emission Control Practices to Reduce Fugitive Dust.

The implementing agency will require the construction contractor(s) to implement basic and enhanced control measures to reduce construction-related fugitive dust as a standard or specification of their contract. Although the following measures are outlined in the Sacramento Metropolitan Air Quality Management District's CEQA guidelines, they are required for the entirety of the construction area. The implementing agency will ensure, through contract provisions and specifications, that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

- Water all exposed surfaces two times daily. Exposed surfaces include (but are not limited to) soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour.
- All roadway, driveway, sidewalk, and parking lot paving should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by CCR, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *The City of Isleton Planning Department and construction lead*

Criteria pollutant emissions generated during Project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard. Since the Project's emissions do not exceed SMAQMD thresholds, no exceedance of the ambient air quality standards would occur, and no regional health effects from Project criteria pollutants would occur.

USEPA Conformity Determination Thresholds

As previously described, the Project Site is located in the Sacramento County portion of the SVAB and is in nonattainment for federal O₃ and PM_{2.5} standards. Emissions generated during Project implementation would be short term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the Conformity Determination thresholds.

Table 4. Construction-Related Emissions (USEPA Conformity Determination Analysis)						
Construction Year	Pollutant (tons per year)					
	VOC (ROG)	NO_x	CO	SO₂	PM₁₀	PM_{2.5}
Construction	0.1	1.5	1.5	0.0	0.2	0.1
<i>USEPA Conformity Determination Thresholds (40 CFR 93.153)</i>	50	50	100	100	100	100
Exceed USEPA Conformity Determination Thresholds?	No	No	No	No	No	No

Source: RCEM version 9.0.0. Refer to Attachment A for Model Data Outputs.

Notes: Emission calculations account for the import of 3,000 cubic yards of soil, export of 2,000 cubic yards of soil, import of 2,000 cubic yards of asphalt material and export of 2,000 cubic yards of asphalt material during Project implementation.

As shown in Table 4, emissions from implementation of the Proposed Project do not exceed the USEPA Conformity Determination thresholds for the region.

Project Operational Emissions

Operational emissions impacts are long-term air emissions impacts that are associated with any changes in the permanent use of the Project Site by onsite stationary and offsite mobile sources that substantially increase emissions. The Project proposes necessary upgrades to the City of Isleton’s Wastewater Treatment System. Once upgrades are complete it would not be a greater source of operational emissions beyond current conditions. Therefore, Proposed Project operations would not contribute to on- or offsite emissions.

Would the Project Expose Sensitive Receptors to Substantial Pollutant Concentrations?

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The Project Site spans many different locations throughout Isleton, which is primarily made up of sensitive residential receptors. Virtually all aspects of Project implementation would involve construction activity occurring adjacent to these land uses.

Construction Generated Air Contaminants

Construction-related activities would result in temporary, short-term Project-generated emissions of diesel particulate matter (DPM), ROG, NO_x, CO, and PM₁₀ from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); paving; and other miscellaneous activities. The

Sacramento County portion of the SVAB is listed as a nonattainment area for the federal O₃ and PM_{2.5} standards and is also a nonattainment area for the state standards for O₃ and PM₁₀. Thus, existing O₃, PM₁₀ and PM_{2.5} levels in the SVAB are at unhealthy levels during certain periods. However, as previously demonstrated, the Project would not exceed the SMAQMD significance thresholds.

The health effects associated with O₃ are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O₃ precursor emissions (ROG or NO_x) in excess of the SMAQMD thresholds, the Project is not anticipated to substantially contribute to regional O₃ concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions in excess of the SMAQMD thresholds. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

PM₁₀ and PM_{2.5} contain microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. PM exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary toxic air contaminant (TAC) of concern. The potential cancer risk from the inhalation of DPM outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. PM₁₀ exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM. As with O₃ and NO_x, the Project would not generate emissions of PM₁₀ or PM_{2.5} that would exceed the SMAQMD's thresholds. Accordingly, the Project's PM₁₀ and PM_{2.5} emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

Operational Air Contaminants

Operation of the Proposed Project would not result in the development of any substantial sources of air toxics. There are no stationary sources associated with the operations of the Project; nor would the Project attract mobile sources that spend long periods queuing and idling at the site. Thus, by its very nature, the Project would not be a source of TAC concentrations post-construction.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested

intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or “hot spots,” are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SVAB is designated as in attainment. Detailed modeling of Project-specific CO “hot spots” is not necessary and thus this potential impact is addressed qualitatively.

A CO “hot spot” would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the South Coast Air Quality Management District’s (SCAQMD’s) *1992 Federal Attainment Plan for Carbon Monoxide* in Los Angeles County and a Modeling and Attainment Demonstration prepared by the SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD is the air pollution control officer for much of southern California. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). In order to establish a more accurate record of baseline CO concentrations affecting the Los Angeles, a CO “hot spot” analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This “hot spot” analysis did not predict any violation of CO standards. The highest one-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest eight-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway. Thus, there was no violation of CO standards.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD), the air pollution control officer for the San Francisco Bay Area, concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

The Proposed Project is not anticipated to result in additional daily traffic trip once construction is complete. Thus, the Proposed Project would not generate traffic volumes at any intersection of more than 100,000

vehicles per day (or 44,000 vehicles per day) and the Project would not affect LOS on any roadways. There is no likelihood of the Project traffic exceeding CO values.

Would the Project Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People?

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any uses identified as being associated with odors. The installed pipe would not emit odors.

GREENHOUSE GAS EMISSIONS ANALYSIS

Environmental Setting

Greenhouse gas (GHG) emissions are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH₄ traps over 25 times more heat per molecule than CO₂, and N₂O absorbs 298 times more heat per molecule than CO₂. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO₂e). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO₂ emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO₂ emissions remains stored in the atmosphere.

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; it is sufficient to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

In 2021, CARB released the 2021 edition of the California GHG inventory covering calendar year 2019 emissions. In 2019, California emitted 418.2 million gross metric tons of CO₂e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2019, accounting for approximately 40 percent of total GHG emissions in the State. When emissions from extracting, refining and moving transportation fuels in California are included, transportation is responsible for over 50 percent of statewide emissions in 2019. Continuing the downward trend from 2018, transportation emissions decreased 3.5 million metric tons of CO₂e in 2019, only being outpaced by electricity, which reduced emissions by 4.3 million metric tons of CO₂e in 2019. Emissions from the electricity sector account for 14 percent of the inventory and have shown a substantial decrease in 2019

due to increases in renewables. California's industrial sector accounts for the second largest source of the State's GHG emissions in 2019, accounting for 21 percent (CARB 2021).

Regulatory Setting

State

Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlined measures to meet the 2020 GHG reduction goals. California exceeded the target of reducing GHG emissions to 1990 levels by the year 2017.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the State, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030.

Local

Sacramento Metropolitan Air Quality Management District

The SMAQMD has primary responsibility for developing and implementing rules and regulations to maintain national and state air quality standards, permitting new or modified sources, developing air quality management plans, and adopting and enforcing air pollution regulations for all projects in the Sacramento

Valley Air Basin (SVAB). The AB 32 Scoping Plan does not specify an explicit role for local air districts with respect to implementing statewide GHG reduction strategies, but it does state that CARB will work actively with air districts in coordinating emissions reporting, encouraging and coordinating GHG reductions, and providing technical assistance in quantifying reductions. The ability of air districts to control emissions (both criteria pollutants and GHGs) is provided primarily through permitting, but also via their role as a CEQA lead or commenting agency, the establishment of CEQA thresholds, and the development of analytical requirements for CEQA documents.

The SMAQMD has recommended an approach for assessing a proposed development's GHG emissions. Specifically, SMAQMD recommends a comparison of a project's annual construction GHG emissions to a significance threshold of 1,100 metric tons per year. Similarly, SMAQMD recommends a comparison of a project's annual operational GHG emissions to a significance threshold of 1,100 metric tons per year. If a threshold is exceeded, then the project may have a cumulatively considerable contribution to a significant cumulative environmental impact, and all feasible mitigation is required.

Standards of Significance

The State of California does not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt

such thresholds is supported by substantial evidence” (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA’s requirements for cumulative impact analysis (see CEQA Guidelines Section 15130). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project’s incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a “water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions.” Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The significance of the Project’s GHG emissions is evaluated consistent with CEQA Guidelines § 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Specifically, the Project is compared to the SMAQMD GHG significance thresholds for construction and operations. The SMAQMD has developed and adopted an update to its land development project GHG thresholds, which require a project to demonstrate consistency with CARB’s 2017 Climate Change Scoping Plan. The significance threshold for the construction phase is 1,100 metric tons of CO₂e per year. With regard to operational emissions, the SMAQMD’s technical support document, *SMAQMD Greenhouse Gas Thresholds for Sacramento County (2020b)*, identifies operational measures that should be applied to all projects estimated to exceed a screening level threshold of 1,100 metric ton of CO₂e annually in order to demonstrate consistency with the 2017 Climate Change Scoping Plan. The measures target GHG emissions inventory areas where state measures did not fully achieve reductions, allowing for local supportive measures.

In *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California’s Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, Public Resources Code section 21003(f) provides it is a policy of the State that “[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical

and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The City of Isleton may set a project-specific threshold based on the context of each particular project, including using the SMAQMD numeric thresholds.

Methodology

GHG emissions-related impacts were assessed in accordance with methodologies recommended by the SMAQMD. Project construction GHG emissions were modeled using the RCEM, version 9.0.0. RCEM is a spreadsheet-based model that is able to estimate exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips as well as fugitive dust from the construction of a new roadway, road widening, roadway overpass, levee or pipeline projects. Operational emissions are addressed qualitatively.

Greenhouse Gas Emissions Impact Discussion

Would the Project Generate Greenhouse Gas Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment?

Construction-Generated Greenhouse Gas Emissions

A potent source of GHG emissions associated with the Proposed Project would be combustion of fossil fuels during construction activities. Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 5 illustrates the specific construction generated GHG emissions that would result from construction of the Project. Once construction is complete, the generation of these GHG emissions would cease.

Table 5. Construction-Related Greenhouse Gas Emissions	
Emission Source	CO₂e (Metric Tons/ Year)
Construction	504
<i>SMAQMD Potentially Significant Impact Threshold</i>	<i>1,100</i>
Exceed SMAQMD Regional Threshold?	No

Source: RCEM version 9.0.0. Refer to Attachment A for Model Data Outputs.

Notes: Emission calculations account for the import of 3,000 cubic yards of soil, export of 2,000 cubic yards of soil, import of 2,000 cubic yards of asphalt material and export of 2,000 cubic yards of asphalt material during Project implementation.

As shown in Table 5, Project construction would result in the generation of approximately 504 metric tons of CO₂e over the course of construction, which is below the significance threshold of 1,100 metric tons of CO₂e. Once construction is complete, the generation of these GHG emissions would cease.

Operational-Generated Greenhouse Gas Emissions

Operational GHG emissions impacts are long-term air emissions impacts that are associated with any changes in the permanent use of the Project Site by onsite stationary and offsite mobile sources that substantially increase emissions. The Project proposes necessary upgrades to the City of Isleton's Wastewater Treatment System. Once upgrades are complete it would not be a greater source of operational GHG emissions beyond current conditions. Therefore, Proposed Project operations would not contribute to GHG emissions.

Would the Project Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases?

As previously described, the State of California promulgates several mandates and goals to reduce statewide GHG emissions, including the goals to reduce statewide GHG emissions to 40 percent below 1990 levels by the year 2030 (SB 32) and 80 percent below 1990 levels by 2050 (EO S-03-05). The SMAQMD supports state policies to reduce levels of GHG emissions through its significance thresholds, and the Proposed Project would comply with the SMAQMD's numeric, bright-line GHG threshold of 1,100 metric tons of CO₂e per year, which was developed in consideration of statewide GHG reduction goals. Furthermore, the Project would not include new permanent sources of GHG emissions and would not generate new or unplanned permanent GHG emissions. Therefore, the Project would not interfere with the state's goals of reducing GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050, as established in SB 32 and EO S-03-05.

Furthermore, the Proposed Project would comply with the State Building Code provisions designed to reduce GHG emissions during construction. During construction, the Project would utilize equipment in compliance with CARB requirements. Mobile sources during construction would be subject to the requirements of California Assembly Bill 1493 (Pavley Standards), the Advanced Clean Cars Program, and

the Low Carbon Fuel Standard Regulation. Additionally, the Project would be designed and constructed consistent with California Title 24 and CALGreen (2019). These regulations require projects to comply with specific standards related to energy efficiency construction practices.

For these reasons, the Project would not conflict with any applicable plan, policy or regulation related to the reduction in GHG emissions.

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Criteria Air Pollutant & Greenhouse Gas Emissions Modeling Output

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Isteton WWTS Improvement Project														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	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	3.73	39.01	41.37	6.41	1.91	4.50	2.46	1.52	0.94	0.14	14,054.71	1.92	0.96	14,387.61
Grading/Excavation	3.73	39.01	41.37	6.41	1.91	4.50	2.46	1.52	0.94	0.14	14,054.71	1.92	0.96	14,387.61
Drainage/Utilities/Sub-Grade	2.74	28.68	23.68	5.62	1.12	4.50	1.90	0.96	0.94	0.07	6,883.81	1.72	0.07	6,948.63
Paving	3.03	35.60	34.40	1.55	1.55	0.00	1.22	1.22	0.00	0.12	11,897.42	1.91	0.77	12,175.98
Maximum (pounds/day)	3.73	39.01	41.37	6.41	1.91	4.50	2.46	1.52	0.94	0.14	14,054.71	1.92	0.96	14,387.61
Total (tons/construction project)	0.14	1.53	1.50	0.24	0.07	0.17	0.09	0.06	0.04	0.00	493.74	0.08	0.03	503.90
Notes:	Project Start Year -> 2025													
	Project Length (months) -> 4													
	Total Project Area (acres) -> 0													
	Maximum Area Disturbed/Day (acres) -> 0													
	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	135	45	1,050	450	1,500	4								
Grading/Excavation	135	45	1,050	450	1,500	4								
Drainage/Utilities/Sub-Grade	0	0	0	0	1,500	4								
Paving	0	155	0	1,200	1,500	4								
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 -> Isteton WWTS Improvement Project														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	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	0.02	0.17	0.18	0.03	0.01	0.02	0.01	0.01	0.00	0.00	61.84	0.01	0.00	57.43
Grading/Excavation	0.07	0.69	0.73	0.11	0.03	0.08	0.04	0.03	0.02	0.00	247.36	0.03	0.02	229.72
Drainage/Utilities/Sub-Grade	0.04	0.44	0.36	0.09	0.02	0.07	0.03	0.01	0.01	0.00	106.01	0.03	0.00	97.08
Paving	0.02	0.23	0.23	0.01	0.01	0.00	0.01	0.01	0.00	0.00	78.52	0.01	0.01	72.90
Maximum (tons/phase)	0.07	0.69	0.73	0.11	0.03	0.08	0.04	0.03	0.02	0.00	247.36	0.03	0.02	229.72
Total (tons/construction project)	0.14	1.53	1.50	0.24	0.07	0.17	0.09	0.06	0.04	0.00	493.74	0.08	0.03	457.13
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 Resources Assessment

ECORP Consulting, Inc.

**Biological Resources Assessment
for the
Isleton Wastewater Treatment System
Improvement Project**

Sacramento County, California

Prepared For:

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October 27, 2022

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
°F	degrees Fahrenheit
Act	Rivers and Harbors Act
BA	Biological Assessment
BCC	Birds of Conservation Concern
BMPs	Best Management Practices
BO	Biological Opinion
BRA	Biological Resources Assessment
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
cy	Cubic Yards
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
HCP	Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
MSL	Mean Sea Level
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Project	Isleton Wastewater Treatment System Project
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SSHCP	South Sacramento County Conservation Program

Term	Description
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WWTP	Wastewater Treatment Plant

1.0 INTRODUCTION

On behalf of the Bennett Engineering Services, ECORP Consulting, Inc. conducted a biological resources assessment (BRA) for the Isleton Wastewater Treatment System Improvement Project (Project) located in the City of Isleton, Sacramento County, California. The purpose of the assessment was to collect information on the biological resources present or with the potential to occur in the Project Study Area, assess potential biological impacts related to Project activities, and identify potential mitigation measures to inform and support the Project's California Environmental Quality Act (CEQA) documentation for biological resources.

2.0 STUDY AREA

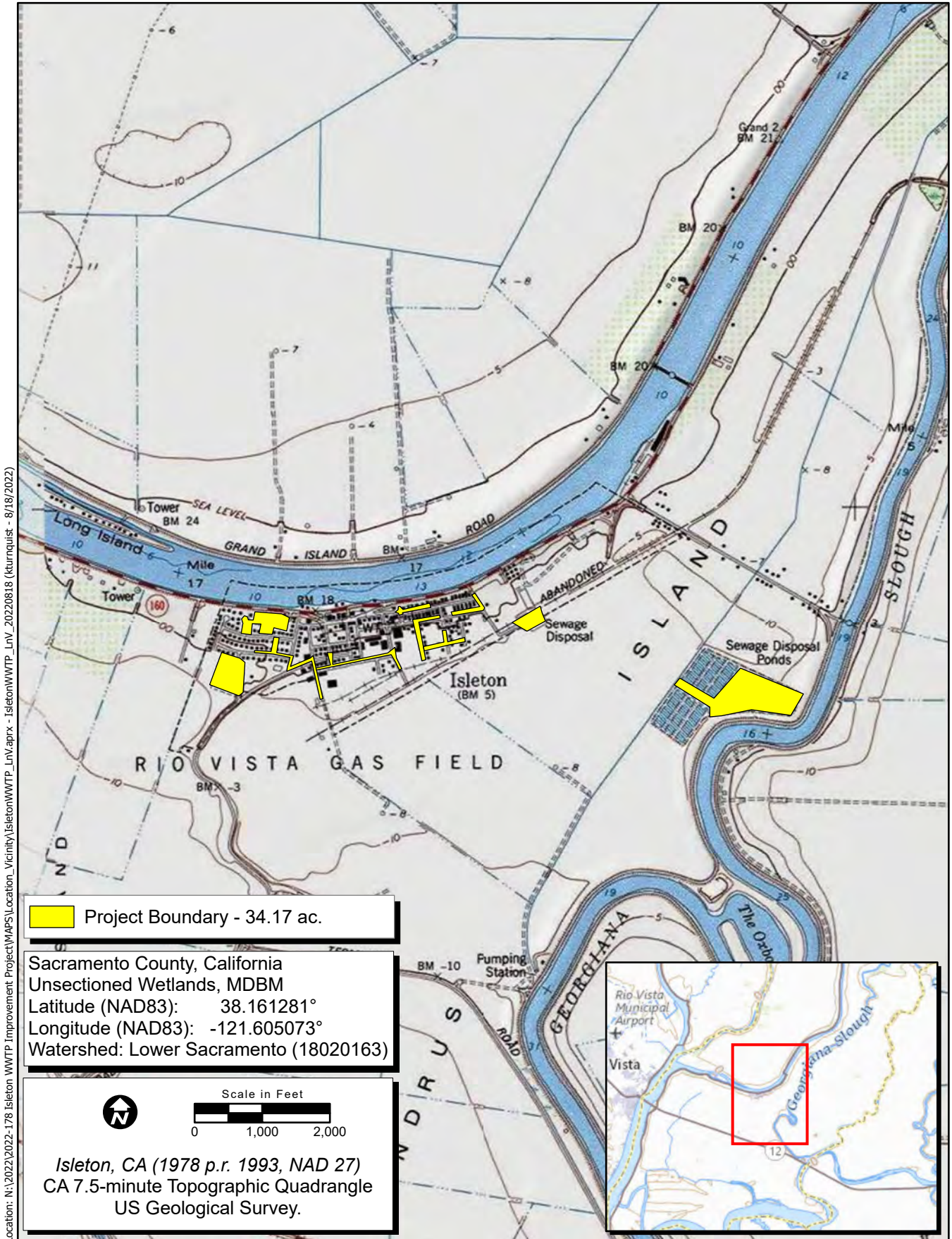
2.1 Study Area Location

The approximately 34.17-acre Study Area is located in the City of Isleton (City), in Sacramento County, California. The Study Area is located south of River Road along the Sacramento River and includes the existing City of Isleton Wastewater Treatment Plant (WWTP) (Figure 1). The Study Area corresponds to a portion of unsectioned wetlands (Mount Diablo Base and Meridian) of the "Isleton, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1978, photorevised 1993). The approximate center of the Study Area is located at latitude 38.161281° and longitude -121.605073° within the Lower Sacramento Watershed (Hydrologic Unit Code #18020163; Natural Resources Conservation Service [NRCS], et al. 2016).

2.2 Project Description

The proposed Project includes sanitary sewer improvements, storm drain reconnections and equipment upgrades at the wastewater treatment facility (Figure 2). The proposed Project includes replacement of approximately 5,425 linear feet of wastewater gravity pipeline and 25 maintenance hole and abandonment of 1,200 linear feet of wastewater gravity pipeline. Storm drain reconnections will include approximately 1,200 linear feet of new storm drain pipe, nine manholes and two drain inlet connections. Equipment upgrades at the wastewater treatment facility will generally include installation of a new backup generator, new aerators, blowers and other required electrical equipment. The sanitary sewer improvements and storm drain reconnections will occur in segments within the City limits. The City limits are bound on the east by West Tyler Island Bridge Rd, the south by 6th Street, the north by the Sacramento River and on the west by a canal west of Georgiana Court.

The Project will abandon in-place portions of the pipeline while removing other portions. Most of the construction will occur within the existing right-of-way of the streets, with the exception of four segments. One segment of sanitary sewer replacement runs within an easement along private property from Third Avenue to Fourth Avenue. One segment of storm drain installation is located within an easement from the trailer park east of Miners Court south to Third Avenue. The remaining two segments are to be abandoned and run east from Gaswell Road to F Street and from F to G streets. It is anticipated that installation will be completed by open trenching, but pipe bursting or boring may be utilized in areas where work area is limited in easements.




Map Date: 8/18/2022
 Sources: ESRI, USGS

Figure 1. Study Area Location and Vicinity

Location: N:\2022\2022-178 Isleton WWTP Improvement Project\Maps\Aerial_Maps\IsletonWWTP Aerial Maps.aprx - IsletonWWTP Project Components 20220829 (Kturnquist - 8/29/2022)



Map Contents

 Project Boundary - 34.17 ac.

Sources: Esri, MAXAR (20210411)



Figure 2. Project Components

2022-178 Isleton WWTP Improvement Project

On average, there will be 10 employees at the Project site while construction activities are ongoing. Construction is anticipated to start in July 2025 and take approximately 100 days to complete.

Installation will be completed mostly by open trenching. The trenches are anticipated to be on average 8 feet deep and 3 feet wide, sometimes reaching 12 feet in depth. All trenches will be backfilled with existing native soils or a combination of new AB, AC, and pipe bedding material. For the area where trenching is required in the street travel way, the asphalt and fill material will be repaired per City standards.

Approximately 2,000 cubic yards (cy) of import and 2,000 cy of export soil material will be required to complete the Project. This includes export of excavation from pipe zone and road way material in the trench zone and the import of new AB, AC, and pipe bedding material. Most of the trench material will be reused in the backfill of the trench.

2.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the Study Area. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of the available literature and site reconnaissance.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of CEQA Guidelines;
- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2);
- plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA, California Fish and Game Code, Section 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. Other species without special status that are sometimes found in database or literature searches were not included in this analysis.

3.0 REGULATORY SETTING

3.1 Federal Regulations

3.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S. Code [USC] 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

3.1.1.1 Section 7

Section 7 of ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify Critical Habitat for listed species. If direct and/or indirect effects will occur to Critical Habitat that appreciably diminish the value of Critical Habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a Biological Assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

3.1.1.2 Section 10

When no discretionary action is being taken by a federal agency but a project may result in the take of listed species, an incidental take permit under Section 10 of the ESA is necessary. The purpose of the incidental take permit is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an incidental take permit under Section 10, an application must be submitted that includes an HCP. In some instances, applicants,

USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

3.1.1.3 Critical Habitat

Critical Habitat is defined in Section 3 of the ESA as (1) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary physical and biological features). Primary physical and biological features are features essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter;
- Sites for breeding, reproduction, or rearing (or development) of offspring; or
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

3.1.2 Magnuson-Stevens Fishery Conservation and Management Act

The 1996 Magnuson-Stevens Fishery Conservation and Management Act, as amended (16 USC 1801), requires federal agencies to consult with NMFS whenever a proposed action has a potential to adversely affect Essential Fish Habitat (EFH). Although states are not required to consult with NMFS, NMFS is required to develop EFH conservation recommendations for any state agency activities with the potential to affect EFH. EFH is defined as "...those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity" and includes the necessary habitat for managed fish to complete their life cycles and contribute to a sustainable fishery and healthy ecosystem. Although the concept of EFH is similar to the ESA definition of Critical Habitat, measures recommended by NMFS or a regional fisheries management council to protect EFH are advisory, rather than prescriptive (NMFS 1998).

3.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (e.g., rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

3.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit [16 USC 668(a); 50 CFR 22]. USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

3.1.5 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Section 404 of the CWA prohibits the discharge of dredged or fill material into “Waters of the U.S.” without a permit from the U.S. Army Corps of Engineers (USACE). *Discharges of fill material* is defined as the addition of fill material into Waters of the U.S., including, but not limited to, the following: placement of fill necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines” (33 CFR Section 328.2(f)). In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to wetlands (more than 0.5 acre of impact) may require an individual permit. Projects that only minimally affect wetlands (less than 0.5 acre of impact) may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

3.1.6 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 (Act) requires authorization from the Secretary of the Army, acting through the USACE, for the construction of any structure in or over any navigable Waters of the U.S. Structures or work outside the limits defined for navigable Waters of the U.S. require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable Water of the U.S., and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. The alteration of a USACE federally authorized civil works project requires a permit pursuant to Section 14 of the Act, as amended and codified in 33 USC 408. Projects with minimal impacts require approval by the USACE Sacramento District Construction Operations Group; however, projects with more substantial impacts may require USACE Headquarters review. Coordination with the Central Valley Flood Protection Board, who serve as the Non-Federal Sponsor, is required as a part of the process of obtaining a Section 408 permit.

3.2 State Regulations

3.2.1 California Fish and Game Code

3.2.1.1 California Endangered Species Act

The California ESA (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called *candidates* by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California ESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

3.2.1.2 Fully Protected Species

The State of California first began to designate species as *fully protected* prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code Section 4700 for mammals, Section 3511 for birds, Section 5050

for reptiles and amphibians, and Section 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, the CDFW prohibits any state agency from issuing incidental take permits for fully protected species. The CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

3.2.1.3 Native Plant Protection Act

The NPPA of 1977 was created with the intent to “preserve, protect and enhance rare and endangered plants in this State.” The NPPA is administered by CDFW and provided in California Fish and Game Code Sections 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as *endangered* or *rare* and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code Section 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

3.2.1.4 Birds of Prey

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, Subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting native birds.

3.2.2 Species of Special Concern

The CDFW defines SSC as a species, subspecies, or distinct population of an animal native to California that are not legally protected under ESA, the California ESA or the California Fish and Game Code, but currently satisfy one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered, or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (nonscyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.

- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state-threatened, or endangered species are considered *significant* under CEQA.

3.2.3 California Rare Plant Ranks

The CNPS maintains the Inventory of Rare and Endangered Plants of California (CNPS 2022), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2022). Depending on the policy of the lead agency, substantial impacts to

plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

3.2.4 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Stormwater Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve “discharging waste, or proposing to discharge waste, with any region that could affect the water of the state” (Water Code 13260(a)). Waters of the State are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State that are not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

3.2.5 California Environmental Quality Act

In accordance with CEQA Guidelines Section 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in ESA, the California ESA, and Sections 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either USFWS or CDFW.

3.2.5.1 CEQA Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant and are particularly relevant to SSC. Generally, impacts to rare, threatened, or endangered species are considered significant, requiring thorough analysis in a CEQA document and often requiring mitigation to avoid or minimize potential impacts. Assessment of *impact significance* to populations of nonlisted species (e.g., SSC) usually considers the proportion of the species’ range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Specifically, Section 15064.7 of CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional or state HCP.

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population- or region-wide basis.

3.3 Local Plans and Ordinances

3.3.1 City of Isleton General Plan Resource Management Element

The General Plan is the City's overarching policy and planning document. The General Plan indicates Isleton's long-range objectives for physical development and conservation within the City. The General Plan provides decision makers, City staff, property owners, interested property developers and builders, and the public-at-large with the City's policy direction for managing land use change. The General Plan is comprehensive in scope, addressing land use, transportation, housing, conservation of resources, economic development, public facilities and infrastructure, public safety, and open space, among many other subjects.

The General Plan Resource Management Element broadly addresses the management, development and use of Open Space for conservation and recreation. Its requirements overlap those of the land use, circulation, housing, public utilities, and hazard management elements. The resource management element is distinguished by being primarily oriented toward natural resource management and recreation.

This Element covers agricultural resources, water supply and quality, historical features, and wildlife and habitats (City of Isleton 2000).

4.0 METHODS

4.1 Literature Review

The following resources were reviewed to determine the special-status species that have been documented within or in the vicinity of the Study Area. Results of the species searches are included as Appendix A.

- CDFW CNDDDB data for the “Isleton, California” 7.5-minute quadrangles as well as the eight surrounding USGS quadrangles (CDFW 2022);
- USFWS Information, Planning, and Consultation System Resource Report List for the Study Area (USFWS 2022);
- CNPS’ electronic Inventory of Rare and Endangered Plants of California was queried for the “Isleton, California” 7.5-minute quadrangles and the eight surrounding quadrangles (CNPS 2022); and
- National Marine Fisheries West Coast Region Species, Critical Habitat, and Essential Habitat (NMFS 2022).

4.2 Site Surveys

4.2.1 Reconnaissance Site Survey

ECORP biologists Emily Mecke and Gabrielle Attisani conducted the site reconnaissance visit on August 5, 2022. The Study Area was systematically surveyed on foot using topographic maps and aerial imagery to ensure total site coverage. Special attention was given to identifying those portions of the Study Area with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring onsite were characterized and the following biological resource information was collected:

- Potential aquatic resources
- Vegetation communities
- Plant and animal species directly observed
- Burrows and any other special habitat features
- Representative Study Area photographs (Appendix B)

4.3 Special-Status Species Considered for the Project

Based on species occurrence information from the literature review and observations in the field, a list of special-status plant and animal species that have the potential to occur within the Study Area was generated. Only special-status species as defined in Section 1.3 were included in this analysis. Each of these species' potential to occur onsite was assessed based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the Study Area based on documented occurrences within the CNDDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Study Area.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Study Area based on CNDDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Study Area based on CNDDDB records and other documentation.

5.0 RESULTS

5.1 Site Characteristics and Land Use

The Study Area is located on developed and semi-developed property in the City of Isleton and is situated at an elevation of approximately 3 feet above mean sea level (MSL) in the Sacramento Valley subregion of the Great Central Valley region of California (Baldwin et al. 2012). The average winter minimum temperature is 47.9 degrees Fahrenheit (°F) and the average summer maximum temperature 73.9°F; the average annual precipitation is approximately 13.22 inches (National Oceanic and Atmospheric Administration 2022).

The Study Area includes the Department of Public Works corps yard, constructed wastewater treatment ponds, Wilson Park, Isleton Community Baseball Field, and sections of road and housing throughout the City of Isleton. The developed portions of the Study Area include paved roadways, parking areas, residential homes, equipment storage buildings, an un-maintained baseball field, community park with ornamental trees. The wastewater treatment portion of the Study Area includes three large, triangular constructed/excavated ponds and gravel roads.

5.2 Soils and Topography

According to the Web Soil Survey (NRCS 2022a), six soil units, or types, have been mapped within the Study Area (Figure 3):

- 123 – Columbia silt loam, drained, 2 to 5 percent slopes
- 201 – Rindge mucky silt loam, partially drained, 0 to 2 percent slopes, MLRA 16



- Map Features**
- Project Boundary - 34.17 ac.
- NRCS Soils Type**
- Series Number - Series Name*
- 123 - Columbia silt loam, drained, 2 to 5 percent slopes
 - 201 - Rindge mucky silt loam, partially drained, 0 to 2 percent slopes, MLRA 16
 - 206 - Sailboat silt loam, partially drained, 0 to 2 percent slopes, MLRA 16
 - 209 - Sailboat- Urban land complex, partially drained, 0 to 2 percent slopes, MLRA 17
 - 222 - Scribner clay loam, partially drained, 0 to 2 percent slopes, MLRA 16
 - 247 - Water

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for Placer County, CA

Sources: NAIP 2020

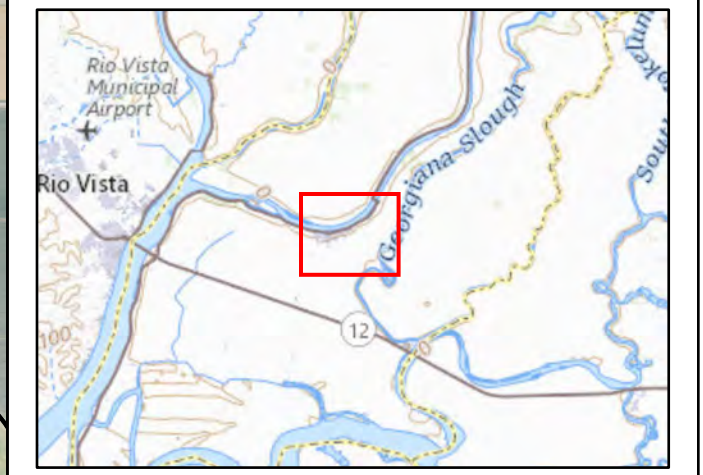


Figure 3. Natural Resources Conservation Service Soil Types
2022-178 Isleton WWTP Improvement Project

Location: N:\2022\2022-178 Isleton WWTP Improvement Project\MAPS\Soils_and_Geology\Isleton\WWTP Soils.aprx - Isleton WWTP Soils 20220829 (klumquist - 8/29/2022)



- 206 – Sailboat silt loam, partially drained, 0 to 2 percent slopes, MLRA 16
- 209 – Sailboat- Urban land complex, partially drained, 0 to 2 percent slopes, MLRA 17
- 222 – Scribner clay loam, partially drained, 0 to 2 percent slopes, MLRA 16
- 247– Water

All six mapped soil units within the Study Area contain listed hydric components (NRCS 2022b).

5.3 Land Cover Types and Vegetation Communities

Land cover types or vegetation communities found within the Study Area included ruderal grassland, paved/developed, and constructed wastewater treatment ponds. Descriptions of the land cover types, and vegetation communities present within the Study Area are provided below.

5.3.1.1 Ruderal Grassland

The ruderal grassland community was found between the buildings of the corps yard, along the roadsides of the wastewater treatment ponds, and within the unmaintained baseball field. These areas are dominated by nonnative ruderal plants such as Bermuda grass (*Cynodon dactylon*) and field bindweed (*Convolvulus arvensis*) with scattered patches of bristly oxtongue (*Helminthotheca echioides*), medusahead grass (*Elymus caput-medusae*), prickly lettuce (*Lactuca serriola*), and Italian ryegrass (*Festuca perennis*).

The ruderal grassland most resembles the *Crypsis spp. – Paspalum spp.* Herbaceous Semi-Natural Alliance as characterized by the Manual of California Vegetation (CNPS 2022a). Semi-natural alliances are strongly dominated by nonnative plants that have become naturalized in the state, do not have state rarity rankings, and are not considered sensitive natural communities by CDFW.

5.3.1.2 Paved/Developed

Paved, developed portions of the Study Area are characterized by existing paved roads and parking areas, compacted dirt/gravel parking areas, and residential homes/yards. The majority of the dirt/gravel roads and paths are unvegetated.

5.3.1.3 Wastewater Treatment Ponds

The wastewater treatment ponds are manufactured ponds surrounded by gravel and dirt-surfaced access roads. A full description of these features are provided.

5.4 Aquatic Resources

A preliminary aquatic resource assessment has been conducted for the Study Area as part of the reconnaissance-level survey. A formal aquatic resources delineation in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008) has not been conducted.

No wetlands were observed during this assessment. The only aquatic resources present within the Study Area include the constructed wastewater treatment ponds within the existing City WWTP.

5.4.1 Other Waters/Non-Wetland Waters

5.4.1.1 Wastewater Treatment Ponds

The wastewater treatment ponds are located within the City WWTP, west of the Georgiana Slough. The wastewater treatment ponds are constructed/excavated ponds located between access roads. Upland and emergent wetland vegetation grows along the edges of the filled ponds. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA, are typically not Waters of the U.S. or Waters of the State. The USACE and RWQCB will make the final determination on the jurisdictional status of the wastewater treatment ponds.

5.5 Wildlife Observations

The Study Area supports a variety of common wildlife species. A detailed list of wildlife species observed in the vicinity of the Study Area during the site visit is included as Appendix C.

5.6 Evaluation of Species Identified in the Literature Search

A list of all of the special-status plant and wildlife species identified in the literature search as potentially occurring within the Study Areas is provided in Table 1. This table includes the listing status for each species, a brief habitat description, and a determination on the potential to occur in or near the Study Area. A brief description of each species with potential to occur follows the table.

Several species and sensitive habitat types that came up in the database and literature searches have been formally delisted, are tracked by the CNDDDB but possess no special status or are identified as sensitive habitats but not located within the Study Area. These species and habitat types were not included in Table 1 and are not discussed further in this report.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Plants						
Large-flowered fiddleneck <i>(Amsinckia grandiflora)</i>	FE	CE	1B.1	Cismontane woodland and valley and foothill grasslands (885'–1,805').	April–May	Absent. The Study Area is outside of the known geographic (USFWS 2022a) and elevational range for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Mexican mosquito fern (<i>Azolla microphylla</i>)	–	–	4.2	Marshes and swamps, ponds or slow-moving bodies of water (100'–330').	August	Potential to occur. The wastewater treatment pond may provide suitable habitat.
Watershield (<i>Brasenia schreberi</i>)	–	–	2B.3	Freshwater marshes and swamps (100'–7,220').	June–September	Low potential to occur. The wastewater treatment pond may provide marginally suitable habitat.
Bristly sedge (<i>Carex comosa</i>)	–	–	2B.1	Mesic (Jepson eFlora) valley and foothill grassland, coastal prairie, and lake margins of marshes and swamps (0'–2,050').	May–September	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Pappose tarplant (<i>Centromadia parryi</i> ssp. <i>parryi</i>)	–	–	1B.2	Often on alkaline soils within chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, vernal mesic valley and foothill grassland (0'–1,380').	May–November	Absent. No suitable habitat within Study Area.
Parry's rough tarplant (<i>Centromadia parryi</i> ssp. <i>rudis</i>)	–	–	4.2	Alkaline, vernal mesic areas, and seeps in valley and foothill grassland and vernal pools, sometimes found on roadsides (0'–330').	May–October	Low potential to occur. The roadsides and other vegetation-supporting disturbed areas may provide marginally suitable habitat.
Soft salty bird's-beak (<i>Chloropyron molle</i> ssp. <i>molle</i>)	FE	CR	1B.2	Coastal salt marshes and swamps (0'–10').	July–November	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Bolander's water-hemlock <i>(Cicuta maculata var. bolanderi)</i>	–	–	2B.1	Coastal, fresh, or brackish marshes and swamps (0'–655').	July–September	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
San Joaquin spearscale <i>(Extriplex joaquinana)</i>	–	–	1B.2	Alkaline soils in chenopod scrub, meadows seeps, playas, and valley and foothill grassland (5'–2,740').	April–October	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Woolly rose-mallow <i>(Hibiscus lasiocarpus var. occidentalis)</i>	–	–	1B.2	Marshes and freshwater swamps. Often in riprap on sides of levees (0'–395').	June–September	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Ferris' goldfields <i>(Lasthenia ferrisiae)</i>	–	–	4.2	Alkaline and clay vernal pools (65'–2,295').	February–May	Absent. No suitable habitat within Study Area
Delta tule pea <i>(Lathyrus jepsonii var. jepsonii)</i>	–	–	1B.2	Freshwater and brackish marshes and swamps (0'–15').	May–July	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Legenere <i>(Legenere limosa)</i>	–	–	1B.1	Various seasonally inundated areas including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005) (5'–2,885').	April–June	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Heckard's pepper-grass <i>(Lepidium latipes var. heckardii)</i>	–	–	1B.2	Alkaline flats within valley and foothill grasslands (5'–655').	March–May	Low potential to occur. The grassland may provide marginally suitable habitat.
Mason's lilaepsis <i>(Lilaeopsis masonii)</i>	–	CR	1B.1	Brackish or freshwater marshes or swamps and riparian scrub (0'–35').	April–November	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Delta mudwort <i>(Limosella australis)</i>	–	–	2B.1	Usually mud banks in freshwater or brackish marshes and swamps and riparian scrub (0'–10').	May–August	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Antioch Dunes evening-primrose <i>(Oenothera deltooides ssp. howellii)</i>	FE	CE	1B.1	Inland dunes (0'–100').	March–September	Absent. The Study Area does not provide suitable habitat and is outside of the known geographic range for this species (USFWS 2022b)
Eel-grass pondweed <i>(Potamogeton zosteriformis)</i>	–	–	2B.2	Assorted freshwater marshes and swamps (0'–6,105').	June–July	Low potential to occur. The wastewater treatment ponds may provide marginally suitable habitat.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Sanford's arrowhead (<i>Sagittaria sanfordii</i>)	–	–	1B.2	Shallow marshes and freshwater swamps (0'–2,135').	May–October	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Marsh skullcap (<i>Scutellaria galericulata</i>)	–	–	2B.2	Mesic areas in lower montane coniferous forest, meadows and seeps, and marshes and swamps (0'–6,890').	June–September	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Side-flowering skullcap (<i>Scutellaria lateriflora</i>)	–	–	2B.2	Mesic areas in meadows and seeps and marshes, and swamps (0'–1,640').	July–September	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Suisun Marsh aster (<i>Symphotrichum lentum</i>)	–	–	1B.2	Brackish and freshwater marshes and swamps (0'–10').	May–November	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.
Saline clover (<i>Trifolium hydrophilum</i>)	–	–	1B.2	Marshes and swamps, mesic and alkaline areas in valley and foothill grassland,, and vernal pools (0'–985').	April–June	Low potential to occur. The edges of wastewater treatment ponds may provide marginally suitable habitat.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Invertebrates						
Crotch bumble bee <i>(Bombus crotchii)</i>	-	CC	-	Primarily nests underground in open grassland and scrub habitats from the California coast east to the Sierra Cascade and south to Mexico.	March - September	Absent. No suitable habitat within Study Area.
Western bumble bee <i>(Bombus occidentalis)</i>	-	CC	-	Meadows and grasslands with abundant floral resources. Primarily nests underground. Largely restricted to high elevation sites in the Sierra Nevada, although rarely detected on the California coast.	April - November	Absent. No suitable habitat within Study Area.
Conservancy fairy shrimp <i>(Branchinecta conservatio)</i>	FE	-	-	Vernal pools/wetlands.	November- April	Absent. No suitable habitat within Study Area.
Vernal pool fairy shrimp <i>(Branchinecta lynchi)</i>	FT			Vernal pools/wetlands.	November - April	Absent. No suitable habitat within Study Area

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Monarch butterfly (<i>Danaus plexippus</i>)	FC			Adult monarchs west of the Rocky Mountains typically overwinter in sheltered wooded groves of Monterey pine, Monterey cypress, and gum eucalyptus along coastal California, then disperse in spring throughout California, Nevada, Arizona, and parts of Oregon and Washington. Adults require milkweed and additional nectar sources during the breeding season. Larval caterpillars feed exclusively on milkweed.	Any season	Absent. No suitable habitat within Study Area.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT			Elderberry shrubs (host plant for this species).	Any season	Absent. No suitable habitat (elderberry shrubs [<i>Sambucus</i> sp.]) within Study Area
Ricksecker’s water scavenger beetle (<i>Hydrochara rickseckeri</i>)	-	-	CNDDDB	Fresh water springs, seeps, farm ponds, vernal pools, and slow moving streams	Any season	Absent. No suitable habitat within Study Area.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE			Vernal pools/wetlands.	November - April	Absent. No suitable habitat within Study Area.
California linderiella (<i>Linderiella occidentalis</i>)	-	-	CNDDDB	Vernal pools/wetlands.	November-April	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Fish						
Delta smelt <i>(Hypomesus transpacificus)</i>	FT	CE	-	Sacramento-San Joaquin delta.	N/A	Absent. No suitable habitat present onsite.
Steelhead (Central Valley Distinct Population Segment [DPS]) <i>(Oncorhynchus mykiss irideus)</i>	FT	-	-	Anadromous; undammed cold-water rivers and streams having riffles with gravel substrates and relatively deep pools.	N/A	Absent. No suitable habitat present onsite.
Chinook salmon (Central Valley spring-run Evolutionarily Significant Unit (ESU)) <i>(Oncorhynchus tshawytscha)</i>	FT	CT	-	Undammed rivers, streams, creeks in the Sacramento and San Joaquin River systems.	N/A	Absent. No suitable habitat present onsite.
Chinook salmon (Sacramento River winter-run ESU) <i>(Oncorhynchus tshawytscha)</i>	FE	CE	-	Undammed reaches of the mainstem and tributaries to the Sacramento River downstream of Shasta Reservoir.	N/A	Absent. No suitable habitat present onsite.
Green sturgeon (Southern DPS) <i>(Acipenser medirostris)</i>	FT	-	-	Anadromous; undammed cold-water rivers having relatively deep pools with large substrates.	N/A	Absent. No suitable habitat present onsite.
Sacramento splittail <i>(Pogonichthys macrolepidotus)</i>	-	-	SSC	San Francisco Bay estuary and Central Valley lakes and rivers. Spawns in upstream floodplains and backwater sloughs.	N/A	Absent. No suitable habitat present onsite.
Longfin smelt <i>(Spirinchus thaleichthys)</i>	FC	CT	SSC	Freshwater and coastal estuaries.	N/A	Absent. No suitable habitat present onsite.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Amphibians						
California tiger salamander (Central California DPS) <i>(Ambystoma californiense)</i>	FT	CT	WL	Vernal pools, wetlands (breeding) and adjacent grassland or oak woodland; needs underground refuge (e.g., ground squirrel and/or gopher burrows). Largely terrestrial as adults.	March-May	Absent. No suitable habitat within Study Area.
California red-legged frog <i>(Rana draytonii)</i>	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1 - November 1	Absent. No suitable habitat within Study Area.
Western spadefoot <i>(Spea hammondi)</i>	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Absent. No suitable habitat within the Study Area.
Reptiles						
Northern legless lizard <i>(Anniella pulchra)</i>	-	-	SSC	The most widespread of California's <i>Anniella</i> species. Occurs in sandy or loose soils under sparse vegetation from Antioch south coastally to Ventura. Bush lupine is often an indicator plant, and two melanistic populations are known.	Generally spring, but depends on location and conditions	Absent. Out of species range and poor habitat conditions.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Northwestern pond turtle <i>(Actinemys marmorata)</i>	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Potential to occur. The wastewater treatment ponds may provide suitable habitat.
Giant garter snake <i>(Thamnophis gigas)</i>	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Low Potential to occur. The wastewater treatment ponds may provide marginally suitable habitat.
Birds						
Clark's grebe <i>(Aechmophorus clarkii)</i>	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation.	June-August (breeding)	Low Potential to occur. There is no breeding habitat but the wastewater treatment ponds onsite supports marginal wintering habitat.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Yellow-billed cuckoo <i>(Coccyzus americanus)</i>	FT	CE	-	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations include Feather River (Butte, Yuba, Sutter counties), Prado Flood Control Basin (San Bernardino and Riverside County), Amargosa River and Owens Valley (Inyo County), Santa Clara River (Los Angeles County), Mojave River and Colorado River (San Bernardino County). Nests in riparian woodland. Winters in South America.	June 15- August 15	Absent. There is no suitable nesting habitat onsite.
California black rail <i>(Laterallus jamaicensis coturniculus)</i>	-	CT	BCC	Salt marsh, shallow freshwater marsh, wet meadows, and flooded grassy vegetation. In California, primarily found in coastal and Bay-Delta communities, but also in Sierran foothills (Butte, Yuba, Nevada, Placer, El Dorado counties).	March- September (breeding)	Absent. There is no suitable nesting habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Ridgway's rail (California Ridgway's rail)	FE	CE	CFP	San Francisco and San Pablo Bay tidal marshes, sloughs, with pickleweed (<i>Salicornia</i> spp.), cordgrass (<i>Spartina</i> spp.), and gum plant (<i>Grindelia</i> spp.).	March-August	Absent. There is no suitable nesting habitat onsite.
Great blue heron (<i>Ardea herodias</i>)	-	-	CNDDDB	Colonial nester; prefers to nest in vegetation on islands or in swamps but may also be found in upland habitats in trees, bushes, on the ground and on artificial structures. Foraging habitat is widely diverse and includes swamps, coastlines, estuaries, beaches, pastures, cultivated fields, and riparian areas.	February-July	Potential to occur. There is no suitable nesting habitat onsite and no rookeries were found during the site visit. However, the wastewater treatment ponds onsite represent suitable foraging habitat.
White-tailed kite (<i>Elanus leucurus</i>)	-	-	CFP	Nesting occurs within trees in low elevation grassland, agricultural, wetland, oak woodland, riparian, savannah, and urban habitats.	March-August	Potential to occur. There is suitable nesting habitat onsite.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Delisted	CE	CFP	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Low potential to occur. There is not suitable nesting habitat onsite but the Sacramento River represents potential foraging habitat.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Swainson's hawk (<i>Buteo swainsoni</i>)	-	CT	-	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures	March-August	Potential to occur. There is suitable nesting habitat onsite.
Burrowing owl (<i>Athene cunicularia</i>)	-	-	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Potential to occur. There is potentially suitable burrow habitat onsite.
Nuttall's woodpecker (<i>Dryobates nuttallii</i>)	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Potential to occur. There is suitable nesting habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
American peregrine falcon (<i>Falco peregrinus anatum</i>)	Delisted	Delisted	CFP	In California, breeds in coastal region, northern California, and Sierra Nevada. Nesting habitat includes cliff ledges and human-made ledges on towers and buildings. Wintering habitat includes areas where there are large concentrations of shorebirds, waterfowl, pigeons or doves.	CA Residents nest in February-June	Absent. There is no suitable nesting habitat onsite.
Yellow-billed magpie (<i>Pica nuttallii</i>)	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings.	April-June	Potential to occur. There is suitable nesting habitat onsite.
Oak titmouse (<i>Baeolophus inornatus</i>)			BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree).	March-July	Potential to occur. There is suitable nesting habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Bank swallow (<i>Riparia riparia</i>)	-	CT	-	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California.	May-July	Absent. There is no suitable nesting habitat onsite.
Wrentit (<i>Chamaea fasciata</i>)	-	-	BCC	Coastal sage scrub, northern coastal scrub, chaparral, dense understory of riparian woodlands, riparian scrub, coyote brush and blackberry thickets, and dense thickets in suburban parks and gardens.	March-August	Absent-There is no suitable nesting habitat onsite.
Belding's savannah sparrow (<i>Passerculus sandwichensis beldingi</i>)	-	CE	BCC	Resident coastally from Point Conception south into Baja California; coastal salt marsh	year round resident; nests March-August	Absent-There is no suitable nesting habitat onsite.
Bullock's oriole (<i>Icterus bullockii</i>)			BCC	Breeding habitat includes riparian and oak woodlands.	March-July	Potential to occur. There is suitable nesting habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Tricolored blackbird <i>(Agelaius tricolor)</i>	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc, and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck, and fava bean fields.	March-August	Absent. No suitable nesting habitat within Study Area.
Saltmarsh common yellowthroat <i>(Geothlypis trichas sinuosa)</i>	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Potential to occur. There is suitable nesting habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Mammals						
Western red bat <i>(Lasiurus blossevillii)</i>	-	-	SSC	Roosts in foliage of trees or shrubs; Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (Western Bat Working Group [WBWG] 2017).	April-September	Potential to occur. Mature trees and anthropogenic structures onsite provide roosting habitat.
Pallid Bat <i>(Antrozous pallidus)</i>			SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (Western Bat Working Group 2017).	April-September	Potential to occur. Mature trees and anthropogenic structures onsite represent suitable roosting habitat onsite.
Townsend's big-eared bat <i>(Corynorhinus townsendii)</i>			SSC	Caves, mines, buildings, rock crevices, trees.	April-September	Potential to occur. Mature trees and anthropogenic structures onsite represent suitable roosting habitat onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (<i>Scientific Name</i>)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA	Other			
Riparian brush rabbit <i>(Sylvilagus bachmani riparius)</i>	FE	CE	-	Riparian brush rabbits inhabit dense, brushy areas of valley riparian forests marked by extensive thickets of California wild rose (<i>Rosa californica</i>), California blackberries (<i>Rubus ursinus</i>), and willows (<i>Salix</i> spp.). Thriving mats of low-growing vines and shrubs serve as ideal living sites where they build tunnels under and through the vegetation.	Any season	Absent. There is no suitable habitat onsite.
American badger <i>(Taxidea taxus)</i>	-	-	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Any season	Absent. There is no suitable habitat onsite.

Status Codes

- FESA Federal Endangered Species Act
- CESA California Endangered Species Act
- FE FESA listed, Endangered.
- FT FESA listed, Threatened.
- FC Candidate for FESA listing as Threatened or Endangered
- BCC USFWS Bird of Conservation Concern).
- CT CESA- or NPPA-listed, Threatened.
- CE CESA or NPPA listed, Endangered.
- CR CESA- or NPPA-listed, Rare
- CFP California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).
- CC Candidate for CESA listing as Endangered or Threatened
- SSC CDFW Species of Special Concern (CDFW, updated July 2017).
- CDFW WL CDFW Watch List
- CNDDDB Species that is tracked by CDFW's CNDDDB but does not have any of the above special-status designations otherwise
- 1B CRPR/Rare or Endangered in California and elsewhere.
- 2B Plants rare, threatened, or endangered in California but more common elsewhere.
- 4 CRPR/Plants of Limited Distribution – A Watch List.
- 0.1 Threat Rank/Seriously threatened in California (more than 80% of occurrences threatened / high degree and immediacy of threat)
- 0.2 Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- 0.3 Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)
- Delisted Formally Delisted (delisted species are monitored for 5 years).

5.6.1 Plants

A total of 23 special-status plant species were identified as having the potential to occur within Study Areas based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, five species were determined to not have potential to occur within the Study Area due to the absence of suitable habitat or the Study Area was outside the elevational range for the species. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining 18 species that have the potential to occur within the Study Area are presented below.

5.6.1.1 Mexican Mosquito Fern

Mexican mosquito fern (*Azolla microphylla*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual/perennial that occurs in marshes and swamps (e.g., ponds and slow-moving water). Mexican mosquito fern blooms in August and is known to occur at elevations ranging from 100 to 330 feet above MSL. The current range for Mexican mosquito fern in California includes Butte, Colusa, Glenn, Inyo, Kern, Lake, Modoc, Monterey, Nevada, Plumas, San Bernardino, Santa Cruz, and Tulare counties (CNPS 2022).

While there are no CNDDDB documented occurrences of Mexican mosquito fern within 5 miles of the Study Area (CDFW 2022), the wastewater treatment ponds within the Study Area may provide suitable habitat for this species. Mexican mosquito fern has potential to occur onsite.

5.6.1.2 Watershield

Watershield (*Brasenia schreberi*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.3 species. This species is an herbaceous rhizomatous perennial that occurs usually in freshwater marshes and swamps. Watershield blooms from June through September and is known to occur from sea level to 7,220 feet above MSL. The current range for Watershield in California includes Butte, Calaveras, El Dorado, Fresno, Glenn, Lake, Lassen, Mendocino, Merced, Nevada, Plumas, Sacramento, San Joaquin, Shasta, Sierra, Siskiyou, Sonoma, Sutter, Tehama, Trinity, Tulare, and Tuolumne counties (CNPS 2

There is one documented CNDDDB occurrences of watershield located within 5 miles of the Study Area (CDFW 2022) and the wastewater treatment ponds may provide marginally suitable habitat. Watershield has low potential to occur onsite.

5.6.1.3 Bristly sedge

Bristly sedge (*Carex comosa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.1 plant. This species is a perennial rhizomatous herb that occurs in coastal prairies, marshes and swamps including lake margins, and in valley and foothill grassland. Bristly sedge blooms from May through September and is known to occur at elevations ranging from sea level to 2,050 feet above MSL. The current range of this species in California includes Contra Costa, Fresno, Lake, Mendocino, Sacramento, San Bernardino, Santa Cruz, San Francisco, Shasta, San Joaquin, San Mateo, and

Sonoma counties; it is considered extirpated from San Bernardino and San Francisco counties (CNPS 2022).

There is one documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of wastewater treatment ponds may provide marginally suitable habitat. Bristly sedge has low potential to occur onsite.

5.6.1.4 Parry's Rough Tarplant

Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in vernal pools and valley and foothill grassland with alkaline and vernal mesic soils, seeps, and sometimes roadsides. Parry's rough tarplant blooms from May through October and is known to occur at elevations ranging from sea level to 330 feet above MSL. Parry's rough tarplant is endemic to California; its current range includes Butte, Colusa, Glenn, Lake, Merced, Modoc, Sacramento, San Joaquin, Solano, Stanislaus, and Yolo counties (CNPS 2022).

While there are no CNDDDB documented occurrences of Parry's rough tarplant within 5 miles of the Study Area (CDFW 2022), the roadsides and other vegetation-supporting disturbed areas may provide marginally suitable habitat. Parry's rough tarplant has low potential to occur onsite.

5.6.1.5 Bolander's Water-Hemlock

Bolander's water-hemlock (*Cicuta maculata* var. *bolanderi*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.1 species. This species is an herbaceous perennial that occurs in coastal, fresh, or brackish marshes and swamps. Bolander's water-hemlock blooms from July through September and is known to occur at elevations ranging from sea level to 655 feet above MSL. The current range for Bolander's water-hemlock in California includes Contra Costa, Marin, Sacramento, Santa Barbara, and Solano counties; however, it is presumed extirpated in Santa Barbara County (CNPS 2022).

While there are no CNDDDB documented occurrences of Bolander's water-hemlock within 5 miles of the Study Area (CDFW 2022), the edges of wastewater treatment ponds may provide marginally suitable habitat. Bolander's water-hemlock has low potential to occur onsite.

5.6.1.6 San Joaquin Spearscale

San Joaquin spearscale (*Atriplex joaquiniana*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in alkaline areas within chenopod scrub, meadows and seeps, playas, and valley and foothill grassland. San Joaquin spearscale blooms from April through October and is known to occur from 5 to 2,740 feet above MSL. San Joaquin spearscale is endemic to California; the current range of this species includes Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Napa, Sacramento, San Benito, San Joaquin, San Luis Obispo, Solano, and Yolo counties. It is likely extirpated from San Joaquin County, and uncertain in San Luis Obispo County (CNPS 2022).

There is one documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of wastewater treatment ponds may provide marginally suitable habitat. San Joaquin spearscale has low potential to occur onsite.

5.6.1.7 Woolly Rose-Mallow

Woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a rhizomatous, herbaceous perennial that occurs in marshes and freshwater swamps, and often in riprap on sides of levees. Woolly rose-mallow blooms from June through September and is known to occur at elevations ranging from sea level to 395 feet above MSL. Woolly rose-mallow is endemic to California; the current range of this species in California includes Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties (CNPS 2022).

There are six documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of wastewater ponds may provide marginally suitable habitat. Woolly rose-mallow has low potential to occur onsite.

5.6.1.8 Delta Tule Pea

Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in freshwater and brackish marshes and swamps. Delta tule pea blooms from May through September and is known to occur at elevations ranging from sea level to 15 feet above MSL. Delta tule pea is endemic to California; its current range includes Contra Costa, Napa, Sacramento, San Joaquin, Solano, Sonoma, and Yolo counties (CNPS 2022).

There are nine documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of wastewater treatment ponds may provide marginally suitable habitat. Delta tule pea has low potential to occur onsite.

5.6.1.9 Legenere

Legenere (*Legenere limosa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in a variety of seasonally inundated environments including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005). Legenere blooms from April through June and is known to occur at elevations ranging from 5 feet to 2,885 feet above MSL. Legenere is endemic to California; the current range of this species includes Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, San Joaquin, Shasta, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties. It is believed to be extirpated from Stanislaus County (CNPS 2022).

While there are no CNDDDB documented occurrences of Legenere within 5 miles of the Study Area (CDFW 2022), the edges of wastewater treatment ponds may provide marginally suitable habitat. Legenere has low potential to occur onsite.

5.6.1.10 Heckard's Pepper-Grass

Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs on alkaline flats within valley and foothill grasslands. Heckard's pepper-grass blooms from March through May and is known to occur at elevations ranging from 5 to 655 feet above MSL. Heckard's pepper-grass is endemic to California; the current range of this species includes Glenn, Merced, Sacramento, Solano, and Yolo counties (CNPS 2022).

While there are no CNDDDB documented occurrences of Heckard's pepper-grass within 5 miles of the Study Area (CDFW 2022), the ruderal grassland may provide marginally suitable habitat. Heckard's pepper-grass has low potential to occur onsite.

5.6.1.11 Mason's Lilaepsis

Mason's lilaepsis (*Lilaepsis masonii*) is not listed pursuant to the federal ESA, is listed as rare pursuant to the California ESA, and is designated as a CRPR 1B.1 species. This species is an herbaceous perennial rhizome that occurs in brackish or freshwater marshes and swamps as well as in riparian scrub. Mason's lilaepsis blooms from April through November and is known to occur at elevations ranging from sea level to 35 feet above MSL. Mason's lilaepsis is endemic to California; its current range includes Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo counties (CNPS 2022).

There are 15 documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of wastewater treatment ponds may provide marginally suitable habitat. Mason's lilaepsis has low potential to occur onsite.

5.6.1.12 Delta Mudwort

Delta mudwort (*Limosella australis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.1 species. This species is an herbaceous stoloniferous perennial that occurs in mud banks near freshwater or brackish marshes and swamps, and riparian scrub. Delta mudwort blooms from May through August and is known to occur at elevations ranging from sea level to 10 feet above MSL (CNPS 2022). The current range for Delta mudwort in California includes Contra Costa, Sacramento, San Joaquin, and Solano counties (CNPS 2022).

There are seven documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of wastewater treatment ponds may provide marginally suitable habitat. Delta mudwort has low potential to occur onsite.

5.6.1.13 Eel-Grass Pondweed

Eel-grass pondweed (*Potamogeton zosteriformis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.2 species. This species is an aquatic herbaceous annual that occurs in assorted freshwater marshes and swamps. Eel-grass pondweed blooms from June through July and is known to occur at elevations ranging from sea level to 6,105 feet above MSL. The current range for eel-

grass pondweed in California includes Contra Costa, Lake, Lassen, Mariposa, Merced, Mono, Modoc, and Shasta counties (CNPS 2022).

There is one documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the wastewater treatment ponds may provide marginally suitable habitat. Eel-grass pondweed has low potential to occur onsite.

5.6.1.14 Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a perennial rhizomatous herb that occurs in shallow, freshwater marshes and swamps. Sanford's arrowhead blooms from May through October, and is known to occur at elevations ranging from sea level to 2,135 feet above MSL. Sanford's arrowhead is endemic to California; the current range of this species includes Butte, Del Norte, El Dorado, Fresno, Madera, Marin, Mariposa, Merced, Napa, Sacramento, San Bernardino, San Joaquin, Shasta, Solano, Sutter, Tehama, Tulare, Ventura, and Yuba counties; it is presumed extirpated in Ventura County (CNPS 2022).

There are two documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of the wastewater treatment ponds may provide marginally suitable habitat. Sanford's arrowhead has low potential to occur onsite.

5.6.1.15 Marsh Skullcap

Marsh skullcap (*Scutellaria galericulata*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.2 species. This species is an herbaceous rhizomatous perennial that occurs in mesic areas in lower montane coniferous forest, meadows and seeps, and marshes and swamps. Marsh skullcap blooms from June through September and is known to occur at elevations ranging from sea level to 6,890 feet above MSL. The current range of this species in California includes Contra Costa, El Dorado, Lassen, Modoc, Nevada, Plumas, Sacramento, Shasta, Siskiyou, and San Joaquin counties; its distribution in Siskiyou County is uncertain (CNPS 2022).

There is one CNDDDB documented occurrences of marsh skullcap within 5 miles of the Study Area (CDFW 2022) and the edges of the wastewater treatment ponds may provide marginally suitable habitat. Marsh skullcap has low potential to occur onsite.

5.6.1.16 Side-Flowering Skullcap

Side-flowering skullcap (*Scutellaria lateriflora*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.2 species. This species is an herbaceous rhizomatous perennial that occurs in mesic meadows and seeps and marshes and swamps. Side-flowering skullcap blooms from July through September and is known to occur at elevations ranging from sea level to 1,640 feet above MSL. The current range of this species in California includes Sacramento and San Joaquin counties (CNPS 2022).

There is one documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of the wastewater treatment ponds may provide marginally suitable habitat. Side-flowering skullcap has low potential to occur onsite.

5.6.1.17 Suisun Marsh Aster

Suisun Marsh aster (*Symphotrichum lentum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous rhizomatous perennial that occurs in marshes and swamps in brackish and freshwater. Suisun Marsh aster blooms from May through November and is known to occur at elevations ranging from sea level to 10 feet above MSL. Suisun marsh aster is endemic to California; its current range includes Contra Costa, Napa, Sacramento, San Joaquin, Solano, and Yolo counties (CNPS 2022).

There are 22 documented CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022) and the edges of the wastewater treatment ponds may provide marginally suitable habitat. Suisun Marsh aster has low potential to occur onsite.

5.6.1.18 Saline Clover

Saline clover (*Trifolium hydrophilum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in marshes and swamps, mesic and alkaline valley and foothill grassland, and vernal pools. Saline clover blooms from April through June and is known to occur at elevations ranging from sea level to 985 feet above MSL. Saline clover is endemic to California; its current range includes Alameda, Contra Costa, Lake, Mendocino, Monterey, Napa, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, and Yolo counties (CNPS 2022).

While there are no CNDDDB documented occurrences of saline clover within 5 miles of the Study Area (CDFW 2022), the edges of the wastewater treatment ponds may provide marginally suitable habitat. Saline clover has low potential to occur onsite.

5.6.2 Invertebrates

A total of nine special-status invertebrate species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, all nine were determined to be absent based on lack of suitable habitat within the Study Area or the Study Area was outside the known range for the species. No further discussion of the species is provided in this analysis.

5.6.3 Fish

A total of seven special-status fish species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, all seven were determined to be absent based on lack of suitable habitat within the Study Area

or the Study Area was outside the known range for the species. No further discussion of the species is provided in this analysis.

5.6.4 Amphibians

A total of three special-status amphibian species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, all three were determined to be absent based on lack of suitable habitat within the Study Area or the Study Area was outside the known range for the species. No further discussion of the species is provided in this analysis.

5.6.5 Reptiles

A total of three special-status reptile species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, one species was determined to be absent due to lack of suitable habitat and because the Study Area is outside the range for the species. No further discussion of this species is provided in this analysis. Brief descriptions of the remaining two species that have the potential to occur within the Study Areas are presented below.

5.6.5.1 Northwestern Pond Turtle

The northwestern pond turtle (*Actinemys marmorata*) is not listed pursuant to either the federal or California ESAs; however, it is designated as a CDFW SSC. Northwestern pond turtles occur in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams (Jennings and Hayes 1994). This species is primarily aquatic; however, they typically leave aquatic habitats in the fall to reproduce and to overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Although adults are habitat generalists, hatchlings and juveniles and hatchlings require shallow edgewater with relatively dense submergent or short emergent vegetation in which to forage. Northwestern pond turtles are typically active between March and November. Mating generally occurs during late April and early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, with substrates that typically have high clay or silt fractions (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet (200 meters) of aquatic sites; however, nests have been documented as far as 1,310 feet (400 meters) from aquatic habitat.

There are 11 CNDDDB occurrences of this species located within 5 miles of the Study Area (CDFW 2022). The wastewater treatment ponds within the Study Area serve as suitable habitat. Northwestern pond turtle has potential to occur onsite.

5.6.5.2 Giant Garter Snake

The giant garter snake (*Thamnophis gigas*) is listed as a threatened species pursuant to both the California and federal ESAs. Giant garter snakes typically inhabit perennial ponds, marshes, slow-moving streams,

and agricultural ditches containing adequate water during the spring and summer months. Giant garter snakes are most active from early spring through mid-fall (USFWS 1999). The giant garter snake is endemic to the floors of the Sacramento and San Joaquin valleys of California and probably occurred historically from Butte County south to Buena Vista Lake in Kern County (USFWS 1999). Seasonally, the giant garter snake becomes active in early spring, emerging from overwintering sites to bask on emergent willows, tules, saltbush, and riprap (Hansen and Tremper in Rossman et al. 1996). Generally by May, all giant garter snakes have emerged from hibernacula and are actively foraging for food. Males immediately start searching for mates (USFWS 1999). Live young are born in late July through early September (Hansen and Hansen 1990) and by October, most snakes begin searching for overwintering sites. Most are in hibernacula by November (Hansen and Hansen 1990). As with most ectothermic vertebrates, the exact timing of activities is dependent on current climatic conditions. Males are sexually mature in approximately 3 years. Females, which achieve sexual maturity at larger size, mature in 5 years (G. Hansen pers. comm. in USFWS 1999). The giant garter snake is one of the most aquatic garter snakes (USFWS 1999). It is rarely found far from water and occupies habitats such as marshes and sloughs, irrigation and drainage canals, small lakes and ponds, rice agricultural fields, and low gradient streams (USFWS 1999). Waters inhabited by this species typically feature substrates of soil, mud, or other fines. Giant garter snakes tend to be absent from larger rivers and wetlands with sand, gravel, cobble, or rock substrates, as well as from areas with extensive shading.

There is one giant garter snake occurrence within 5 miles of the Study Area (CDFW 2022). The wastewater treatment ponds within the Study Area serve as marginally suitable habitat. There is low potential for this species to occur within upland portions onsite.

5.6.6 Birds

A total of 19 special-status bird species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, eight species were determined to be absent due to lack of suitable habitat or because the Study Area is outside the range for the species. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining 11 species that have the potential to occur within the Study Areas are presented below.

5.6.6.1 Clark's Grebe

The Clark's grebe (*Aechmophorus clarkii*) is a USFWS BCC, but not listed pursuant to the California or federal ESA's. Clark's grebes breed on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation (LaPorte et al. 2020). In California, major breeding areas include Eagle Lake (Lassen County), Tule Lake National Wildlife Refuge (Siskiyou County), Clear Lake (Lake County), Lake Almanor (Plumas County), Thermalito Afterbay (Butte County), Bridgeport Reservoir (Mono County), and Goose Lake (Modoc County) (LaPorte et al. 2020). Nesting occurs during June through August.

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), the wastewater treatment ponds onsite support marginal wintering habitat. There is low potential for Clark's grebes to occur onsite.

5.6.6.2 Great Blue Heron

Great blue herons (*Ardea herodias*) and great egrets (*Ardea alba*) are not listed pursuant to either the federal or California ESAs, but are tracked by CDFW in the CNDDDB, as are other colonial nesting water birds (e.g., snowy egret (*Egretta thula*)). Great blue herons and great egrets nest colonially in trees, bushes, on the ground, and artificial structure, generally near water and in places protected from predators and disturbance, such as islands. The nesting colonies may be located within a variety of vegetation communities near water.

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), the wastewater treatment ponds onsite represent suitable foraging habitat. There is potential for great blue heron to occur onsite.

5.6.6.3 White-tailed kite

White-tailed kite (*Elanus leucurus*) is not listed pursuant to either the California or federal ESAs; however, the species is fully protected pursuant to Section 3511 of the California Fish and Game Code. This species is a common resident in the Central Valley and the entire length of the California coast, and all areas up to the Sierra Nevada foothills and southeastern deserts (Dunk 2020). In northern California, white-tailed kite nesting occurs from March through early August, with nesting activity peaking from March through June. Nesting occurs in trees within riparian, oak woodland, savannah, and agricultural communities that are near foraging areas such as low elevation grasslands, agricultural, meadows, farmlands, savannahs, and emergent wetlands (Dunk 2020).

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), the trees onsite represent suitable nesting habitat. There is potential for white-tailed kites to occur within the Study Area.

5.6.6.4 Bald eagle

The bald eagle (*Haliaeetus leucocephalus*) has been delisted under the federal ESA, but remains listed as Endangered under the California ESA. It is fully protected pursuant to the California Fish and Game Code Section 3511 and the federal Bald and Golden Eagle Protection Act. It is a Bureau of Land Management-sensitive species, and a U.S. Forest Service sensitive species. Bald eagles breed at lower elevations in the northern Sierra Nevada and North Coast ranges. Bald eagles breed in forested areas adjacent to large waterbodies (Buehler 2020). Tree species used for nesting is quite variable and includes conifers (dominant where available), oaks, hickories, cottonwoods and aspens (Buehler 2020). Nest trees are generally the largest tree available in a suitable area (Buehler 2020). Breeding activity occurs during late-February through September, with peaks in activity from March to June.

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), the Sacramento River represents potential foraging habitat. There is a low potential for bald eagle to occur onsite.

5.6.6.5 Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is listed as a threatened species and is protected pursuant to the California ESA. This species nests in North America (Canada, western U.S., and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2020). In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawks nest within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Spermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanoplus* sp.). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, discing, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

There are 12 CNDDDB occurrences and nest locations of this species within 5 miles of the Study Area, with the closest nest site approximately 0.10 mile away (CDFW 2022). The large trees within the Study Area provide suitable nesting habitat for this species. There is potential for Swainson's hawks to nest onsite.

5.6.6.6 Burrowing Owl

The burrowing owl (*Athene cunicularia*) is not listed pursuant to either the California or federal ESAs; however, it is designated as a BCC by the USFWS and an SSC by the CDFW. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Poulin et al. 2020). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel but may also use manufactured structures such as concrete culverts or pipes; concrete, asphalt, or wood debris piles; or openings beneath concrete or asphalt pavement (CDFG 2012). The breeding season typically occurs between February 1 and August 31 (California Burrowing Owl Consortium 1993; CDFG 2012).

There is one CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022) and burrows that may provide suitable nesting habitat were observed within the ruderal grassland. There is potential for burrowing owl to occur and nest in the Study Area.

5.6.6.7 Nuttall's Woodpecker

The Nuttall's woodpecker (*Dryobates nuttallii*) is not listed and protected under either state or federal ESAs but is considered a USFWS BCC. They are resident from Siskiyou County south to Baja California. Nuttall's woodpeckers nest in tree cavities primarily within oak woodlands, but also can be found in riparian woodlands (Lowther et al. 2020). Breeding occurs during April through July.

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), suitable nesting habitat is present within the Study Area. There is potential for Nuttall's woodpeckers to nest onsite.

5.6.6.8 Yellow-Billed Magpie

The yellow-billed magpie (*Pica nuttalli*) is not listed pursuant to either the California or federal ESAs but is considered a USFWS BCC. This endemic species is a yearlong resident of the Central Valley and Coast Ranges from San Francisco Bay to Santa Barbara County. Yellow-billed magpies build large, bulky nests in trees in a variety of open woodland habitats, typically near grassland, pastures or cropland. Nest building begins in late-January to mid-February, which may take up to 6 to 8 weeks to complete, with eggs laid during April through May, and fledging during May through June (Koenig and Reynolds 2020). The young leave the nest about 30 days after hatching (Koenig and Reynolds 2020). Yellow-billed magpies are highly susceptible to West Nile Virus, which may have been the cause of death to thousands of magpies during 2004 2006 (Koenig and Reynolds 2020).

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), suitable nesting habitat is present within the Study Area. There is potential for yellow-billed magpie to nest onsite.

5.6.6.9 Oak Titmouse

Oak titmouse (*Baeolophus inornatus*) are not listed and protected under either California or federal ESAs, but are considered a USFWS BCC. Oak titmouse breeding range includes southwestern Oregon south through California's Coast, Transverse, and Peninsular ranges, western foothills of the Sierra Nevada, into Baja California; they are absent from the humid northwestern coastal region and the San Joaquin Valley (Cicero et al. 2020). They are found in dry oak or oak-pine woodlands but may also use scrub oaks or other brush near woodlands (Cicero et al. 2020). Nesting occurs during March through July.

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), suitable nesting habitat is present within the Study Area. There is potential for oak titmouse to nest onsite.

5.6.6.10 Bullock's Oriole

The Bullock's oriole (*Icterus bullockii*) is not listed pursuant to either the California or federal ESAs, but is currently a BCC according to the USFWS. In California, Bullock's orioles are found throughout the state except the higher elevations of mountain ranges and the eastern deserts (Small 1994). They are found in

riparian and oak woodlands where nests are built in deciduous trees, but may also use orchards, conifers, and eucalyptus trees (Flood et al 2020). Nesting occurs from March through July.

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), suitable nesting habitat is present within the Study Area. There is potential for Bullock's oriole to nest onsite.

5.6.6.11 Saltmarsh Common Yellowthroat

The saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) considered a CDFW SSC, but has no federal special status. This is a subspecies of the widely distributed common yellowthroat found throughout North America from southeastern Alaska to southern United States and into Central American and the Caribbean (Shuford and Gardali 2008). There are currently four main areas where saltmarsh common yellowthroat are found, coastal riparian and wetland areas of western Marin County and San Mateo County and the tidal marshes of San Pablo Bay and San Francisco Bay (Shuford and Gardali 2008). Breeding habitat include woody swamps, brackish marsh, and freshwater marsh (Shuford and Gardali 2008). The saltmarsh common yellowthroat is largely resident within its breeding range but may migrate short distances north or south, and nesting occurs from March through July (Shuford and Gardali 2008).

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), suitable nesting habitat is present within the Study Area. There is a potential for saltmarsh common yellowthroats to nest onsite.

5.6.7 Mammals

A total of five special-status mammal species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, three species were determined to be absent due to lack of suitable habitat or because the Study Area is outside the range for the species. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining two species that have the potential to occur within the Study Areas are presented below.

5.6.7.1 Western Red Bat

The western red bat (*Lasiurus blossevillii*) is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This species is broadly distributed, its range extending from southern British Columbia in Canada through Argentina and Chile in South America, and including much of the western United States. This solitary species day roosts primarily in the foliage of trees or shrubs in edge habitats bordering streams or open fields, in orchards, and occasionally urban areas. They may be associated with intact riparian habitat, especially with willows, cottonwoods, and sycamores. This species may occasionally utilize caves for roosting as well. They feed on a variety of insects, and generally begin to forage one to two hours after sunset. This species is considered highly

migratory; however the timing of migration and the summer ranges of males and females may be different. Winter behavior of this species is poorly understood (WBWG 2017).

There is one CNDDDB occurrence of this species within 5 miles of the Study Area (CDFW 2022) and mature trees and anthropogenic structures onsite provide suitable roosting habitat. Western red bat has potential to roost onsite.

5.6.7.2 Pallid Bat

The pallid bat (*Antrozous pallidus*) is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. The pallid bat is a large, light-colored bat with long, prominent ears and pink, brown, or grey wing and tail membranes. This species ranges throughout North America from the interior of British Columbia, south to Mexico, and east to Texas. The pallid bat inhabits low elevation (below 6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forest (above 7,000 feet). This species roosts alone or in groups in the crevices of rocky outcrops and cliffs, caves, mines, trees, and in various human structures such as bridges and barns. Pallid bats are feeding generalists that glean a variety of arthropod prey from surfaces as well as capturing insects on the wing. Foraging occurs over grasslands, oak savannahs, ponderosa pine forests, talus slopes, gravel roads, lava flows, fruit orchards, and vineyards. This species is not thought to migrate long distances between summer and winter sites (WBWG 2017).

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), mature trees and anthropogenic structures onsite provide suitable roosting habitat. Pallid bat has potential to roost onsite.

5.6.7.3 Townsend's Big-Eared Bat

The Townsend's big-eared bat is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. Townsend's big-eared bat is a fairly large bat with prominent bilateral nose lumps and large *rabbit-like* ears. This species occurs throughout the west and ranges from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains. This species has been reported from a wide variety of habitat types and elevations from sea level to 10,827 feet. Habitats include coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is strongly associated with the availability of caves and cave-like roosting habitat including abandoned mines, buildings, bridges, rock crevices, and hollow trees. Townsend's big-eared bat primarily forages on moths. Foraging habitat is generally edge habitats along streams adjacent to and within a variety of wooded habitats. This species often travels long distances when foraging and large home ranges have been documented in California (WBWG 2017).

While there are no CNDDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022), mature trees and anthropogenic structures onsite provide suitable roosting habitat. Townsend's big-eared bat has potential to roost onsite.

5.7 Critical Habitat and Essential Fish Habitat

The Study Area is designated Critical Habitat for the following federally listed species.

- Steelhead (Central Valley Distinct Population Segment [DPS])
- Chinook salmon (Central Valley spring-run ESU)
- Chinook salmon (Sacramento River winter-run ESU)
- Green sturgeon (Southern DPS)

The City of Isleton is also within EFH for Pacific Coast salmon (i.e., Chinook salmon, including Central Valley spring-run and fall-run ESUs).

While the nearby Sacramento River and Georgiana Slough could serve as potential habitat for the species listed above, these features occur outside the Study Area. No other aquatic resources exist within the Study Area that could serve as habitat.

5.8 Sensitive Natural Communities

Five sensitive natural communities were identified as having the potential to occur within the Study Area based on the literature review: Coastal and Valley Freshwater Marsh, Great Valley Mixed Riparian Forest, Great Valley Valley Oak Riparian Forest, Northern Hardpan Vernal Pool, and Valley Oak Woodland (CDFW 2022). None of these communities were found to occur onsite during the site assessment.

5.9 Wildlife Movement/Corridors and Nursery Sites

The Study Area is located among developed residential and commercial landscapes. The majority of the Study Area is within existing roads that are heavily trafficked on a daily basis. The WWTP is fenced and regularly maintained by the City Department of Public Works. These areas are not expected to support significant wildlife movement corridors.

For the purpose of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. This data is available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDDB and is supplemented with the results of the field reconnaissance. No nursery sites have been documented onsite (CDFW 2022) and none were observed during the site reconnaissance.

6.0 IMPACT ANALYSIS

This section specifically addresses the questions raised by the *CEQA - Appendix G Environmental Checklist Form, IV. Biological Resources*. This section also identifies the appropriate recommendations to reduce potential impacts of the actions to less than significant. The recommendations are described in detail in Section 7.0.

6.1 Special Status Species, Designated Critical Habitat and Essential Fish Habitat

Would the Project result in effects, either directly or through habitat modifications, to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

The Project would result in temporary construction-related impacts to the upland that provides habitat for special-status species within the Study Area. Potential impacts to upland habitats include temporary disturbance associated with staging, trenching and grading activities. Impacts by species or habitat group are summarized below.

6.1.1 Impacts to Special-Status Plants

There is no habitat for federally-listed plants species in the Study Area. There is low potential for one state-listed rare species (Mason's lilaeopsis), two CRPR 4.2 species (Parry's rough tarplant and Mexican mosquito fern), one CRPR 1B.1 species (Legenere), six 1B.2 species (San Joaquin spearscale, Delta tule pea, Heckard's pepper-grass, Sanford's arrowhead, Suisun Marsh aster, and saline clover), two 2B.1 species (bristly sedge, Bolander's water-hemlock, and Delta mudwort), three 2B.2 species (eel-grass pondweed, marsh skullcap, and side-flowering skullcap), and one 2B.3 species (watershield).

Overall, 17 species have low potential to occur within and along the edges of the ponds and the annual grassland. Work within the ponds is limited to installation of a new backup generator, new aerators, blowers and other required electrical equipment. Equipment installation could permanently remove or alter a minimal amount of potential habitat for these species. Similarly, disturbance of ruderal grassland would be limited to construction access and staging. The majority of ground disturbance associated with trenching would occur within existing roadways, where vegetation is not present. Overall, the effects are expected to be less than significant and minimized by the implementation of recommendations BIO1 outlined in Section 7.0.

6.1.2 Impacts to Northwestern Pond Turtles

Northwestern pond turtles may occur in and adjacent to the wastewater treatment ponds within the Study Area. Construction activities within the wastewater treatment ponds have potential to impact northwestern pond turtles if present. Overall, the effects are expected to be temporary and minimized by the implementation of recommendations BIO1 and NPT1 outlined in Section 7.0.

6.1.3 Impacts to Giant Garter Snake

The wastewater treatment ponds provide marginal habitat for giant garter snake, and giant garter snakes have low potential to occur. Construction activities within the wastewater treatment ponds have potential to impact giant garter snakes if present. However, potential effects are expected to be temporary and minimized by the implementation of recommendations BIO1 and GGS1 outlined in Section 7.0.

6.1.4 Impacts to Special-Status Birds

There is potential for 11 special status bird species to occur within or adjacent to the Study Area. Additionally, all birds and their nests are protected by the MBTA and California Fish and Game Code. Construction activities have potential to impact nesting birds if present within or adjacent to the construction activities. Implementation of recommendations BIRD1 outlined in Section 7.0 would minimize potential effects to special-status birds.

6.1.5 Impacts to Special-Status Bats

There are three special-status bats with potential to occur in the Study Area. The Project is not anticipated to require removal of trees and/or structures that may provide suitable roosting habitat is not anticipated. However, if removal trees and/or structures is required, implementation of recommendations BAT1 outlined in Section 7.0 would further reduce the potential for effects to special status bats.

6.2 Riparian Habitat and Sensitive Natural Communities

Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

The Study Area does not support any riparian habitat or sensitive natural communities; therefore, the Project would not habitat an adverse effect on riparian habitat or sensitive natural communities.

6.3 Aquatic Resources, Including Waters the U.S. and State

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

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA, are typically not Waters of the U.S. or Waters of the State. Therefore, it is unlikely that Project work within the wastewater treatment ponds would be subject to regulation under Section 401/404 of the CWA and the California Porter-Cologne Water Quality Act. The USACE and RWQCB will make the final determination on the jurisdictional status of the wastewater treatment ponds.

6.4 Wildlife Movement/Corridors

Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Study Area is located among developed residential and commercial landscapes and existing roads. These areas are not expected to support significant wildlife movement corridors therefore the Project would not interfere with wildlife movement.

No nursery sites, as described above, have been documented within the Study Area (CDFW 2022) and none were observed during the site reconnaissance.

6.5 Local Policies, Ordinances, and Other Plans

Does the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project does not conflict with a local policy or ordinance protecting biological resources, including tree ordinances.

Does the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Study Area is not currently covered by any local, regional, or state conservation plan. While the Study Area is within the vicinity of the South Sacramento County Conservation Program (SSHCP), the City of Isleton is not a participating entity in the SSHCP and the Study Area is excluded from the SSHCP development area (SSHCP 2020). Therefore, the Project would not conflict with a local, regional, or state conservation plan.

7.0 RECOMMENDATIONS

This section summarizes recommended measures to avoid, minimize, or compensate for potential impacts to biological resources from the proposed Project.

7.1 General Recommendations

The following general measure is recommended:

- BIO1:** The Project will implement erosion control measures and BMPs to reduce the potential for sediment or pollutants at the Project site. Measures may include THE FOLLOWING:
- Fiber rolls used for erosion control will be certified by the California Department of Food and Agriculture as weed-free.
 - Seed mixtures applied for erosion control will not contain California Invasive Plant Council-designated invasive species (<http://cal-ipc.org/>) and will be composed of native species appropriate for the site.
 - Trash generated onsite will be promptly and properly removed from the site.
 - Any fueling in the upland portion of the Study Area will use appropriate secondary containment techniques to prevent spills.
 - A qualified biologist will conduct a mandatory Worker Environmental Awareness Program for all contractors, work crews, and any onsite personnel on the potential for special status species to occur on the Project site. The training will provide an

overview of habitat and characteristics of the species, the need to avoid certain areas, and the possible penalties for non-compliance.

7.2 Special-Status Species

Recommendations to minimize impacts to special-status species or habitats are summarized below by species group.

7.2.1 Northwestern Pond Turtle

The following measure is recommended to minimize impacts to northwestern pond turtle:

NPT1: Conduct a preconstruction northwestern pond turtle survey in the Project Area within 48 hours prior to construction activities. Any northwestern pond turtle individuals discovered in the Project work area immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified wildlife biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

7.2.2 Giant Garter Snake

The following measure is recommended to minimize impacts to giant garter snake:

GGS1: To the extent feasible, work within suitable habitat for giant garter snake should be limited to the active season, approximately May 1 to October 1.

Conduct a preconstruction giant garter snake survey in the Project area within 24 hours prior to construction activities. Any giant garter snake individuals discovered in the Project work area immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified wildlife biologist and relocated out of harm's way to the nearest suitable habitat at least 200 feet from the Project work area where they were found.

7.2.3 Special-Status Birds and Migratory Bird Treaty Act-Protected Birds (Including Nesting Raptors)

The following measure is recommended to minimize potential impacts to nesting birds:

BIRD1: To protect nesting birds, no Project activity shall begin from February 1 through August 31 unless the following surveys are completed by a qualified wildlife biologist. Separate surveys and avoidance requirements are listed below for all nesting birds and raptors, including , burrowing owl and Swainson's hawk.

- All Nesting Birds - Within 14 days prior to construction (or less if recommended by CDFW), a qualified biologist shall survey for nesting activity of birds within each Project work area and a 100-foot radius. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer

established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

- Raptors– Within 14 days prior to construction, a qualified biologist survey for nesting activity of birds of prey within each Project work area and a 500-foot radius. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.
- Burrowing owl – Within 14 days prior to construction, a qualified wildlife biologist shall survey for burrowing owl within the Project work area and a 250-foot radius of the Project work area.. Surveys shall be conducted at appropriate times (dawn or dusk) to maximize detection. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.
- Swainson’s hawk – Within 14 days prior to construction, a qualified biologist shall survey for nesting activity of Swainson’s hawk within each Project work area and a 0.25-mile radius. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

Two special-status birds identified as potentially occurring are migrants and/or wintering species: great blue heron and bald eagle. These species do not nest in this region or nesting habitat do not occur in the Survey Area. Therefore, no surveys for wintering and/or migrant or foraging species are recommended.

7.2.4 Special-Status Mammals

If removal of trees and/or structures that may provide suitable roosting habitat is proposed, the following measure is recommended to minimize potential impacts to roosting bats:

- BAT1:** Within 6 months of proposed removal of potential roosting habitat, a qualified biologist will survey for all suitable roosting habitat (e.g., manufactured structures, trees) proposed for removal. If suitable roosting habitat is identified and proposed for removal, a qualified biologist will conduct an evening bat emergence survey that may include acoustic monitoring to determine whether or not bats are present. If roosting bats are found, consultation with CDFW prior to initiation of construction activities may be required. If bats are not found during the preconstruction surveys, no further measures are necessary.

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LIST OF APPENDICES

Appendix A – Special-Status Species Searches

Appendix B – Representative Site Photographs

Appendix C – Wildlife Observed Onsite

APPENDIX A

Special-Status Species Searches



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



Query Criteria: Quad IS (Isleton (3812125) OR (Thornton (3812124) OR (Terminous (3812114) OR (Bouldin Island (3812115) OR (Rio Vista (3812126) OR (Liberty Island (3812136) OR (Courtland (3812135) OR (Bruceville (3812134) OR (Jersey Island (3812116))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American badger <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
American peregrine falcon <i>Falco peregrinus anatum</i>	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Antioch andrenid bee <i>Perdita scitula antiochensis</i>	IIHYM01031	None	None	G1T1	S1	
Antioch Dunes anthicid beetle <i>Anthicus antiochensis</i>	IICOL49020	None	None	G1	S3	
Antioch Dunes evening-primrose <i>Oenothera deltooides ssp. howellii</i>	PDONA0C0B4	Endangered	Endangered	G5T1	S1	1B.1
bank swallow <i>Riparia riparia</i>	ABPAU08010	None	Threatened	G5	S2	
Bolander's water-hemlock <i>Cicuta maculata var. bolanderi</i>	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
bristly sedge <i>Carex comosa</i>	PMCYP032Y0	None	None	G5	S2	2B.1
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
California black rail <i>Laterallus jamaicensis coturniculus</i>	ABNME03041	None	Threatened	G3T1	S1	FP
California linderiella <i>Linderiella occidentalis</i>	ICBRA06010	None	None	G2G3	S2S3	
Coastal and Valley Freshwater Marsh <i>Coastal and Valley Freshwater Marsh</i>	CTT52410CA	None	None	G3	S2.1	
Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480	None	None	G2	S1S2	
curved-foot hygrotus diving beetle <i>Hygrotus curvipes</i>	IICOL38030	None	None	G1	S2	
Delta mudwort <i>Limosella australis</i>	PDSCR10030	None	None	G4G5	S2	2B.1
Delta smelt <i>Hypomesus transpacificus</i>	AFCHB01040	Threatened	Endangered	G1	S1	
Delta tule pea <i>Lathyrus jepsonii var. jepsonii</i>	PDFAB250D2	None	None	G5T2	S2	1B.2
eel-grass pondweed <i>Potamogeton zosteriformis</i>	PMPOT03160	None	None	G5	S3	2B.2



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



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
giant gartersnake <i>Thamnophis gigas</i>	ARADB36150	Threatened	Threatened	G2	S2	
great blue heron <i>Ardea herodias</i>	ABNGA04010	None	None	G5	S4	
Great Valley Mixed Riparian Forest <i>Great Valley Mixed Riparian Forest</i>	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest <i>Great Valley Valley Oak Riparian Forest</i>	CTT61430CA	None	None	G1	S1.1	
green sturgeon - southern DPS <i>Acipenser medirostris pop. 1</i>	AFCAA01031	Threatened	None	G2T1	S1	
Heckard's pepper-grass <i>Lepidium latipes var. heckardii</i>	PDBRA1M0K1	None	None	G4T1	S1	1B.2
hoary bat <i>Lasiurus cinereus</i>	AMACC05030	None	None	G3G4	S4	
legenere <i>Legenere limosa</i>	PDCAM0C010	None	None	G2	S2	1B.1
longfin smelt <i>Spirinchus thaleichthys</i>	AFCHB03010	Candidate	Threatened	G5	S1	
marsh skullcap <i>Scutellaria galericulata</i>	PDLAM1U0J0	None	None	G5	S2	2B.2
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	PDAPI19030	None	Rare	G2	S2	1B.1
Northern California legless lizard <i>Anniella pulchra</i>	ARACC01020	None	None	G3	S3	SSC
Northern Hardpan Vernal Pool <i>Northern Hardpan Vernal Pool</i>	CTT44110CA	None	None	G3	S3.1	
pappose tarplant <i>Centromadia parryi ssp. parryi</i>	PDAST4R0P2	None	None	G3T2	S2	1B.2
redheaded sphecid wasp <i>Eucerceris ruficeps</i>	IIHYM18010	None	None	G1G3	S1S2	
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	IICOL5V010	None	None	G2?	S2?	
riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	AMAEB01021	Endangered	Endangered	G5T1	S1	
Sacramento anthicid beetle <i>Anthicus sacramento</i>	IICOL49010	None	None	G1	S4	
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	AFCJB34020	None	None	G3	S3	SSC
saline clover <i>Trifolium hydrophilum</i>	PDFAB400R5	None	None	G2	S2	1B.2
San Joaquin spearscale <i>Extriplex joaquinana</i>	PDCHE041F3	None	None	G2	S2	1B.2



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



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Sanford's arrowhead <i>Sagittaria sanfordii</i>	PMALI040Q0	None	None	G3	S3	1B.2
side-flowering skullcap <i>Scutellaria lateriflora</i>	PDLAM1U0Q0	None	None	G5	S2	2B.2
soft salty bird's-beak <i>Chloropyron molle ssp. molle</i>	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
song sparrow ("Modesto" population) <i>Melospiza melodia pop. 1</i>	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus pop. 11</i>	AFCHA0209K	Threatened	None	G5T2Q	S2	
Suisun Marsh aster <i>Symphotrichum lentum</i>	PDASTE8470	None	None	G2	S2	1B.2
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2T3	S3	
Valley Oak Woodland <i>Valley Oak Woodland</i>	CTT71130CA	None	None	G3	S2.1	
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp <i>Lepidurus packardi</i>	ICBRA10010	Endangered	None	G4	S3S4	
watershield <i>Brasenia schreberi</i>	PDCAB01010	None	None	G5	S3	2B.3
western bumble bee <i>Bombus occidentalis</i>	IIHYM24250	None	None	G2G3	S1	
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
western red bat <i>Lasiurus blossevillii</i>	AMACC05060	None	None	G4	S3	SSC
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
white-tailed kite <i>Elanus leucurus</i>	ABNKC06010	None	None	G5	S3S4	FP
woolly rose-mallow <i>Hibiscus lasiocarpus var. occidentalis</i>	PDMAL0H0R3	None	None	G5T3	S3	1B.2

Record Count: 58

Attachment A-2
CNPS 9-Quad

ScientificName	CommonName	Family	Lifeform	CRPR	GRank	SRank	OtherStatus	CESA	FESA	BloomingPeriod	Habitat	sci	habit	Low	Low	High	High	Endem	States	Counties	Quads	EOtotal	EOA	EOB	EOC	EOD	EOE	EOU	DHistoric	EORecent	EODEtant	subjExtiv	OExtipati	OThreatLI	Notes	Threats	Taxonomy	Other	FullScientificName	Synonyms	ElementCode	USDAPlantsymbol	CBRReason	DateAdded	LastUpdate					
<i>Cicuta maculata</i> var. <i>bolanderi</i>	Bolander's water-hemlock	Apiaceae	perennial herb	28.1	G5T4T5	S27		None	None	Jul-Sep	Marshes and swamps			0	0	200	655	FALSE	CA, NM, SBA, SOL	Antioch North (3812117), Benicia (3812212), Birds Landing (3812227), Brentwood (3712186), Briones Valley (3712262), Bruceville (3812145), Casamita (4412075), Courtland (3812135), Dozier (3812137), Drakes Bay (3812218), Fairfield South (3812221), Honker Bay (3812118), Inverness (3812217), Isleton (3812125), Jersey Island (3812136), Thornton (3812124), Tomales (3812228), Vine Hill (3812211)		17	0	2	1	0	0	14	11	6	17	0	0	1						Threatened by development, non-native plants, and hydrological alterations.				<i>Cicuta maculata</i> var. <i>bolanderi</i> (S. Watson) G.A. Mulligan		PDAPM051	CIMAB		1/1/1974 0:00	5/26/2021 0:00
<i>Centromadia parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	Asteraceae	perennial rhizomatous herb (aquatic)	4.2	G3T3	S3	IUCH_LC	None	None	May-Oct	Marshes and swamps	sometimes	0	0	100	330	TRUE	CA	BUT, COL, GLE, LAK, MER, MOJO, SAC, SLO, SOL, STA, YOLO	Adn (4112028), Arbouckle (3912211), Big Swamp (4112221), Birds Landing (3812227), Bruceville (3812134), Brush Lake (3712215), Butte City (3912148), Clarksburg (3812143), Colusa (3912221), Courtland (3812135), Davis (3812156), Dozier (3812137), Elmira (3812138), Florin (3812144), Glenn (3912251), Grays Bend (3812166), Llano Seco (3912158), Logandale (3912242), Los Banos (3712057), Maxwell (3912232), Meridian (3912128), Moulton Weir (3912231), Mt. George (3812232), Pennington (3912137), Princeton (3812243), Sacramento West (3812155), Salt Canyon (3912213), San Luis Ranch (3712027), Sandy Wash (3712025), Santa Rita Bridge (3712015), Saven (3812140), Sites (3912233), Stockton East (3712182), Taylor Monument (3812165), Turner Ranch (3712026), West of Biggs (3912147), Willow Springs (3912141), Williams (3912222), Winters (3812158), Woodland (3812167)		43	6	1	0	0	4	32	28	15	39	2	2	3			Many occurrences historical; need field surveys. See Systema Naturae: Per Regna Tria Naturae 2:11:853 (1791) for original description.				<i>Brasenia schreberi</i>		POCAB0100	BWSC		10/27/2010 0:00	7/14/2021 0:00			
<i>Brasenia schreberi</i>	watershield	Cabombaceae	perennial herb (aquatic)	28.3	G5	S3		None	None	Jun-Sep	Marshes and swamps			0	0	2200	7220	FALSE	MO, MS, h																															

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sacramento County, California



Local office

San Francisco Bay-Delta Fish And Wildlife

☎ (916) 930-5603

📅 (916) 930-5654

650 Capitol Mall
Suite 8-300
Sacramento, CA 95814

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [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.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Tiger Salamander <i>Ambystoma californiense</i> There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

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

Insects

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

Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* Threatened
 Wherever found
 There is **final** critical habitat for this species. The location of the critical habitat is not available.
<https://ecos.fws.gov/ecp/species/7850>

Crustaceans

NAME	STATUS
<p>Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8246</p>	Endangered
<p>Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/498</p>	Threatened
<p>Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2246</p>	Endangered

Flowering Plants

NAME	STATUS
<p>Large-flowered Fiddleneck <i>Amsinckia grandiflora</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5558</p>	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Delta Smelt <i>Hypomesus transpacificus</i> https://ecos.fws.gov/ecp/species/321#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your

list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Belding's Savannah Sparrow *Passerculus sandwichensis beldingi*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/8>

Breeds Apr 1 to Aug 15

Bullock's Oriole *Icterus bullockii*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds Mar 21 to Jul 25

Clark's Grebe *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jun 1 to Aug 31

<p>Common Yellowthroat <i>Geothlypis trichas sinuosa</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p>https://ecos.fws.gov/ecp/species/2084</p>	Breeds May 20 to Jul 31
<p>Nuttall's Woodpecker <i>Picoides nuttallii</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p>https://ecos.fws.gov/ecp/species/9410</p>	Breeds Apr 1 to Jul 20
<p>Oak Titmouse <i>Baeolophus inornatus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9656</p>	Breeds Mar 15 to Jul 15
<p>Tricolored Blackbird <i>Agelaius tricolor</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/3910</p>	Breeds Mar 15 to Aug 10
<p>Wrentit <i>Chamaea fasciata</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 15 to Aug 10
<p>Yellow-billed Magpie <i>Pica nuttalli</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9726</p>	Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey

effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

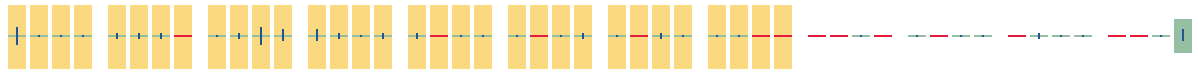
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

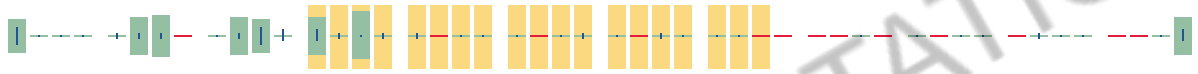
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



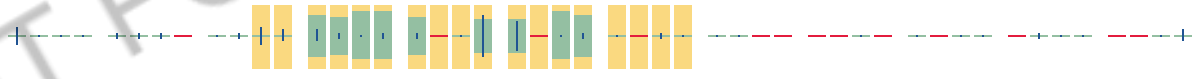
Bald Eagle
 Non-BCC
 Vulnerable
 (This is not a
 Bird of
 Conservation
 Concern (BCC)
 in this area, but
 warrants
 attention
 because of the
 Eagle Act or for
 potential
 susceptibilities
 in offshore
 areas from
 certain types of
 development
 or activities.)



Belding's
 Savannah
 Sparrow
 BCC - BCR (This
 is a Bird of
 Conservation
 Concern (BCC)
 only in
 particular Bird
 Conservation
 Regions (BCRs)
 in the
 continental
 USA)



Bullock's Oriole
 BCC - BCR (This
 is a Bird of
 Conservation
 Concern (BCC)
 only in
 particular Bird
 Conservation
 Regions (BCRs)
 in the
 continental
 USA)

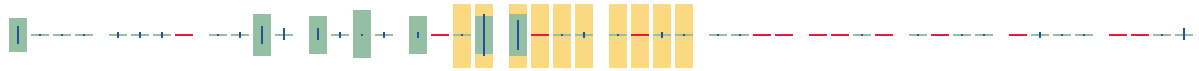


DRAFT FOR CONSULTATION

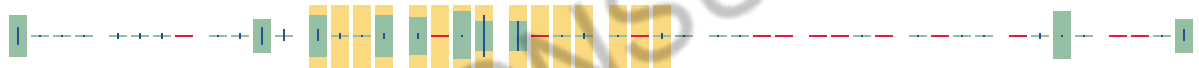
Clark's Grebe
BCC Rangewide
(CON) (This is a
Bird of
Conservation
Concern (BCC)
throughout its
range in the
continental
USA and
Alaska.)



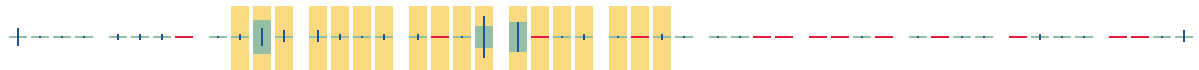
Common
Yellowthroat
BCC - BCR (This
is a Bird of
Conservation
Concern (BCC)
only in
particular Bird
Conservation
Regions (BCRs)
in the
continental
USA)



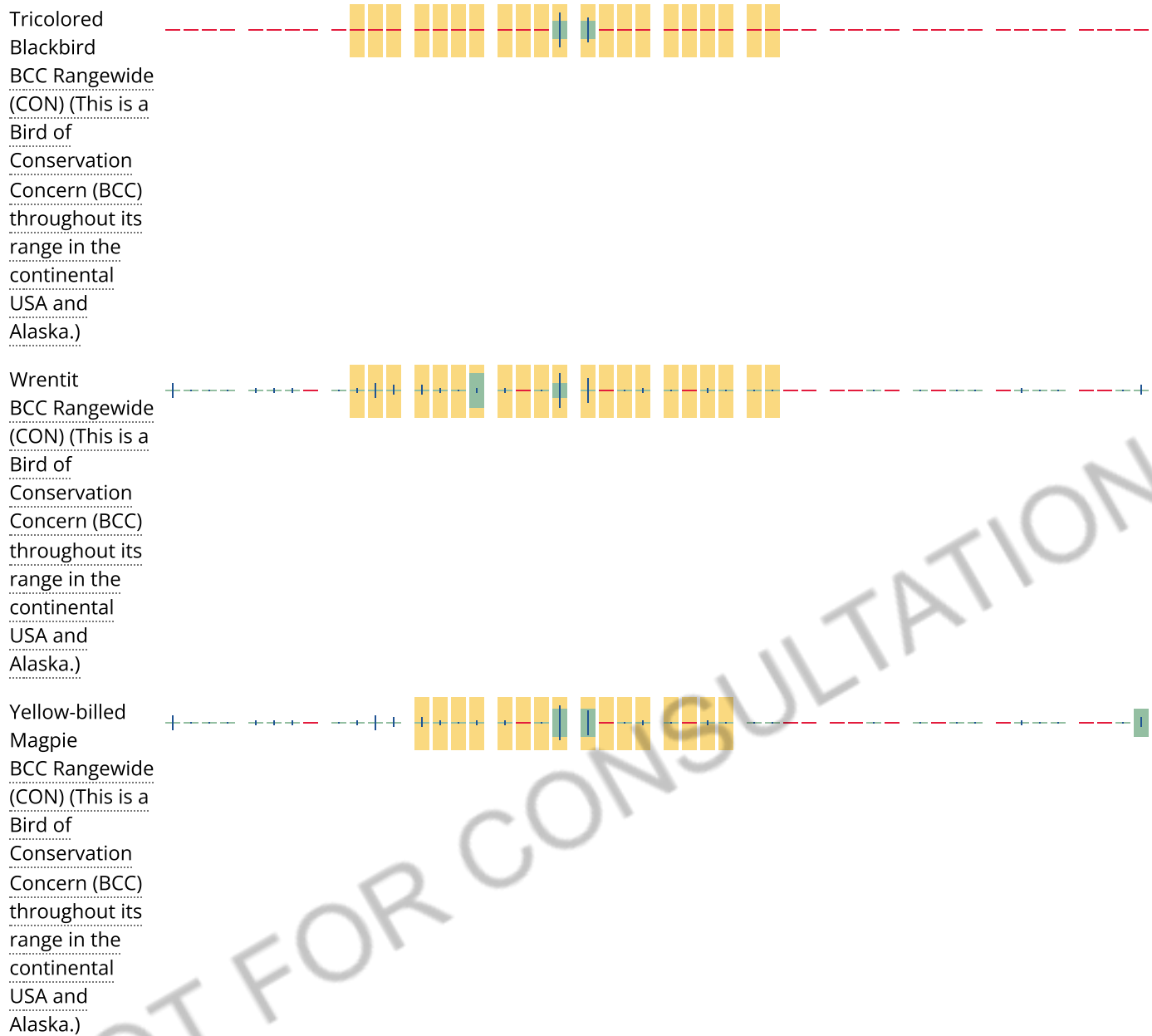
Nuttall's
Woodpecker
BCC - BCR (This
is a Bird of
Conservation
Concern (BCC)
only in
particular Bird
Conservation
Regions (BCRs)
in the
continental
USA)



Oak Titmouse
BCC Rangewide
(CON) (This is a
Bird of
Conservation
Concern (BCC)
throughout its
range in the
continental
USA and
Alaska.)



NOT FOR CONSULTATION



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Coastal Barrier Resources System

Projects within the [John H. Chafee Coastal Barrier Resources System](#) (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local [Ecological Services Field Office](#) or visit the [CBRA](#)

[Consultations website](#). The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

THERE ARE NO KNOWN COASTAL BARRIERS AT THIS LOCATION.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the [official CBRS maps](#). The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation>

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should

seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

National Marine Fisheries Service – West Coast Region – California

December 2016 (Accessed October 13, 2022)

Intersection of USGS 7.5" Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data within California

An "X" following a listed feature indicates it may be present. Identified resources may be present throughout the entire quadrangle of only a portion of it.

Quad Name Isleton
Quad Number 38121-B5

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - X

SRWR Chinook Salmon ESU (E) - X

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - X

Eulachon (T) -

sDPS Green Sturgeon (T) - X

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat - X

SRWR Chinook Salmon Critical Habitat - X

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - X

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat - X

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH - X

Groundfish EFH - X

Coastal Pelagics EFH -

Highly Migratory Species EFH -

ESA and MMPA Cetaceans/Pinnipeds

MMPA Cetaceans -

MMPA Pinnipeds -

EFH Mapper Report

EFH Data Notice

Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional fishery management councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.

[West Coast Regional Office](#)

[Alaska Regional Office](#)

Query Results

Degrees, Minutes, Seconds: Latitude = 38° 9' 40" N, Longitude = 122° 23' 22" W


Decimal Degrees: Latitude = 38.161, Longitude = -121.610

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

EFH

No Essential Fish Habitats (EFH) were identified at the report location.

Salmon EFH

Link	HUC Name	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
	Lower Sacramento	Chinook Salmon	All	Pacific	Pacific Coast Salmon Plan

HAPCs

No Habitat Areas of Particular Concern (HAPC) were identified at the report location.

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.

****For links to all EFH text descriptions see the complete data inventory: [open data inventory -->](#)**

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.

****For links to all EFH text descriptions see the complete data inventory: [open data inventory -->](#)**

Pacific Coastal Pelagic Species,

Jack Mackerel,

Pacific (Chub) Mackerel,

Pacific Sardine,

Northern Anchovy - Central Subpopulation,

Northern Anchovy - Northern Subpopulation,

Pacific Highly Migratory Species,

Bigeye Thresher Shark - North Pacific,

Bluefin Tuna - Pacific,

Dolphinfish (Dorado or Mahimahi) - Pacific,

Pelagic Thresher Shark - North Pacific,

Swordfish - North Pacific

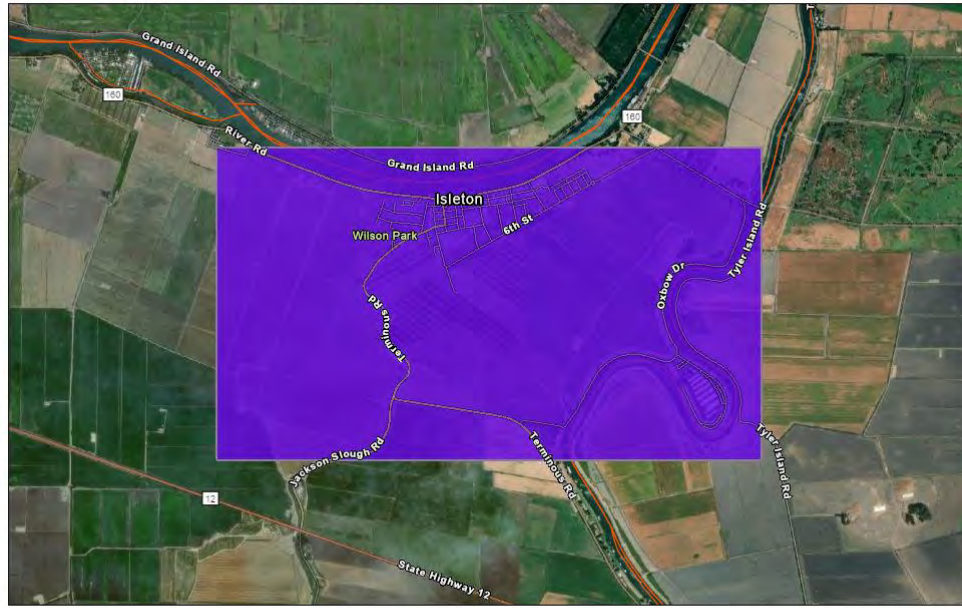


Critical Habitat Report

Area of Interest (AOI) Information

Area : 9.57 km²

Oct 13 2022 9:15:12 Pacific Daylight Time



All_critical_habitat_line_20220404



Summary

Name	Count	Area(km ²)	Length(m)
All Critical Habitat Polyline	10	N/A	21,446.87
All Critical Habitat Polygon	0	0	N/A

All Critical Habitat Polyline

#	Listed Entity	Common Name	Scientific Name	Length(m)
1	Salmon, Chinook [Sacramento River winter-run ESU]	Salmon, Chinook	Oncorhynchus tshawytscha	2,151.76
2	Salmon, Chinook [Central Valley spring-run ESU]	Salmon, Chinook	Oncorhynchus tshawytscha	6,278.60
3	Steelhead [California Central Valley DPS]	Steelhead	Oncorhynchus mykiss	6,278.60
4	Sturgeon, green [Southern DPS]	Sturgeon, green	Acipenser medirostris	6,737.91

APPENDIX B

Representative Site Photographs



Photo 1. Overview of Corps Yard/Staging Area 1. 8-5-2022



Photo 2. Ruderal vegetation in Corps yard (Staging Area 1). 8-5-2022



Photo 3. Overview of Corps Yard/Staging Area 1. 8-5-2022



Photo 4. Overview of ruderal grassland in WWTP. 8-5-2022



Photo 5. Overview of ruderal grassland and gravel roads in WWTP. 8-5-2022



Photo 6. Wastewater treatment pond within WWTP. 8-5-2022



Photo 7. Emergent vegetation around the wastewater treatment ponds within WWTP. 8-5-2022



Photo 8. Ruderal grassland and dirt road in WWTP. 8-5-2022



Photo 9. Ruderal grassland in Isleton Community Baseball Field/Staging Area 2. 8-5-2022



Photo 10. Ruderal grassland in Isleton Community Baseball Field/Staging Area 2. 8-5-2022



Photo 11. Developed streets in the City of Isleton. 8-5-2022



Photo 12. Developed streets in the City of Isleton. 8-5-2022



APPENDIX C

Wildlife Observed Onsite

Wildlife Observed (August 05, 2022)

Common Name	Scientific Name
Canada Goose	<i>Branta canadensis</i>
Mallard	<i>Anas platyrhynchos</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Mourning Dove	<i>Zenaida macroura</i>
Black-necked Stilt	<i>Himantopus mexicanus</i>
Killdeer	<i>Charadrius vociferus</i>
Green Heron	<i>Butorides virescens</i>
Black Phoebe	<i>Sayornis nigricans</i>
California Scrub-Jay	<i>Aphelocoma californica</i>
Yellow-billed Magpie	<i>Pica nuttalli</i>
Barn Swallow	<i>Hirundo rustica</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
House Finch	<i>Haemorhous mexicanus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>

Attachment C

**Energy Consumption - Total Construction-
Related Gasoline Usage**

ECORP Consulting, Inc.

**Proposed Project
Total Construction-Related Gasoline Usage**

Construction

Table 1. Construction Year One			
Action	Carbon Dioxide Equivalents (CO₂e) in Metric Tons¹	Conversion of Metric Tons to Kilograms²	Construction Equipment Emission Factor²
Project Construction	504	504,000	10.15
Total Gallons Consumed During Construction Year One:			49,655

Sources:

¹ECORP Consulting. 2022. Isleton Wastewater Treatment System Improvement Project – Emissions Memorandum.

²Climate Registry. 2016. *General Reporting Protocol for the Voluntary Reporting Program version 2.1*. January 2016.

<http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf>

Attachment D

**Isleton Wastewater Treatment System
Improvement Project – Noise Impact
Memorandum**

ECORP Consulting, Inc.

August 2022

Dave Harden
Bennett Engineering Services
1082 Sunrise Avenue, Suite 100
Roseville, CA 95661

Subject: Isleton Wastewater Treatment System Improvement Project – Noise Impact Memorandum

PURPOSE

This memorandum documents the results of Noise Impact Assessment completed for the Isleton Wastewater Treatment System Improvement Project (Project). The analysis was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the City of Isleton Municipal Code Chapter 6.44. The purpose of this memorandum is to estimate Project-generated noise and to determine the level of impact the Project would have on the environment.

PROJECT DESCRIPTION

The Proposed Project includes sanitary sewer improvements, storm drain reconnections and equipment upgrades to the City of Isleton wastewater treatment system. Specifically, the proposed improvements and upgrades involves the replacement of approximately 5,425 linear feet of wastewater gravity pipeline, replacement of 25 manhole covers, and abandonment of 1,200 linear feet of wastewater gravity pipeline. Storm drain reconnections would include approximately 1,200 linear feet of new storm drainpipe, nine manholes and two drain inlet connections. Equipment upgrades at the City's wastewater treatment facility would generally include installation of a new backup generator, new aerators, blowers and other electrical necessary equipment. The sanitary sewer improvements and storm drain reconnections would occur in segments within the city limits, which are bound on the east by West Tyler Island Bridge Road, the south by 6th Street, the north by the Sacramento River and on the West by a canal west of Georgiana Court.

The Project proposes to abandon in place portions of the existing pipeline while removing other portions. Most of the construction would occur within the existing right-of-way (ROW) of the streets, with the exception of four segments. One segment of sanitary sewer replacement is within an easement that traverses along private property from Third Avenue to Fourth Avenue. One segment of storm drain installation is within an easement from the trailer park east of Miners Court south to Third Avenue. The remaining two segments are to be abandoned and run east from Gaswell Road to F Street and from F Street to G Street. It is anticipated that installation would be completed by open trenching, but pipe bursting or boring may be utilized in areas where work area is limited in easements.

On average, there will be 10 construction workers at the Project Site while construction activities are occurring. Construction is anticipated to start in July of 2025 and take approximately 100 days to complete. Installation would be completed mostly by open trenching. The trenches are anticipated to be on average 8 feet deep and 3 feet wide, sometimes reaching 12 feet in depth. All trenches will be backfilled with existing native soils or a combination of new AB, AC, and pipe bedding material. For the area where trenching is required in the street travel way, the asphalt and fill material would be repaired per City standards.

Isleton Wastewater Treatment System Improvement Project

Approximately 2,000 cubic yards of import and 2,000 cubic yards of export soil material would be required to complete the Project. This includes export of excavation from pipe zone and roadway material in the trench zone and the import of new AB, AC, and pipe bedding material. Most of the trench material would be reused in the backfill of the trench.

NOISE ANALYSIS

Fundamentals of Sound and Environmental Noise

Addition of Decibels

The decibel (dB) scale is logarithmic, not linear; therefore, sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Under the dB scale, three sources of equal loudness together would produce an increase of 5 dB.

Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB (dBA) for each doubling of distance from a stationary or point source (Federal Highway Administration [FHWA] 2017). Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (FHWA 2017). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about 5 dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction of 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend length-wise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to

decreasing noise levels only when the structure breaks the line of sight between the source and the receiver.

The manner in which older structures in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (California Department of Transportation [Caltrans] 2002). The exterior-to-interior reduction of newer structures is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006).

Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 p.m. to 10:00 p.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night

can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA), or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA noise levels, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Vibration Fundamentals

Ground vibration can be measured several ways to quantify the amplitude of vibration produced. This can be through peak particle velocity or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

Existing Noise Environment

The City of Isleton, which encompasses the Project Site, is impacted by noise sources typical of a small, rural city. It is subject to typical neighborhood noise such as noise generated by traffic, heavy machinery, and day-to-day outdoor activities as well as noise generated from the various land uses (i.e., residential, commercial, and institutional) that generate stationary source noise. Mobile sources of noise, especially cars and trucks, are the most common source of noise in the community.

The American National Standards Institute (ANSI) Standard 12.9-2013/Part 3 "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present" provides a table of approximate background sound levels in L_{dn} , daytime L_{eq} , and nighttime L_{eq} , based on land use and population density. The ANSI standard estimation divides land uses into six distinct categories. Descriptions of these land use categories, along with the typical daytime and nighttime levels, are provided in Table 1. At times, one could reasonably expect the occurrence of periods that are both louder and quieter than the levels listed in the table. ANSI notes, "95% prediction interval [confidence interval] is on the order of +/- 10 dB." The majority of the Project Area would be considered ambient noise Category 3 or 4.

Table 1. ANSI Standard 12.9-2013/Part 3 A-weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	Typical L _{dn}	Daytime L _{eq}	Nighttime L _{eq}
1	Noisy Commercial & Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy, downtown commercial areas; at intersections for mass transportation or other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	67 dBA	66 dBA	58 dBA
2	Moderate Commercial & Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1, but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	62 dBA	61 dBA	54 dBA
3	Quiet Commercial, Industrial Areas and Normal Urban & Noisy Suburban Residential Areas	Light traffic conditions where no mass-transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds; residential areas and commercial streets, and intersections, with little traffic, compose this category.	6,384	57 dBA	55 dBA	49 dBA
4	Quiet Urban & Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group, the background is either distant traffic or is unidentifiable; typically, the population density is one-third the density of Category 3.	2,000	52 dBA	50 dBA	44 dBA
5	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas, such as a small wooded valley.	638	47 dBA	45 dBA	39 dBA
6	Very Quiet Sparse Suburban or rural Residential Areas	These areas are similar to Category 4 but are usually in sparse suburban or rural areas; and, for this group, there are few if any nearby sources of sound.	200	42 dBA	40 dBA	34 dBA

Source: The American National Standards Institute (ANSI) 2013

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The Project Site spans many different locations throughout Isleton, which is primarily made up of sensitive residential receptors. Virtually all aspects of Project implementation would involve construction activity occurring adjacent to these land uses.

Regulatory Setting

Federal

National Institute of Occupational Safety and Health

A division of the U.S. Department of Health and Human Services, the National Institute for Occupational Safety and Health (NIOSH) has established a construction-related noise level threshold as identified in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998. NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. The intention of these thresholds is to protect people from hearing losses resulting from occupational noise exposure.

Local

City of Isleton Municipal Code

The City of Isleton's regulations with respect to noise are included in Chapter 6.44, *Disruptive Noise*. Applicable to the Proposed Project, Section 6.44.010 *Unnecessary Noise*, states that the operation of any pile-driver, stream-shovel, pneumatic hammer, derrick, stream or electric hoist or other appliance, the use of which is attended by loud or unusual noise, any power saw, power planer, or other powered tool or appliance or saw or hammer, or other tool, so as to disturb the quiet, comfort, or repose of persons in any dwelling, hotel, apartment, or other type of residence, or of any person in the vicinity, is prohibited between the hours of 10:00 p.m. and 7:00 a.m.

Standards of Significance

For purposes of this analysis, City of Isleton noise standards were used for evaluation of Project-related noise impacts. As previously stated, Chapter 6.44 of the City of Isleton Municipal Codes states that that no person shall engage in the operation of any pile-driver, stream-shovel, pneumatic hammer, derrick, stream or electric hoist or other appliance, the use of which is attended by loud or unusual noise, any power saw, power planer, or other powered tool or appliance or saw or hammer, or other tool, so as to disturb the quiet, comfort, or repose of persons in any dwelling, hotel, apartment, or other type of residence, or of any person in the vicinity, between the hours of 10:00 p.m. and 7:00 a.m.

In order to evaluate the potential health-related effects (physical damage to the ear and mental damage from lack of sleep or focus) from construction noise, construction equipment noise levels are calculated and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by NIOSH, described above.

Methodology

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Model (2006). Operational noise levels are addressed qualitatively. Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from California Department of Transportation (Caltrans) guidelines set forth above. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures.

Noise Impact Discussion

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The significance criteria promulgated by the City's Municipal Code may be relied upon to make impact determinations.

Would the Project Result in the 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?

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise sensitive and may warrant unique measures for protection from intruding noise. The Project Site spans many different locations throughout Isleton, which is primarily made up of sensitive residential receptors. Virtually all aspects of Project implementation would involve construction activity occurring adjacent to these land uses.

Onsite Construction Noise Impacts

Construction noise associated with the Proposed Project would be temporary and would vary depending on the specific nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., site preparation, excavation, paving). Noise generated by construction equipment, including earth movers, pile drivers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

As previously described, the City of Isleton Municipal Code states that the operation of any pile-driver, stream-shovel, pneumatic hammer, derrick, stream or electric hoist or other appliance, the use of which is attended by loud or unusual noise, any power saw, power planer, or other powered tool or appliance or saw or hammer, or other tool, so as to disturb the quiet, comfort, or repose of persons in any dwelling, hotel, apartment, or other type of residence, or of any person in the vicinity, is prohibited between the hours of 10:00 p.m. and 7:00 a.m. The Project would be required to comply with this Municipal Code requirement.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors and in order to evaluate the potential health-related effects (physical damage to the ear) from construction noise, the construction equipment noise levels were calculated using the Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by NIOSH. A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

It is acknowledged that the majority of construction equipment is not situated at any one location during construction activities, but rather spread throughout the linear Project Site and at various distances from sensitive receptors. Therefore, this analysis measures construction noise produced by all construction equipment operating simultaneously at a distance of 100 feet. The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 1.

Table 2. Construction Average (dBA) Noise Levels at Nearest Residential Receptors			
Equipment	Estimated Exterior Construction Noise Level at Existing Residences (dBA)	Construction Noise Standards (dBA L_{eq})	Exceeds Standards?
Site Preparation	83.8 dBA	85	No
Excavation	83.8 dBA	85	No
Utilities	81.3 dBA	85	No
Paving	81.1 dBA	85	No

Source: Construction noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Attachment A for Model Data Outputs.

Notes: Construction equipment used during construction derived from the Roadway Construction Emissions Model (RCEM). RCEM contains default construction equipment and usage parameters for typical roadway construction projects.

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown in Table 2, Project onsite construction activities would not exceed the NIOSH threshold of 85 dBA L_{eq} at the nearest noise-sensitive receptors.

Offsite Construction Traffic Noise Impacts

Construction associated with the Project would result in additional traffic (e.g., worker commutes and material hauling) on adjacent roadways over the period that construction occurs. According to the RCEM, which is used to predict the number of on-road Project construction-related trips, construction would not instigate more than 30 trips in a single day (up to 20 construction worker commute trips and up to 10 haul truck trips). According to the Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). While Project construction workers would instigate their trip to the Project Site from differing locations, the addition of 30 daily trips spread over the various roadway facilities that would be used to reach the Project Site would not result in a doubling of traffic on any of these roadway facilities, and therefore its contribution to existing traffic noise would not be perceptible. Additionally, it is noted that construction is temporary, and construction-related trips would cease upon completion of construction.

Operational Noise Impacts

The Project proposes necessary upgrades to the City of Isleton’s wastewater treatment system. The Project would not expand its wastewater treatment system capacity in a manner that would induce population or employment growth. Rather, the Project proposes upgrades to the City of Isleton wastewater treatment system for the purpose of accommodating existing wastewater flows. Once upgrades are complete it would not be a greater source of operational noise beyond current conditions.

Would the Project Result the Generation of Excessive Groundborne Vibration or Groundborne Noise Levels?

Construction Vibration Impacts

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is not anticipated that pile drivers would be necessary during Project construction. Vibration decreases rapidly with distance, and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 3.

Table 3. Typical Construction Equipment Vibration Levels	
Equipment Type	Peak Particle Velocity at 50 Feet (inches per second)
Vibratory Roller	0.07
Hoe Ram (Rock Breaker)	0.03
Large Bulldozer	0.03
Caisson Drilling	0.03
Loaded Trucks	0.02
Jackhammer	0.01
Small Bulldozer/Tractor	0.00

Source: FTA 2018

The City of Isleton does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020) recommended standard of 0.2 inch per second peak particle velocity (PPV) with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

As shown in Table 3, groundborne vibrations attenuate rapidly from the source due to geometric spreading and material damping. Geometric spreading occurs because the energy is radiated from the source and spreads over an increasingly large distance while material damping is a property of the friction

loss which occurs during the passage of a vibration wave. Vibration as a result of construction activities would not exceed 0.2 PPV. Thus, Project construction would not exceed the recommended threshold.

Operational Vibration Impacts

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels. Therefore, the Project would result in no groundborne vibration impacts during operations.

Would the Project Expose People Residing or Working in the Project Area to Excessive Airport Noise Levels?

The Project Site is located approximately 4.8 miles southeast of the Rio Vista Municipal Airport and 4.9 miles southwest of the Spezia Airport. The City of Isleton and the Project Site are located outside of the noise contours of either of these airport facilities. Aircraft noise does not significantly impact the City of Isleton and the Proposed Project would not expose people visiting or working on the Project Site to excess airport noise levels.

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Federal Highway Administration Highway Roadway Construction Noise Model – Project
Construction Noise

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2022

Case Description: **Isleton WW Treatment System - Grubbing & Land Clearing**

Description Land Use
Grubbing & Land Clearing Residential

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Auger Drill Rig	No	20		84.4	100	0
Concrete Saw	No	20		89.6	100	0
Concrete Saw	No	20		89.6	100	0
Tractor	No	40	84		100	0
Tractor	No	40	84		100	0
Excavator	No	40		80.7	100	0
Generator	No	50		80.6	100	0
Gradall	No	40		83.4	100	0
Backhoe	No	40		77.6	100	0
Backhoe	No	40		77.6	100	0
Slurry Trenching Machine	No	50		80.4	100	0
Slurry Trenching Machine	No	50		80.4	100	0

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Auger Drill Rig	78.3	71.3
Concrete Saw	83.6	76.6
Concrete Saw	83.6	76.6
Tractor	78	74
Tractor	78	74
Excavator	74.7	70.7
Generator	74.6	71.6
Gradall	77.4	73.4
Backhoe	71.5	67.6
Backhoe	71.5	67.6
Slurry Trenching Machine	74.3	71.3
Slurry Trenching Machine	74.3	71.3
Total	83.6	83.8

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2022

Case Description: **Isleton WW Treatment System - Excavation**

Description Land Use
Excavation Residential

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Auger Drill Rig	No	20		84.4	100	0
Concrete Saw	No	20		89.6	100	0
Concrete Saw	No	20		89.6	100	0
Tractor	No	40	84		100	0
Tractor	No	40	84		100	0
Excavator	No	40		80.7	100	0
Generator	No	50		80.6	100	0
Gradall	No	40		83.4	100	0
Backhoe	No	40		77.6	100	0
Backhoe	No	40		77.6	100	0
Slurry Trenching Machine	No	50		80.4	100	0
Slurry Trenching Machine	No	50		80.4	100	0

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Auger Drill Rig	78.3	71.3
Concrete Saw	83.6	76.6
Concrete Saw	83.6	76.6
Tractor	78	74
Tractor	78	74
Excavator	74.7	70.7
Generator	74.6	71.6
Gradall	77.4	73.4
Backhoe	71.5	67.6
Backhoe	71.5	67.6
Slurry Trenching Machine	74.3	71.3
Slurry Trenching Machine	74.3	71.3
Total	83.6	83.8

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2022

Case Description: **Isleton WW Treatment System - Utility Installation**

Description Land Use
Utility Installation Residential

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Crane	No	16		80.6	100	0
Tractor	No	40	84		100	0
Tractor	No	40	84		100	0
Excavator	No	40		80.7	100	0
Gradall	No	40		83.4	100	0
Generator	No	50		80.6	100	0
Gradall	No	40		83.4	100	0
Backhoe	No	40		77.6	100	0
Backhoe	No	40		77.6	100	0

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Crane	74.5	66.6
Tractor	78	74
Tractor	78	74
Excavator	74.7	70.7
Gradall	77.4	73.4
Generator	74.6	71.6
Gradall	77.4	73.4
Backhoe	71.5	67.6
Backhoe	71.5	67.6
Total	78	81.3

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2022

Case Description: **Isleton WW Treatment System - Paving**

Description Land Use
Paving Residential

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor	No	40	84		100	0
Tractor	No	40	84		100	0
Gradall	No	40		83.4	100	0
Paver	No	50		77.2	100	0
Paver	No	50		77.2	100	0
Compactor (ground)	No	20		83.2	100	0
Compactor (ground)	No	20		83.2	100	0
Roller	No	20		80	100	0
Roller	No	20		80	100	0
Backhoe	No	40		77.6	100	0
Backhoe	No	40		77.6	100	0

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Tractor	78	74
Tractor	78	74
Gradall	77.4	73.4
Paver	71.2	68.2
Paver	71.2	68.2
Compactor (ground)	77.2	70.2
Compactor (ground)	77.2	70.2
Roller	74	67
Roller	74	67
Backhoe	71.5	67.6
Backhoe	71.5	67.6
Total	78	81.1

*Calculated Lmax is the Loudest value.