CITY OF ESCALON CONNECTION TO NICK DEGROOT WATER TREATMENT PLANT
DRAFT INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION
APPENDIX
ESCALON, SAN JOAQUIN COUNTY, CALIFORNIA

LEAD AGENCY:
CITY OF ESCALON
2060 MCHENRY AVENUE, ESCALON, CA 95320

PREPARED BY:
ARDURRA GROUP

SEPTEMBER 6, 2024

APPENDIX

Draft

FOR THE

CITY OF ESCALON CONNECTION TO NICK DEGROOT WATER TREATMENT PLANT

ESCALON, SAN JOAQUIN COUNTY, CALIFORNIA

PREPARED FOR:

CITY OF ESCALON

2060 McHenry Avenue

Escalon, CA 95320

209-691-7430

SEPTEMBER 6, 2024

PREPARED BY:

ARDURRA GROUP

3737 Birch Street, Suite 250

Newport Beach, CA 96220

APPENDICIES

APPENDIX A: Air Quality and Greenhouse Gas Impact Study/Energy (Ganddini 2023)

APPENDIX B: Biological Resources (ELMT 2024)

APPENDIX C: Cultural/Archaeological/Tribal/ Paleontological Resources Report (BCR Consulting 2023)

APPENDIX D: Noise Study (Ganddini 2023)

APPENDIX A

Air Quality and Greenhouse Gas Impact Study/Energy (Ganddini 2023)

July 25, 2023

Ms. Lori Trottier
ARDURRA
3737 Birch Street, Suite 250
Newport Beach, California 92660

Re: SSJID Surface Water Connection Air Quality, Greenhouse Gas, & Energy Technical Memorandum
Project No. 19628

Dear Ms. Trottier:

Ganddini Group, Inc. is pleased to provide this air quality, greenhouse gas, and energy technical memorandum for the proposed SSJID (South San Joaquin Irrigation District) Surface Water Connection project.

The Project is in northern San Joaquin Valley, within southeastern San Joaquin County. The Project traverses' portions of unincorporated San Joaquin County and areas within the Escalon city limits. Most of the Project is within the South San Joaquin Irrigation District (SSJID) service area. The Project Alignment begins on Dodds Road (approximately 75-feet west of Escalon-Bellota Road), within the Oakdale Irrigation District service area, in unincorporated San Joaquin County. At Dodds Road, an existing South San Joaquin Irrigation District (SSJID) 48" transmission main runs east to west and will serve as a point of connection for the Project within the SSJID system. The alignment will travel south along Escalon-Bellota Road for approximately 3.4 miles until reaching 17407 Escalon-Bellota Road, a parking lot directly north of Escalon City Limits. A project location map is provided on Figure 1. A glossary is provided in Appendix A to assist the reader with technical terms related to air quality analysis.

PROJECT DESCRIPTION

The City of Escalon's potable water distribution network is currently supplied by groundwater wells. The City's Sustainable Groundwater Management Plan indicates the City is in a "groundwater overdraft" condition and well water supplies need to be supplemented with "surface" water to meet future demand requirements and to maintain water quality. The project is proposed to create a more reliable water supply during the summer months for the City of Escalon and to provide a large long-term supply of high-quality water for land use allowed under the approved general plan. Components of the project are listed below:

- An underground tee connection to an existing SSJID 48-inch transmission main near the intersection of Escalon-Bellota Road and Dodds Road (See Figures 2 and 2A).

- An 18-inch diameter PVC pipe extending south approximately 19,500 linear feet from the tee connection within Escalon-Bellota Road terminating at an existing gravel-lined overflow parking lot (See Figure 2).

- A flow control facility (FCF) composed of an emergency 16 horsepower (HP) propane generator, valve vault, flow meter vault, electrical panel, radio transmitter, and various other appurtenances to be located on a 50-foot by 70-foot pad located at the southwest corner of the Dodds Road and Escalon-

Bellota Road intersection (See Figures 2 and 2A). On-site improvements will also include site security, a supervisory control and data acquisition (SCADA) system, paving, gated access (12-foot swing gate), installation of new 12-foot storm drainpipe approximately 56 linear feet in length, and a new irrigation ditch leading to a 12" irrigation pipe with headwall. Access to the facility will be available from Escalon-Bellota Road, via a gated gravel driveway with a 16-foot metal frame swing gate. The flow control facility will be enclosed by 220 linear feet of 6-foot-tall chain link fence with three (3) strands of barbed wire. Components of the flow control facility will be below ground and be overlain with gravel.

- A booster pump station (BPS) and 0.10 MG underground potable water storage tank are to be located at the existing parking lot between Libby Drive and Escalon Bellota Road intersection and Miller Avenue and Escalon-Bellota Road intersection (See Figures 2 and 2B). The BPS will be constructed within a 64-foot by 100-foot area enclosed with a 6-foot-high chain link fence with three (3) strand barbed wire. The BPS site will include a pump station (30-ft by 30-ft) with four pumps and an electrical room constructed of concrete masonry units (CMU). The four pumps are to include one 25-HP pump and three 50-HP pumps. During the first year of operation, the 25 HP pump is anticipated to be running 24 hours a day and the three 50 HP pumps will be on standby with likely no operation. At final buildout, it is anticipated that the 25 HP pump will run 1/4 of the time (~1,095 hours per year) and each of the three 50-HP pumps would run 1/3 of the time or (~2,920 hours per year for each pump). For long-term operation, the BPS will also be equipped with a 167 HP diesel emergency standby generator with a 655-gallon fuel storage tank. Site security, SCADA, paving and surface drainage will also be provided at this location. At the eastern terminus of each concrete gutter, access to the facility is available from Escalon-Bellota Road, via two (2) 10-foot swing gates.

The proposed Project components are anticipated to be operational for 50 or more years upon initial construction. Existing City Staff will operate the proposed project, which will assist in providing potable water to Escalon residents and businesses. The City of Escalon does not anticipate additional staffing needs for long-term operation and maintenance of the proposed project-related facilities. However, daily worker trips are anticipated to conduct routine inspections and ensure proper long-term maintenance.

Table 1 shows the SJVAPCD Air Quality Significance Thresholds.

Sensitive Receptors in Project Vicinity

Those who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For CEQA purposes, a sensitive receptor is generically defined as a location where human populations, especially children, seniors, and sick persons are found, and there is reasonable expectation of continuous human exposure according to the averaging period for the AAQS (e.g., 24-hour, 8-hour, 1-hour). These typically include residences, hospitals, and schools.[1] Commercial and industrial facilities are not included in the definition because employees do not typically remain on-site for 24 hours.

The nearest sensitive receptors to the project site are the existing residential uses located adjacent or near Escalon Bellota Road between Dodds Road to Miller Avenue. In addition, Escalon High School is located approximately 887 feet (~270 meters) to the southeast of the proposed Booster Pump Station site. Other air quality sensitive land uses are located further from the project site and would experience lower impacts.

[1] San Joaquin Valley Air Pollution Control District (SJVAPCD) Guidance for Assessing and Mitigation Air Quality Impacts, March 19, 2015. http://valleyair.org/transportation/GAMAQI.pdf

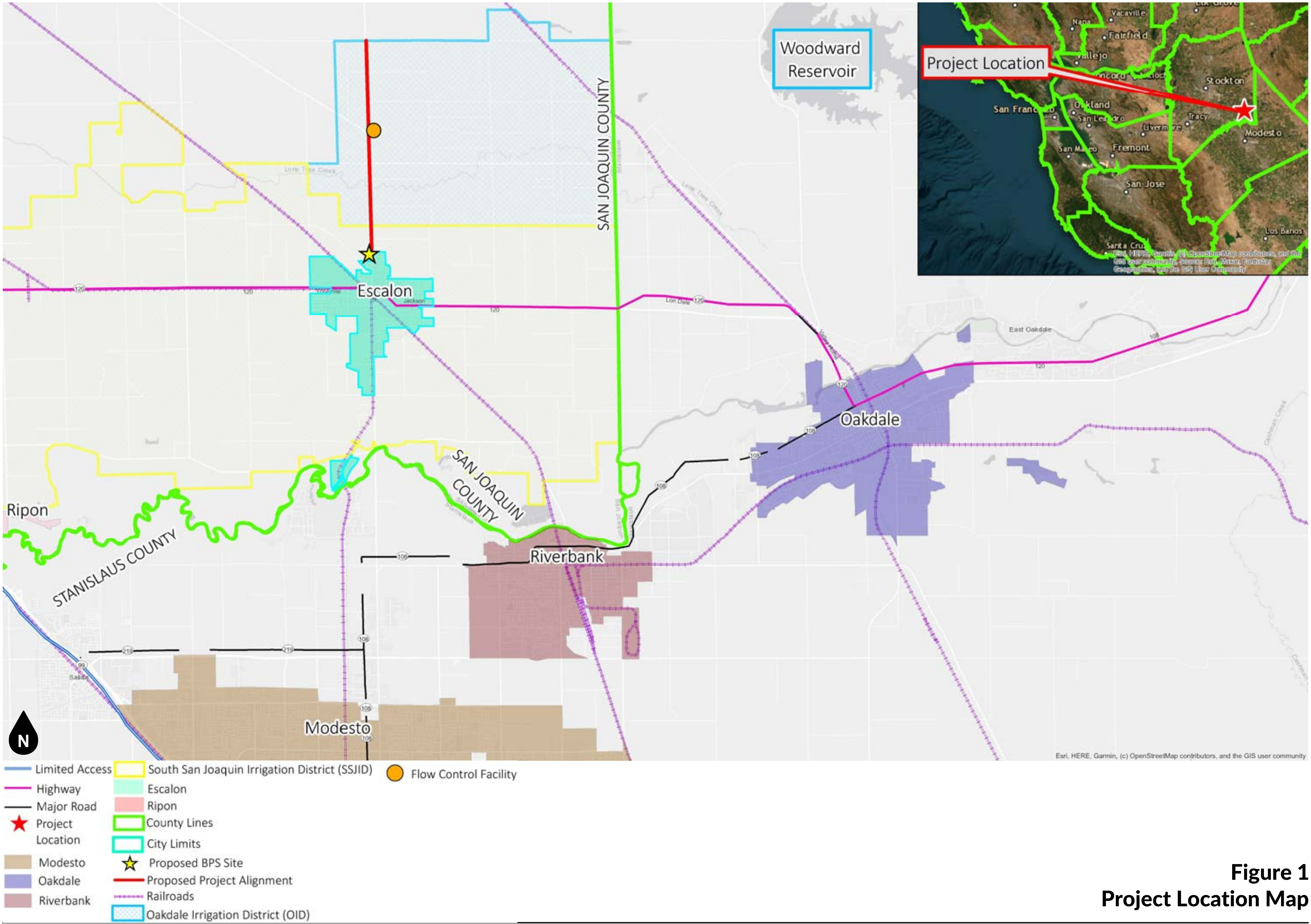
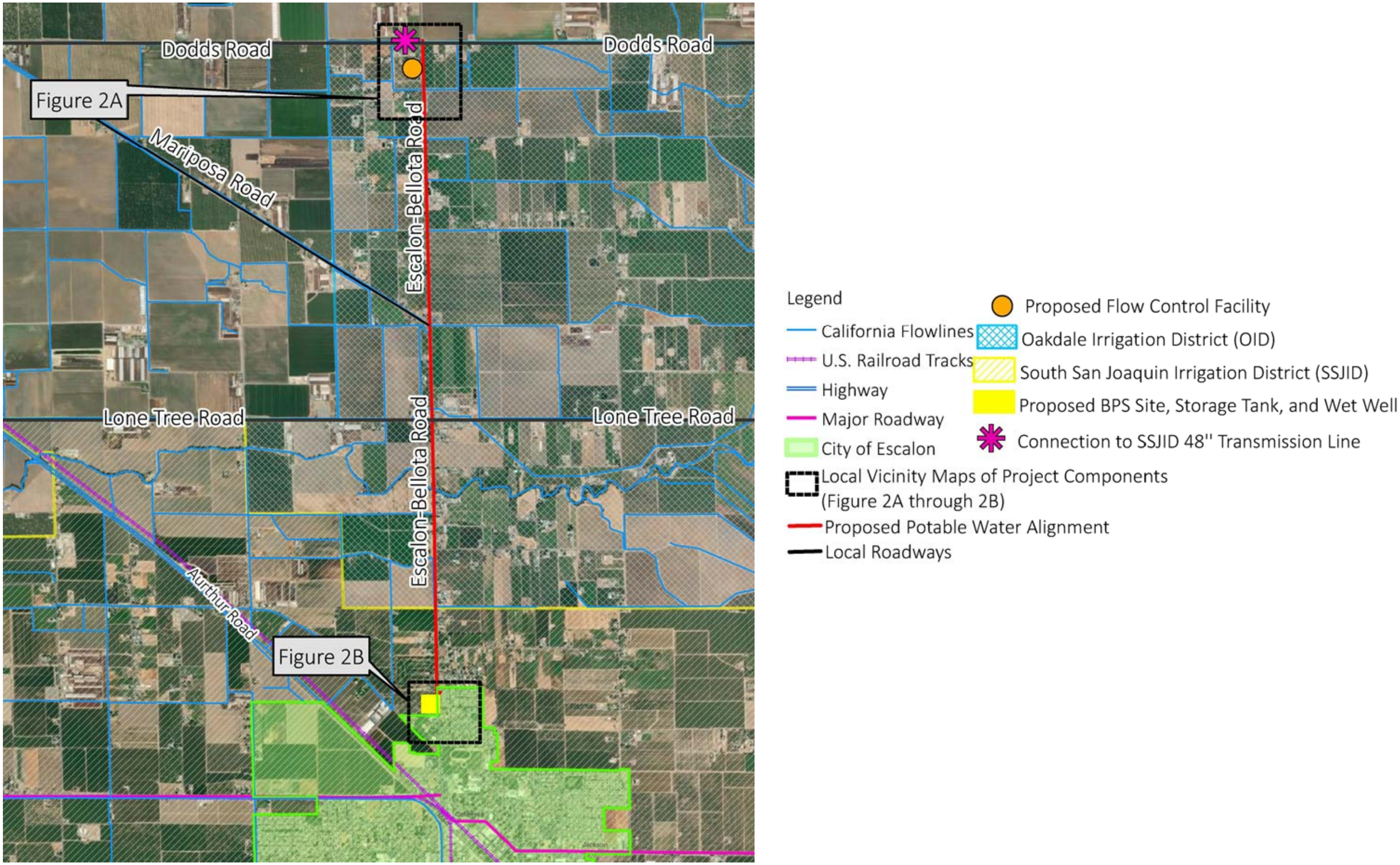


Figure 1
Project Location Map



N

Figure 2
Proposed Project

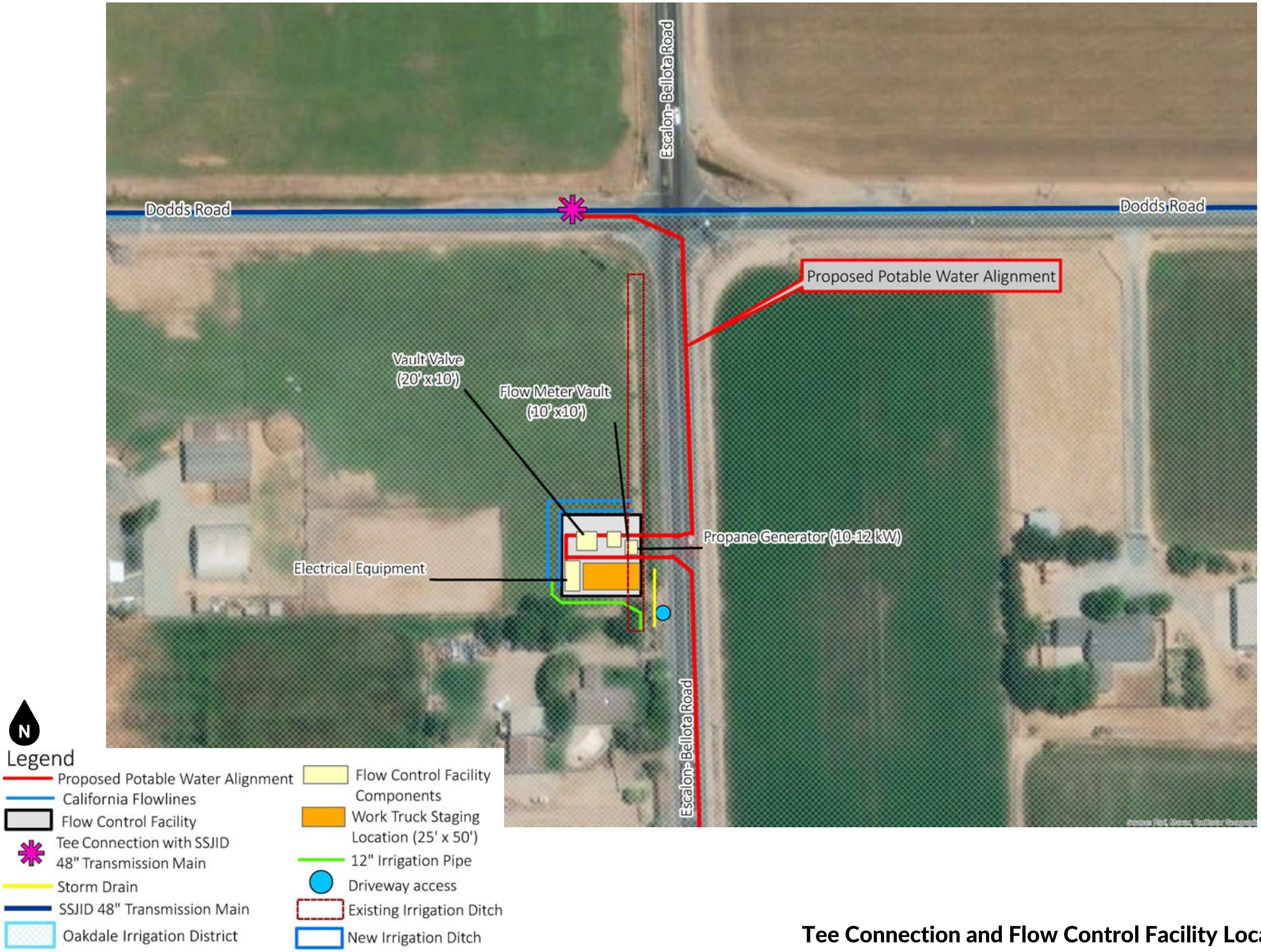


Figure 2A
Tee Connection and Flow Control Facility Location Map

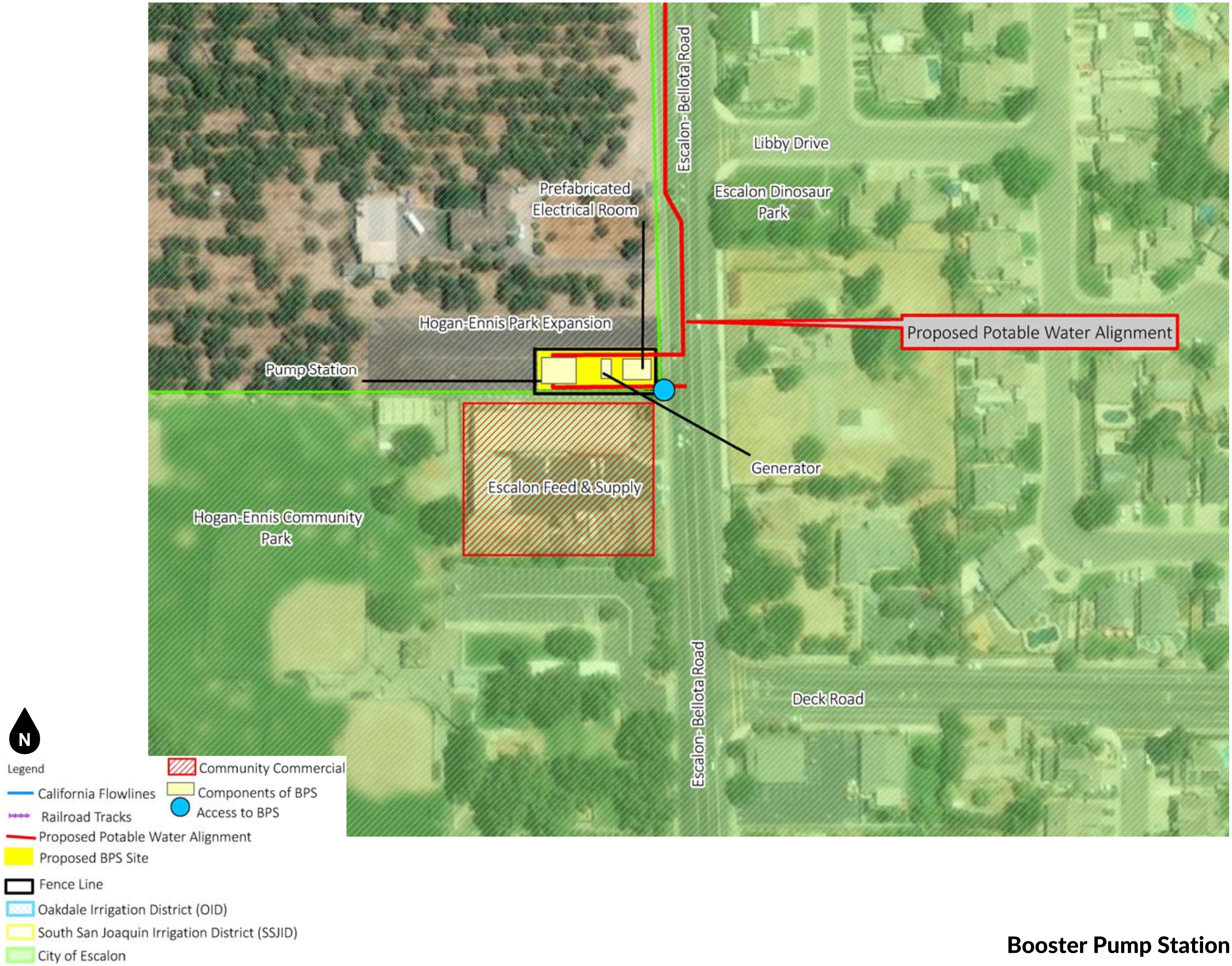


Figure 2B
Booster Pump Station Location Map

Table 1
SJVAPCD Air Quality Significance Thresholds

Air Quality Thresholds of Significance - Criteria Pollutants			
		Operational Emissions	
	Construction Emissions	Permitted Equipment and Activities	Non-Permitted Equipment and Activities
Pollutant/Precursor	Emissions (tons/year)	Emissions (tons/year)	Emissions (tons/year)
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
SOx	27	27	27
PM10	15	15	15
PM2.5	15	15	15
Air Quality Thresholds of Significance - Toxic Air Contaminants			
Carcinogens	Maximally Exposed Individual risk equals or exceeds 20 in one million		
Non-Carcinogens	Acute: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual		
	Chronic: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual		

Source: http://www.valleyair.org/transportation/ceqa_idx.htm

SHORT-TERM AIR QUALITY IMPACTS

An analysis of the potential short-term air quality impacts due to regional air quality and local air quality impacts with the construction of the proposed project is provided. As described above, the project includes the installation of approximately 19,500 linear feet of 18-inch diameter PVC pipe (6-foot depth by 4-foot width), an underground flow control facility covering an approximate 50-foot by 70-foot area, and a booster pump station covering an approximately 64-foot by 100-foot area. The area of disturbance for the entire project was estimated to be approximately 99,600 square feet.[2] Per the project applicant, construction equipment is to include: 2 scrapers, 7 tractors/loaders/backhoes, 6 off-highway trucks, 7 other material handling equipment, 7 skid steer loaders/track loaders, 4 excavators, 5 other construction equipment, and 1 rubber tired dozer for the demolition/site preparation/grading/excavation of all project site areas; 8 tractor/loaders/backhoes, 3 off-highway trucks, 5 other material handling equipment, 4 forklifts, 4 pumps, 1 excavator, 3 skid steer loaders/track loaders, 2 concrete trucks, 1 concrete pump truck, 1 other construction equipment, and 1 crane for construction of pipeline cut-in/pipe install/piping valves/tank construction/equipping/pumps/piping/valves of all project site areas; 9 tractors/loaders/backhoes, 6 off-highway trucks, 6 plate compactors, 2 paving equipment, 4 skid steer loaders/track loaders, 2 concrete trucks, and 2 other construction equipment for backfill/resurfacing/fencing/restoration of all project stie areas; and 2 off-highway trucks, 2 other construction equipment, and 2 striping machines for striping of all project site areas.[3] As construction of the separate project components (i.e., pipeline, booster pump station, flow control facility, tie in etc.) are anticipated to potentially occur simultaneously, the demolition/site preparation/grading/excavation associated with all four project components and their associated equipment was modeled as occurring as one phase (grading); the construction of pipeline cut-in/pipe install/piping valves/tank construction/equipping/pumps/piping/valves associated with all four project components and their associated equipment was modeled as occurring as one phase (building construction); backfill/resurfacing/fencing/restoration associated with all four project components and their associated equipment was modeled as occurring as one phase (paving); and striping of all four project components and their associated equipment was modeled as occurring as one phase (architectural coating). Furthermore, the CalEEMod modeling also included potential overlap between each of the four modeled construction phases. Construction is anticipated to begin no sooner than early October 2024 and being completed in February 2026, taking approximately one year and four months to complete. It was estimated that the project would include approximately 3,348 cubic yards (CY) of export and 4,680 CY of import.[4] CalEEMod output is shown in Appendix B.

Construction-Related Regional Air Quality Impacts

The construction-related criteria pollutant emissions for the construction of the proposed project are shown below in Table 2. Table 2 shows that none of the analyzed criteria pollutants would exceed the SJVAPCD regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed pipeline extension project.

---

[2] The disturbance area for the pipeline extension is ~89,700 square feet based on: 19,500 linear feet of pipeline with trench 6 feet deep x 4 feet wide = ~78,000 square feet, 13 jacking pits at 20x35x13ft = 700sf x 13 = ~9,100 sf, and 13 receiving pits at 20x10x13ft = 200sf x 13 = ~2,600 sf. The total area for the Flow Control Facility is ~50 feet x 70 feet, resulting in a disturbance area of ~3,500 square feet. The total area for the Booster Pump Station is ~64 feet x 100 feet, resulting in a ~6,400 square foot disturbance area. Therefore, the total project disturbance area was estimated as ~99,600 square feet. Construction staging areas are within disturbance area of Booster Pump Station, Flow Control Facility, and roadway alignment. All components of the pump station/flow control facility areas are either below grade or prefabricated buildings (no buildings being construction).

[3] Some of the listed equipment types were not specifically available in CalEEMod; therefore, to be conservative, the closest available equipment was utilized as needed.

[4] Assumed ~3,348 CY export and ~2,359 CY fill based on the calculated numbers provided in the 30% OPCC provided by the project applicant (includes excavation, backfill, aggregate base, and subgrade numbers for pipeline, FCF, BPS, etc.).

LONG-TERM AIR QUALITY IMPACTS

An analysis of the potential long-term air quality impacts due to operations of the proposed project has been completed. The operations-related criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model. The operating emissions were based on the year 2026, which is the anticipated opening year for the proposed project. CalEEMod output is shown in Appendix C. CalEEMod analyzes operational emissions from area sources, energy usage, stationary sources, and mobile sources, which are discussed below.

It should be noted that mobile sources were not included in the analysis. Additional staffing needs for long-term operation and maintenance of the proposed project are not anticipated and only a minimal number of daily worker trips are anticipated to conduct routine inspections and ensure proper long-term maintenance. Therefore, the additional vehicle trips from the existing operations associated with the operation of the proposed project would be minimal.

Methodology

Area Sources

Area sources include emissions from hearths, consumer products, landscape equipment and architectural coatings. No changes were made to the default area source parameters.

Energy Usage

Energy usage includes emissions from the generation of electricity and natural gas used on-site.[5] The proposed Booster Pump Station is to include four pumps, three 50 horsepower pumps and one 25 horsepower pump. The pumps were assumed to utilize approximately 1,006,031 kWh per year.[6] As operation of the site is that of pumps and generators (discussed below) only, it was assumed that natural gas would not be utilized by the proposed project.

Stationary Sources

The project includes two generators, one 167 horsepower diesel generator at the BPS and one 16 horsepower propane generator at the FCF. The generators are each anticipated to run up to approximately 172 hours per year.[7] As described above under Energy Usage, the proposed project also includes four pumps; however, as CalEEMod does not have this type of pump as an option under stationary sources, the electrical usage was calculated and added to the project's total electricity usage.

[5] The proposed project is in the jurisdiction of the SSJID. Per the project applicant, it is assumed that electric service would be provided by SSJID; however, SSJID is not an electric service provider available in CalEEMod. Therefore, to be conservative, the statewide average was used as the electric service provider in the CalEEMod modeling.

[6] During the first year of operation, it is assumed that the 25-HP pump will operate 24/7 or ~8,760 hours per year and the 50-HP pumps would not be in operation. During final buildout, it is assumed that the 25-HP pump will operate ¼ of the time or ~1,095 hours per year and each of the 50-HP pumps will operate 1/3 of the time or approximately 2,920 hours per year for each 50-HP pump. Therefore, the operational hours at final buildout are anticipated to be worst-case and were utilized in the analysis. Energy use calculations for the pumps include: 1-HP=0.75 kW. 25-HP pump = 18.75 kW x 1,095 hours/year = 20,531 kWh/year. 3x50-HP pumps = 150-HP = 112.5 kW x (3x2,920 hours/year) = 985,500 kWh/yr. Total of ~1,006,031 kWh/year of electricity used by the proposed pumps. Operation of project is that of the electric pumps and generators only, no natural gas anticipated to be used.

[7] Each generator is assumed to be in use for up to 100 hours a year for maintenance/testing & 24/7 during an emergency. Therefore, it was assumed that for up to 3 days a year (~72 hours a year) the generators could be in use due to an emergency. Total of ~172 hours per generator per year.

Operational-Related Regional Air Quality Impacts

The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 emissions generated by the proposed project's long-term operations have been calculated and are summarized below in Table 3. Table 3 shows that none of the analyzed criteria pollutants would exceed the SJVAPCD emissions thresholds.

Therefore, a less than significant regional air quality impact would occur from the operation of the proposed project.

GREENHOUSE GAS IMPACTS

Construction-Related Greenhouse Gas (GHG) Emissions Impacts

The SJVAPCD does not have an adopted threshold of significance for GHG emissions; however, the SJVAPCD has adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (December 17, 2009) and *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (December 17, 2009). As stated in these guidance documents, projects complying with an approved GHG emissions reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions.

Project Greenhouse Gas Emissions

The GHG emissions have been calculated based on the parameters described above. A summary of the results is shown below in Table 4 and the CalEEMod Model runs for the proposed project are provided in Appendix B and C. Table 4 shows that the greenhouse emissions for the proposed project (without credit for any reductions from sustainable design, and/or regulatory requirements) would be 25.8 $MTCO_2e$ (amortized over 30-years) for project construction and 220 $MTCO_2e$ per year for project operation resulting in a total of 245.8 $MTCO_2e$ per year. Please see the CalEEMod Output in Appendix B and C for details.

Consistency With Applicable Greenhouse Gas Reduction Plans and Policies

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Neither the City of Escalon nor County of San Joaquin have a Climate Action Plan (CAP); therefore, the project and its GHG emissions have been compared to the goals of the County of San Joaquin and City of Escalon General Plans as well as the CARB Scoping Plan.

City of Escalon

The City of Escalon General Plan Air Quality Element includes the following goals and policies relating to greenhouse gases that are applicable to the proposed project.[8]

Goal To protect the health and welfare of Escalon residents by promoting development and planning practices that are compatible with air quality standards and regional efforts to improve air quality.

[8] Escalon General Plan June 6, 2005.
https://escalon.hosted.civiclive.com/government/departments/development_services/planning/general_plan

Policies and Standards

1 Coordinate with other local and regional jurisdictions, including the SJVAPCD, San Joaquin Council of Governments (SJCOG), and the California Air Resources Board (ARB), in the development and implementation of regional and county plans, programs, and mitigation measures that address cross-jurisdictional and regional air quality impacts, including transportation and climate change impacts, and incorporate the relevant provisions of those plans into City planning and project review procedures. Also cooperate with the SJVAPCD, SJCOG, and ARB in:

- Identifying baseline air pollutant and greenhouse gas emissions.
- Developing consistent procedures for evaluating and mitigating project-specific and cumulative air quality impacts of projects.

6 Continue to implement broad-scale General Plan strategies to decrease the generation of air pollution and greenhouse gas emissions through the reduction of vehicle miles traveled, excessive vehicle traffic congestion, and excessive engine idling by providing public transportation options and making land use planning decisions that encourage pedestrian, bicycle, and transit trips rather than private passenger vehicle trips.

8 Encourage new buildings and development designed to be energy efficient. Reduce energy consumption and greenhouse gas emissions through:

- Requiring new development to be energy-efficient through passive design concepts (e.g., siting and location) and construction methods.
- Encouraging and accommodating projects that incorporate alternative energy, enhanced energy conservation measures, and other voluntary methods of reducing energy usage and greenhouse gas emissions.

Implementation Strategies

1-3 Review development and land use projects to ensure that measures are incorporated to reduce air pollutants, including particulate matter emissions, and greenhouse gases associated with project design, site preparation, grading, and construction as conditions of approval for all development projects, subdivision maps, site plans, and grading permits. These measures may include, but are not limited to:

- All applicable particulate matter control requirements of SJVAPCD Regulation VIII;
- Access roads, driveways, and parking areas serving new commercial uses, industrial uses, recreational facilities, and other high-traffic uses are constructed with materials that minimize particulate emissions.

1-6 Review new development and rehabilitation projects for consistency with policies related to reducing energy consumption and greenhouse gas emissions. Acceptable energy reduction measures include, but are not limited to:

- Construction methods (LEED certification, exceedance of Title 24 energy standards, and green building methods).

County of San Joaquin

The County of San Joaquin General Plan Public Facilities and Service Element includes the following goals and policies relating to greenhouse gases that are applicable to the proposed project.[9]

Goal PHS-6	To reduce greenhouse gas emissions as part of the Statewide effort to combat climate change.
PHS-6.2	The County shall reduce community greenhouse gas emissions by 15 percent below 2005 levels by 2020 and shall strive to reduce GHG emissions by 40 percent and 80 percent below reduced 2020 levels by 2035 and 2050, respectively.
PHS-6.7	The County shall require new development to incorporate all feasible mitigation measures to reduce construction and operational GHG emissions.

CARB Scoping Plan

The CARB Board approved a Climate Change Scoping Plan in December 2008. The Scoping Plan outlines the State's strategy to achieve the 2020 greenhouse gas emissions limit. The Scoping Plan "proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (California Air Resources Board 2008). The measures in the Scoping Plan have been in place since 2012.

In May 2014, the CARB released its *First Update to the Climate Change Scoping Plan* (CARB 2014). This *Update* identifies the next steps for California's leadership on climate change. While California continues on its path to meet the near-term 2020 greenhouse gas limit, it must also set a clear path toward long-term, deep GHG emission reductions. This report highlights California's success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. CARB's First Update "lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050," and many of the emission reduction strategies recommended by CARB would serve to reduce the Project's post-2020 emissions level to the extent required by applicable by law.

In November 2017, the CARB released the 2017 Scoping Plan. This Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals, and includes a description of a suite of specific actions to meet the State's 2030 GHG limit. In addition, Chapter 4 provides a broader description of the many actions and proposals being explored across the sectors, including the natural resources sector, to achieve the State's mid and long-term climate goals.

In November of 2022, the CARB released the 2022 Scoping Plan. The 2022 Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

[9] San Joaquin County General Plan Policy Document, December 2016. https://www.sjgov.org/commdev/cgi-bin/cdyn.exe/file/planning/general%20plan%202035/general%20plan%202035.pdf

As the latest, 2022 Scoping Plan builds upon previous versions, project consistency with applicable strategies of the 2008, 2017, and 2022 Plan are assessed in Table 5. As shown in Table 5, the project is consistent with the applicable strategies within the Scoping Plan.

Greenhouse Gas Conclusions

As stated above, the GHG emissions generated by the proposed project's construction would be 25.8 $MTCO_2e$ per year (amortized over 30-years) and project operation would be 220 $MTCO_2e$ per year resulting in a total of 245.8 $MTCO_2e$ per year. Project construction will be required to comply with all applicable construction-related SJCAPD regulations, including SJVAPCD Regulation VIII, and Title 24 energy standards. Furthermore, the project is that of water distribution infrastructure and is anticipated to have minimal operational vehicle trips and is considered to have minimal operational emissions. Therefore, the project would comply with the goals of the City of Escalon and County of San Joaquin General Plans as well as the CARB Scoping Plan and the project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Table 2
Construction-Related Regional Pollutant Emissions

Activity	Pollutant Emissions (tons/year)					
	ROG	NOx	CO	SO_2	PM10	PM2.5
Maximum Daily Emissions[1]	0.46	4.11	5.15	0.01	0.17	0.15
SJVAPCD Thresholds	10	10	100	27	15	15
Exceeds Thresholds?	No	No	No	No	No	No

Notes:

Source: CalEEMod Version 2022.1.1.14.

(1) Includes both on-site and off-site emissions. On-site PM2.5 and PM-10 emissions show compliance with SJVAPCD Regulation VIII for fugitive dust.

Table 3
Regional Operational Pollutant Emissions

Activity	Pollutant Emissions (tons/year)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Maximum Daily Emissions	0.16	0.45	0.57	0.01	0.03	0.03
SJVAPCD Thresholds	10	10	100	27	15	15
Exceeds Threshold?	No	No	No	No	No	No

Notes:
Source: CalEEMod Version 2022.1.1.14; the higher of either summer or winter emissions.

Table 4
Project-Related Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year)					
	Bio-CO2	NonBio-CO_2	CO_2	CH_4	N_2O	CO_2e
Mamimum Annual Operations	0.06	219	219	0.02	0.005	220
Construction[1]	0.00	25.70	25.70	0.00	0.00	25.80
Total Emissions	0.06	244.70	244.70	0.02	0.01	245.80

Notes:
Source: CalEEMod Version 2022.1.1.14 for Opening Year 2026.
(1) Construction GHG emissions CO2e based on a 30-year amortization rate.

Table 5 (1 of 2)
Project Consistency with CARB Scoping Plan Policies and Meaures

2008 Scoping Plan Measures to Reduce Greenhouse Gas Emissions	Project Compliance with Measure
California Light-Duty Vehicle Greenhouse Gas Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	No Conflict. These are CARB enforced standards; vehicles that access the project (that are required to comply with the standards) will comply with the strategy.
Energy Efficiency – Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	No Conflict. The project will be compliant withany applicbale portions of the current Title 24 standards.
Low Carbon Fuel Standard – Develop and adopt the Low Carbon Fuel Standard.	No Conflict. These are CARB enforced standards; vehicles that access the project (that are required to comply with the standards) will comply with the strategy.
Vehicle Efficiency Measures – Implement light-duty vehicle efficiency measures.	No Conflict. These are CARB enforced standards; vehicles that access the project (that are required to comply with the standards) will comply with the strategy.
Medium/Heavy-Duty Vehicles – Adopt medium and heavy-duty vehicle efficiency measures.	No Conflict. These are CARB enforced standards; vehicles that access the project (that are required to comply with the standards) will comply with the strategy.
Green Building Strategy – Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	No Conflict. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code in the CCR. Part 11 establishes voluntary standards, that are mandatory in the 2019 edition of the Code, on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. In addition, the 2022 edition of the Code took effect January 1, 2023. The project will be subject to any applicable portions of these mandatory standards.
High Global Warming Potential Gases – Adopt measures to reduce high global warming potential gases.	No Conflict. CARB identified five measures that reduce HFC emissions from vehicular and commercial refrigeration systems; vehicles that access the project that are required to comply with the measures will comply with the strategy.
Recycling and Waste – Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	No Conflict. The state is currently developing a regulation to reduce methane emissions from municipal solid waste landfills. The project will be required to comply with local programs, such as City and/or County recycling and waste reduction programs, which comply, with the 75 percent reduction required by 2020 per AB 341.
Water – Continue efficiency programs and use cleaner energy sources to move and treat water.	No Conflict. The project will comply with all applicable City ordinances and CAL Green requirements.

2017 Scoping Plan Recommended Actions to Reduce Greenhouse Gas Emissions	Project Compliance with Recommended Action
Implement Mobile Source Strategy: Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean Car regulations.	No Conflict. These are CARB enforced standards; vehicles that access the project (that are required to comply with the standards) will comply with the strategy.
Implement Mobile Source Strategy: At least 1.5 million zero emission and plug-in hybrid light-duty electric vehicles by 2025 and at least 4.2 million zero emission and plug-in hybrid light-duty electric vehicles by 2030.	No Conflict. These are CARB enforced standards; vehicles that access the project (that are required to comply with the standards) will comply with the strategy.

Table 5 (2 of 2)
Project Consistency with CARB Scoping Plan Policies and Meaures

Implement Mobile Source Strategy: Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20 percent of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100 percent of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NOX standard.	No Conflict. These are CARB enforced standards; vehicles that access the project (that are required to comply with the standards) will comply with the strategy.
Implement Mobile Source Strategy: Last Mile Delivery: New regulation that would result in the use of low NOX or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5 percent of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10 percent in 2025 and remaining flat through 2030.	No Conflict. These are CARB enforced standards; vehicles that access the project (that are required to comply with the standards) will comply with the strategy.
Implement SB 350 by 2030: Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.	No Conflict. The project will be compliant withany applicbale portions of the current Title 24 standards.
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	No Conflict. The project will be required to comply with local programs, such as City and/or County recycling and waste reduction programs,which comply, with the 75 percent reduction required by 2020 per AB 341.

2022 Scoping Plan Priority Key Actions and Recommendations	Project Compliance with Recommended Actions
100 percent of light-duty vehicle sales are ZEVs by 2035.	Not Applicable. This action is in regard to vehicle sales, with an aim to have 100 percent of light-duty vehicle sales be ZEVs by 2035. The proposed project would not interfere with such policymaking.
VMT per capita reduced 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045.	No Conflict. The Project would not result in an unmitigated impact to VMT. Additional staffing needs for long-term operation and maintenance of the proposed project are not anticipated and only a minimal number of daily worker trips are anticipated to conduct routine inspections and ensure proper long-term maintenance. Therefore, the additional vehicle trips from the existing operations associated with the operation of the proposed project would be minimal.
All electric appliances in new construction beginning 2026 (residential) and 2029 (commercial).	Not Applicable. This action is in regard to residential and commercial appliances and the proposed project is a water distribution project and would not interfere with such policymaking.
For existing residential buildings, 80 percent of appliance sales are electric by 2030 and 100 percent of appliance sales are electric by 2035 (appliances replaced at end of life). For existing commercial buildings, 80 percent of appliance sales are electric by 2030 and 100 percent of appliance sales are electric by 2045 (appliances replaced at end of life)	Not Applicable. This action is in regard to appliance sales and the proposed project is a water distribution project and would not interfere with such policymaking.

Notes:
(1) Source: CARB Scoping Plan (2008, 2017, and 2022)

PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

Construction Energy Demands

Construction is anticipated to occur between the beginning of October 2024 and February 2026, and be completed in one phase. Staging of construction vehicles and equipment will occur on-site within the BPS, FCF, and roadway alignment. The approximately 16-month schedule is relatively short, and the estimated area of disturbance during project construction is approximately 99,600 square feet (~2.04 acres).[10]

Construction Equipment Electricity Usage Estimates

The project's electrical service will be provided by SSJID.[11] The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed project. Based on the 2021 National Construction Estimator, Richard Pray (2021)[12], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.37. The Project includes construction of a 19,500 linear foot pipeline extension; an underground flow control facility including a value vault, flow meter vault, electrical panel, propane generator, and communications equipment; and a booster pump station including a pump station, diesel generator, and electrical room. The electrical room is anticipated to be a prefabricated building. Therefore, building construction is minimal and includes only prefabricated buildings and/or potential equipment enclosures.

Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of project construction. Fuel consumed by construction equipment was evaluated with the following assumptions:

- Construction schedule of 16 months
- All construction equipment was assumed to run on diesel fuel.
- Typical daily use of 8 hours, with some equipment operating between 6 to 7 hours.
- Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/gallon (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: (https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).
- Diesel fuel would be the responsibility of the equipment operators/contractors and would be sources within the region.
- Project construction represents a "single-event" for diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources during long term operation.

Using the CalEEMod data input for the air quality and greenhouse gas analyses, the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2017 Emissions Factors Tables show that on average aggregate

---

[10] Total disturbance area estimated based on: 19,500 linear feet of pipeline with trench 6 ft deep x 4 ft wide (19,500 x 4 ft = ~78,000 sf disturbance area); 13 jacking pits at 20x35x13ft = 700sf x 13 = ~9,100 sf and 13 receiving pits at 20x10x13ft = 200sf x 13 = ~2,600 sf for jack and bore; Flow Control Facility is ~50x70 ft (~3,500 sf disturbance area); and Booster Pump Station is ~64x100 ft (~6,400 sf disturbance area). Therefore, total disturbance area of ~99,600 sf.

[11] The proposed project is in the jurisdiction of the SSJID. Per the project applicant, it is assumed that electric service would be provided by SSJID; however, SSJID is not an electric service provider available in CalEEMod. Therefore, to be conservative, the statewide average was used as the electric service provider in the CalEEMod modeling.

[12] Pray, Richard. 2021 National Construction Estimator. Carlsbad: Craftsman Book Company, 2021.

fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal. Table 6 shows the results of the analysis of construction equipment.

As presented in Table 6, project construction activities would consume an estimated 119,776 gallons of diesel fuel. As stated previously, project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Construction Worker Fuel Estimates

It is assumed that construction worker trips are from light duty autos (LDA), light duty truck 1 (LDT1), and light duty truck 2 (LDT2) at a mix of 25 percent/50 percent/25 percent, respectively, along area roadways.[13] With respect to estimated VMT, the construction worker trips would generate an estimated 50,486 VMT. Data regarding project related construction worker trips were based on CalEEMod 2022.1.1.14 model defaults.

Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analyses using information generated using CARB's 2021 EMFAC model. An aggregate fuel efficiency of 26.2 miles per gallon (mpg) was used to calculate vehicle miles traveled for construction worker trips. Table 7 shows that an estimated 1,927 gallons of fuel would be consumed for construction worker trips.

Construction Vendor/Hauling Fuel Estimates

Tables 8 and 9 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 13,824 VMT. Data regarding project related construction worker trips were based on CalEEMod 2022.1.1.14 model defaults.

For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles. Therefore, vendors delivering construction material or hauling debris from the site during project construction would use medium to heavy duty vehicles with an average fuel consumption of 7.9 mpg for medium heavy-duty trucks and 6.05 mpg for heavy heavy-duty trucks (see Appendix B for details). [14] Tables 8 and 9 show that an estimated 2,166 gallons of fuel would be consumed for vendor and hauling trips.

Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately sixteen-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

The project would utilize construction contractors which practice compliance with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally,

[13] CalEEMod User's Guide Appendix C (April 2022) states that construction work trips are made by a fleet consisting of 25 percent light-duty auto (or passenger car), 50 percent light-duty truck type 1 (LDT1), and 25 percent light duty truck type 2 (LDT2).

[14] CalEEMod User's Guide Appendix C (April 2022) states that vendor trips are made by a fleet consisting of 50 percent medium trucks (MHDT) and 50 percent heavy trucks (HHDT) and that hauling and onsite truck trips are made by a fleet consisting of 100 percent HHDT.

CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Therefore, as the project's construction is required to comply with CARB regulations and does not include the need of construction processes that would require the use of equipment that is more energy efficient, the proposed project annual construction related fuel consumption would not be considered significant.

Operational Energy Demands

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employees accessing the project site) and facilities energy demands (energy consumed by site operations and maintenance activities).

Transportation and Operational Fuel Consumption

As stated in the project description, additional staffing needs for long-term operation and maintenance of the proposed project are not anticipated. However, a minimal number of daily worker trips are anticipated to conduct routine inspections and ensure proper long-term maintenance. Therefore, the increase in project generated trips is minimal. However, the proposed project does include two generators, one 167 horsepower diesel generator at the Booster Pump Station and one 16 horsepower propane generator at the Flow Control Facility, which will be sources of fuel consumption at the project site. Each generator is anticipated to run up to approximately 172 hours per year.[15] At up to 172 hours per year, the one 167 horsepower diesel generator would be anticipated to consume up to approximately 1,617 gallons of diesel per year and propane use would up to approximately 487 gallons per year.[16] The project's transportation and operational energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Facility Energy Demands (Electricity)

Project operation and site maintenance would result in the consumption of electricity (provided by SSJID). As previously stated, the project is that of a pipeline extension with a booster pump station and flow control facility. Therefore, the main source of electricity consumption for the proposed project is the proposed electric pumps at the Booster Pump Station. The Booster Pump Sump Station is to have four pumps, three 50 horsepower pumps and one 25 horsepower pump. As shown in Table 10, the pumps were calculated to utilize

[15] Each generator is assumed to be in use for up to 100 hours a year for maintenance/testing & 24/7 during an emergency. Therefore, it was assumed that for up to 3 days a year (~72 hours a year) the generators could be in use due to an emergency. Total of ~172 hours per generator per year.

[16] Per the project applicant, the diesel generator is anticipated to be a 125REOZJ4 Kohler Generator. Per https://resources.kohler.com/power/kohler/industrial/pdf/g5429.pdf, at 100 percent load, the generator would be anticipated to consume up to approximately 9.4 gallons of fuel per hour. In addition, the propane generator is anticipated to be a 10/12RESV(L) Kohler Generator. Per the generator specification sheet provided by the project applicant, using LPG as the fuel source and at 100 percent load, the propane generator is anticipated to consume up to approximately 103 ft^3 per hour of fuel or, using the provided LGP conversion factors, 2.83 gallons per hour.

up to approximately 1,006,031 kWh per year.[17] Furthermore, as operation of the site is that of the pumps and generators only, it was assumed that natural gas would not be utilized by the proposed project. Please see the CalEEMod Output in Appendix C for details.

In comparison to the project, in 2021, the non-residential sector of the County of San Joaquin consumed approximately 3,483 million kWh of electricity and approximately 96 million therms of gas.[18,19] Therefore, the increase in both electricity and natural gas demand from the proposed project is insignificant compared to the County's 2021 non-residential sector demand.

Furthermore, the proposed project energy demands in total would be comparable to other water distribution projects of similar scale and configuration. Therefore, the project facilities' energy demands, and energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area and includes minimal operational vehicle trips per day. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA.

Regarding Pavley (AB 1493) regulations, an individual project does not have the ability to comply or conflict with these regulations because they are intended for agencies and their adoption of procedures and protocols for reporting and certifying GHG emission reductions from mobile sources. The vehicles associated with the proposed project would be required to comply with federal and state fuel efficiency standards; however, as stated previously the project requires a minimal amount of vehicle trips during operation.

Regarding the State's Renewable Energy Portfolio Standards, as applicable, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CALGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

As stated above, the project would be anticipated to be consistent with the measures identified in the City of Escalon and County of San Joaquin General Plans and the CARB Scoping Plan.

Energy Conclusions

As supported by the preceding analyses, project construction would not result in the inefficient, wasteful or unnecessary consumption of energy. The proposed project does not include any unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities and is a water supply infrastructure project that is not proposing any additional features that would require a larger energy demand than other projects of similar

[17] During the first year of operation, it is assumed that the 25-HP pump will operate 24/7 or ~8,760 hours per year and the 50-HP pumps would not be in operation. During final buildout, it is assumed that the 25-HP pump will operate ¼ of the time or ~1,095 hours per year and each of the 50-HP pumps will operate 1/3 of the time or approximately 2,920 hours per year for each 50-HP pump. Therefore, the operational hours at final buildout are anticipated to be worst-case and were utilized in the analysis. Energy use calculations for the pumps include: 1-HP=0.75 kW. 25-HP pump = 18.75 kW x 1,095 hours/year = 20,531 kWh/year. 3x50-HP pumps = 150-HP = 112.5 kW x (3x2,920 hours/year) = 985,500 kWh/yr. Total of ~1,006,031 kWh/year of electricity used by the proposed pumps. Operation of project is that of the electric pumps and generators only, no natural gas anticipated to be used.

[18] California Energy Commission, Electricity Consumption by County. https://ecdms.energy.ca.gov/elecbycounty.aspx

[19] California Energy Commission, Gas Consumption by County. http://ecdms.energy.ca.gov/gasbycounty.aspx

scale and configuration. The energy demands of the project are anticipated to be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California. Notwithstanding, the project proposes a water supply infrastructure project and will not have any long-term effects on an energy provider's future energy development or future energy conservation strategies.

Table 6
Construction Equipment Fuel Consumption Estimates

Phase[1]	Number of Days	Offroad Equipment Type[2]	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/day	Total Fuel Consumption (gal diesel fuel)[3]
Grading (Demolition / Site Preparation / Grading / Excavation)	30	Scrapers	2	8	148	0.41	971	1,574
	30	Rubber Tired Dozers	1	8	367	0.40	1,174	1,904
	30	Tractors/Loaders/Backhoes	7	7	84	0.37	1,523	2,470
	30	Off-Highway Trucks	6	8	376	0.38	6,858	11,121
	30	Other Material Handling Equipment	7	8	93	0.40	2,083	3,378
	30	Skid Steer Loaders	7	8	71	0.37	1,471	2,386
	30	Excavators	4	8	36	0.38	438	710
	30	Other Construction Equipment	5	8	82	0.42	1,378	2,234
Building Construction (Existing Pipeline Cut-In / Pipe Install / Piping and Valves / Tank Construction / Equipping/Pumps / Piping / Valves)	298	Cranes	1	8	367	0.29	851	13,715
	298	Forklifts	4	7	82	0.20	459	7,397
	298	Off-Highway Trucks	3	8	14	0.74	249	4,005
	298	Tractors/Loaders/Backhoes	8	6	84	0.37	1,492	24,031
	298	Other Material Handling Equipment	5	8	46	0.45	828	13,338
	298	Excavators	1	8	36	0.38	109	1,763
	298	Skid Steer Loaders	3	8	71	0.37	630	10,156
	298	Other Construction Equipment	1	8	82	0.42	276	4,438
	298	Pumps	4	8	11	0.74	260	4,196
	298	Cement and Mortar Mixers	3	8	10	0.56	134	2,165
Paving (Backfill / Resurfacing / Fencing / Restoration)	17	Tractors/Loaders/Backhoes	9	8	84	0.37	2,238	2,056
	17	Off-Highway Trucks	6	8	81	0.42	1,633	1,501
	17	Paving Equipment	2	8	89	0.36	513	471
	17	Plate Compactors	6	8	36	0.38	657	603
	17	Cement and Mortar Mixers	2	8	10	0.56	90	82
	17	Skid Steer Loaders	4	8	71	0.37	841	772
	17	Other Construction Equipment	2	8	82	0.42	551	506
Architectural Coating (Striping)	17	Air Compressors	2	6	37	0.48	213	196
	17	Off-Highway Trucks	2	8	376	0.38	2,286	2,101
	17	Other Construction Equipment	2	8	82	0.42	551	506
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								119,776

Notes:

(1) Project construction including the booster pump station, flow control facility, and pipeline is to occur simultaneously. Demolition/site prep/grading/excavation of all project site areas modeled as one construction phase (grading); existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves of all project site areas modeled as one construction phase (building construction); backfill/resurfacing/fencing/restoration of all project site areas modeled as one construction phase (paving); and striping of all project site areas modeled as one construction phase (architectural coating). It was was also assumed that construction phases could overlap with preceding phases in the model.

(2) Per project applicant equipment to include: Demo/Site Prep/Grading/Excavation: Scrapers – 2, Tractors/Loaders/Backhoes – 7, Off-highway trucks – 6, Other material handling equipment – 7, Skid steer loaders or track loaders – 7, Excavators – 4, Other construction equipment – 5, & Rubber Tired Dozers – 1; Existing Pipeline Cut-In/Pipe Install/Piping and Valves/Tank Construction/Equipping/Pumps/Piping/Valves: Tractors/Loaders/Backhoes – 8, Off-highway trucks – 3, Other material handling equipment – 5, Forklifts – 4, Pumps – 4, Excavators – 1, Skid steer loaders or track loaders – 3, Concrete Trucks – 2 (modeled as cement and mortar mixers), Concrete Pump Truck – 1 (modeled as cement and mortar mixers), Other construction equipment – 1, & Cranes – 1; Backfill/Resurfacing/Fencing/Restoration: Tractors/Loaders/Backhoes – 9, Off-highway trucks – 6, Plate Compactors – 6, Paving Equipment – 2, Skid steer loaders or track loaders – 4, Concrete Trucks – 2 (modeled as cement and mortar mixers), & Other construction equipment - 2; & Striping: Off Highway trucks – 2, Other construction equipment – 2, & Striping machine – 2 (modeled as air compressors).

(3) Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp. (Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

Table 7
Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Grading (Demolition / Site Preparation / Grading / Excavation)	30	97.5	11.9	34,808	26.2	1,329
Building Construction (Existing Pipeline Cut-In / Pipe Install / Piping and Valves / Tank Construction / Equipping/Pumps / Piping / Valves)	298	0	11.9	0	26.2	0
Paving (Backfill / Resurfacing / Fencing / Restoration)	17	77.5	11.9	15,678	26.2	598
Architectural Coating (Striping)	17	0	11.9	0	26.2	0
Total Construction Worker Fuel Consumption						1,927

Notes:

(1) Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.14 defaults.

(2) Per CalEEMod User's Guide Appendix C (April 2022), CalEEMod assumes that construction work trips are made by a fleet consisting of 25 percent light-duty auto (or passenger car), 50 percent light-duty truck type 1 (LDT1), and 25 percent light duty truck type 2 (LDT2).

Table 8
Construction Vendor Fuel Consumption Estimates (MHD & HHD Trucks)

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Grading (Demolition / Site Preparation / Grading / Excavation)	30	0	9.1	0	7.0	0
Building Construction (Existing Pipeline Cut-In / Pipe Install / Piping and Valves / Tank Construction / Equipping/Pumps / Piping / Valves)	298	2	9.1	5,424	7.0	778
Paving (Backfill / Resurfacing / Fencing / Restoration)	17	0	9.1	0	7.0	0
Architectural Coating (Striping)	17	0	9.1	0	7.0	0
Total Construction Vendor Fuel Consumption						778

Notes:

(1) Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.14 defaults.

(2) Per CalEEMod User's Guide Appendix C (April 2022), CalEEMod assumes vendor trips are made by a fleet consisting of 50 percent medium trucks (MHDT) and 50 percent heavy trucks (HHDT).

Table 9
Construction Hauling Fuel Consumption Estimates (HHD Trucks)

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Grading (Demolition / Site Preparation / Grading / Excavation)	30	14	20	8,400	6.1	1,388
Building Construction (Existing Pipeline Cut-In / Pipe Install / Piping and Valves / Tank Construction / Equipping/Pumps / Piping / Valves)	298	0	20	0	6.1	0
Paving (Backfill / Resurfacing / Fencing / Restoration)	17	0	20	0	6.1	0
Architectural Coating (Striping)	17	0	20	0	6.1	0
Total Construction Hauling Fuel Consumption						1,388

Notes:
(1) Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.14 defaults.

Table 10
Project Annual Operational Energy Demand Summary

Natural Gas Demand	kBTU/year
Proposed Project	0
Total	**0**

Electricity Demand	kWh/year
Proposed Project[2]	1,006,031
Total	**1,006,031**

Notes:

(1) Taken from the CalEEMod 2022.1.1.14 output (Appendix C of this report).

(2) Operation of project is that of the electric pumps and generators only, no natural gas anticipated to be used. Calculated energy use of ~1,006,031 kWh/year for the pumps.

Conclusions

It has been a pleasure to assist you on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Respectfully submitted,
GANDDINI GROUP, INC.

Katie Wilson

Katie Wilson, M.S.
Senior Air Quality Analyst

APPENDIX A

GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
BACT	Best Available Control Technologies
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
HIDPM	Hazard Index Diesel Particulate Matter
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
O_3	Ozone
OPR	Governor's Office of Planning and Research
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
TAC	Toxic air contaminants
VOC	Volatile organic compounds

APPENDIX B

PROJECT CONSTRUCTION CALEEMOD DETAILED REPORT AND EMFAC DATA

19628 SSJID Surface Water Connection - CONSTRUCTION ANALYSIS ONLY Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	19628 SSJID Surface Water Connection - CONSTRUCTION ANALYSIS ONLY
Construction Start Date	10/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	16.4
Location	37.83407005888051, -120.99930345061843
County	San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2126
EDFZ	4
Electric Utility	Statewide Average
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Other Asphalt Surfaces	99.6	1000sqft	2.29	0.00	0.00	—	—	19,500 linear feet of pipeline with trench 6 ft deep x 4 ft wide (19,500 x 4 =~78,000 sf disturbance area), 13 jacking pits at 20x35x13ft = 700sf x 13 = ~9,100 sf, & 13 receiving pits at 20x10x13ft = 200sf x 13 = ~2,600 sf. Total pipeline disturbance area is ~89,700 sf. Flow Control Facility is ~50x70 ft (~3,500 sf disturbance area) & Booster Pump Station is ~64x100 ft (~6,400 sf disturbance area). Therefore, total disturbance area of ~99,600 sf. Construction staging areas are within disturbance area of Booster Pump Station, Flow Control Facility, and roadway alignment. All components of the pump station/flow control facility areas are either below grade or prefabricated buildings (no buildings being construction).

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.16	3.47	30.9	38.4	0.07	1.20	0.02	1.22	1.11	< 0.005	1.11	—	6,364	6,364	0.26	0.06	0.16	6,388
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	14.5	12.2	106	130	0.24	4.50	4.48	8.98	4.14	1.67	5.81	—	26,780	26,780	1.08	0.40	0.16	26,927
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.03	2.53	22.5	28.2	0.05	0.88	0.37	0.90	0.81	0.14	0.82	—	4,659	4,659	0.19	0.04	0.22	4,677
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.55	0.46	4.11	5.15	0.01	0.16	0.07	0.17	0.15	0.03	0.15	—	771	771	0.03	0.01	0.04	774

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.16	3.47	30.9	38.4	0.07	1.20	0.02	1.22	1.11	< 0.005	1.11	—	6,364	6,364	0.26	0.06	0.16	6,388

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	14.5	12.2	106	130	0.24	4.50	4.48	8.98	4.14	1.67	5.81	—	26,780	26,780	1.08	0.40	0.16	26,927
2025	8.82	7.75	66.3	92.0	0.14	2.78	0.67	3.44	2.55	0.16	2.71	—	14,701	14,701	0.59	0.15	0.07	14,760
2026	6.18	7.19	43.9	65.6	0.11	1.83	0.65	2.48	1.68	0.15	1.84	—	11,895	11,895	0.47	0.12	0.06	11,942
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.31	1.10	9.61	11.7	0.02	0.41	0.37	0.78	0.38	0.14	0.51	—	2,377	2,377	0.10	0.03	0.22	2,390
2025	3.03	2.53	22.5	28.2	0.05	0.88	0.02	0.90	0.81	0.01	0.82	—	4,659	4,659	0.19	0.04	0.07	4,677
2026	0.19	0.25	1.33	1.93	< 0.005	0.06	0.02	0.07	0.05	< 0.005	0.05	—	379	379	0.02	< 0.005	0.03	380
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.24	0.20	1.75	2.14	< 0.005	0.07	0.07	0.14	0.07	0.03	0.09	—	394	394	0.02	0.01	0.04	396
2025	0.55	0.46	4.11	5.15	0.01	0.16	< 0.005	0.17	0.15	< 0.005	0.15	—	771	771	0.03	0.01	0.01	774
2026	0.04	0.05	0.24	0.35	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	62.7	62.7	< 0.005	< 0.005	< 0.005	62.9

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.60	8.06	71.8	86.7	0.17	3.11	—	3.11	2.86	—	2.86	—	18,585	18,585	0.75	0.15	—	18,648

Dust From Material Movement	—	—	—	—	—	—	3.39	3.39	—	1.40	1.40	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.90	7.12	0.01	0.26	—	0.26	0.24	—	0.24	—	1,527	1,527	0.06	0.01	—	1,533
Dust From Material Movement	—	—	—	—	—	—	0.28	0.28	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.08	1.30	< 0.005	0.05	—	0.05	0.04	—	0.04	—	253	253	0.01	< 0.005	—	254
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.43	0.40	0.40	4.39	0.00	0.00	0.82	0.82	0.00	0.19	0.19	—	833	833	0.05	0.03	0.10	844
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.29	0.29	0.01	0.02	0.26	0.28	0.02	0.07	0.09	—	998	998	0.02	0.16	0.06	1,045

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	70.1	70.1	< 0.005	< 0.005	0.13	71.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	82.0	82.0	< 0.005	0.01	0.08	86.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.6	11.6	< 0.005	< 0.005	0.02	11.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.6	13.6	< 0.005	< 0.005	0.01	14.2

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.41	3.68	32.5	38.6	0.07	1.37	—	1.37	1.26	—	1.26	—	6,308	6,308	0.26	0.05	—	6,329
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.40	3.56	4.23	0.01	0.15	—	0.15	0.14	—	0.14	—	691	691	0.03	0.01	—	694
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.09	0.07	0.65	0.77	< 0.005	0.03	—	0.03	0.03	—	0.03	—	114	114	< 0.005	< 0.005	—	115
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	57.6	57.6	< 0.005	0.01	< 0.005	60.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.31	6.31	< 0.005	< 0.005	0.01	6.61
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.05	1.05	< 0.005	< 0.005	< 0.005	1.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.16	3.47	30.9	38.4	0.07	1.20	—	1.20	1.11	—	1.11	—	6,307	6,307	0.26	0.05	—	6,329
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.16	3.47	30.9	38.4	0.07	1.20	—	1.20	1.11	—	1.11	—	6,307	6,307	0.26	0.05	—	6,329
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.94	2.45	21.8	27.1	0.05	0.85	—	0.85	0.78	—	0.78	—	4,456	4,456	0.18	0.04	—	4,471
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	3.98	4.95	0.01	0.16	—	0.16	0.14	—	0.14	—	738	738	0.03	0.01	—	740
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.6	56.6	< 0.005	0.01	0.16	59.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.7	56.7	< 0.005	0.01	< 0.005	59.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.0	40.0	< 0.005	0.01	0.05	41.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.63	6.63	< 0.005	< 0.005	0.01	6.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.33	3.64	35.1	50.3	0.07	1.57	—	1.57	1.45	—	1.45	—	7,689	7,689	0.31	0.06	—	7,715
Paving	—	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.69	0.98	< 0.005	0.03	—	0.03	0.03	—	0.03	—	150	150	0.01	< 0.005	—	151
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.9	24.9	< 0.005	< 0.005	—	25.0
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.30	0.29	3.21	0.00	0.00	0.65	0.65	0.00	0.15	0.15	—	648	648	0.02	0.03	0.07	656
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.0	13.0	< 0.005	< 0.005	0.02	13.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.15	2.15	< 0.005	< 0.005	< 0.005	2.18

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.12	3.46	33.5	50.2	0.07	1.41	—	1.41	1.30	—	1.30	—	7,685	7,685	0.31	0.06	—	7,712
Paving	—	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.85	1.28	< 0.005	0.04	—	0.04	0.03	—	0.03	—	196	196	0.01	< 0.005	—	196
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.4	32.4	< 0.005	< 0.005	—	32.5
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.31	0.28	0.25	2.96	0.00	0.00	0.65	0.65	0.00	0.15	0.15	—	634	634	0.02	0.03	0.06	643
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.5	16.5	< 0.005	< 0.005	0.03	16.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.74	2.74	< 0.005	< 0.005	< 0.005	2.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.75	1.47	10.1	12.5	0.03	0.42	—	0.42	0.38	—	0.38	—	3,575	3,575	0.15	0.03	—	3,587
Architectural Coatings	—	1.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.47	0.58	< 0.005	0.02	—	0.02	0.02	—	0.02	—	167	167	0.01	< 0.005	—	167
Architectural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.6	27.6	< 0.005	< 0.005	—	27.7
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demo/Site Prep/Grading/Excavation	Grading	10/1/2024	11/11/2024	5.00	30.0	—

Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Building Construction	11/6/2024	12/27/2025	5.00	298	—
Backfill/resurfacing/fencing/ restoration	Paving	12/22/2025	1/13/2026	5.00	17.0	—
Striping	Architectural Coating	1/8/2026	2/1/2026	5.00	17.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demo/Site Prep/Grading/Excavation	Scrapers	Diesel	Average	2.00	8.00	148	0.41
Demo/Site Prep/Grading/Excavation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demo/Site Prep/Grading/Excavation	Tractors/Loaders/Backhoes	Diesel	Average	7.00	7.00	84.0	0.37
Demo/Site Prep/Grading/Excavation	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Demo/Site Prep/Grading/Excavation	Other Material Handling Equipment	Diesel	Average	7.00	8.00	93.0	0.40
Demo/Site Prep/Grading/Excavation	Skid Steer Loaders	Diesel	Average	7.00	8.00	71.0	0.37
Demo/Site Prep/Grading/Excavation	Excavators	Diesel	Average	4.00	8.00	36.0	0.38
Demo/Site Prep/Grading/Excavation	Other Construction Equipment	Diesel	Average	5.00	8.00	82.0	0.42
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Cranes	Diesel	Average	1.00	8.00	367	0.29

Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Forklifts	Diesel	Average	4.00	7.00	82.0	0.20
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Off-Highway Trucks	Diesel	Average	3.00	8.00	14.0	0.74
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Tractors/Loaders/Backhoes	Diesel	Average	8.00	6.00	84.0	0.37
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Other Material Handling Equipment	Diesel	Average	5.00	8.00	46.0	0.45
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Skid Steer Loaders	Diesel	Average	3.00	8.00	71.0	0.37
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Other Construction Equipment	Diesel	Average	1.00	8.00	82.0	0.42
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Pumps	Diesel	Average	4.00	8.00	11.0	0.74
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Cement and Mortar Mixers	Diesel	Average	3.00	8.00	10.0	0.56
Backfill/resurfacing/fencing/restoration	Tractors/Loaders/Backhoes	Diesel	Average	9.00	8.00	84.0	0.37

Backfill/resurfacing/fenci	Off-Highway Trucks	Diesel	Average	6.00	8.00	81.0	0.42
Backfill/resurfacing/fencing/restoration	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Backfill/resurfacing/fencing/restoration	Plate Compactors	Diesel	Average	6.00	8.00	36.0	0.38
Backfill/resurfacing/fencing/restoration	Cement and Mortar Mixers	Diesel	Average	2.00	8.00	10.0	0.56
Backfill/resurfacing/fencing/restoration	Skid Steer Loaders	Diesel	Average	4.00	8.00	71.0	0.37
Backfill/resurfacing/fencing/restoration	Other Construction Equipment	Diesel	Average	2.00	8.00	82.0	0.42
Striping	Air Compressors	Diesel	Average	2.00	6.00	37.0	0.48
Striping	Off-Highway Trucks	Diesel	Average	2.00	8.00	376	0.38
Striping	Other Construction Equipment	Diesel	Average	2.00	8.00	82.0	0.42

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demo/Site Prep/Grading/Excavation	—	—	—	—
Demo/Site Prep/Grading/Excavation	Worker	97.5	11.9	LDA,LDT1,LDT2
Demo/Site Prep/Grading/Excavation	Vendor	—	9.10	HHDT,MHDT
Demo/Site Prep/Grading/Excavation	Hauling	14.0	20.0	HHDT
Demo/Site Prep/Grading/Excavation	Onsite truck	—	—	HHDT
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	—	—	—	—
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Worker	0.00	11.9	LDA,LDT1,LDT2

Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Vendor	2.00	9.10	HHDT,MHDT
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Hauling	0.00	20.0	HHDT
Existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves	Onsite truck	—	—	HHDT
Backfill/resurfacing/fencing/restoration	—	—	—	—
Backfill/resurfacing/fencing/restoration	Worker	77.5	11.9	LDA,LDT1,LDT2
Backfill/resurfacing/fencing/restoration	Vendor	—	9.10	HHDT,MHDT
Backfill/resurfacing/fencing/restoration	Hauling	0.00	20.0	HHDT
Backfill/resurfacing/fencing/restoration	Onsite truck	—	—	HHDT
Striping	—	—	—	—
Striping	Worker	0.00	11.9	LDA,LDT1,LDT2
Striping	Vendor	—	9.10	HHDT,MHDT
Striping	Hauling	0.00	20.0	HHDT
Striping	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Striping	0.00	0.00	0.00	0.00	5,976

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demo/Site Prep/Grading/Excavation	2,359	3,348	75.0	0.00	—
Backfill/resurfacing/fencing/restoration	0.00	0.00	0.00	0.00	2.29

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	2.29	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	453	0.03	< 0.005
2025	0.00	453	0.03	< 0.005
2026	0.00	453	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	22.7	annual days of extreme heat
Extreme Precipitation	2.05	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	61.0
AQ-PM	52.5
AQ-DPM	22.3
Drinking Water	66.4
Lead Risk Housing	44.7
Pesticides	93.6
Toxic Releases	80.1
Traffic	4.96
Effect Indicators	—

CleanUp Sites	72.8
Groundwater	98.9
Haz Waste Facilities/Generators	59.1
Impaired Water Bodies	87.0
Solid Waste	96.2
Sensitive Population	—
Asthma	37.0
Cardio-vascular	55.1
Low Birth Weights	31.5
Socioeconomic Factor Indicators	—
Education	51.5
Housing	29.2
Linguistic	34.6
Poverty	46.0
Unemployment	13.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	47.9917875
Employed	10.67624791
Median HI	44.07801873
Education	—
Bachelor's or higher	34.96727833
High school enrollment	27.3193892
Preschool enrollment	74.8235596

Transportation	—
Auto Access	40.90850764
Active commuting	85.56396766
Social	—
2-parent households	92.21095855
Voting	85.39715129
Neighborhood	—
Alcohol availability	92.82689593
Park access	4.991659181
Retail density	1.514179392
Supermarket access	17.64403952
Tree canopy	71.78236879
Housing	—
Homeownership	60.27203901
Housing habitability	79.09662518
Low-inc homeowner severe housing cost burden	72.97574747
Low-inc renter severe housing cost burden	77.78775824
Uncrowded housing	45.59219813
Health Outcomes	—
Insured adults	28.16630309
Arthritis	0.0
Asthma ER Admissions	68.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0

Diagnosed Diabetes	0.0
Life Expectancy at Birth	54.7
Cognitively Disabled	21.0
Physically Disabled	14.9
Heart Attack ER Admissions	44.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	43.9
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	32.5
Elderly	39.7
English Speaking	47.2
Foreign-born	46.6
Outdoor Workers	5.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	98.7
Traffic Density	6.0
Traffic Access	0.0

Other Indices	—
Hardship	58.8
Other Decision Support	—
2016 Voting	72.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	59.0
Healthy Places Index Score for Project Location (b)	49.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification

Construction: Construction Phases	Construction anticipated to begin October 2024 being completed by February 2026. As stated in Project Description, project construction at the BPS/FCF/pipeline areas are to occur simultaneously. Therefore, demo/site prep/grading/excavation of all project site areas modeled as one construction phase (grading); existing pipeline cut-in/pipe install/piping and valves/tank construction/equipping/pumps/piping/valves of all project site areas modeled as one construction phase (building construction); backfill/resurfacing/fencing/restoration of all project site areas modeled as one construction phase (paving); and striping of all sites modeled as one construction phase (architectural coating). As specific timing for each phase is not yet known, to be conservative, the number of days for each phase were based on CalEEMod default percentages for that particular phase type with slight adjustments to allow each construction phase to have some overlap with the preceding phases.
Construction: Off-Road Equipment	Per project applicant equipment to include: Demo/Site Prep/Grading/Excavation: Scrapers – 2, Tractors/Loaders/Backhoes – 7, Off-highway trucks – 6, Other material handling equipment – 7, Skid steer loaders or track loaders – 7, Excavators – 4, Other construction equipment – 5, & Rubber Tired Dozers – 1; Existing Pipeline Cut-In/Pipe Install/Piping and Valves/Tank Construction/Equipping/Pumps/Piping/Valves: Tractors/Loaders/Backhoes – 8, Off-highway trucks – 3, Other material handling equipment – 5, Forklifts – 4, Pumps – 4, Excavators – 1, Skid steer loaders or track loaders – 3, Concrete Trucks – 2 (modeled as cement and mortar mixers), Concrete Pump Truck – 1 (modeled as cement and mortar mixers), Other construction equipment – 1, & Cranes – 1; Backfill/Resurfacing/Fencing/Restoration: Tractors/Loaders/Backhoes – 9, Off-highway trucks – 6, Plate Compactors – 6, Paving Equipment – 2, Skid steer loaders or track loaders – 4, Concrete Trucks – 2 (modeled as cement and mortar mixers), & Other construction equipment - 2; & Striping: Off Highway trucks – 2, Other construction equipment – 2, & Striping machine – 2 (modeled as air compressors). Assumed ~3,348 CY export and ~2,359 CY fill based on numbers in the 30% OPCC provided by applicant (includes excavation, backfill, aggregate base, and subgrade numbers for pipeline, FCF, BPS, etc.).
Construction: Trips and VMT	To be conservative, 2 vendor trips added building construction phase to account for water trucks.
Construction: Architectural Coatings	Traffic coating would occur in roadway where pipeline is being installed. Pipeline is 19,500 LF x 4 ft wide which equals a potential for up to 78,000 sf in roadway ROW. Per CalEEMod User's Guide (2022) Appendix C Section 4.8, CalEEMod assumes ~6% of parking lot areas will be coated. Therefore, ~4,680 sf assumed coating for roadway areas.
Characteristics: Utility Information	The proposed project is that of a pipeline and other water infrastructure for SSJID. It is assumed that SSJID will provide electric service to the project. However, SSJID is not an option in CalEEMod for electric service provider; therefore, to provide a conservative analysis the statewide average was used.

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: San Joaquin Valley
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Trips	Energy Consumption	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	Total VMT	Total VMT	Miles Per Gallon	Vehicle Class
San Joaquin Valley	2024	HHDT	Aggregate	Aggregate	Gasoline	14.26923503	285.4989	0	0.208856287	208.8562873	1853178.413	705.1751657	11208126.26	**6.05**	**HHDT**
San Joaquin Valley	2024	HHDT	Aggregate	Aggregate	Diesel	75540.42982	1311827	0	1832.446977	1832446.977		11080187.54			
San Joaquin Valley	2024	HHDT	Aggregate	Aggregate	Electricity	212.263297	3559.011	46923.73868	0	0		25610.0205			
San Joaquin Valley	2024	HHDT	Aggregate	Aggregate	Natural Gas	1559.052033	13418.38	0	20.52257967	20522.57967		101623.5225			
San Joaquin Valley	2024	LDA	Aggregate	Aggregate	Gasoline	1396040.642	6460217	0	1879.142372	1879142.372	1910877.745	55651025.96	60215384.7	**31.51**	**LDA**
San Joaquin Valley	2024	LDA	Aggregate	Aggregate	Diesel	3574.544528	15178.67	0	2.56390661	2563.90661		112884.9583			
San Joaquin Valley	2024	LDA	Aggregate	Aggregate	Electricity	56530.82162	283590.1	1044501.358	0	0		2705383.603			
San Joaquin Valley	2024	LDA	Aggregate	Aggregate	Plug-in Hybrid	36607.58071	151372.3	264938.2613	29.17146597	29171.46597		1746090.185			
San Joaquin Valley	2024	LDT1	Aggregate	Aggregate	Gasoline	132549.9964	568365.8	0	177.1498941	177149.8941	177295.2602	4330431.678	4346098.934	**24.51**	**LDT1**
San Joaquin Valley	2024	LDT1	Aggregate	Aggregate	Diesel	70.12019936	201.4517	0	0.035743248	35.74324775		897.8907497			
San Joaquin Valley	2024	LDT1	Aggregate	Aggregate	Electricity	162.1298891	800.9995	2897.681935	0	0		7505.343227			
San Joaquin Valley	2024	LDT1	Aggregate	Aggregate	Plug-in Hybrid	139.537005	576.9855	1210.906009	0.109622843	109.6228427		7264.022186			
San Joaquin Valley	2024	LDT2	Aggregate	Aggregate	Gasoline	627210.9415	2907658	0	1032.721557	1032721.557	1038442.923	24738370.26	25151792.29	**24.22**	**LDT2**
San Joaquin Valley	2024	LDT2	Aggregate	Aggregate	Diesel	1735.202254	8281.607	0	2.195003587	2195.003587		74255.90809			
San Joaquin Valley	2024	LDT2	Aggregate	Aggregate	Electricity	3211.923975	16415.56	44992.87026	0	0		116536.9221			
San Joaquin Valley	2024	LDT2	Aggregate	Aggregate	Plug-in Hybrid	4455.774394	18424.63	35711.20912	3.526362907	3526.362907		222629.1991			
San Joaquin Valley	2024	LHDT1	Aggregate	Aggregate	Gasoline	61035.20702	909333.6	0	231.5879776	231587.9776	364615.1665	2183997.723	4295909.202	**11.78**	**LHDT1**
San Joaquin Valley	2024	LHDT1	Aggregate	Aggregate	Diesel	58964.19692	741695.4	0	133.0271889	133027.1889		2101668.864			
San Joaquin Valley	2024	LHDT1	Aggregate	Aggregate	Electricity	136.6778687	1909.303	6662.793509	0	0		10242.615			
San Joaquin Valley	2024	LHDT2	Aggregate	Aggregate	Gasoline	9690.581586	144375.2	0	40.4212088	40421.2088	102414.741	338996.5257	1150157.856	**11.23**	**LHDT2**
San Joaquin Valley	2024	LHDT2	Aggregate	Aggregate	Diesel	22034.0548	277160.7	0	61.99353223	61993.53223		808649.4788			
San Joaquin Valley	2024	LHDT2	Aggregate	Aggregate	Electricity	35.37650647	468.2778	1607.510525	0	0		2511.85159			
San Joaquin Valley	2024	MCY	Aggregate	Aggregate	Gasoline	72131.45693	144262.9	0	9.662809904	9662.809904	9662.809904	397968.797	397968.797	**41.19**	**MCY**
San Joaquin Valley	2024	MDV	Aggregate	Aggregate	Gasoline	603341.7501	2720908	0	1115.375628	1115375.628	1132266.797	21447403.32	22086040.56	**19.51**	**MDV**
San Joaquin Valley	2024	MDV	Aggregate	Aggregate	Diesel	9136.287951	42317.49	0	14.22000987	14220.00987		349976.2265			
San Joaquin Valley	2024	MDV	Aggregate	Aggregate	Electricity	3563.058628	18203.02	49844.84223	0	0		129104.1106			
San Joaquin Valley	2024	MDV	Aggregate	Aggregate	Plug-in Hybrid	3361.829524	13901.17	24569.64142	2.671159153	2671.159153		159556.9045			
San Joaquin Valley	2024	MH	Aggregate	Aggregate	Gasoline	8368.221093	837.1568	0	16.64893506	16648.93506	20398.43966	73441.61156	108727.0967	**5.33**	**MH**
San Joaquin Valley	2024	MH	Aggregate	Aggregate	Diesel	4046.860917	404.6861	0	3.749504597	3749.504597		35285.48513			
San Joaquin Valley	2024	MHDT	Aggregate	Aggregate	Gasoline	4102.384281	82080.5	0	49.54614262	49546.14262	248592.3107	232785.3097	1963841.913	**7.90**	**MHDT**
San Joaquin Valley	2024	MHDT	Aggregate	Aggregate	Diesel	35629.61693	427304.9	0	196.3595694	196359.5694		1706105.994			
San Joaquin Valley	2024	MHDT	Aggregate	Aggregate	Electricity	105.3935739	1334.617	6566.449551	0	0		5970.977911			
San Joaquin Valley	2024	MHDT	Aggregate	Aggregate	Natural Gas	358.0916483	2773.915	0	2.686598731	2686.598731		18979.63179			
San Joaquin Valley	2024	OBUS	Aggregate	Aggregate	Gasoline	1293.408525	25878.52	0	13.68661197	13686.61197	21790.1299	65025.8265	119780.7772	**5.50**	**OBUS**
San Joaquin Valley	2024	OBUS	Aggregate	Aggregate	Diesel	694.8682592	8946.252	0	7.99908921	7999.08921		53775.81972			
San Joaquin Valley	2024	OBUS	Aggregate	Aggregate	Electricity	2.098518815	41.98716	239.8267442	0	0		216.2366432			
San Joaquin Valley	2024	OBUS	Aggregate	Aggregate	Natural Gas	13.05684082	116.2059	0	0.104428721	104.428721		762.8943354			
San Joaquin Valley	2024	SBUS	Aggregate	Aggregate	Gasoline	1103.053416	4412.214	0	6.838528214	6838.528214	20698.91048	67587.25208	173519.2719	**8.38**	**SBUS**
San Joaquin Valley	2024	SBUS	Aggregate	Aggregate	Diesel	3904.184742	56532.6	0	10.65785774	10657.85774		87343.2412			
San Joaquin Valley	2024	SBUS	Aggregate	Aggregate	Electricity	11.90280977	160.2921	341.1750972	0	0		323.8628191			
San Joaquin Valley	2024	SBUS	Aggregate	Aggregate	Natural Gas	724.3049401	10487.94	0	3.202524526	3202.524526		18264.91575			
San Joaquin Valley	2024	UBUS	Aggregate	Aggregate	Gasoline	323.2416707	1292.967	0	4.368511345	4368.511345	15987.84296	22139.35711	106366.3689	**6.65**	**UBUS**
San Joaquin Valley	2024	UBUS	Aggregate	Aggregate	Diesel	235.9037236	943.6149	0	2.434681385	2434.681385		22916.36038			
San Joaquin Valley	2024	UBUS	Aggregate	Aggregate	Electricity	30.74245853	122.9698	3180.789994	0	0		1824.244126			
San Joaquin Valley	2024	UBUS	Aggregate	Aggregate	Natural Gas	562.7442454	2250.977	0	9.184650232	9184.650232		59486.40732			

APPENDIX C

PROJECT OPERATION CALEEMOD MODEL DETAILED REPORT

19628 SSJID Surface Water Connection - OPERATIONAL ANALYIS ONLY Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	19628 SSJID Surface Water Connection - OPERATIONAL ANALYIS ONLY
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	16.4
Location	37.82779601317134, -120.99780672801992
County	San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2126
EDFZ	4
Electric Utility	Statewide Average
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Light Industry	0.30	1000sqft	0.01	300	0.00	—	—	General Industrial Use utilized to calculate the operational energy use/emissions of the proposed pumps and generators only. Square footage of only project building, prefabricated electrical room at booster pump station, is ~20ft x 15ft = 300 sf, used for square footage of industrial use.

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.17	0.16	0.45	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.33	1,326	1,327	0.13	0.01	0.08	1,333
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.16	0.16	0.45	0.56	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.33	1,326	1,327	0.13	0.01	0.08	1,333
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.16	0.15	0.43	0.53	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.33	1,322	1,322	0.13	0.01	0.08	1,329
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.03	0.08	0.10	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.06	219	219	0.02	< 0.005	0.01	220

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,249	1,249	0.09	0.01	—	1,255
Water	—	—	—	—	—	—	—	—	—	—	—	0.13	0.28	0.41	0.01	< 0.005	—	0.85
Waste	—	—	—	—	—	—	—	—	—	—	—	0.20	0.00	0.20	0.02	0.00	—	0.70
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Stationary	0.16	0.15	0.45	0.56	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	76.8	76.8	< 0.005	< 0.005	0.00	77.1
Total	0.17	0.16	0.45	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.33	1,326	1,327	0.13	0.01	0.08	1,333
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,249	1,249	0.09	0.01	—	1,255
Water	—	—	—	—	—	—	—	—	—	—	—	0.13	0.28	0.41	0.01	< 0.005	—	0.85
Waste	—	—	—	—	—	—	—	—	—	—	—	0.20	0.00	0.20	0.02	0.00	—	0.70
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08

Stationar	0.16	0.15	0.45	0.56	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	76.8	76.8	< 0.005	< 0.005	0.00	77.1
Total	0.16	0.16	0.45	0.56	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.33	1,326	1,327	0.13	0.01	0.08	1,333
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,249	1,249	0.09	0.01	—	1,255
Water	—	—	—	—	—	—	—	—	—	—	—	0.13	0.28	0.41	0.01	< 0.005	—	0.85
Waste	—	—	—	—	—	—	—	—	—	—	—	0.20	0.00	0.20	0.02	0.00	—	0.70
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Stationary	0.16	0.14	0.43	0.53	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	72.4	72.4	< 0.005	< 0.005	0.00	72.6
Total	0.16	0.15	0.43	0.53	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.33	1,322	1,322	0.13	0.01	0.08	1,329
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	207	207	0.02	< 0.005	—	208
Water	—	—	—	—	—	—	—	—	—	—	—	0.02	0.05	0.07	< 0.005	< 0.005	—	0.14
Waste	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.12
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Stationary	0.03	0.03	0.08	0.10	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	12.0	12.0	< 0.005	< 0.005	0.00	12.0
Total	0.03	0.03	0.08	0.10	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.06	219	219	0.02	< 0.005	0.01	220

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	1,249	1,249	0.09	0.01	—	1,255
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,249	1,249	0.09	0.01	—	1,255
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	1,249	1,249	0.09	0.01	—	1,255
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,249	1,249	0.09	0.01	—	1,255
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	207	207	0.02	< 0.005	—	208
Total	—	—	—	—	—	—	—	—	—	—	—	—	207	207	0.02	< 0.005	—	208

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05
Total	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.13	0.28	0.41	0.01	< 0.005	—	0.85
Total	—	—	—	—	—	—	—	—	—	—	—	0.13	0.28	0.41	0.01	< 0.005	—	0.85

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.13	0.28	0.41	0.01	< 0.005	—	0.85
Total	—	—	—	—	—	—	—	—	—	—	—	0.13	0.28	0.41	0.01	< 0.005	—	0.85
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.02	0.05	0.07	< 0.005	< 0.005	—	0.14
Total	—	—	—	—	—	—	—	—	—	—	—	0.02	0.05	0.07	< 0.005	< 0.005	—	0.14

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.20	0.00	0.20	0.02	0.00	—	0.70
Total	—	—	—	—	—	—	—	—	—	—	—	0.20	0.00	0.20	0.02	0.00	—	0.70
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.20	0.00	0.20	0.02	0.00	—	0.70
Total	—	—	—	—	—	—	—	—	—	—	—	0.20	0.00	0.20	0.02	0.00	—	0.70

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.12
Total	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.12

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.16	0.15	0.45	0.56	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	76.8	76.8	< 0.005	< 0.005	0.00	77.1

Total	0.16	0.15	0.45	0.56	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	76.8	76.8	< 0.005	< 0.005	0.00	77.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.16	0.15	0.45	0.56	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	76.8	76.8	< 0.005	< 0.005	0.00	77.1
Total	0.16	0.15	0.45	0.56	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	76.8	76.8	< 0.005	< 0.005	0.00	77.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.03	0.03	0.08	0.10	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	12.0	12.0	< 0.005	< 0.005	0.00	12.0
Total	0.03	0.03	0.08	0.10	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	12.0	12.0	< 0.005	< 0.005	0.00	12.0

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	450	150	—

5.10.3. Landscape Equipment

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO_2 and CH_4 and N_2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	1,006,031	453	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	69,375	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	0.37	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	0.50	172	167	0.73
Emergency Generator	Diesel	1.00	0.50	172	16.0	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	22.7	annual days of extreme heat
Extreme Precipitation	2.05	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	61.0
AQ-PM	52.5
AQ-DPM	22.3
Drinking Water	66.4
Lead Risk Housing	44.7
Pesticides	93.6
Toxic Releases	80.1
Traffic	4.96
Effect Indicators	—
CleanUp Sites	72.8
Groundwater	98.9
Haz Waste Facilities/Generators	59.1
Impaired Water Bodies	87.0
Solid Waste	96.2

Sensitive Population	—
Asthma	37.0
Cardio-vascular	55.1
Low Birth Weights	31.5
Socioeconomic Factor Indicators	—
Education	51.5
Housing	29.2
Linguistic	34.6
Poverty	46.0
Unemployment	13.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	47.9917875
Employed	10.67624791
Median HI	44.07801873
Education	—
Bachelor's or higher	34.96727833
High school enrollment	27.3193892
Preschool enrollment	74.8235596
Transportation	—
Auto Access	40.90850764
Active commuting	85.56396766
Social	—
2-parent households	92.21095855

Voting	85.39715129
Neighborhood	—
Alcohol availability	92.82689593
Park access	4.991659181
Retail density	1.514179392
Supermarket access	17.64403952
Tree canopy	71.78236879
Housing	—
Homeownership	60.27203901
Housing habitability	79.09662518
Low-inc homeowner severe housing cost burden	72.97574747
Low-inc renter severe housing cost burden	77.78775824
Uncrowded housing	45.59219813
Health Outcomes	—
Insured adults	28.16630309
Arthritis	0.0
Asthma ER Admissions	68.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	54.7
Cognitively Disabled	21.0
Physically Disabled	14.9
Heart Attack ER Admissions	44.2

Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	43.9
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	32.5
Elderly	39.7
English Speaking	47.2
Foreign-born	46.6
Outdoor Workers	5.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	98.7
Traffic Density	6.0
Traffic Access	0.0
Other Indices	—
Hardship	58.8
Other Decision Support	—
2016 Voting	72.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	59.0
Healthy Places Index Score for Project Location (b)	49.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	Mobile sources were not included in the analysis. Additional staffing is not anticipated & only a minimal number of daily worker trips are anticipated to conduct routine inspections/maintenance.
Operations: Emergency Generators and Fire Pumps	BPS to include one 167 horsepower (HP) diesel generator & FCF to include one 16-HP propane generator. As propane is not an option in CalEEMod for emergency generators, to be conservative, it has been included in the modeling as a diesel generator. Each generator is assumed to be in use for up to 100 hours a year for maintenance/testing & 24/7 during an emergency. Therefore, it was assumed that up to 3 days a year (~72 hours a year) the generators could be in use due to an emergency. Total of ~172 hours per generator per year.

Operations: Energy Use	BPS to include 4 electric pumps. Three 50-HP & one 25-HP. Operational hours for first year vs. final buildout vary; however, operational hours at final buildout are worst-case. Therefore, at final buildout, the 25-HP pump is to run 1,095 hours a year and each 50-HP pump is to run 2,920 hours per year. 1-HP=0.75 kW. 25-HP pump = 18.75 kW x 1,095 hrs/yr = 20,531 kWh/yr. 3x50-HP pumps = 150-HP = 112.5 kW x (3x2,920 hrs/yr) = 985,500 kWh/yr. Total estimated use of ~1,006,031 kWh/year of electricity used for pumps. Operation of project is that of the electric pumps and generators only, no natural gas anticipated to be used.
Characteristics: Utility Information	The proposed project is that of a pipeline and other water infrastructure for SSJID. It is assumed that SSJID will provide electric service to the project. However, SSJID is not an option in CalEEMod for electric service provider; therefore, to provide a conservative analysis the statewide average was used.

APPENDIX B

Biological Resources (ELMT 2024)

August 30, 2024

ARDURRA
Contact: *Lori Trottier*
3737 Birch Street
Newport Beach, California 92660

SUBJECT: Biological Resources Assessment for the City of Escalon's Connection to Nick DeGroot Water Treatment Plant Project Located in the City of Escalon, San Joaquin County, California

Introduction

This report contains the findings of ELMT Consulting's (ELMT) biological resources assessment for the City of Escalon's Connection to Nick DeGroot Water Treatment Plant Project (project, project site) located in the City of Escalon, San Joaquin County, California. The habitat assessment was conducted by biologist Rachael A. Lyons on March 1, 2023, to document baseline conditions and assess the potential for special-status[1] plant and wildlife species to occur within the project site that could pose a constraint to implementation of the proposed project. Special attention was given to the suitability of the project site to support special-status plant and wildlife species identified by the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), and other electronic databases as potentially occurring in the general vicinity of the project. Additionally, the report also addresses resources protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (FGC), federal Clean Water Act (CWA) regulated by the United States Army Corps of Engineers (Corps) and Regional Water Quality Control Board (Regional Board) respectively, and Section 1602 of the FGC administered by CDFW.

Project Location

The proposed project site is generally located north of State Route 120, south of State Route 4, east of State Route 99, and west of Woodward Reservoir in the City of Escalon, San Joaquin County, California. The site is depicted on the Escalon quadrangle of the United States Geological Survey's (USGS) 7.5-minute map series and consists of several Sections of Township 1 South, Range 9 East.

The Project will be implemented within or adjacent to paved public Right-of-Way surrounded by mostly agricultural land in the unincorporated areas of San Joaquin County and urbanized land within the city limits of Escalon. The alignment terminates in an existing gravel-lined overflow parking lot designated as Agricultural-Urban Reserve (AU) under the County's General Plan. The AU land use designation is intended to retain agriculture within areas planned for future urban development to ensure compact and orderly growth within City Limits.

1 As used in this report, "special-status" refers to plant and wildlife species that are federally and State listed, proposed, or candidates; plant species that have been designated with a California Native Plant Society Rare Plant Rank; wildlife species that are designated by the CDFW as fully protected, species of special concern, or watch list species; and specially protected natural vegetation communities as designated by the CDFW.

The Project Alignment begins on Dodds Road (approximately 75-feet west of Escalon-Bellota Road), in unincorporated San Joaquin County. At Dodds Road, an existing South San Joaquin Irrigation District (SSJID) 48" transmission main runs east to west and will serve as a point of connection for the Project within the SSJID system . The alignment will travel south along Escalon-Bellota Road for approximately 3.4 miles until reaching 17407 Escalon-Bellota Road, a parking lot directly north of Escalon City Limits. The parking lot is located approximately one-half mile north of downtown Escalon within the northwestern portion of the City's sphere of influence. The proposed storage tank and booster pump station (BPS) are proposed in the southeastern corner of the parking lot, along the western perimeter of Escalon-Bellota Road. The Project Location is approximately 118 feet above mean sea level (AMSL) with a gentle slope towards the south.

Approximately 1.5 miles from the beginning of the Project Alignment and tee connection with SSJID 48" Transmission main, a flow control facility will be located directly east of the Mariposa Road and Escalon-Bellota Road intersection within the County's unpaved street Right-of-Way. The flow control facility will be located underground approximately 8 feet deep at 115 AMSL. Agricultural land uses surround the proposed flow control facility, with the closest structures being agricultural ancillaries, approximately 150 and 200 feet north and northwest. The flow control facility is approximately 2.4 miles from Escalon City Limits. Refer to Exhibits 1-3 in Attachment A.

Project Description

The City of Escalon's potable water distribution network is currently supplied by groundwater wells. The City's Sustainable Groundwater Management Plan indicates the City is in groundwater overdraft and needs to supplement well water with "surface" water to meet future demand requirements and maintain water quality. Water quality is an issue in several the city wells, especially during the summer months. The project is proposed to create a more reliable water supply during the summer months for the City of Escalon and to provide a large long-term supply of high-quality water for land use allowed under the approved general plan. Project components are summarized as follows:

- The Project will receive potable water from an existing SSJID 48-inch transmission main with a tee connection at that location near the intersection of Escalon-Bellota Road and Dodds Road within Oakdale Irrigation District service area, in unincorporated San Joaquin County.
- A pipeline extension of approximately 18,000 linear feet (3.4 miles) of 18-inch diameter PVC pipe within City and County Right-of-Way that may require tree removal along the alignment to the gravel-lined overflow parking lot (See Figures 1, 2, and 2A through 2C).
- A proposed SSJID underground flow control facility flow will be constructed within an underground vault (approximately 30-feet x 30-feet and approximately 20 feet below grade) and will be located midway along the pipeline extension outside of the County Right-of-Way and east of Mariposa Road and Escalon-Bellota Road intersection. The proposed SSJID underground flow control facility to be located midway along the proposed Project Alignment within the unpaved County Right-of-Way adjacent to Mariposa Road and Escalon-Bellota Road intersection at a finished grade elevation of approximately 115 feet above mean surface level (AMSL). The flow control facility will include fencing around the perimeter, which will enclose the flow control facility equipment installed within a vault (approximately 30' x 30'). Equipment inside the vault

includes valves that will control the potable water flow to the rate requested by the City, with protection to maintain minimum pressure with the SSJID's transmission main. Additional on-site improvements consist of site security, SCADA, paving, and surface drainage. Both the pump station and flow control facility will have similar appurtenances.

- A City owned booster pump station and 0.10 MG potable water storage tank (which may be above or below ground) at the existing parking lot between Libby Drive and Escalon Bellota Road intersection and Miller Avenue and Escalon-Bellota Road intersection and will include site security, emergency generator, SCADA, paving and surface drainage. The tank will have a stand-pipe that will allow overflow from the tank. The overflow will be conveyed to a storm drain located in the street to the east of the tank location.

The storage tank and BPS will be located north of downtown Escalon, in the southeastern corner of an existing parking lot north of City Limits and have a finished grade elevation of approximately 121 feet above mean surface level (AMSL). The proposed SSJID discharge will tie into the existing City distribution network along Escalon- Bellota Road through a 16" diameter pipe. The station will be controlled based on pressure consistent with that of the existing City wells. The booster pump station, storage tank, wet well, and flow control facility will include fencing around the perimeter enclosing the future 1MG storage tank, and 40-feet-8-inch x 26-feet-8-inch concrete masonry unit (CMU) pump station.

Methodology

A literature review and records search were conducted to determine which special-status biological resources have the potential to occur on or within the general vicinity of the project site. In addition to the literature review, a general habitat assessment or field investigation of the project site was conducted to document existing conditions and assess the potential for special-status biological resources to occur within the project site.

Literature Review

Prior to conducting the field investigation, a literature review and records search was conducted for special-status biological resources potentially occurring on or within the vicinity of the project site. Previously recorded occurrences of special-status plant and wildlife species and their proximity to the project site were determined through a query of the CDFW's QuickView Tool in the Biogeographic Information and Observation System (BIOS), CNDDB Rarefind 5, the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, Calflora Database, compendia of special-status species published by CDFW, and the United States Fish and Wildlife Service (USFWS) species listings.

All available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the project site were reviewed to understand existing site conditions and note the extent of any disturbances that have occurred within the project site that would otherwise limit the distribution of special-status biological resources. Standard field guides and texts were reviewed for specific habitat requirements of special-status and non-special-status biological resources, as well as the following resources:

- Google Earth Pro historic aerial imagery (1985-2024);

- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Soil Survey[2];
- USFWS Critical Habitat designations for Threatened and Endangered Species; and
- USFWS Endangered Species Profiles.

The literature review provided a baseline from which to inventory the biological resources potentially occurring within the project site. The CNDDB database was used, in conjunction with ArcGIS software, to locate the nearest recorded occurrences of special-status species and determine the distance from the project site.

Field Investigation

Following the literature review, biologist Rachael A. Lyons inventoried and evaluated the condition of the habitat within a 200-foot buffer around the project site, where applicable, on March 1, 2023. Plant communities and land cover types identified on aerial photographs during the literature review were verified by walking meandering transects throughout the project site. In addition, aerial photography was reviewed prior to the site investigation to locate potential natural corridors and linkages that may support the movement of wildlife through the area. These areas identified on aerial photography were then walked during the field investigation.

Soil Series Assessment

On-site and adjoining soils were researched prior to the field investigation using the USDA NRCS Soil Survey for San Joaquin County, California. In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes that the project site has undergone.

Plant Communities

Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography. The plant communities were classified in accordance with Sawyer, Keeler-Wolf and Evens (2009), delineated on an aerial photograph, and then digitized into GIS Arcview. The Arcview application was used to compute the area of each plant community and/or land cover type in acres.

Plants

Common plant species observed during the field investigation were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unusual and less-familiar plants were photographed in the field and identified in the laboratory using taxonomic guides. Taxonomic nomenclature used in this study follows the 2012 Jepson Manual (Hickman 2012). In this report, scientific names are provided immediately following common names of plant species (first reference only).

Wildlife

Wildlife species detected during the field investigation by sight, calls, tracks, scat, or other sign were

2 A soil series is defined as a group of soils with similar profiles developed from similar parent materials under comparable climatic and vegetation conditions. These profiles include major horizons with similar thickness, arrangement, and other important characteristics, which may promote favorable conditions for certain biological resources.

recorded during surveys in a field notebook. Field guides used to assist with identification of wildlife species during the survey included The Sibley Field Guide to the Birds of Western North America (Sibley 2003), A Field Guide to Western Reptiles and Amphibians (Stebbins 2003), and A Field Guide to Mammals of North America (Reid 2006). Although common names of wildlife species are well standardized, scientific names are provided immediately following common names in this report (first reference only).

Jurisdictional Drainages and Wetlands

Aerial photography was reviewed prior to conducting a field investigation in order to locate and inspect any potential natural drainage features, ponded areas, or water bodies that may fall under the jurisdiction of the United States Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory jurisdiction. In addition, ELMT reviewed jurisdictional waters information through examining historical aerial photographs to gain an understanding of the impact of land-use on natural drainage patterns in the area. The USFWS National Wetland Inventory (NWI) and Environmental Protection Agency (EPA) Water Program "My Waters" data layers were also reviewed to determine whether any hydrologic features and wetland areas have been documented on or within the vicinity of the project site.

Existing Site Conditions

The proposed project site lies within an area primarily used for agricultural purposes in the City of Escalon. Adjacent developments include those associated with private residences, and commercial businesses and agricultural practices along Escalon-Bellota Road. This is a main thoroughfare connecting to State Route 120, south of the project site. The proposed project will be limited to existing developed roads and thoroughfares in the public right-of-way.

Topography and Soils

The approximately 3.65-mile-span of Escalon-Bellota Road is relatively flat and ranges in elevation from approximately 109 to 123 feet above mean sea level (msl) and sloped generally from south to north. The elevation for the proposed tank site location lies at approximately 120 feet above msl.

Based on the NRCS USDA Web Soil Survey, the project site is historically underlain by Madera sandy loam (0 to 2 percent slopes), Madera-Alamo complex (0 to 1 percent slopes, leveled), and Veritas fine sandy loam (0 to 2 percent slopes). Soils on-site have been disturbed and compacted by existing development associated with the paved road right-of-way, surrounding development, and existing land uses.

Vegetation

Due to historic anthropogenic activities on-site and immediately adjacent to the project site, plant communities supported by the project site vary in diversity. The project site supports three (3) land cover types that would be classified as disturbed, developed, and agricultural. Refer to Attachment B, *Site Photographs*, for representative site photographs.

The majority of the project site support disturbed land where routine disturbance prevents the establishment of a natural plant community. The disturbed areas contain mostly non-native, invasive, and/or annual species. Disturbed areas of the proposed project include stretches of land along Escalon-Bellota Road, consisting of roadside shoulders and ditches. These areas range in vegetative density from baren to full coverage of monocultures, primarily fescue. Common plant species observed in the disturbed portions of the proposed project include those listed in the nonnative grassland community.

The project supports developed land in the form of existing flood control infrastructure and paved driveways associated with adjacent residential and commercial development. These areas are maintained to be free of vegetation, except where perennial flows within channels coincide with an existing plant community. For the purposes of this report, areas where developed land supports overlapping vegetation are considered to be part of the adjacent plant community.

An active agricultural area lies within and surrounding a site allocated to the construction of the proposed tank and associated pumps. This land cover type supports uniform vegetative coverage in the form of row crops of apple trees (*Malus domestica*). Routine disturbance occurs throughout this area in association with vehicular access on unpaved roads and areas adjacent to the apple orchard, as well as foot traffic throughout the orchard itself. Other plant species observed within the agricultural areas, include some aforementioned species present within the disturbed portions of the proposed project.

Wildlife

Plant communities provide foraging habitat, nesting/denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species that were observed or are expected to occur within the project site. The discussion is to be used as a general reference and is limited by the season, time of day, and weather conditions in which the field investigation was conducted. Wildlife detections were based on calls, songs, scat, tracks, burrows, and direct observation. The project site provides moderate habitat for wildlife species, especially those adapted to a high degree of anthropogenic disturbances and development.

Fish

No fish were observed on or within the vicinity of the project site during the field investigation. Lone Tree Creek, located centrally to the proposed scope of the project, is known to support several fish species such as coastal rainbow trout (*Oncorhynchus mykiss irideus*), Owens speckled dace (*Rhinichthys osculus*), and Owens sucker (*Catostomus fumeiventris*). However, these species occur in areas which are less channelized and have not been manipulated or reinforced by dams or culverts, such as the portion of Lone Tree Creek within the boundaries of the proposed project. Further, these species have not been observed in the general vicinity of the proposed project. Fish species which have the potential to occur within the vicinity of the proposed project include western mosquitofish (*Gambusia affinis*), and largemouth bass (*Micropterus salmoides*). No impacts to Lone Tree Creek are expected to occur.

Amphibians

The roadside ditches, flood control channels, and Lone Tree Creek have the potential to support local amphibian species adapted to a high degree of human disturbance and conditions within the Central Valley. These areas vary in water content from the perennial flow within Lone Tree Creek, ephemeral flooding following storm events within the roadside drainages. Additionally, most of these areas receive regular flows from urban runoff and irrigation from adjacent agricultural and residential development. No amphibian species were observed on or within the vicinity of the proposed project. However, common amphibian species that may occur adjacent to the project site include American bullfrog (*Lithobates catesbeianus*) and Sierran tree frog (*Pseudacris sierra*).

Reptiles

No reptilian species were observed on-site during the field investigation. The project site provides suitable habitat for local reptile species adapted to routine disturbance and development. Common reptilian species that may occur on-site include western fence lizard (*Sceloporus occidentalis*), pond slider (*Trachymys scripta*), California king snake (*Lampropeltis californiae*), and southern alligator lizard (*Elgaria multicarinata webbii*).

Birds

The project site and surrounding area provides suitable foraging and nesting habitat for resident and migratory bird species adapted to routine disturbance and development. Bird species detected during the field investigation include house finch (*Haemorhous mexicanus*), white-crowned sparrow (*Zonotrichia leucophrys*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), pine siskin (*Spinus pinus*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and savannah sparrow (*Passerculus sandwichensis*). Other common bird species that may occur within or adjacent to the project site include Canada goose (*Branta canadensis*), snow goose (*Anser caerulescens*), and ruby-crowned kinglet (*Regulus calendula*).

Mammals

The project site and surrounding area provide suitable foraging and cover habitat for mammalian species adapted to routine disturbance and development. Mammalian species detected during the field investigation include American badger (*Taxidea taxus*), domestic cat (*Felis catus*), western gray squirrel (*Sciurus griseus*), and California ground squirrel (*Otospermophilus beecheyi*). Additionally, domestic dogs (*Canis familiarus*) and livestock such as cattle (*Bos taurus*), horses (*Equus caballus*) and goats (*Capra aegagrus hircus*) occur commonly adjacent or in the general vicinity of the project site. Other common mammal species that may occur within or adjacent to the project site include coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), and desert cottontail (*Sylvilagus audubonii*). Further, local bat species adapted to routine disturbance have the potential to roost in the eucalyptus trees present adjacent to the project site.

Nesting Birds

No active nests or birds displaying nesting behavior were observed during the field survey. Although subjected to routine disturbance from surrounding development and agricultural practices, on-site plant communities have the potential to provide suitable nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that could occur in the area that are adapted to routine disturbance. In addition, suitable nesting opportunities for raptors are present in the eucalyptus trees that occur throughout adjacent site areas, and the disturbed portions of project have the potential to provide suitable nesting opportunities for birds that nest on the open ground (e.g., killdeer [*Charadrius vociferus*]).

Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.5, 3511, and 3513 prohibit the take, possession, or destruction of birds, their nests or eggs). If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within three (3) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction.

Migratory Corridors and Linkages

Habitat linkages provide connections between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet still inadequate for others. Wildlife corridors are features that allow for the dispersal, seasonal migration, breeding, and foraging of a variety of wildlife species. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

The proposed project has not been mapped as occurring within any recognized wildlife corridor or linkage. Mokelumne Vernal wildlife corridor occurs approximately 6.7 miles to the east and Stanislaus Vernal wildlife corridor occurs approximately 3.9 miles to the southeast. Additionally, the site occurs in proximity to several open spaces including golf courses, parks, and inactive agricultural areas which provide movement opportunities for local wildlife, especially for avian species.

Due to the nature and scope of the proposed project, project activities will be confined to existing paved road right-of-way or heavily disturbed areas which are only expected to result in short-term impacts to suitable movement habitat within Lone Tree Creek until phase completion of each relevant area. As a result, no long-term impacts are expected to occur as a result of project implementation.

Jurisdictional Areas

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge or fill materials into "waters of the United States" pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and bank under Fish and Wildlife Code Sections 1600 et seq., and the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

The USFWS NWI and the USGS National Hydrography Dataset were reviewed to determine if any blueline streams or riverine resources have been documented within or immediately surrounding the project site. Based on this review, several riverine resources were identified in the area of the project site by the NWI (refer to Exhibit 4 in Attachment A). The main water feature in the area is Lone Tree Creek, which passes below Escalon-Bellota Road between Magnolia Avenue to the south and Buerer Road to the north. It should be noted that there are several agricultural water conveyance features and water storage basins that occur adjacent to the project alignment that were constructed in the uplands for agricultural purposes and will not be considered jurisdictional by the Corps, Regional Board, or CDFW.

Lone Tree Creek supports a riparian plant community. Plant species observed within the riparian community include cattail (*Typha* sp.), black poplar (*Populus nigra*), Gooding's willow (*Salix gooddingii*), California black oak (*Quercus kelloggii*), blackberry (*Rubus occidentalis*), rosewood (*Vaquelinia* sp.), red gum eucalyptus (*Eucalyptus camaldulensis*), and Asiatic jasmine (*Trachelospermum asiaticum*). However, no impacts to this plant community will occur.

Lone Tree Creek flows east to west and its waters eventually join those of the Sacramento-San Joaquin River Delta system which further connect to San Pablo Bay, San Francisco Bay, and the Pacific Ocean beyond. Based on the proposed site plan and limits of disturbance, project activities will not result in impacts to Corps, Regional Board, or CDFW jurisdictional areas and regulatory approvals will not be required.

Special-Status Biological Resources

The CNDDB Rarefind 5 and the CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California were queried for reported locations of special-status plant and wildlife species as well as special-status natural plant communities in the Escalon and Avena USGS 7.5-minute quadrangles. Both quadrangles were queried due to the proximity of the project site to quadrangle boundaries. The habitat assessment evaluated the conditions of the habitat(s) within the boundaries of the project site to determine if the existing plant communities, at the time of the survey, have the potential to provide suitable habitat(s) for special-status plant and wildlife species.

The literature search identified two (2) special-status plant species, sixteen (16) special-status wildlife species, and no special-status plant communities as having potential to occur within the Escalon and Avena USGS 7.5-minute quadrangles. Special-status plant and wildlife species were evaluated for their potential to occur within the project site based on habitat requirements, availability and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity of the project site is presented in Attachment D*: Potentially Occurring Special-Status Biological Resources*.

Special-Status Plants

According to the CNDDB and CNPS, two (2) special-status plant species have been recorded in the Escalon and Avena quadrangles (refer to Attachment D). No special-status plant species were observed on-site during the habitat assessment. The project site and surrounding area have been subject to anthropogenic disturbances including grading and vegetation removal in recent decades in association with flood control measures and on-site and adjacent development. These disturbances have reduced the suitability of the habitat to support special-status plant species known to occur in the general vicinity of the project site. Based on habitat requirements for specific special-status plant species and the availability and quality of habitats needed by each species, it was determined that the project site does not provide suitable habitat for any of the special-status plant species known to occur in the area and all are presumed to be absent from the project site. No focused surveys are recommended.

Special-Status Wildlife

According to the CNDDB, sixteen (16) special-status wildlife species have been reported in the Escalon and Avena quadrangles (refer to Attachment D). No special-status wildlife species observed on-site during the habitat assessment. The project site and surrounding area have been subject to a variety of anthropogenic disturbances from on-site and surrounding development. These disturbances have eliminated the natural plant communities that once occurred on-site which has reduced potential foraging and nesting/denning opportunities for wildlife species. However, natural revegetation and the installation of ornamental landscaping continue to provide suitable habitat for some local wildlife species.

Based on habitat requirements for specific species and the availability and quality of on-site habitats, it was determined that the proposed project site has a high potential to support great blue heron (*Ardea alba*) and a low potential to support northern California legless lizard (*Anniela pulchra*). It was further determined that the site does not provide suitable habitat for the remaining special-status species known to occur in the vicinity and all are presumed to be absent. Of these species, California tiger salamander is both federally and state listed as threatened, and Swainson's hawk is state listed as threatened. None of the other aforementioned species are federally or state listed.

Special-Status Plant Communities

According to the CNDDB, no special-status plant communities have been reported in the Escalon USGS 7.5-minute quadrangle. Therefore, no special-status plant communities will be impacted by implementation of the proposed project.

Critical Habitats

Under the federal Endangered Species Act, "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the USFWS regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a Clean Water Act Permit from the United States Army Corps of Engineers). If there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The project site is not located within federally designated Critical Habitat. Further, the closest Critical Habitat designations are located approximately 6.98 miles northeast of the project site for California tiger salamander (*Ambystoma californiense),* and approximately 8.07 miles north for vernal pool fairy shrimp (*Branchinecta lynchi*). Therefore, no impacts to federally designated Critical Habitat will occur from implementation of the proposed project.

San Joaquin County Central Zone SJMSCP

The project site is located within the City of Escalon, which lies within the San Joaquin County Multi-Species Habitat Conservation and Open-Space Plan (SJMSCP) Central Zone. The purpose of the SJMSCP is to conserve SJMSCP-Covered Species by minimizing, avoiding, and mitigating impacts for these species. The Central Zone is composed primarily of agricultural habitat lands on the floor of the Central Valley including, primarily row and field crops both ditched and unditched. These croplands are bisected by riparian corridors and include, where vegetated, Great Valley riparian forest and Great Valley valley oak riparian forest, with patches of Great Valley riparian scrub. Additionally, freshwater emergent wetlands, and vernal or seasonal wetlands occur in association with several creeks in the Central Zone. Other wetlands found within the Central Zone include numerous ditches and scattered lakes and ponds. Isolated patches of valley grasslands are scattered throughout the Central Zone, but the bulk of the County's Multi-Purpose Open Space Lands in the form of orchards and vineyards, are located within the Central Zone. The majority of existing urban development, and proposed new development in the County, exists or will exist within the Central Zone.

The proposed project site occur within an area primarily allocated to agricultural practices and associated development. Natural vegetation supported on-site is limited to narrow strips of primarily invasive and ruderal species which re-established following the complete removal of vegetation in recent decades to accommodate surrounding development and associated flood control infrastructure. Native vegetation in the immediate vicinity of the project occurs in very limited areas, mostly along the banks of Lone Tree Creek, which passes under Escalon-Bellota Road central to the proposed scope of the project. Due to the scope of the proposed project and the activities outlined therein, impacts to native vegetation within the project site are expected to be limited to the short term and project activities are not expected to result in long-term or significant impacts to native plant communities. As a result, implementation of the proposed project will not result in any impacts to any areas protected by the SJMSCP.

Conclusion

Based literature review and field survey, and existing site conditions discussed in this report, implementation of the project will have no significant impacts on federally or State listed species known to occur in the general vicinity of the project site. Additionally, the project will have no effect on designated Critical Habitat, since there is no federal nexus, or regional wildlife corridors/linkages because none exist within the area. Lone Tree Creek was observed within the boundaries of the proposed project. Based on the proposed site plan and limits of disturbance, project activities will not result in impacts to Corps, Regional Board, or CDFW jurisdictional areas and regulatory approvals will not be required.

No further surveys are recommended. With completion of the recommendations provided below, no impacts to year-round, seasonal, or special-status avian residents or special-status species will occur from implementation of the proposed project.

Recommendations

Migratory Bird Treaty Act and Fish and Game Code

Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.5, 3511, and 3513 prohibit the take, possession, or destruction of birds, their nests or eggs). In order to protect migratory bird species, a nesting bird clearance survey should be conducted prior to any ground disturbance or vegetation removal activities that may disrupt the birds during the nesting season.

If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within three (3) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction. The biologist conducting the clearance survey should document a negative survey with a brief letter report indicating that no impacts to active avian nests will occur. If an active avian nest is discovered during the pre-construction clearance survey, construction activities should stay outside of a no-disturbance buffer. The size of the no-disturbance buffer will be determined by the wildlife biologist and will depend on the level of noise and/or surrounding anthropogenic disturbances, line of sight between the nest and the construction activity, type and duration of construction activity, ambient noise, species habituation, and topographical barriers. These factors will be evaluated on a case-by-case basis when developing buffer distances. Limits of construction to avoid an active nest will be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel will be instructed on the sensitivity of nest areas. A biological monitor should be present to delineate the boundaries of the buffer area and to monitor the active nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur.

Please do not hesitate to contact Tom McGill at (951) 285-6014 or tmcgill@elmtconsulting.com or Travis McGill at (909) 816-1646 or travismcgill@elmtconsulting.com should you have any questions this report.

Sincerely,

Thomas J. McGill, Ph.D.
Managing Director

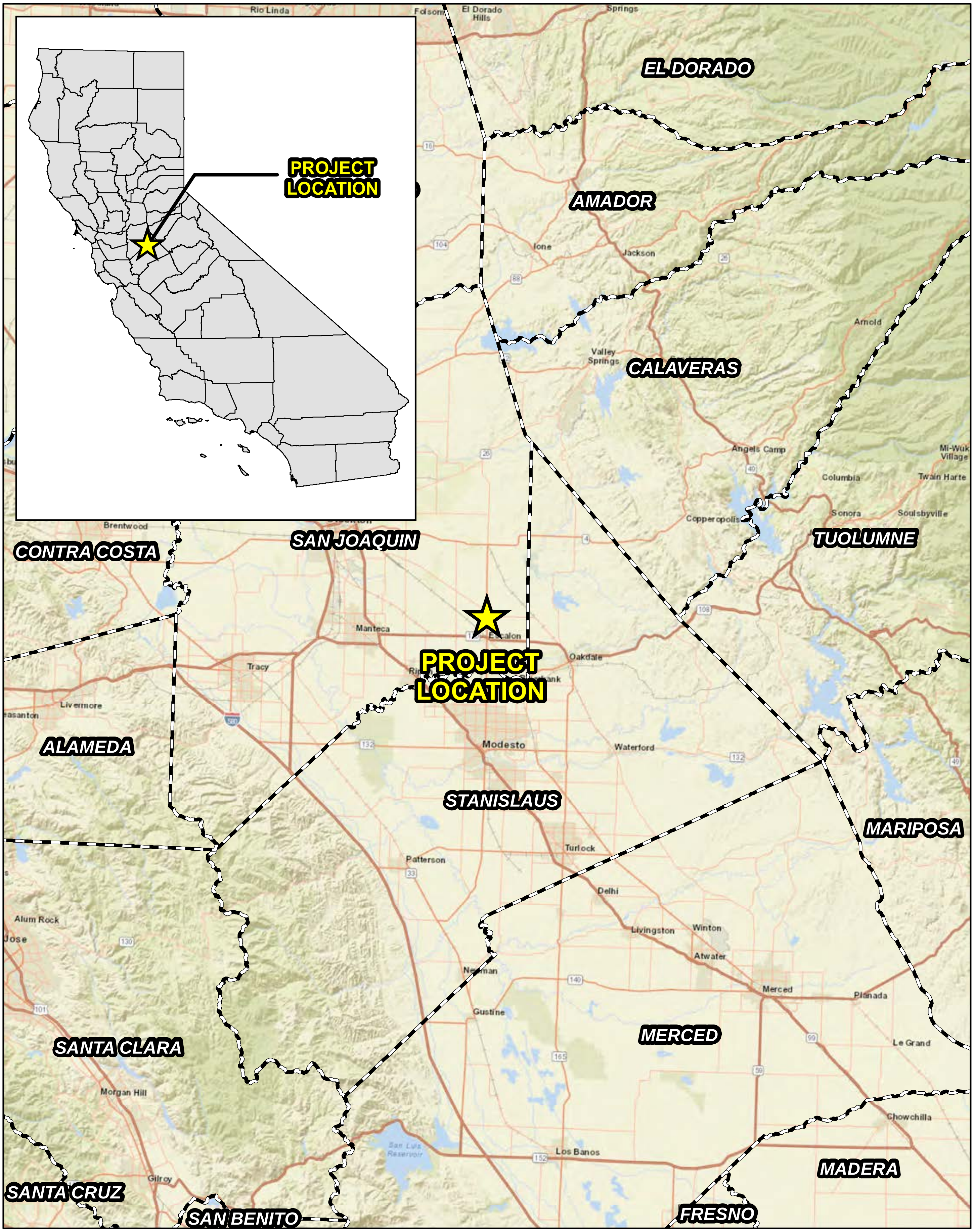
Travis J. McGill
Director

Attachments:

A. *Project Exhibits*
B. *Site Plan*
C. *Site Photographs*
D. *Potentially Occurring Special-Status Biological Resources*
E. *Regulations*

Attachment A

Project Exhibits



ELMT CONSULTING

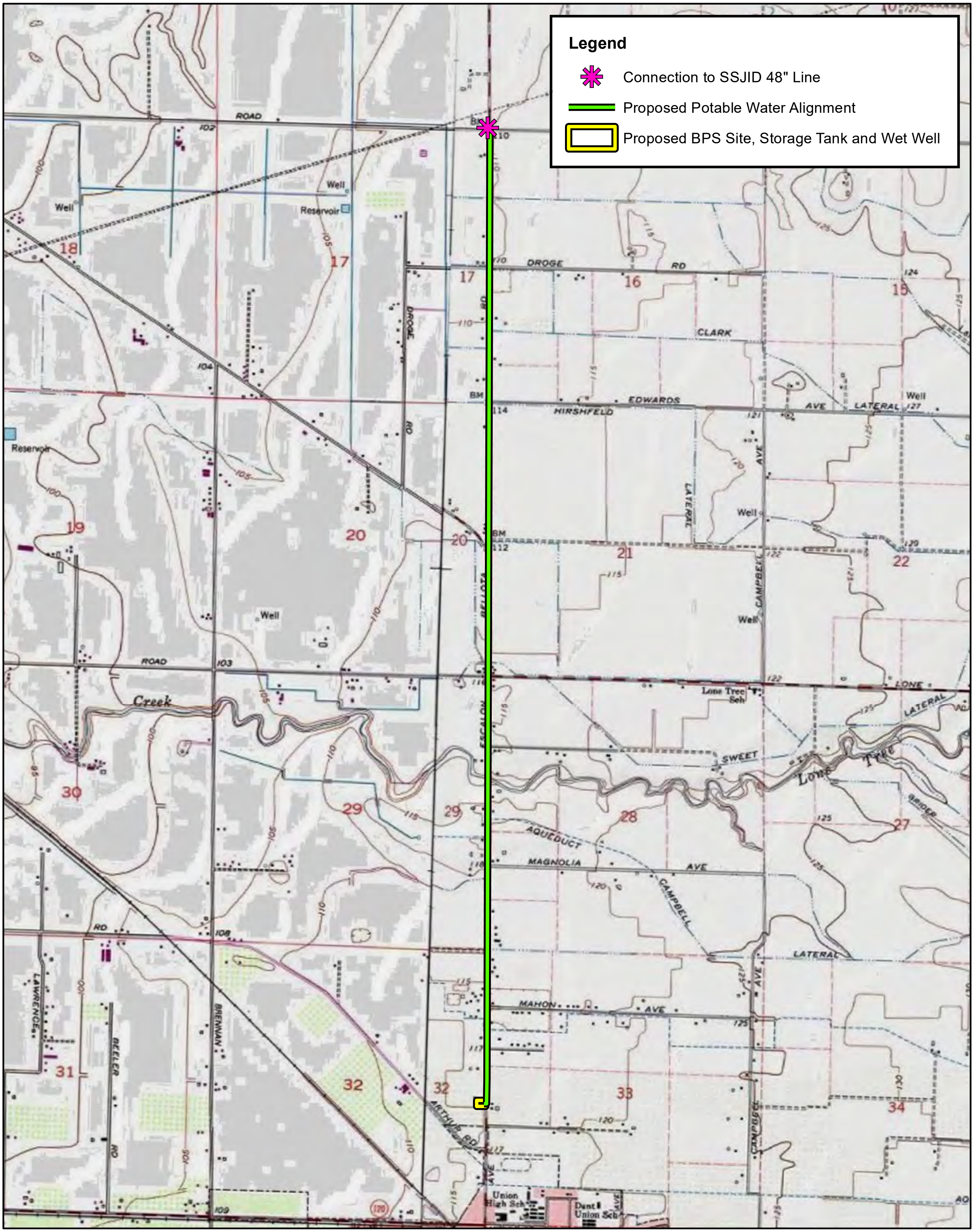
0 5 10 20 Miles

Source: World Street Map, San Joaquin County

City of Escalon Connection to Nick DeGroot Water Treatement Plant

Regional Vicinity

Exhibit 1



0 1,000 2,000 4,000
Feet

City of Escalon Connection to Nick DeGroot Water Treatement Plant

Site Vicinity

Source: USA Topographic Map, San Joaquin County

Exhibit 2

ELMT CONSULTING

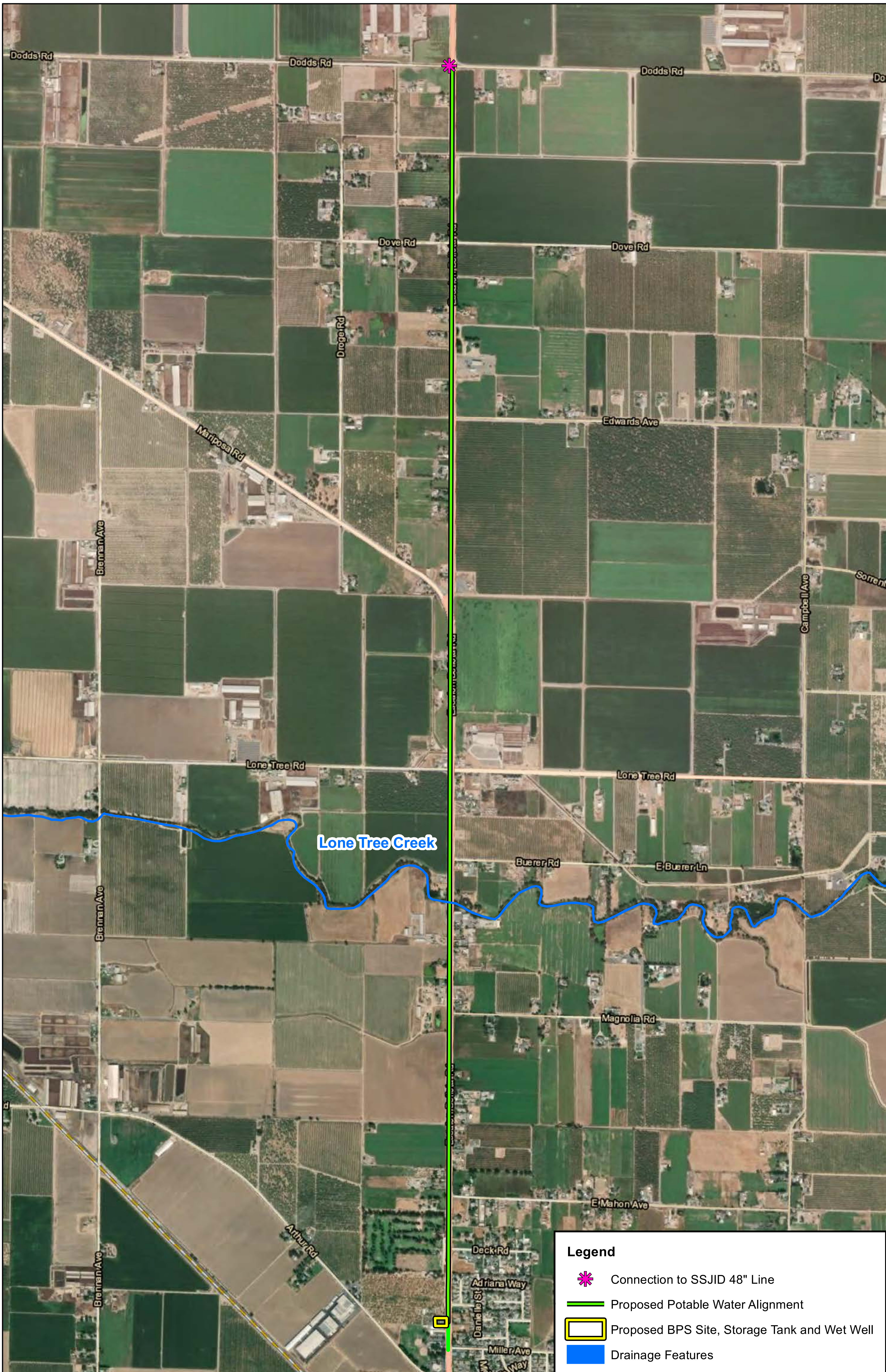
0 1,250 2,500 5,000 Feet

City of Escalon Connection to Nick DeGroot Water Treatement Plant

Project Site

Exhibit 3

Source: ESRI Aerial Imagery, San Joaquin County



0 1,250 2,500 5,000 Feet

Source: ESRI Aerial Imagery, San Joaquin County

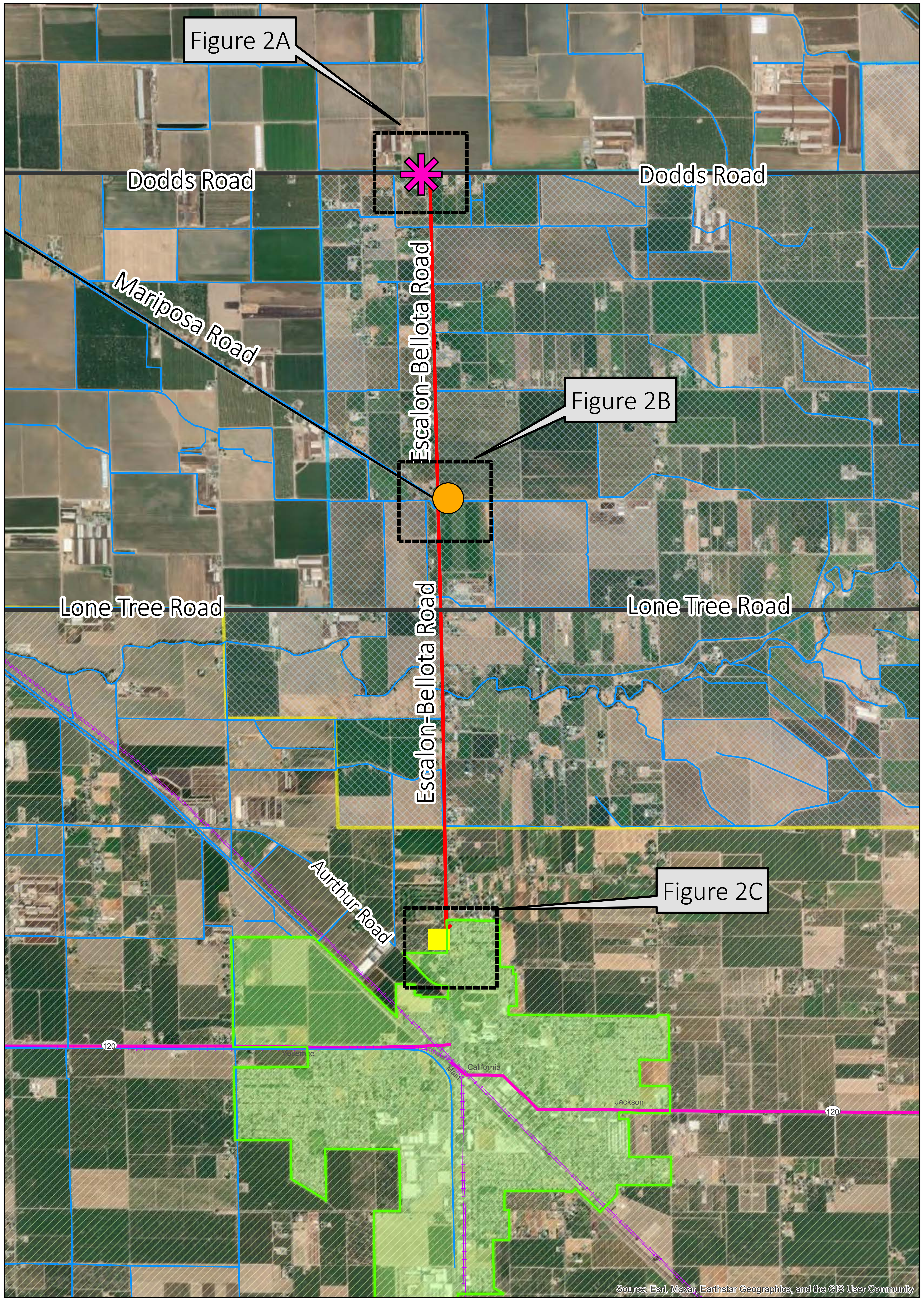
City of Escalon Connection to Nick DeGroot Water Treatement Plant

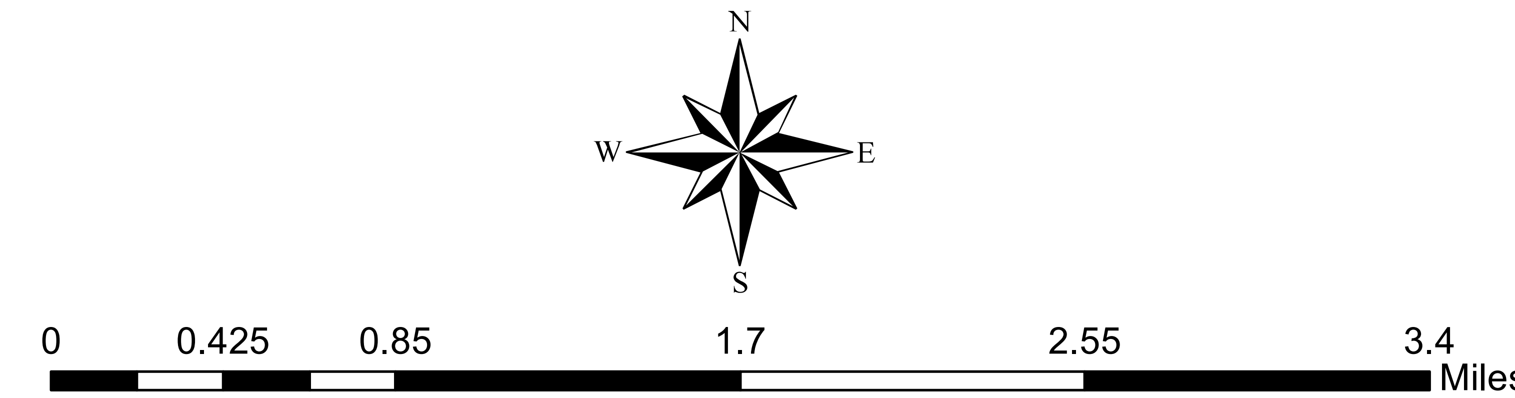
Drainage Features

Exhibit 4

Attachment B

Site Plan





Legend

- California Flowlines
- U.S. Railroad Tracks
- Highway
- Major Roadway
- City of Escalon
- Proposed Flow Control Facility
- Oakdale Irrigation District (OID)
- South San Joaquin Irrigation District (SSJID)
- Proposed Potable Water Alignment
- Proposed BPS Site, Storage Tank, and Wet Well
- Connection to SSJID 48'' Transmission Line
- Local Roadways
- Local Vicinity Maps of Project Components (Figure 2A through 2C)

ARDURRA

Escalon Treated Water Pipeline

Figure 2. Project Local Vicinity Map

Attachment C

Site Photographs

Photograph 1: From the southernmost boundary of the proposed project at the intersection of Miller Avenue and Escalon-Bellota Road, looking northwest.

Photograph 2: From the southernmost boundary of the proposed project at the intersection of Miller Avenue and Escalon-Bellota Road, looking west.

Photograph 3: From the center median of Escalon- Bellota Road, looking west toward an existing orchard and the proposed tank and pump site in the southern region of the project.

Photograph 4: From an unpaved access road adjacent to the orchard and proposed tank and pump site, looking east toward Escalon-Bellota Road.

Photograph 5: From the northeast corner of the orchard and proposed tank and pump site, looking southwest at an existing riser.

Photograph 6: From an unpaved access road adjacent to the orchard and proposed tank and pump site, looking south through the orchard.

Photograph 7: From an unpaved access road adjacent to the orchard and proposed tank and pump site, looking southwest at existing irrigation tanks.

Photograph 8: From the intersection of Mahon Road and Escalon-Bellota Road, looking west toward the proposed project location.

Photograph 9: From the intersection of Mahon Road and Escalon-Bellota Road, looking southwest toward the proposed project location.

Photograph 10: From the intersection of Mahon Road and Escalon-Bellota Road, looking northwest toward the proposed project location.

Photograph 11: From the western shoulder of Escalon-Bellota Road, looking north through an area of the proposed project located at approximately 16687 Escalon-Bellota Road.

Photograph 12: From the western shoulder of Escalon-Bellota Road, looking west through an existing agricultural channel at approximately 16314 Escalon-Bellota Road.

Photograph 13: From the western shoulder of Escalon-Bellota Road, looking north along an existing agricultural channel at approximately 16314 Escalon-Bellota Road.

Photograph 14: From the western shoulder of Escalon-Bellota Road, looking southwest through an agricultural channel located at approximately 16051 Escalon-Bellota Road.

Photograph 15: From the western shoulder of Escalon-Bellota Road, looking south along an existing agricultural channel at approximately 16051 Escalon-Bellota Road.

Photograph 16: From the intersection of Magnolia Avenue and Escalon-Bellota Road, looking north along the proposed project area.

Photograph 17: From the eastern shoulder of Escalon-Bellota Road, looking east through Lone Tree Creek.

Photograph 18: From the southern bank of Lone Tree Creek, looking northwest toward Escalon-Bellota Road.

Photograph 19: From the western shoulder of Escalon-Bellota Road, looking southwest at maintenance facilities associated with Lone Tree Creek.

Photograph 20: From Lone Tree Creek, looking east toward Escalon-Bellota Road.

Photograph 21: From the southern bank of Lone Tree Creek, looking northeast through existing supporting structures toward Escalon-Bellota Road.

Photograph 22: From the western shoulder of Escalon-Bellota Road, looking south through an area of the proposed project located at approximately 15268 Escalon-Bellota Road.

Photograph 23: From the eastern shoulder of Escalon-Bellota Road, looking south through an area of the proposed project located at approximately 15268 Escalon-Bellota Road.

Photograph 24: From the intersection of Lone Tree Road and Escalon-Bellota Road, looking north through Escalon-Bellota Road.

Photograph 25: From the intersection of Lone Tree Road and Escalon-Bellota Road, looking east through Lone Tree Road.

Photograph 26: From the intersection of Lone Tree Road and Escalon-Bellota Road, looking south through Escalon-Bellota Road.

Photograph 27: From the intersection of Lone Tree Road and Escalon-Bellota Road, looking west through Lone Tree Road.

Photograph 28: From the eastern shoulder of Escalon-Bellota Road, looking east at existing roadside ditches.

Photograph 29: From the eastern shoulder of Escalon-Bellota Road, looking northeast at an existing culvert located at 14159 County Highway Junction-6.

Photograph 30: From the intersection of Escalon-Bellota Road and Edwards Avenue, looking south along Escalon-Bellota Road at existing pumps and tanks adjacent to a roadside ditch within the project site.

Photograph 31: From the intersection of Escalon-Bellota Road and Edwards Avenue, looking north along Escalon-Bellota Road through a roadside ditch within the project site.

Photograph 32: From the eastern shoulder of Escalon-Bellota Road, looking east at an existing pond located at 13133 Escalon-Bellota Road.

Photograph 33: From the eastern shoulder of Escalon-Bellota Road, looking northeast at a second pond located at 13133 Escalon-Bellota Road.

Photograph 34: From the eastern shoulder of Escalon-Bellota Road, looking north through a roadside ditch within the proposed project.

Photograph 35: From the eastern shoulder of Escalon-Bellota Road, looking north through a roadside ditch located at the intersection of Escalon-Bellota Road and Dove Road.

Photograph 36: From the intersection of Escalon-Bellota Road and Dove Road, looking southwest through an existing roadside ditch.

Photograph 37: From the intersection of Escalon-Bellota Road and Dove Road, looking north along Escalon-Bellota Road through an existing agricultural channel.

Photograph 38: From the eastern shoulder of Escalon-Bellota Road, looking south through an existing agricultural channel and roadside ditch.

Photograph 39: From the eastern shoulder of Escalon-Bellota Road, looking southeast through an existing agricultural channel.

Photograph 40: From the eastern shoulder of Escalon-Bellota Road, looking south at an existing agricultural channel which runs east to west near 12381 Escalon-Bellota Road.

Photograph 41: From the western shoulder of Escalon-Bellota Road, looking west at an existing agricultural channel which runs east to west near 12381 Escalon-Bellota Road.

Photograph 42: From the middle of an existing agricultural channel located near 12381 Escalon-Bellota Road, looking further west.

Photograph 43: From the eastern shoulder of Escalon-Bellota Road, looking north through an existing roadside ditch.

Photograph 44: From the western shoulder of Escalon-Bellota Road, looking south along an existing roadside ditch and agricultural channel located at 12367 County Highway Junction-6 within the proposed project.

Photograph 45: From the western shoulder of Escalon-Bellota Road, looking north along an existing roadside ditch and agricultural channel located at 12367 County Highway Junction-6.

Photograph 46: From the eastern shoulder of Escalon-Bellota Road, looking south along an existing roadside ditch across from 12367 County Highway Junction-6.

Photograph 47: From the intersection of Escalon-Bellota Road and Dodds Road, looking south down Escalon-Bellota Road at the northernmost boundary of the proposed project.

Attachment D

Potentially Occurring Special-Status Biological Resources

Potentially Occurring Sensitive Biological Resources

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
SPECIAL-STATUS WILDLIFE SPECIES				
***Acipenser medirostris* pop. 1** green sturgeon- southern DPS	Fed: **THR** CA: None	Generally found in the San Joaquin and Delta River systems. Spawn primarily in the upper mainstem of the Sacramento River but can also be found spawning in the Yuba and Feather Rivers. Remain in freshwater for a few years, then migrate to saltwater to feed, grow, and mature. Adults enter San Francisco Bay between mid-February and early May and migrate upstream to spawn. Congregate in bays and estuaries in Washington, Oregon, and California in the summer and fall, and northern Vancouver Island, B.C. in the winter and spring.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
***Ambystoma californiense* pop. 1** California tiger salamander-central California DPS	Fed: **THR** CA: **THR;** WL	Can be found in annual grasslands and oak woodlands with hot, dry summers and cool, rainy winters. Reside underground throughout most of the year in abandoned small mammal burrows. Require ephemeral pools for breeding.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Anniella pulchra northern California legless lizard	Fed: None CA: SSC	Occurs in moist, warm, loose soils with plant cover, or in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces. Found in leaf litter under trees and bushes, sunny areas, dunes with stabilized soil, under rocks and logs, and within suburban gardens.	No	**Low** Suitable foraging and nesting habitat present within and adjacent to project site. However, species has not been observed in the general area.
Ardea herodias great blue heron	Fed: None CA: None	Fairly common all year throughout most of California, in shallow estuaries and fresh and saline emergent wetlands. Less common along riverine and rocky marine shores, in croplands, pastures, and in mountains about foothills.	No	**High** Suitable foraging and nesting habitat is present within and surrounding the project site.
Athene cunicularia burrowing owl	Fed: None CA: SSC	Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon fossorial mammals for burrows, most notably ground squirrels.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Bombus occidentalis western bumble bee	Fed: None CA: CE	Occurs along the Pacific coast and western interior of North America. Dependent on habitat with rich, floral resources throughout nesting season. Require above and below-ground micro-sites for overwintering and nesting including logs, stumps, and abandoned rodent and ground nests and dens.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat	Observed On-site	Potential to Occur
Buteo swainsoni Swainson's hawk	Fed: None CA: **THR**	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	Fed: **THR** CA: None	Found only within the valley floor and lower foothill region within riparian and foothill oak communities in the Central Valley, of California. Dependent on elderberry as host plant.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Entosphenus tridentatus pacific lamprey	Fed: None CA: SSC	Spend most of their lives in freshwater streams before entering the ocean as adults. Young lamprey burrow in muddy bottoms of backwater pools and eddies. Spawn in medium and large-sized, low-gradient rivers and streams.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Eumops perotis californicus western mastiff bat	Fed: None CA: SSC	Found in a variety of habitats from dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadow, and agricultural areas. Requires rock outcroppings, cliff faces, tunnels, or tall buildings for roosting.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Hysterocarpus traskii traskii Sacramento-San Joaquin tule perch	Fed: None CA: None	Found in deep waters of low-elevation lakes, streams, and estuarine environments. Require cool, well-oxygenated water. Occupy deep pools with complex vegetative cover.	No	**Presumed Absent** On-site aquatic habitats are unsuitable for this species.
Lavinia exilicauda exilicauda Sacramento hitch	Fed: None CA: SSC	Inhabits warm, lowland waters, including clear streams, turbid sloughs, lakes, and reservoirs. Generally found in pools or runs among aquatic vegetation associated with streams.	No	**Presumed Absent** On-site aquatic habitats are unsuitable for this species.
Mustela frenata xanthogenys San Joaquin long-tailed weasel	Fed: None CA: None	Occurs in woodlands, thickets, and open areas such as farmland, usually near a water source. Uses abandoned mammal burrows to den, preferably under stumps or beneath rock piles.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Mylopharodon conocephalus hardhead	Fed: None CA: SSC	Found at low to mid-elevations in relatively undisturbed large stream habitat with high water clarity. Limited to well-oxygenated streams and reservoir surface waters. Common in small aggregations in pools and runs during the day. Primarily bottom-feed but can feed on drifting material and insects at the water's surface.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Oncorhynchus mykiss irideus pop. 11 steelhead – central valley DPS	Fed: **THR** CA: None	Occurs primarily in tailwaters of dammed rivers, undammed creeks and four hatchery-supported systems of Battle Creek, and the Feather, American, and Mokelumne Rivers.	No	**Presumed Absent** On-site aquatic habitats are unsuitable for this species.

Scientific Name Common Name	Status	Habitat	Observed On-site	Potential to Occur
Oncorhynchus tshawtyscha pop. 13 Chinook salmon-central valley fall/late fall-run ESU	Fed: **None** CA: **SSC**	Spend early life growing and feeding in freshwater streams, estuaries, and associated wetlands. Adults live in coastal oceanic areas. This population includes naturally spawned spring-run individuals, originating from the Sacramento River and its tributaries, as well as the Feather River Hatchery program.	No	**Presumed Absent** On-site aquatic habitats are unsuitable for this species.
SPECIAL-STATUS PLANT SPECIES				
Legenere limosa legenere	Fed: None CA: None CNPS: 1B.1	Found mainly in vernal pools in Sacramento and Solano counties but has also been recorded in several other north-central, and bay-delta areas. Restricted to seasonal wetland environments below 2,000 feet. Blooms from May to June.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Tuctoria greenei Greene's tuctoria	Fed: **END** CA: Rare CNPS: 1B.1	Grows in vernal pools or grasslands with vernal swale complex land cover. Occurs in open grassland communities, on the eastern side of the Sacramento and San Joaquin Valleys.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

U.S. Fish and Wildlife Service (Fed) - Federal
END- Federal Endangered
THR- Federal Threatened
CE- Candidate for listing under the Federal Endangered Species Act

California Department of Fish and Wildlife (CA) - California
END- California Endangered
THR- California Threatened
CE- Candidate for listing under the California Endangered Species Act
FP- California Fully Protected
SSC- Species of Special Concern
WL- Watch List

California Native Plant Society (CNPS)
California Rare Plant Rank
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 Plants About Which More Information is Needed – A Review List
4 Plants of Limited Distribution – A Watch List

CNPS Threat Ranks
0.1- Seriously threatened in California
0.2- Moderately threatened in California
0.3- Not very threatened in California

Attachment E

Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Regulations

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits "take" of threatened or endangered species. "Take" under the ESA is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered "take." This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines "endangered" and "rare" species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, "endangered" species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while "rare" species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in "take" of individuals (defined in CESA as; "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") are regulated by CDFW. Habitat degradation or modification is not included in the definition of "take" under CESA. Nonetheless, CDFW has interpreted "take" to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

- 1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere
- 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

2A- Plants Presumed Extirpated in California, But More Common Elsewhere

2B- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3- Plants about Which More Information is Needed - A Review List

4- Plants of Limited Distribution - A Watch List

Threat Ranks

.1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the filling of "waters of the U.S.," including wetlands, pursuant to Section 404 of the Clean Water Act (CWA). The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States." In order to further define the scope of waters protected under the CWA, the Corps and EPA published the Clean Water Rule on June 29, 2015. Pursuant to the Clean Water Rule, the term "*waters of the United States*" is defined as follows:

(i) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

(ii) All interstate waters, including interstate wetlands[1].

(iii) The territorial seas.

(iv) All impoundments of waters otherwise defined as waters of the United States under the definition.

(v) All tributaries[2] of waters identified in paragraphs (i) through (iii) mentioned above.

(vi) All waters adjacent[3] to a water identified in paragraphs (i) through (v) mentioned above, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

---

1 The term *wetlands* means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

2 The terms *tributary* and *tributaries* each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (iv) mentioned above), to a water identified in paragraphs (i) through (iii) mentioned above, that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark.

3 The term *adjacent* means bordering, contiguous, or neighboring a water identified in paragraphs (i) through (v) mentioned above, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like.

(vii) All prairie potholes, Carolina bays and Delmarva bays, Pocosins, western vernals pools, Texas coastal prairie wetlands, where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (i) through (iii) meantioned above.

(viii) All waters located within the 100-year floodplain of a water identified in paragraphs (i) through (iii) mentioned above and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (i) through (v) mentioned above, where they are determined on a case-specific basis to have a significant nexus to a waters identified in paragraphs (i) through (iii) mentioned above.

The following features are not defined as "waters of the United States" even when they meet the terms of paragraphs (iv) through (viii) mentioned above:

(i) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(ii) Prior converted cropland.

(iii) The following ditches:

- (A) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
- (B) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
- (C) Ditches that do not flow, either directly or through another water, into a water of the United States as identified in paragraphs (i) through (iii) of the previous section.

(iv) The following features:

- (A) Artificially irrigated areas that would revert to dry land should application of water to that area cease;
- (B) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;
- (C) Artificial reflecting pools or swimming pools created in dry land;
- (D) Small ornamental waters created in dry land;
- (E) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;
- (F) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of a tributary, non-wetland swales, and lawfully constructed grassed waterways; and
- (G) Puddles.

(v) Groundwater, including groundwater drained through subsurface drainage systems.

(vi) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(vii) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;
(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or
(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

APPENDIX C

Cultural/Archaeological/Tribal/ Paleontological Resources Report (BCR Consulting 2023)

CULTURAL RESOURCES ASSESSMENT

The City of Escalon Connection to Nick DeGroot Water Treatment Plant

Escalon, San Joaquin County, California

Prepared for:

Lori Trottier
Ardurra
3737 Birch Street, Suite 250
Newport Beach, California 92660

Prepared by:

David Brunzell, M.A., RPA
BCR Consulting LLC
Claremont, California 91711
Contributions by Doug Kazmier, B.A., and Nicholas Shepetuk, B.A.

Project No. ARD2301

Data Base Information:

Type of Study: Cultural Resources Assessment
Resources Recorded: None
Keywords: San Joaquin County, Escalon
USGS Quadrangle: 7.5-minute *Escalon, California* (1968)

BCRCONSULTING LLC

May 12, 2023

MANAGEMENT SUMMARY

BCR Consulting LLC (BCR Consulting) is under contract to Ardurra to conduct a Cultural Resources Assessment of the City of Escalon Connection to Nick DeGroot Water Treatment Plant (the project) located in the City of Escalon (City), San Joaquin County, California. The work is being performed pursuant to the California Environmental Quality Act (CEQA). A cultural resources records search, additional research, field survey, Sacred Lands File Search with the Native American Heritage Commission (NAHC), and paleontological overview were conducted for the effort. The records search revealed that 16 cultural resource studies have taken place resulting in 16 cultural resources recorded within a one-half mile radius of the project alignment. One study has taken place within the project alignment, and no cultural resources have been identified within its boundaries.

During the field survey, BCR Consulting archaeologists did not identify any cultural resources within the project area. Segments of two historic-period transmission lines lie just outside of the project area to the east and west, but they will remain unaffected by the project. Based on these results, BCR Consulting recommends that the project as proposed will not result in an adverse effect to any historical resources under CEQA. No further cultural resource work or monitoring is recommended.

While the current study has not indicated sensitivity for buried cultural resources within the project alignment, ground disturbing activities always have the potential to reveal buried deposits not observed on the surface during previous surveys. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that field personnel encounter buried cultural materials, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register or the National Register, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed. Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- historic artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks.

Findings were negative during the Sacred Lands File search with the NAHC. The results of the Sacred Lands File search are provided in Appendix B. Assembly Bill (AB) 52 Native American Consultation will be initiated by the City. Therefore, the results are not included in this report. However, report results may be shared with participating tribes as necessary.

The Legislature added requirements regarding tribal cultural resources for CEQA in Assembly Bill 52 (AB 52) that took effect July 1, 2015. AB 52 requires consultation with California Native American tribes and consideration of tribal cultural resources in the CEQA process. By including tribal cultural resources early in the CEQA process, the legislature intended to ensure that local and Tribal governments, public agencies, and project proponents would have information available, early in the project planning process, to identify and address potential adverse impacts to tribal cultural resources. By taking this proactive approach, the legislature also intended to reduce the potential for delay and conflicts in the environmental review process. To help determine whether a project may have such an effect, the Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a Proposed Project. The City would initiate and carry out the required AB52 Native American Consultation, although this report may be used during the consultation process and BCR Consulting staff is available to answer questions and address concerns as necessary.

According to CEQA Guidelines, projects subject to CEQA must determine whether the project would “directly or indirectly destroy a unique paleontological resource”. The Paleontological Overview provided in Appendix D has recommended that:

> The geologic units underlying this project are mapped as Pleistocene-aged alluvial deposits from the Modesto Formation and the Riverbank Formation (Wagner, Bortugno, McJunkin 1991). Pleistocene units are considered to be highly paleontologically sensitive. The Western Science Center does not have localities within the project area or within a 3 mile radius, which was chosen to accommodate for the size of the project; however this is likely due to the project’s distance from the museum and should not be taken as indicative of paleontological sensitivity.
>
> Any fossil specimen from the City of Escalon Connection to the [Nick DeGroot Water Treatment Plant] would be scientifically significant. Excavation activity associated with the development of the project area would impact the paleontologically sensitive Pleistocene alluvial units, and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the study area.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

INTRODUCTION

BCR Consulting LLC (BCR Consulting) is under contract to Ardurra to conduct a Cultural Resources Assessment of the City of Escalon Connection to Nick DeGroot Water Treatment Plant (the project) in the City of Escalon (City), San Joaquin County, California. The work is being performed pursuant to the California Environmental Quality Act (CEQA). Tasks completed for the scope of work include a cultural resource records search, additional research, intensive pedestrian cultural resource survey, Sacred Lands File search with the Native American Heritage Commission, and paleontological resources overview. The project is in Sections 16, 17, 20, 21, 28, 29, 32, and 33 of Township 2 South, Range 9 East, Mt. Diablo Base and Meridian in Escalon, San Joaquin County, California. It is depicted on the United States Geological Survey (USGS) *Escalon, California* (1968) 7.5-minute topographic quadrangle (Figure 1).

Regulatory Setting

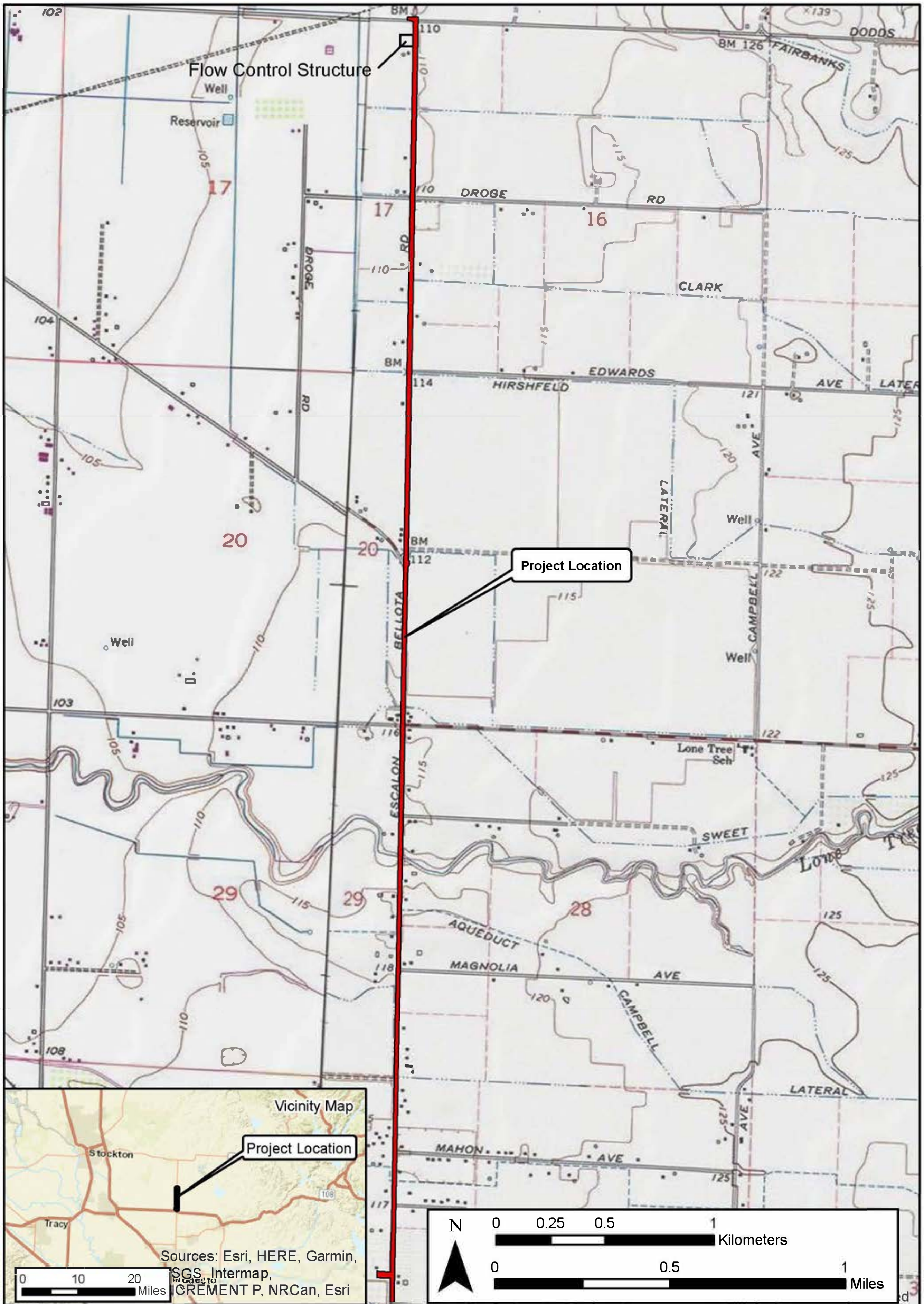
The California Environmental Quality Act. CEQA applies to all discretionary projects undertaken or subject to approval by the state's public agencies (California Code of Regulations 14(3), § 15002(i)). Under CEQA, "A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (Cal. Code Regs. tit. 14(3), § 15064.5(b)). State CEQA Guidelines section 15064.5(a) defines a "historical resource" as a resource that meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historical Resources (California Register)
- Listed in a local register of historical resources (as defined at Cal. Public Res. Code § 5020.1(k))
- Identified as significant in a historical resource survey meeting the requirements of § 5024.1(g) of the Cal. Public Res. Code
- Determined to be a historical resource by a project's lead agency (Cal. Code Regs. tit. 14(3), § 15064.5(a))

A historical resource consists of "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources" (Cal. Code Regs. tit. 14(3), § 15064.5(a)(3)).

The significance of a historical resource is impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for the California Register. If an impact on a historical or archaeological resource is significant, CEQA requires feasible measures to minimize the impact (State CEQA Guidelines § 15126.4 (a)(1)). Mitigation of significant impacts must lessen or eliminate the physical impact that the project will have on the resource.

Section 5024.1 of the Cal. Public Res. Code established the California Register. Generally,



BCRCONSULTING LLC
Claremont Napa Tehachapi
www.bcrconsulting.net
909-525-7078

Project Location Site
The City of Escalon Connection to Nick De Groot Water Treatment Plant
Reference: ESRI; USGS Quads: Escalon, California (1968)

Figure 1

Ardurra

resource is considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register (Cal. Code Regs. tit. 14(3), § 15064.5(a)(3)). The eligibility criteria for the California Register are similar to those of the National Register of Historic Places (National Register), and a resource that meets one or more of the eligibility criteria of the National Register will be eligible for the California Register.

The California Register program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under CEQA. Criteria for Designation:

1. Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
2. Associated with the lives of persons important to local, California or national history.
3. Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values.
4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resources." (CCR 4852 [d][2]). Fifty years is normally considered sufficient time for a potential historical resource, and in order that the evaluation remain valid for a minimum of five years after the date of this report, all resources older than 45 years (i.e. resources from the "historic-period") will be evaluated for California Register listing eligibility, or CEQA significance. The California Register also requires that a resource possess integrity. This is defined as the ability for the resource to convey its significance through seven aspects: location, setting, design, materials, workmanship, feeling, and association.

Finally, CEQA requires that significant effects on unique archaeological resources be considered and addressed. CEQA defines a unique archaeological resource as any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

CEQA Guidelines Section 15064.5 Appendix G includes significance criteria relative to archaeological and historical resources. These have been utilized as thresholds of significance here, and a project would have a significant environmental impact if it would:

a) cause a substantial adverse change in the significance of a historical resource as defined in section 10564.5;
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 10564.5;
c) Disturb any human remains, including those interred outside of formal cemeteries.

Tribal Cultural Resources. The Legislature added requirements regarding tribal cultural resources for CEQA in Assembly Bill 52 (AB 52) that took effect July 1, 2015. AB 52 requires consultation with California Native American tribes and consideration of tribal cultural resources in the CEQA process. By including tribal cultural resources early in the CEQA process, the legislature intended to ensure that local and Tribal governments, public agencies, and project proponents would have information available, early in the project planning process, to identify and address potential adverse impacts to tribal cultural resources. By taking this proactive approach, the legislature also intended to reduce the potential for delay and conflicts in the environmental review process. To help determine whether a project may have such an effect, the Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a Proposed Project. Since the City will initiate and carry out the required AB52 Native American Consultation, the results of the consultation are not provided in this report. However, this report may be used during the consultation process, and BCR Consulting staff are available to answer questions and address comments as necessary.

Paleontological Resources. CEQA provides guidance relative to significant impacts on paleontological resources, indicating that a project would have a significant impact on paleontological resources if it disturbs or destroys a unique paleontological resource or site or unique geologic feature. Section 5097.5 of the California Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, California Penal Code Section 622.5 sets the penalties for damage or removal of paleontological resources. CEQA documentation prepared for projects would be required to analyze paleontological resources as a condition of the CEQA process to disclose potential impacts. Please note that as of January 2018 paleontological resources are considered in the geological rather than cultural category. Therefore, paleontological resources are not summarized in the body of this report. A paleontological overview completed by the Western Science Center is provided as Appendix D.

NATURAL SETTING

The elevation of the project alignment ranges from approximately 110 to 120 feet above mean sea level (AMSL). The property has been subject to disturbances related to road construction and maintenance, canal construction and maintenance, and agricultural activities. Local geologic units include a Late Pleistocene to Early Holocene riverbank formation (Wagner et al. 1991). These deposits do not appear to be a source of prehistoric tool materials. The region is characterized by a Mediterranean climate with relatively dry summers and mild winters. Annual rainfall averages approximately 14.06 inches, and typically occurs in the form of fall and winter storms and showers. The nearest local fresh water source is Lone Tree Creek, which drains a large watershed surrounding the project site, and meanders from east to west through the center of the project alignment (USGS 1968). Very little native vegetation remains locally intact due to intensive agricultural and other developments. Historically, Valley Grassland and Oak Woodland communities dominated local vegetation. Signature native and non-native species associated with each habitat are summarized below in Table A (see also Williams et al. 2009: 375, 453). For prehistoric use of many of the local native species see Lightfoot and Parrish 2009.

Table A. Local Vegetation Communities

Habitat	Plant Species	Animal Species
Valley Grassland	Beardless Wildrye, Blue Wildrye, Deergrass, Foothill Bluegrass, Needlegrass, Three-Awn Grass, Baby Blue-Eyes, Big Tarweed, Blue Dicks, California Jewelflower, California Poppy, Clover, Goldfields, Lupine, Mariposa Lily, Pitgland Tarweeed, Purple Owl's Clover, Tidytips, Wild Onion	Burrow Owl, Ferruginous Hawk, Horned Lark, Long-Billed Curlew, Northern Harrier, Sandhill Crane, Sainson's Hawk, Western Kingbird, Western Meadowlark, American Badger, California Ground Squirrel, California Pocket Mouse, Cottontail Rabbit, Giant Kangaroo Rat, Heermann's Kangaroo Rat, Pronghorn Antelope, Kit Fox, Tule Elk, Pocket Gopher, Leopard Lizard, Gopher Snake, Rattlesnake
Oak Woodland	Black Oak, Blue Oak, Buckeye, California Bay, Canyon Live Oak, Coast Live Oak, Engelmann Oak, Interior Live Oak, Oregon Oak, Valley Oak, Coffeeberry, Toyon, Blue Dicks	Mule deer, Western Grey Squirrel, Deer Mouse, Wood Rat, Northern Flicker, Scrub Jay, Ash-throated Flycatcher, Western Kingbird, White-breasted Nuthatch.

CULTURAL SETTING

Prehistory

Similar to most of western North America, human groups commenced regional settlement between 9,000-11,500 years before present. Humans proliferated globally during this era due to gradual environmental warming that marked the close of the last ice age. Changes in settlement patterns and subsistence focus are widely cited as adaptations to the new conditions and have been organized into a number of chronological frameworks for the region (see Moratto 1984; Heizer 1978; and others).

Ethnography

The project sites are situated within the traditional boundaries of the Northern Valley Yokuts. This prehistoric population depended heavily on the San Joaquin River and its connecting sloughs and rivers for sustenance and transportation. Little ethnographic information is available for the local Northern Valley Yokuts, due to missionization and disease soon after European contact, and to the influx of miners in the 1850s ((Wallace 1978:462). Trade routes and rights to riverine resources allowed the Northern Valley Yokuts to reap the benefits of the numerous perennial water sources allowing local populations to pursue a sedentary lifestyle in an otherwise arid climate. Prehistorically, such sedentism often coincides with a village-style residential model in which residential bases remain the same or seasonal, while specialized procurement parties are deployed to more remote areas to collect specialized resources (Binford 1980, Thomas 1983). This village model has been locally supported by early ethnographers, who considered Yokuts unique in California for forming "true tribes" and for developing an unparalleled array of dialects (Kroeber 1925:474).

History

The first Europeans to establish contact with the Yokuts were Spanish troops led by Captain Don Pedro Fages in pursuit of deserters. Father Francisco Garces also travelled through the San Joaquin Valley searching for an overland route from Yuma to Monterey. During his travels, Garces noted positive interactions with locals (see Smith 1939, Bailey 1984). The Mexican era (1821-1848) saw little notable cultural exchange between Mexicans and Yokuts, although an 1833 malaria epidemic devastated the local native population (Wallace 1978:460). The American era, punctuated by California's annexation into the United States in 1848, resulted in overwhelming Anglo settlement which disrupted local Yokut influence. Mining and ranching represented the early historical focus of the San Joaquin Valley, although abundant natural water, a mild climate, and arable land soon led to the successful development of agriculture. The resulting diversion of local water and escalating land values transformed the physical and economic character of the area, and has allowed it to remain one of the world's most productive agricultural regions to this day (Preston 1981).

Escalon. Prior to the railroad connecting the farming communities of the San Joaquin Valley, a man named John Wheeler "Johnny" Jones became the first non-native settler of the area along French Camp Road that would later become the town of Escalon. Jones first pitched his tent and began farming in 1852 when the area was government land covered in sage brush. By 1867, fifteen years after receiving his first allotted parcel of land, Jones had grown his holdings to 8,000 acres and built his two-story brick family residence. Following Jones' death in 1893, his son inherited the family home and the adjoining 1,000 acres which was not very valuable prior to railroad speculation in the area. Shortly after the first survey of the area, James W. Jones built a sizable hotel for prospective buyers to stay in when visiting the fledgling town on the stage from Stockton. In 1896 the first Santa Fe train rolled into Escalon, and thus the town joined the agricultural boom of the San Joaquin Valley made possible by advances in railway and irrigation logistics (Tinkham 1923).

Railroad Development. In 1861, a group of Sacramento businessmen incorporated the Central Pacific Railroad (CPRR) to link California with existing networks in the eastern United States. Collis P. Huntington, Mark Hopkins, Leland Stanford, and Charles Crocker emerged as the controlling members of the ownership group and became known as the "Big Four" due to the wealth and power they accrued. In 1862, CPRR received authorization from President Abraham Lincoln to build the railroad and telegraph line from the Pacific Ocean to the Missouri River. After financial difficulties and technical challenges crossing the rugged Sierra Nevada, the CPRR met the Union Pacific lines in Promontory Utah, an event celebrated with the dramatic "golden spike" ceremony in 1869. The railroad's position as essential infrastructure was nevertheless further solidified as the century progressed, and its role in shipping agricultural products was particularly important. Between the mid-1880s and the first decade of the twentieth century, the Southern Pacific added several new lines to serve California's tourism and agricultural markets. In 1886, the Southern Pacific introduced refrigerated cars, stimulating the production of citrus and other perishable produce in the region (Tibbet 2010).

PERSONNEL

David Brunzell, M.A., RPA acted as the Project Manager and Principal Investigator, provided project oversight, and authored the technical report with contributions from BCR Consulting Staff Archaeologist Doug Kazmier, B.A., and BCR Consulting Archaeological Crew Chief Nicholas Shepetuk, B.A. Central California Information Center (CCIC) staff completed the cultural resources records search through its archive at California State University, Stanislaus. Mr. Kazmier completed the field survey.

METHODS

This work was completed pursuant to CEQA, the Public Resources Code (PRC) Chapter 2.6, Section 21083.2, and California Code of Regulations (CCR) Title 14, Chapter 3, Article 5, Section 15064.5. The pedestrian cultural resources survey was intended to locate and document previously recorded or new cultural resources, including archaeological sites, features, isolates, and historic-period buildings, that exceed 45 years in age within defined project boundaries. The project site was inspected using 15 meter transect intervals on either side of the alignment.

This study is intended to determine whether cultural resources are located within the project alignment, whether any cultural resources are significant pursuant to the above-referenced regulations and standards, and to develop specific mitigation measures that will address potential impacts to existing or potential resources. Tasks pursued to achieve that end include:

- Cultural resources records search to review any studies conducted and the resulting cultural resources recorded within a one half-mile radius of the project alignment
- Additional research through various local and regional resources
- Systematic pedestrian survey of the entire project alignment
- Development of recommendations and mitigation measures following CEQA
- Vertebrate paleontology resources report through Professional Paleontologists of the Western Science Center in Hemet, California.

Research

Records Search. An archaeological records search was conducted by the CCIC on February 13, 2023. This included a review of all recorded historic and prehistoric cultural resources, as well as a review of known cultural resources, and survey and excavation reports generated from projects located within one half-mile of the project alignment. In addition, a review was conducted of the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), and documents and inventories from the California Office of Historic Preservation including the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and the Built Environment Resources Directory (BERD).

Field Survey

An intensive-level cultural resources field survey of the project alignment was conducted on April 28, 2023. The survey was conducted by walking parallel transects spaced approximately 15 meters apart along both sides of the project alignment. Digital photographs were taken at various points within the project alignment. These included overviews as well as detail photographs of all cultural resources. Cultural resources were recorded per the California OHP *Instructions for Recording Historical Resources* in the field using:

- Hand-held Trimble Global Positioning systems for mapping purposes
- Digital photography of all cultural resources (see Appendix C).

RESULTS

Research

Records Search. Data from the CCIC revealed that 16 cultural resource studies have taken place resulting in 16 cultural resources recorded within a one half-mile radius of the project alignment. One of these studies has taken place within the project alignment, and no resources have been previously recorded within its boundaries. The records search results are summarized in Table B. Bibliographic details and records search maps are provided in Confidential Appendix A.

Table B. Cultural Resources and Reports Within One-Half Mile of the Project Alignment

USGS 7.5 Min Quad	Cultural Resources Within One Half-Mile of Project Alignment	Studies Within One-Half Mile
Escalon and Avena, California (1968)	P-39-0015: Tidewater Southern Railway (0.5 Miles SSE) P-39-0112: Burlington Northern Santa Fe Railroad (0.35 Miles SW) P-39-0439: Historic-Period Electrical Distribution Lines (0.2 Miles S) P-39-0441: Callizo's Deli, Escalon Auto Parts (0.5 Miles S) P-39-0442: Bud's Frosty (0.5 Miles S) P-39-0443: Historic-period Building (0.5 Miles S) P-39-0444: Escalon Recreational Vehicle Sales (0.5 Miles SSE) P-39-0445: Santa Fe Railroad (0.35 Miles SW) P-39-0447: No Information Available P-39-0452: Farmer Bill's (0.4 Miles SSW) P-39-4172: Axel Larson Residence (0.4 Miles S) P-39-4173: Escalon Motel (0.4 Miles S) P-39-4174: Historic-period Single-family Residence (0.4 Miles S) P-39-4245: Structure, Other (0.35 Miles SW) P-39-5061: Dent School (0.4 Miles SE) P-39-5062: Escalon Union High School (0.1 Miles S)	SJ-1543, 2544, 3358, 3366, 3367, 3380, 3654, 4193*, 4203, 4204, 4565, 5170, 6625, 6975, 9021, 9023

*Occurred Within Project Area

Field Survey

During the field survey Mr. Kazmier carefully inspected the entirety of the project alignment for both prehistoric and historic-period cultural resources. No cultural resources (including prehistoric or historic archaeological or historic architectural resources) were identified during the field survey. Segments of two historic-period transmission lines lie just outside of the project area on both east and west sides, but these will remain unaffected by the project.

The project alignment has been subject to severe disturbances related to the construction and maintenance of roads, canals, and infrastructure, as well as agricultural activities. Sediments included sandy silt, and vegetation within the alignment was dominated by seasonal grasses affording approximately 30 percent surface visibility within unpaved portions of the project alignment.

RECOMMENDATIONS

During the research and field survey, BCR Consulting archaeologists identified no cultural resources (including historic or prehistoric archaeological sites and historic architectural resources) within the project alignment. Based on these results, BCR Consulting recommends that development of the project site would not result in an adverse effect to any historical resources under CEQA. No further cultural resource work or monitoring is recommended.

While the current study has not indicated sensitivity for buried cultural resources within the project alignment, ground disturbing activities always have the potential to reveal buried deposits not observed on the surface during previous surveys. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that field personnel encounter buried cultural materials, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register or the National Register, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed. Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- historic artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks.

Findings were negative during the Sacred Lands File search with the NAHC. The results of the Sacred Lands File search are provided in Appendix B. Assembly Bill (AB) 52 Native American Consultation will be initiated by the City. Therefore, the results are not included in this report. However, report results may be shared with participating tribes as necessary.

The Legislature added requirements regarding tribal cultural resources for CEQA in Assembly Bill 52 (AB 52) that took effect July 1, 2015. AB 52 requires consultation with

California Native American tribes and consideration of tribal cultural resources in the CEQA process. By including tribal cultural resources early in the CEQA process, the legislature intended to ensure that local and Tribal governments, public agencies, and project proponents would have information available, early in the project planning process, to identify and address potential adverse impacts to tribal cultural resources. By taking this proactive approach, the legislature also intended to reduce the potential for delay and conflicts in the environmental review process. To help determine whether a project may have such an effect, the Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a Proposed Project. The County would initiate and carry out the required AB52 Native American Consultation, although this report may be used during the consultation process and BCR Consulting staff is available to answer questions and address concerns as necessary.

According to CEQA Guidelines, projects subject to CEQA must determine whether the project would “directly or indirectly destroy a unique paleontological resource”. The Paleontological Overview provided in Appendix D has recommended that:

> The geologic units underlying this project are mapped as Pleistocene-aged alluvial deposits from the Modesto Formation and the Riverbank Formation (Wagner, Bortugno, McJunkin 1991). Pleistocene units are considered to be highly paleontologically sensitive. The Western Science Center does not have localities within the project area or within a 3 mile radius, which was chosen to accommodate for the size of the project; however this is likely due to the project’s distance from the museum and should not be taken as indicative of paleontological sensitivity.
>
> Any fossil specimen from the [City of Excalon Connection to Nick DeGroot Water Treatment Plant] would be scientifically significant. Excavation activity associated with the development of the project area would impact the paleontologically sensitive Pleistocene alluvial units, and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the study area.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

REFERENCES

Bailey, Richard C.
1984 *Heart of the Golden Empire: An Illustrated History of Bakersfield.* Windsor Publications, Inc., Woodland Hills, California.

Binford, L.
1980 Willow Smoke And Dog's Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45:1-17.

Heizer, R.F.
1978 *California*. Handbook of North American Indians, Vol. 8, W.C. Sturtevant, General Editor, Smithsonian Institution, Washington, D.C.

Kroeber, Alfred L.
1925 *Handbook of the Indians of California.* Bureau of American Ethnology Bulletin No. 78. Washington D.C.: Smithsonian Institution. Reprinted in 1976, New York: Dover Publications.

Lightfoot, Kent and Otis Parrish
2009 *California Indians and their Environment.* UCLA.

Moratto, Michael J.
1984 *California Archaeology.* Academic Press, Orlando, Florida.

Orsi, Richard J.
2007 *Sunset Limited: The Southern Pacific Railroad and the Development of the American West, 1850-1930*. Berkeley: University of California Press.

Preston, William L.
1981 *Vanishing Landscapes.* University of California Press, Berkeley

San Francisco Bay Area Rapid Transit District
2002 *Inventory and Evaluation Report of Cultural Resources for BART Warm Springs Extension, Alameda County, California*. Prepared by Jones & Stokes. July.

Smith, Wallace
1939 *Garden of the Sun.* Lymanhouse, Los Angeles.

Thomas, D.H.
1983 The Archaeology of Monitor Valley I: Epistemology. *New York: American Museum of Natural History Anthropological Papers* 58:1.

Tinkham, George H.
1923 History of San Joaquin County, California: with Biographical Sketches of Leading Men and Women of the County Who Have Been Identified With its Growth and Development from the Early Days to the Present. Historic Record Co., Los Angeles, California. Electronic resource, archive.org/details/historyofsanjoaq00tink/page/

n5/mode/2up , accessed on February 14, 2023.

United States Geological Survey
1968 *Escalon, California* 7.5-minute topographic quadrangle map.

Wagner, D. L., E. J. Bortugno, R. D. McJunkin
1991 Geologic Map of the San Francisco-San Jose quadrangle. California Division of Mines and Geology. 1:250,000. Reston, Virginia.

Wallace, William J.
1978 The Southern Valley Yokuts, and The Northern Valley Yokuts. In *Handbook of the North American Indians, Vol. 8, California,* edited by W.L. d'Azevedo, pp. 448-470. W.C. Sturtevant, General Editor. Smithsonian Institution, Washington D.C.

Williams, Patricia, Leah Messinger, Sarah Johnson
2008 *Habitats Alive! An Ecological Guide to California's Diverse Habitats.* California Institute for Biodiversity, Claremont, California.

APPENDIX A

RECORDS SEARCH BIBLIOGRAPHY

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SJ-01543	NADB-R - 1361647	1971	Ritter, E.	Archaeological Reconnaissance of the Folsom South Canal, Central Valley, California.	UC Davis Dept. of Anthropology, for NPS	39-000077, 39-000249, 39-000250, 39-000251
SJ-02544	NADB-R - 1362071	1992	Page, Susan E.	Department of Transportation Negative Archaeological Survey Report, District 10, San Joaquin County Route 120, Post Mile 17.0/21.2, Pavement Rehabilitation	Susan E. Page	
SJ-03358	NADB-R - 1363294	1996	Corbett, M., W. Minor, and W. Kostura	Historical Architectural Survey Report, State Route 120 Project, City of Escalon, San Joaquin County, California Department of Transportation District 10, 10-SJO-120, K.P. 26.63-27.89	Corbett & Minor	39-000015, 39-000436, 39-000437, 39-000438, 39-000439, 39-000440, 39-000441, 39-000442, 39-000443, 39-000444, 39-000445, 39-000447, 39-000452
SJ-03366	NADB-R - 1363292	1996	Clement, D.	Historic Architectural Survey Report- MOU Short Form For Post-1951 Buildings, 10-SJO-120, PM 16.55/17.33, EA 10-45590K	California Department of Transporation	
SJ-03367	NADB-R - 1363285	1996	Busby, C. I., S. Guedon, M. Tannam, and D. Garaventa	Historic Property Survey Report and Finding of No Effect, State Route 120 Project, City of Escalon, San Joaquin County, California, 10-SJO-120, K.P. 26.63-27.89	Basin Research Associates	
SJ-03380	NADB-R - 1363284	1996	Busby, C.	Negative Archaeological Survey Report, State Route 120 Project, City of Escalon, San Joaquin County, California Department of Transportation, District 10, 10-SJO-120, K.P. 26.63-27.89.	Basin Research Associates	
SJ-03654	Caltrans - 06A0183; NADB-R - 1363729	1999	Wooten, K. and E. Wulf	Archaeological Survey Report for the Proposed Road Rehabilitation and Shoulder Widening, on California State Highway 120 Between Jack Tone Road and Escalon in San Joaquin County, California; 10-SJ-120, KP 15.12/26.71 (PM 9.4/16.6).	Sonoma State Univristy Academic Foundation, Inc.	39-000459, 39-000460, 39-004559
SJ-04193	NADB-R - 1364086	1996	Busby, C., M. Tannam, S. Guedon, D. Garaventa, M. Corbett, W. Minor, and W. Kostura.	Cultural Resources Assessment: McHenry Avenue and Escalon Road Project, City of Escalon, San Joaquin County; California Department of Transportation District 10, 10-SJ-120, K.P. 26.63-27-89.	Basin Reasearch Associates and Corbett & Minor	39-004167, 39-004168, 39-004169, 39-004170, 39-004171, 39-004172, 39-004173, 39-004174
SJ-04203	NADB-R - 1364098	2000	Wooten, K.	Historic Property Survey Report for a Proposed Road Rehabilitation on State Highway 120 Between Jack Tone Road and the City of Escalon, San Joaquin County, California, 10-SJ-120, KP 15.12/26.71 (PM 9.4/16.6), EA 10-0A7400.	California Department of Transportation	39-000015, 39-004175, 39-004176, 39-004177, 39-004178, 39-004179, 39-004180, 39-004181, 39-004182, 39-004183, 39-004184, 39-004185

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SJ-04204	NADB-R - 1364099	2000	Fisher, J.	Historical Architectural Survey Report for a Road Improvement/Widening Project on State Route 120 Between Jack tone Road and the City of Escalon, San Joaquin County, 10-SJ-120, PM 9.6/16.3 (KP 15.1/26.7), 10-0A7400	California Department of Transportation	39-000015, 39-004175, 39-004176, 39-004177, 39-004178, 39-004179, 39-004180, 39-004181, 39-004182, 39-004183, 39-004184, 39-004185
SJ-04565	NADB-R - 1364491	2001	Billat, L.	Nextel Communications Wireless Telecommunications Service Facility - San Joaquin County, CA-1825C/1055 Escalon-Bellota Road, Escalon, California.	Earth Touch	
SJ-05170	NADB-R - 1365050; Other - 607	2001	Love, B. and B. Tang	Historical Resources Compliance Report: The Burlington Northern and Santa Fe Railway Company San Joaquin Corridor Capacity Improvements Project, Escalon-Stockton (MP 1089.48-1117, 1121.9-1123.6).	CRM TECH, for Tom Dodson and Associates	39-000112, 39-000445, 39-000464, 39-004233, 39-004245, 39-004247
SJ-06625	NADB-R - 1367290	1998	ASI Archaeology and Cultural Resource Management	Cultural Resources Survey, South County Surface Water Project, San Joaquin County, California, South San Joaquin Irrigation District	ASI Archaeology and Cultural Resource Management (prepared for Environmental Science Associates, Inc.)	39-000002, 39-000098, 39-000129, 39-000317, 39-000531, 39-000548, 50-000001
SJ-06975	NADB-R - 1367263	2009	Tang, B.	Historic Property Survey Report San Joaquin Corridor Capacity Improvements, Escalon to Stockton Double Tracking Project.	CRM TECH, for Caltrans Division of Rail	39-000112, 39-000445, 39-000464, 39-004245, 39-004247
SJ-06975		2009	Tang, B. and Hogan, M.	Archaeological Survey Report / Historical Resources Evaluation Report, Burlington Northern Santa Fe Railway Company San Joaquin Corridor Capacity Improvements, Escalon to Stockton Double Tracking Project (BNSF MP 1101-1116.4 and 1121.9-1123.6) San Joaquin County, California, Caltrans District 10.	Caltrans District 10, for Caltrans Division of Rail	
SJ-09021	Agency Nbr - 749104181CQ	2018	McCann, R.	NRCS California EQIP Conservation Assistance, Section 106 Review Summary Report, 749104181CQ, 441 --- Micro Irrigation System	United States Department of Agriculture NRCS	
SJ-09023	Agency Nbr - 749104181VU	2018	McCann, R.	NRCS California EQIP Conservation Assistance, Section 106 Review Summary Report, 749104181VU.	U.S. Department of Agriculture NRCS	

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-39-000015	CA-SJO-000256H	Resource Name - Tidewater Southern Railway; Union Pacific	Structure	Historic	AH07	1994 (Napton, L.K., California State University Stanislaus, Institute for Archaeological Research); 1994 (JRP Historical Consulting, for Woodward-Clyde); 1996 (Corbett et al., Corbett & Minor); 2000 (Fisher, Caltrans); 2000 (Lindquist, Office of Historic Preservation); 2000 (Jensen and Jensen, Jensen & Associates); 2002 (David S. Byrd, Jones & Stokes)	SJ-02262, SJ-02759, SJ-03358, SJ-03362, SJ-04029, SJ-04203, SJ-04204, SJ-04786, SJ-05309, SJ-05746, SJ-06994, SJ-07171, SJ-07310, SJ-08542, ST-07171
P-39-000112	CA-SJO-000293H	Resource Name - BNSF Railroad; Resource Name - Atchison, Topeka & Santa Fe Railroad / Burlington Northern SF RR	Structure	Historic	AH07; HP19; HP37	2001 (S. Ashkar, C. Fish, Jones & Stokes Associates, Inc.); 2001 (B. Tang and D. Ballester, Caltrans District 10); 2001 (Bai "Tom" Tang, Daniel Ballester, CRM-TECH); 2003 (B. Larson, E. Johnson, JRP Historical Consulting Services); 2005 (S. Ashkar, Jones & Stokes Associates, Inc.); 2007 (John L. Brady, Caltrans District 6); 2009 (Martin, Frank and Campbell, Garcia and Associates); 2011 (S. Pappas and Quivey, Cardno ENTRIX); 2013 (D. Stapleton, Parus Consulting)	ME-02759, SJ-02759, SJ-04459, SJ-05170, SJ-06095, SJ-06216, SJ-06666, SJ-06975, SJ-07182, SJ-07539, SJ-07813, SJ-07933, SJ-07997, SJ-07998, SJ-07999, ST-02759
P-39-000439		Resource Name - Electrical Distribution Lines	Building	Historic	HP06	1996 (M. Corbett, W. Minor, W. Kostura, Corbett & Minor)	SJ-03358
P-39-000441		Resource Name - Callizo's Deli, Escalon Auto Parts	Building	Historic	HP06	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minor)	SJ-03358
P-39-000442		Other - Bud's Frosty; Resource Name - Bud's Frosty	Building	Historic	HP06	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minor)	SJ-03358
P-39-000443			Building	Historic	HP06	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minir)	SJ-03358
P-39-000444		Resource Name - Escalon Recreational Vehicle Sales	Building	Historic	HP06	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minor)	SJ-03358

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-39-000445		Other - Atchison, Topeka and Santa Fe Raiload; Resource Name - Santa Fe Railroad	Structure	Historic	HP17	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minor)	SJ-03358, SJ-05170, SJ-06975
P-39-000447							SJ-03358
P-39-000452		Resource Name - Farmer Bill's	Building	Historic	HP02	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minor)	SJ-03358
P-39-004172		Resource Name - Axel Larson Residence	Building	Historic	HP02	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minor)	SJ-04193
P-39-004173		Other - Escalon Motel; Resource Name - Escalon Motel	Building	Historic	HP05	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minor)	SJ-04193
P-39-004174		Resource Name - House	Building	Historic	HP02	1996 (M. Corbettt, W. Minor, W. Kostura, Corbett & Minor)	SJ-04193
P-39-004245	CA-SJO-000275H	Resource Name - CRM TECH 607-10H	Structure, Other	Historic	HP39	2001 (Bai "Tom" Tang and Daniel Ballester, CRM TECH)	SJ-05170, SJ-05497, SJ-06975
P-39-005061		Resource Name - Dent School	Building	Historic	HP15	1991 (San Joaquin County Superintendent of Schools, Public Schools of San Joaquin County 1852-1990 (1991))	
P-39-005062		Resource Name - Escalon Union High School	Building	Historic	HP15	1991 (San Joaquin County Superintendent of Schools, Public Schools of San Joaquin County 1852-1990 (1991))	

APPENDIX B

NATIVE AMERICAN HERITAGE COMMISSION SACRED LANDS FILE SEARCH

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

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

March 13, 2023

Joseph Orozco
BCR Consulting LLC

Via Email to: bcrllc2008@gmail.com

Re: South San Joaquin Irrigation Dist. Surface Water Project, San Joaquin County*

Dear Mr. Orozco:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

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

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

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

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

*Project title changed to "City of Escalon Connection to Nick DeGroot Water Treatment Plant", but the footprint has not changed.

Native American Heritage Commission
Native American Contact List
San Joaquin County
3/13/2023

Buena Vista Rancheria of Me-Wuk Indians Rhonda Morningstar Pope, Chairperson 1418 20th Street, Suite 200 Sacramento, CA, 95811 Phone: (916) 491 - 0011 Fax: (916) 491-0012 rhonda@buenavistatribe.com	Me-Wuk
California Valley Miwok Tribe 14807 Avenida Central La Grange, CA, 95329 Phone: (209) 931 - 4567 Fax: (209) 931-4333	Miwok
California Valley Miwok Tribe AKA Sheep Rancheria of Me-Wuk Indians of CA, P.O. Box 395 West Point, CA, 95255 Phone: (209) 293 - 4179 l.ewilson@yahoo.com	Miwok
Ione Band of Miwok Indians Sara Dutschke, Chairperson 9252 Bush Street Plymouth, CA, 95669 Phone: (209) 245 - 5800 consultation@ionemiwok.net	Miwok
North Valley Yokuts Tribe Timothy Perez, P.O. Box 717 Linden, CA, 95236 Phone: (209) 662 - 2788 huskanam@gmail.com	Costanoan Northern Valley Yokut
North Valley Yokuts Tribe Katherine Perez, Chairperson P.O. Box 717 Linden, CA, 95236 Phone: (209) 887 - 3415 canutes@verizon.net	Costanoan Northern Valley Yokut
Tule River Indian Tribe Neil Peyron, Chairperson P.O. Box 589 Porterville, CA, 93258 Phone: (559) 781 - 4271 Fax: (559) 781-4610 neil.peyron@tulerivertribe-nsn.gov	Yokut
Tule River Indian Tribe Kerri Vera, Environmental Department P. O. Box 589 Porterville, CA, 93258 Phone: (559) 783 - 8892 Fax: (559) 783-8932 kerri.vera@tulerivertribe-nsn.gov	Yokut
Tule River Indian Tribe Joey Garfield, Tribal Archaeologist P. O. Box 589 Porterville, CA, 93258 Phone: (559) 783 - 8892 Fax: (559) 783-8932 joey.garfield@tulerivertribe-nsn.gov	Yokut
Wilton Rancheria Steven Hutchason, THPO 9728 Kent Street Elk Grove, CA, 95624 Phone: (916) 683 - 6000 Fax: (916) 863-6015 shutchason@wiltonrancheria-nsn.gov	Miwok
Wilton Rancheria Dahlton Brown, Director of Administration 9728 Kent Street Elk Grove, CA, 95624 Phone: (916) 683 - 6000 dbrown@wiltonrancheria-nsn.gov	Miwok
Wilton Rancheria Jesus Tarango, Chairperson 9728 Kent Street Elk Grove, CA, 95624 Phone: (916) 683 - 6000 Fax: (916) 683-6015 jtarango@wiltonrancheria-nsn.gov	Miwok

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed South San Joaquin Irrigation Dist. Surface Water Project, San Joaquin County.

Native American Heritage Commission
Native American Contact List
San Joaquin County
3/13/2023

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

Foothill Yokut
Mono

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed South San Joaquin Irrigation Dist. Surface Water Project, San Joaquin County.

RESPONSES TO SCOPING LETTERS

CALIFORNIA VALLEY MIWOK TRIBE

14807 Avenida Central, La Grange CA 95329 Ph: (209) 931.4567
Website: http://www.californiavalleymiwok.us E-mail: office@cvmt.net

September 5, 2024

City of Escalon
Development Services
Ms. Diana Trejo,
Assistant Planner
2060 McHenry Avenue
Escalon, California 95320
Email: dtrejo@cityofescalon.org

Re: City of Escalon Connection to Nick DeGroot Water Treatment Plant

Dear Ms. Trejo,

The Tribe is in receipt of your letter dated August 30, 2024 regarding the City of Escalon Connection to Nick DeGroot Water Treatment Plant, San Joaquin County, California. It is understood by the Tribe that the City of Escalon (City) is proposing to implement an infrastructure project for water distribution to the City. The City of Escalon Connection to Nick DeGroot Water and address quality and reliability.

It is further understood that the Project will provide a connection, turnout, conveyance, and storage of surface water from the South San Joaquin Irrigation District (SSJID) South County Surface Water Supply Project (SCSWSP) for distribution within the City. The Project would construct new distribution pipelines between the City limits and an existing SSJID transmission main at Dodds Road, which connects to the Nick DeGroot Water Treatment Plant. The Project will include a flow control facility (FCF) and a booster pump station (BPS) with an underground storage tank. The pipelines would be installed within the City and San Joaquin County right-of-way. The proposed FCF location is on a parcel at the southwest corner of the Dodds Road and Escalon-Bellota Road intersection, near the northern project alignment. The location of the proposed BPS is immediately north of the City limits at an existing parking lot, southwest of the Escalon-Bellota Road and Libby Drive intersection.

The California Valley Miwok Tribe has no comments or concerns with the City of Escalon Connection to Nick DeGroot Water Treatment Plant, San Joaquin County, California.

Respectfully,

Silvia Burley,
Chairperson

CITY OF ESCALON

DEVELOPMENT SERVICES

2060 McHenry Avenue ▪ Escalon, California 95320 ▪ Office 209.691-7400 Fax 209.691.7439

August 30, 2024

California Valley Miwok Tribe
14807 Avenida Central
La Grange, CA 95329

Subject: City of Escalon Connection to Nick DeGroot Water Treatment Plant – Request for AB 52 Consultation

Dear California Valley Miwok Tribe,

The City of Escalon (City) is proposing to implement an infrastructure project for water distribution to the City. The City of Escalon Connection to Nick DeGroot Water Treatment Plant (Project) intends to supplement the City's potable well water and address water quality and reliability.

The Project will provide a connection, turnout, conveyance, and storage of surface water from the South San Joaquin Irrigation District (SSJID) South County Surface Water Supply Project (SCSWSP) for distribution within the City. The Project would construct new distribution pipelines between the City limits and an existing SSJID transmission main at Dodds Road, which connects to the Nick DeGroot Water Treatment Plant. The Project will include a flow control facility (FCF) and a booster pump station (BPS) with an underground storage tank. The pipelines would be installed within City and San Joaquin County right-of-way. The proposed FCF location is on a parcel at the southwest corner of the Dodds Road and Escalon-Bellota Road intersection, near the northern project alignment. The location of the proposed BPS is immediately north of the City limits at an existing parking lot, southwest of the Escalon-Bellota Road and Libby Drive intersection.

The City is writing to inquire if the California Valley Miwok Tribe would like to request consultation for this proposed project pursuant to California Public Resources Code (PRC) Section 21080.3.1 (Assembly Bill 52). Pursuant to PRC Section 21080.3.1(b), please respond in writing within 30 days to request consultation. The project is currently in the stages of the design and environmental review process. Any information you have regarding cultural places or other tribal cultural resources will be kept strictly confidential and will not be divulged to the public.

The City appreciates your assistance in helping us to identify and minimize potential impacts to tribal cultural resources that may be present in the project area. The consultation does not limit your ability to submit information to the District regarding the significance of the tribal cultural resources, the significance of the project's impact on tribal cultural resources, or any appropriate measures to mitigate the potential impacts. Please send any comments or request for AB 52 consultation for the above-referenced project to Diana Trejo thirty days from the date of this letter.

If you have any questions, you can reach me at dtrejo@cityofescalon.org.

Sincerely,

Diana Trejo
Assistant Planner

Attachments:

Figure 1	Regional Location Map
Figure 2	Local Vicinity Map
Figure 3	North Project Alignment
Figure 4	Proposed Booster Pump Station

APPENDIX C

PHOTOGRAPHS

Photo 1: Overview from SW extent of project area (View N).

Photo 2: Overview of Escalon Feed & Supply overflow parking (View W).

Photo 3: Overview of project area (View N).

Photo 4: Overview of project area (View N).

Photo 5: Junction between J6 & J7 central project area. (View SSE)

Photo 6: Overview of project area from NE extent (View S).

APPENDIX

PALEONTOLOGICAL OVERVIEW

March 3rd, 2023

BCR Consulting LLC
Joseph Orozco
505 W. 8th St.
Claremont, CA 91711

Dear Mr. Orozco,

This letter presents the results of a record search conducted for South San Joaquin Irrigation District Surface Water to Escalon Project in the City of Lake Escalon, San Joaquin Count, CA. The project area is located along Escalon-Bellota Road on Section 32 and between Sections 29/28, 20/21, 17/16 of Township 1 South, Range 9 East on the *Escalon. CA* USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped as Pleistocene-aged alluvial deposits from the Modesto Formation and the Riverbank Formation (Wagner, Bortugno, McJunkin 1991). Pleistocene units are considered to be highly paleontologically sensitive. The Western Science Center does not have localities within the project area or within a 3 mile radius, which was chosen to accommodate for the size of the project; however this is likely due to the project's distance from the museum and should not be taken as indicative of paleontological sensitivity.

Any fossil specimen from the South San Joaquin Irrigation District Surface Water to Escalon Project would be scientifically significant. Excavation activity associated with the development of the project area would impact the paleontologically sensitive Pleistocene alluvial units, and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the study area.

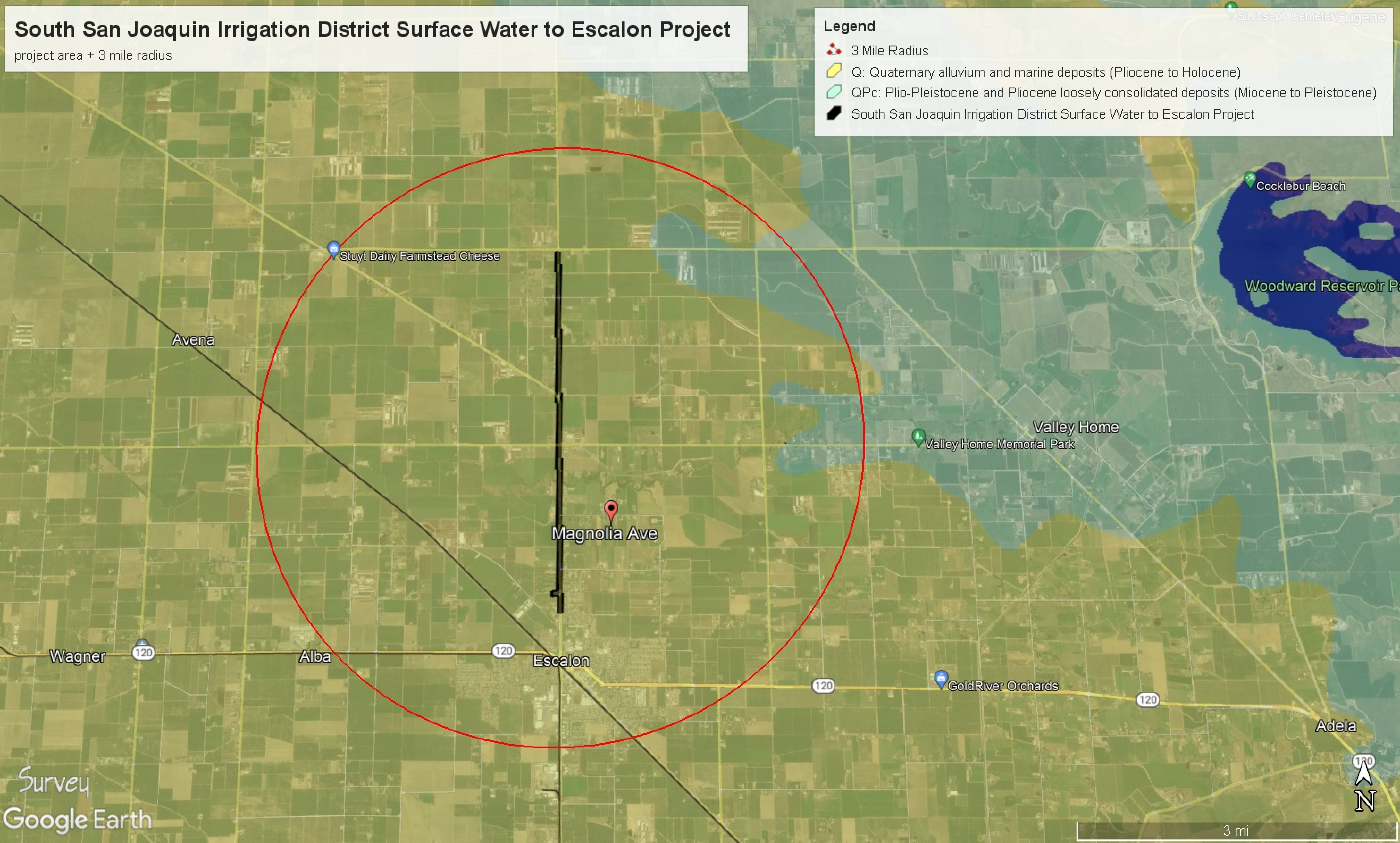
If you have any questions, or would like further information, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,

Brittney Elizabeth Stoneburg, MSc
Collections Manager

South San Joaquin Irrigation District Surface Water to Escalon Project

project area + 3 mile radius



APPENDIX D

Noise Study (Ganddini 2023)

SSJID SURFACE WATER CONNECTION NOISE IMPACT ANALYSIS

City of Escalon

July 27, 2023

Traffic Engineering ● Transportation Planning ● Parking ● Noise & Vibration
Air Quality ● Global Climate Change ● Health Risk Assessment

SSJID SURFACE WATER CONNECTION NOISE IMPACT ANALYSIS

City of Escalon

July 27, 2023

prepared by
Roma Stromberg, INCE, MS
Catherine Howe, MS

GANDDINI GROUP INC.
555 Parkcenter Drive, Suite 225
Santa Ana, California 92705
(714) 795-3100 | ganddini.com

Project No. 19628

TABLE OF CONTENTS

Appendices

List of Tables

List of Figures

EXECUTIVE SUMMARY

The City of Escalon's potable water distribution network is currently supplied by groundwater wells. The City's Sustainable Groundwater Management Plan indicates the City is in groundwater overdraft and needs to supplement well water with "surface" water to meet future demand requirements and maintain water quality.

The proposed project will supplement the City's current potable well water sources with surface water at a constant rate of up to 1,750 gpm (gallons per minute) with the ability to vary flows down to 250 gpm provided by South San Joaquin Irrigation District (SSJID). Project components are summarized below.

- A tie into the SSJID 48" transmission main at the intersection of Dodds Road and Escalon-Bellota Road.
- A flow control facility composed of an emergency propane generator, flow control valve, radio transmitter, and various other appurtenances.
- Approximately 19,500 ft of 18" C900 PVC pipeline.
- A booster pump station composed of a 100,000-gallon wet well, four pumps, an emergency generator, a chlorine analyzer, a cellular transmitter, and various other appurtenances.

On-Site Construction Noise

Project construction will not occur outside of the hours outlined in Section 8.16.030(F)(7) of the City of Escalon's Municipal Code. Therefore, the project would not exceed City-established standards relating to construction noise. Technically under CEQA, the project impact is less than significant; no mitigation is required. However, for discussion purposes construction noise was also evaluated in light of Federal Transit Administration (FTA) standards and was found to have significant impacts that require mitigation. Required mitigation measures are to be applied along the alignment as well as at the tie-in location, the flow control facility and the pump station. Please see Section 6 for a more detailed discussion and a list of mitigation measures.

Off-Site Construction Noise (Construction Vehicle Trips)

The addition of project construction-related vehicle trips is not expected to result in a noticeable change in noise levels (less than 1 dB. Project impacts related to project construction related vehicle trips would be less than significant. No mitigation is required.

Operational Stationary Source Noise Impacts

Operation of the proposed flow control facility will not exceed City exterior or interior noise standards at the affected sensitive receptor. Pump station noise would, however, exceed the City's exterior noise standard of 65 CNEL but not the City's interior noise goal of 45 CNEL at two nearby residential lots. Mitigation is required to achieve acceptable exterior noise levels at residential lot adjacent to the pump station. Impacts would be less than significant with implementation of mitigation. Please see Section 6 for mitigation options.

Groundborne Vibration

The closest structure that may be affected by any of the proposed construction activities is a single-family residence located northeast of the intersection of Escalon-Bellota Road and Lone Tree Road which is located approximately 40 feet from the proposed pipeline alignment. Plate compactors are the most vibratory equipment that may be used near an existing structure. The peak particle velocity (PPV) per square foot associated with these vibratory plates is 0.21 at a distance of 25 feet. They are not, however, expected to be utilized within 25 feet of an existing structure. Other equipment anticipated to be used during project construction generate lower PPV. Therefore, groundborne vibration generated by project construction would not exceed the levels necessary to cause architectural damage.

Use of vibratory rollers could theoretically exceed the threshold for annoyance due to vibration (72 VdB at offsite residential sensitive uses) at the existing residential receptor to the east of the project site, and residents may be temporarily annoyed (Table 12). However, perceptibility of construction vibration would be temporary and would only occur if equipment is utilized within 21 feet of a structure. This impact would be less than significant. No mitigation is required.

The most substantial sources of groundborne vibration during post-construction project operations will include the movement of passenger vehicles and trucks on paved and generally smooth surfaces. Loaded trucks generally have a PPV of 0.076 at a distance of 25 feet (Caltrans 2020), which is a substantially lower PPV than that of a vibratory roller (0.210 in/sec PPV at 25 feet). Therefore, groundborne vibration levels generated by project operation would not exceed those modeled for project construction. Impacts related to operational groundborne vibration would be less than significant. No mitigation is required.

Air Traffic Impacts

There are no airports within two miles of the project site. The project would not result in any impacts related to airport or aircraft noise. No mitigation is required.

1. INTRODUCTION

This section describes the purpose of this study and introduces the proposed project.

PURPOSE AND OBJECTIVES

The purpose of this study is to provide an assessment of the noise impacts associated with construction of the proposed Anza Road 1550 Pressure Pipeline Extension Project and to identify mitigation measures that may be necessary to reduce those impacts. The noise issues related to the proposed land use and development have been evaluated in light of applicable federal, state and local policies, including those of the City of Escalon, in the context of the California Environmental Quality Act (CEQA).

Although this is a technical report, effort has been made to write the report clearly and concisely. A list of acronyms and glossary are provided in Appendix A and Appendix B of this report to assist the reader with technical terms related to noise analysis.

PROJECT LOCATION

The proposed project is located within the City of Escalon and also within unincorporated portions of the San Joaquin County. The project's location is shown in Figures 1 and 2.

PROJECT DESCRIPTION

The City of Escalon's potable water distribution network is currently supplied by groundwater wells. The City's Sustainable Groundwater Management Plan indicates the City is in a "groundwater overdraft" condition and well water supplies need to be supplemented with "surface" water to meet future demand requirements and to maintain water quality. The project is proposed to create a more reliable water supply during the summer months for the City of Escalon and to provide a large long-term supply of high-quality water for land use allowed under the approved general plan. Components of the project are listed below:

- An underground tee connection to an existing SSJID 48-inch transmission main near the intersection of Escalon-Bellota Road and Dodds Road (See Figures 2 and 2A).

- An 18-inch diameter PVC pipe extending south approximately 19,500 linear feet from the tee connection within Escalon-Bellota Road terminating at an existing gravel-lined overflow parking lot (See Figure 2).

- A flow control facility composed of an emergency propane generator, flow control valve, radio transmitter, and various other appurtenances to be located on a 50-foot by 70-foot pad located at the southwest corner of the Dodds Road and Escalon-Bellota Road intersection (See Figures 2 and 2A). On-site improvements will also include site security, a supervisory control and data acquisition (SCADA) system, paving, gated access (12-foot swing gate), installation of new 12-foot storm drainpipe approximately 56 linear feet in length, and a new irrigation ditch leading to a 12" irrigation pipe with headwall. Access to the facility will be available from Escalon-Bellota Road, via a gated gravel driveway with a 16-foot metal frame swing gate.

- A booster pump station (BPS) and a 0.10 MG underground potable water storage tank to be located at the existing parking lot between Libby Drive and Escalon Bellota Road intersection and Miller Avenue and Escalon-Bellota Road intersection. The BPS will be constructed within a 64-foot by 100-foot area enclosed with a 6-foot-high chain link fence with three (3) strand barbed wire. The site will include a pump station (30-ft by 30-ft), an electrical room constructed of concrete masonry units (CMU), and four pumps. One 25 Horsepower (Hp) pump will be running 24 hours a day, seven days a week during typical operations and three 50 Hp pumps will be on standby to meet high flow events. For long-term operation, the BPS will also be equipped with a 125-kW diesel emergency standby generator with a 655-gallon fuel storage tank. Site security, an emergency generator, SCADA, paving and surface drainage will be included also be provided at this location. At the eastern terminus of each concrete gutter, access to the facility is available from Escalon-Bellota Road, via two (2) 10-foot swing gates.

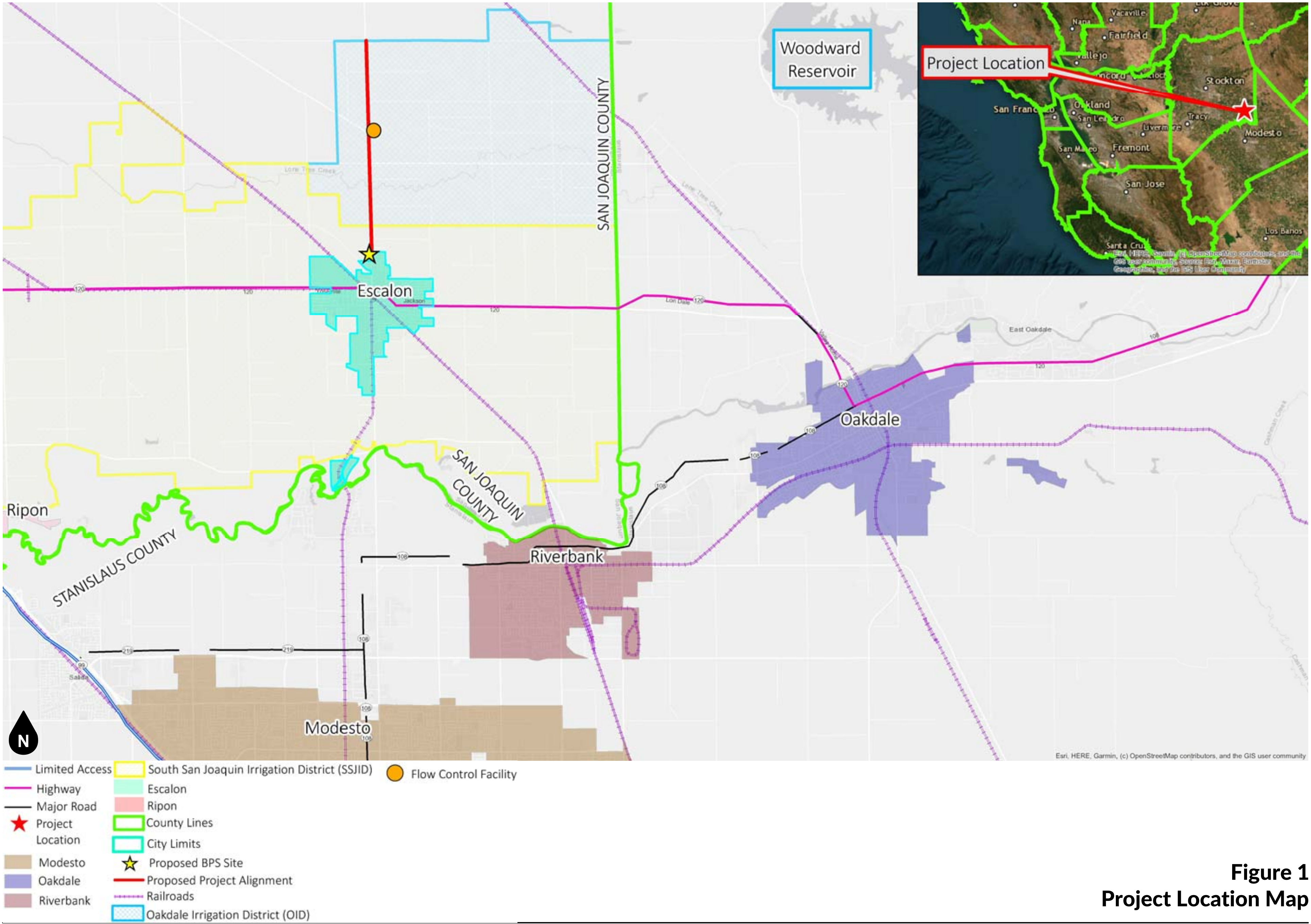


Figure 1
Project Location Map

SSJID Surface Water Connection Project
Noise Impact Analysis
19628

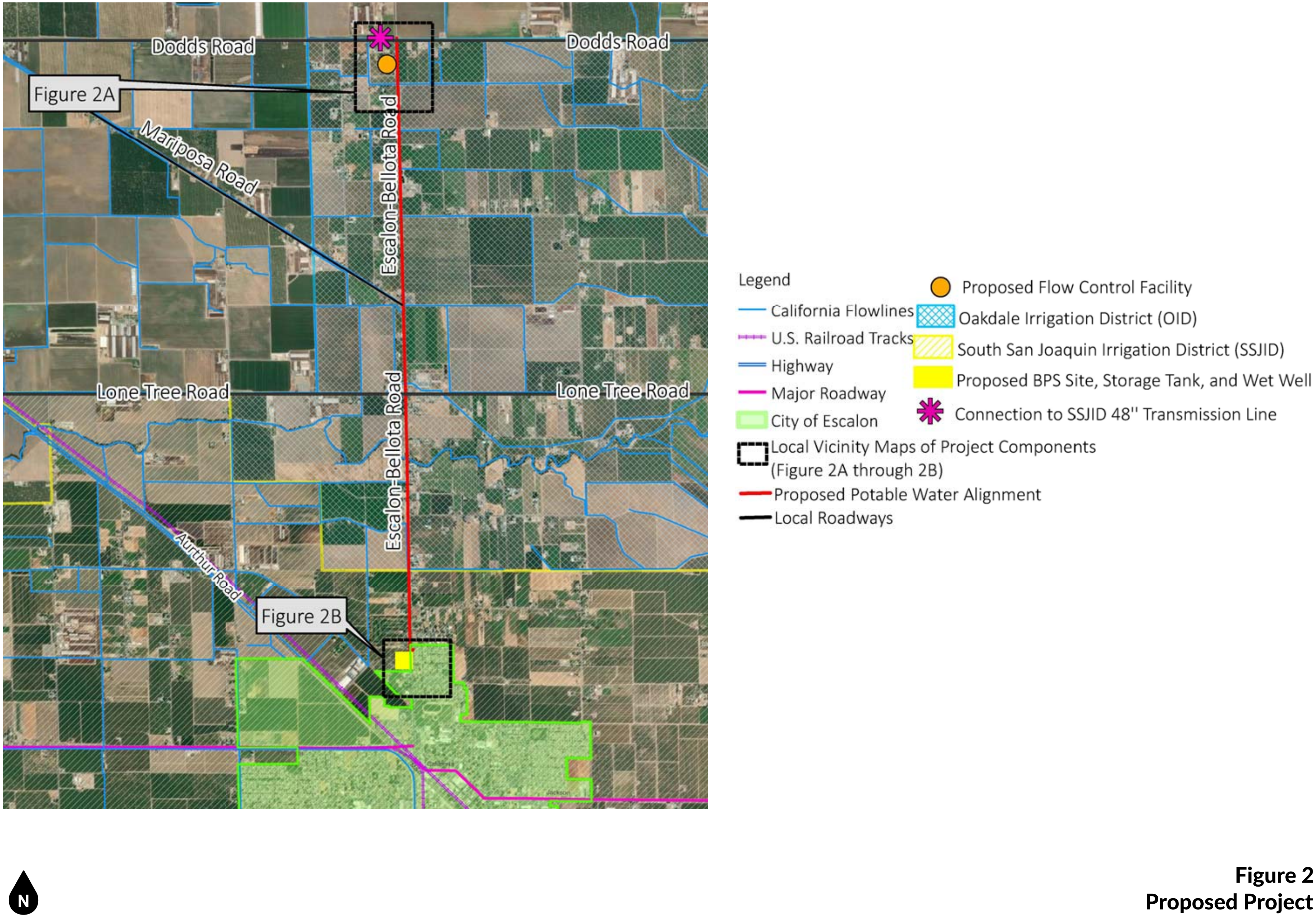


Figure 2
Proposed Project

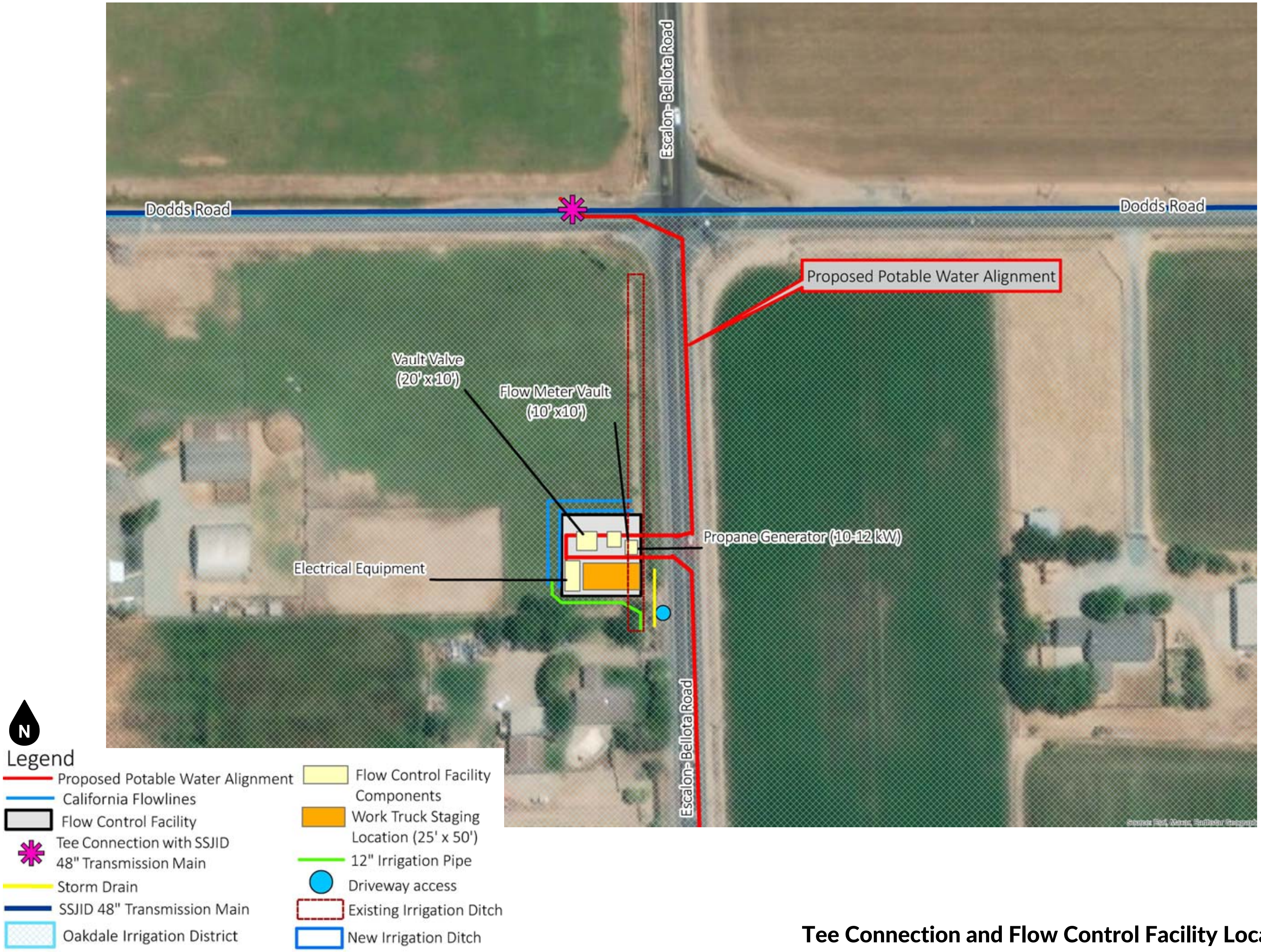


Figure 2A
Tee Connection and Flow Control Facility Location Map

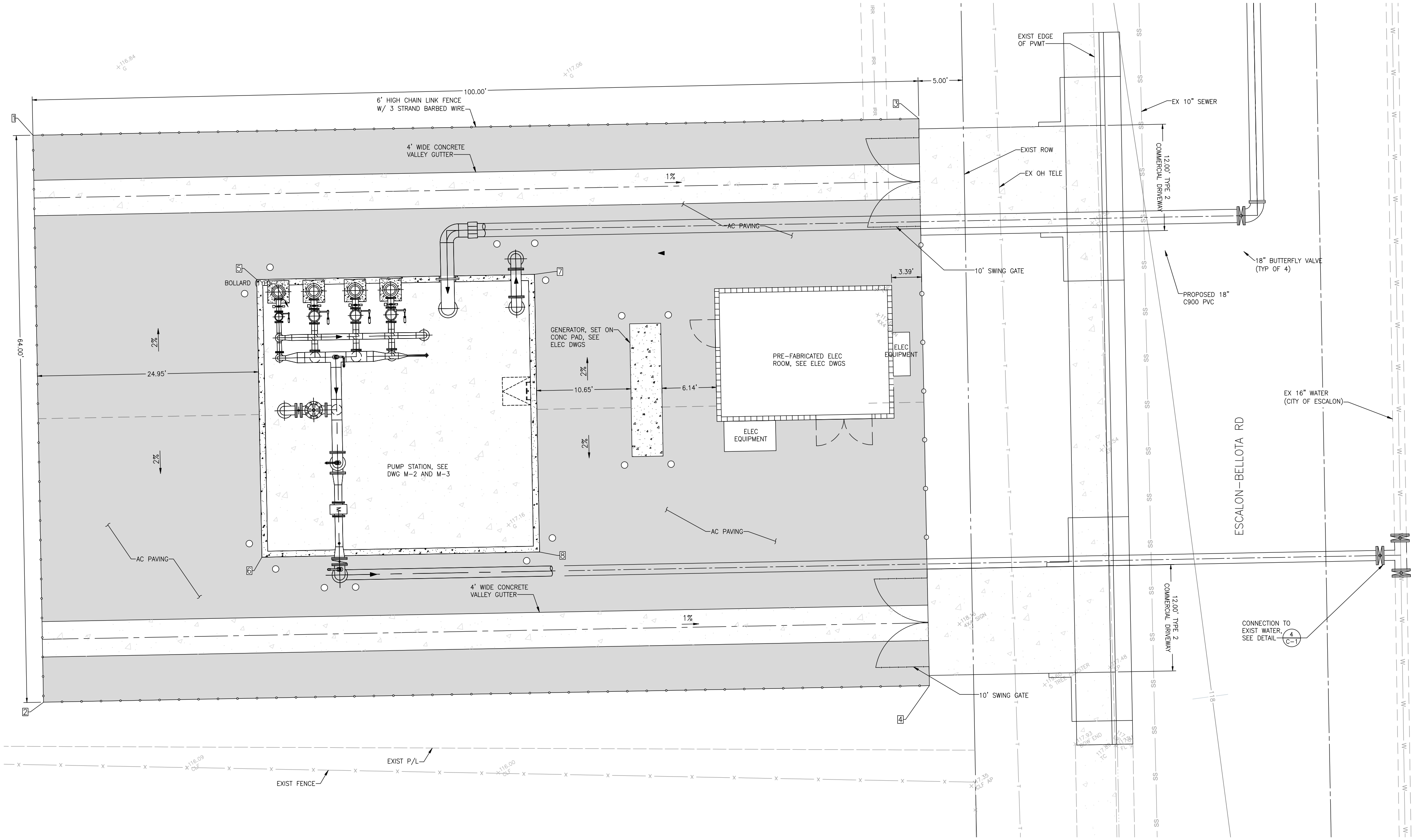


Figure 2B
Booster Pump Station, Storage Tank, and Wet Well Location Map

2. NOISE FUNDAMENTALS

This section provides an overview of key noise concepts.

NOISE FUNDAMENTALS

Sound is a pressure wave created by a moving or vibrating source that travels through an elastic medium such as air. Noise is defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in extreme circumstances, hearing impairment.

Commonly used noise terms are presented in Appendix B. The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the "A-weighted" noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA.

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiates uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Decibels are measured on a logarithmic scale, which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease. Figure 3 shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as dBA Leq, or the equivalent noise level for that period of time. For example, $Leq_{(3\text{-hr})}$ would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (DNL). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours. DNL is a very similar 24-hour average measure that weights only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation's Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).

VIBRATION FUNDAMENTALS

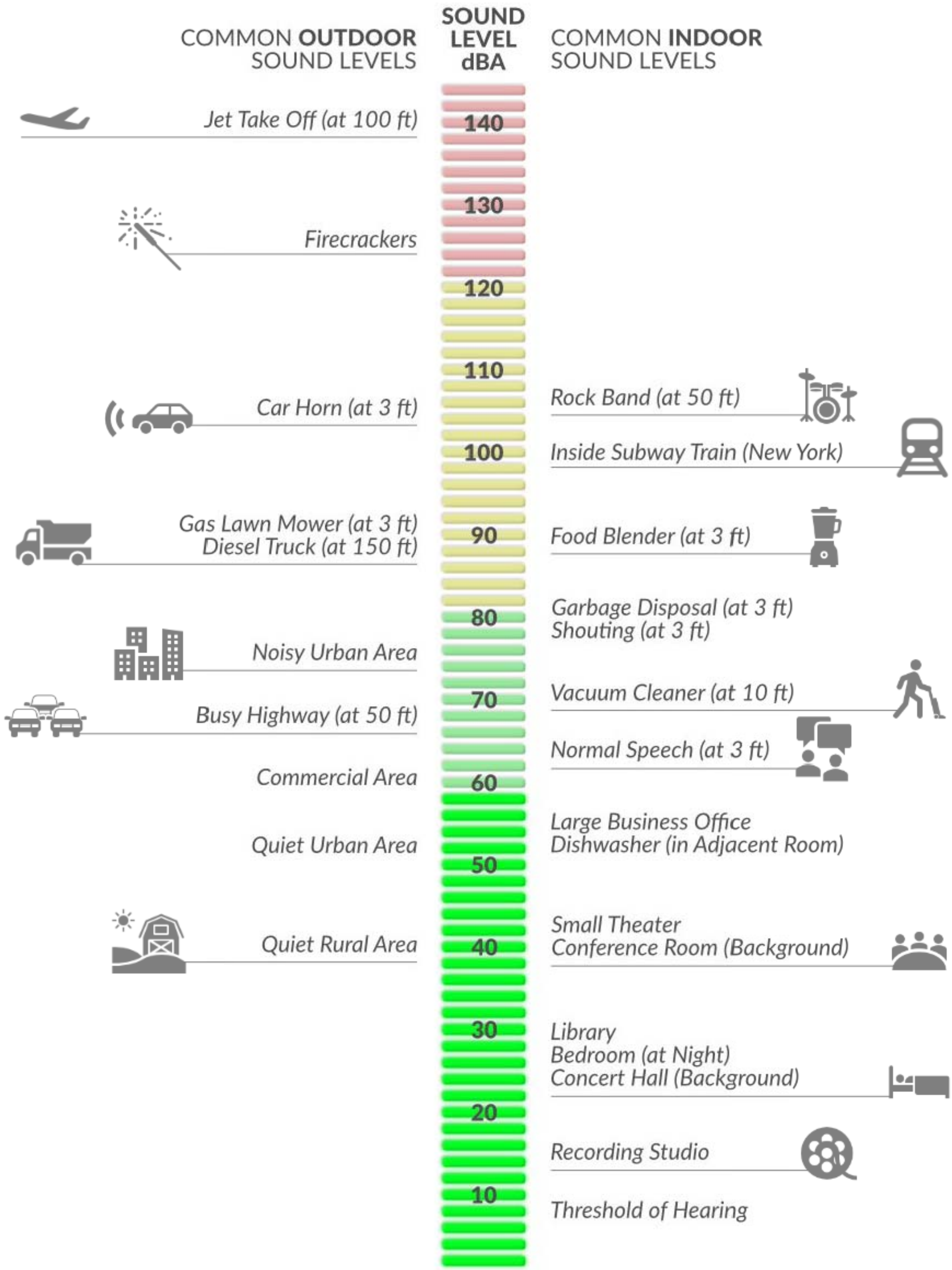
The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves.

Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation".

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second. The RMS of a signal is the average of the squared amplitude of the signal in vibration decibels (VdB), ref one micro-inch per second. The Federal Railroad Administration uses the abbreviation "VdB" for vibration decibels to reduce the potential for confusion with sound decibel.

PPV is appropriate for evaluating the potential of building damage and VdB is commonly used to evaluate human response. Decibel notation acts to compress the range of numbers required in measuring vibration. Similar to the noise descriptors, L_{eq} and L_{max} can be used to describe the average vibration and the maximum vibration level observed during a single vibration measurement interval. The threshold of perception for human response is approximately 65 VdB; however, human response to vibration is not usually substantial unless the vibration exceeds 70 VdB. Vibration tolerance limits for sensitive instruments such as magnetic resonance imaging (MRI) or electron microscopes could be much lower than the human vibration perception threshold.



Based on Policy & Guidance from Federal Aviation Administration

Figure 3
A-Weighted Comparative Sound Levels

3. EXISTING NOISE ENVIRONMENT

This section describes the existing noise setting in the project vicinity.

EXISTING LAND USES AND SENSITIVE RECEPTORS

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas. Furthermore, the City of Escalon General Plan states that noise sensitive land uses include hospitals, residences, schools, churches, and other uses of a similar nature.

Existing sensitive land uses in the project area that may be affected by project noise include the existing single-family residential uses located along and near to Escalon-Bellota Road in the vicinity of the project site area, Escalon High School located as close as approximately 875 feet southeast of the southernmost portion of the project area, and Hogan Park located as close as approximately 145 feet southwest of the southernmost portion of the project site.

AMBIENT NOISE MEASUREMENTS

An American National Standards Institute (ANSI Section S1.4 2014 Class 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, five (5) 15-minute daytime noise measurements were taken between 1:10 PM and 4:15 PM on June 14, 2023. In addition, one (1) long-term 24-hour noise measurement was also taken from June 14, 2023, to June 15, 2023. Field worksheets and noise measurement output data are included in Appendix C.

As shown in Figure 4, the noise meter was placed at the following locations:

- STNM1: represents the existing noise environment of the single-family residential uses located near the northern portion of the proposed pipeline extension and Flow Control Facility (12181 Escalon-Bellota Road, Escalon). The noise meter was placed just east of the residence along the western side of Escalon-Bellota Road.

- STNM2: represents the existing noise environment of the single-family residential uses located near the Escalon-Bellota Road and Mariposa Road intersection (14159 Escalon-Bellota Road, Escalon). The noise meter was placed just east of the residence along the western side of Escalon-Bellota Road.

- STNM3: represents the existing noise environment of the single-family residential uses located near the Escalon-Bellota Road and Magnolia Avenue intersection. The noise meter was placed just northeast of the intersection along the eastern side of Escalon-Bellota Road.

- STNM4: represents the existing noise environment of the single-family residential uses located east of Escalon-Bellota Road along Tiffany Court (209 Tiffany Court, Escalon). The noise meter was placed just west of the residence along the eastern side of Escalon-Bellota Road.

- STNM5: represents the existing noise environment of the single-family residential use located to the north of the proposed pump station (17341 Escalon-Bellota Road, Escalon). The noise meter was placed just south of the residence within the northern portion of the proposed pump station area.

- LTNM1: represents the existing noise environment of the area surrounding the proposed Booster Pump Station (17407 Escalon-Bellota Road, Escalon). The noise meter was placed just west of Escalon-Bellota

Road in the southern portion of the proposed pump station area and just north of the existing commercial use to the south.

Table 1 provides a summary of the short-term ambient noise data. Table 2 provides hourly interval ambient noise data from the long-term noise measurements. Measured short-term ambient noise levels ranged between 54.4 and 77.2 dBA L_{eq}. Long-term hourly noise measurement ambient noise levels ranged from 58.9 to 72.1 dBA L_{eq}. The dominant noise source in the project vicinity was vehicle traffic associated with Escalon-Bellota Road, Dodds Road, and Mariposa Road as well as train activity.

Table 1
Short-Term Noise Measurement Summary (dBA)

Site Location	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
STNM1	1:10 PM	72.8	96.5	39.5	81.2	76.5	69.3	57.5
STNM2	1:51 PM	66.8	80.1	39.0	75.5	72.4	67.2	57.2
STNM3	2:37 PM	77.2	96.8	45.1	84.5	80.5	76.5	72.2
STNM4	3:26 PM	72.5	89.0	46.6	80.7	77.0	72.5	67.4
STNM5	4:00 PM	54.4	68.9	38.4	61.2	58.0	54.8	51.9

Notes:

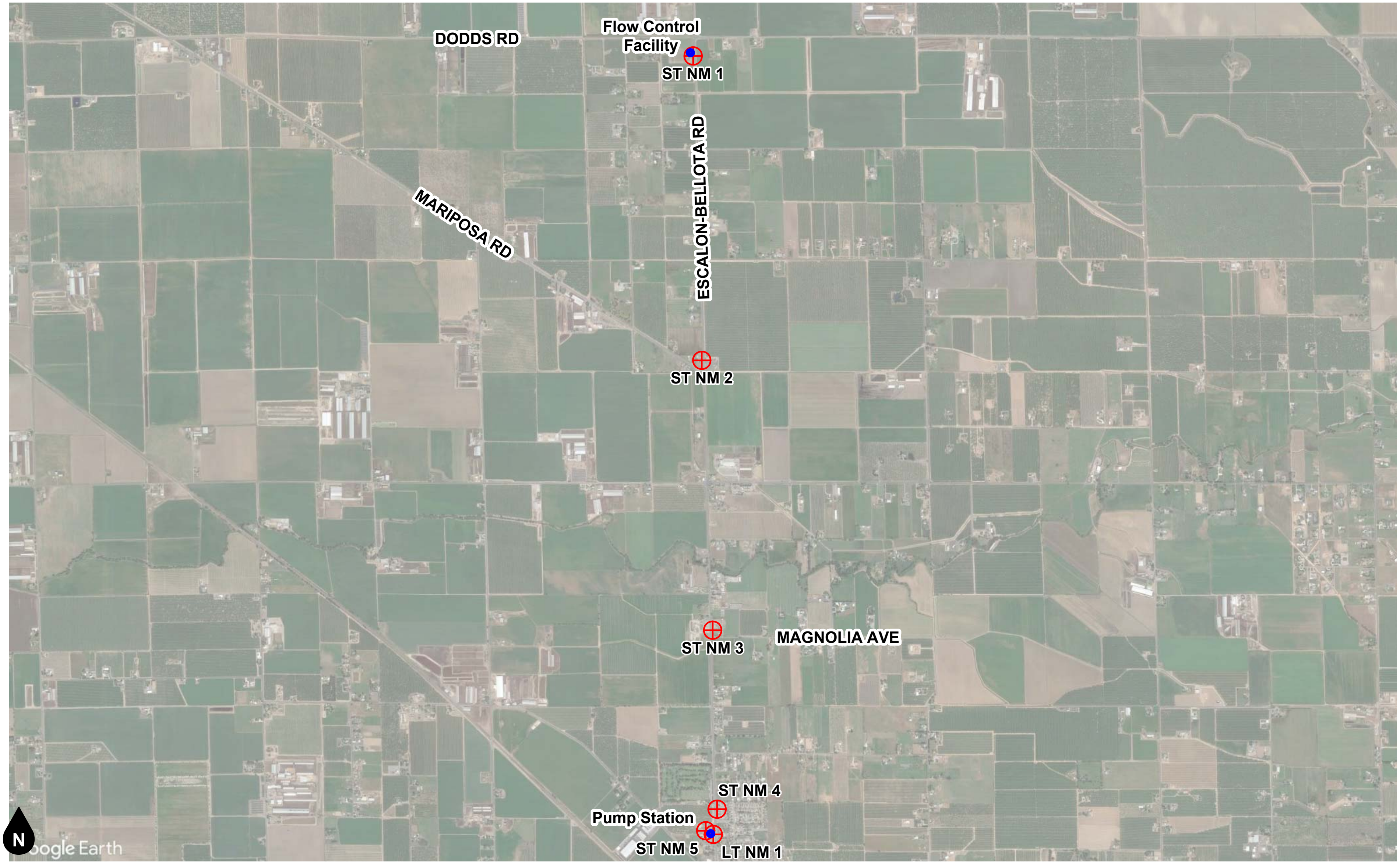
(1) See Figure 5 for noise measurement locations. Each noise measurement was performed over a 15-minute duration.

(2) Noise measurements performed on June 14, 2023.

Table 2
Long-Term Noise Measurement Summary (LTNM1) (dBA)

24-Hour Ambient Noise[1,2]								
Hourly Measurements	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
Overall Summary	5:00 PM	68.2	100.6	32.9	76.6	73.0	68.0	59.3
1	5:00 PM	70.7	87.4	44.3	77.5	74.8	71.9	68.0
2	6:00 PM	71.5	100.6	42.4	77.7	74.5	71.0	66.0
3	7:00 PM	68.8	84.5	43.5	77.4	73.9	69.0	62.0
4	8:00 PM	68.0	88.7	41.5	76.6	72.5	67.5	60.0
5	9:00 PM	64.8	81.1	36.9	74.0	70.4	63.9	54.8
6	10:00 PM	63.8	82.4	36.5	73.9	69.2	60.0	49.3
7	11:00 PM	60.8	84.9	32.9	70.9	62.9	51.4	42.2
8	12:00 AM	60.5	85.8	35.6	70.7	64.0	51.0	43.8
9	1:00 AM	58.9	80.5	33.7	69.8	57.5	45.6	38.6
10	2:00 AM	59.0	80.5	33.3	69.0	59.8	48.3	40.4
11	3:00 AM	62.1	80.4	34.1	73.0	66.0	54.1	46.5
12	4:00 AM	65.7	86.1	37.6	75.2	70.1	63.0	54.6
13	5:00 AM	68.8	89.8	42.2	77.2	73.3	68.8	62.7
14	6:00 AM	68.9	84.2	44.9	76.2	73.5	70.0	65.6
15	7:00 AM	69.3	88.3	44.9	77.1	73.7	69.8	65.5
16	8:00 AM	68.0	82.8	42.5	76.2	72.8	68.7	63.1
17	9:00 AM	67.9	83.3	40.3	76.2	73.0	68.4	61.5
18	10:00 AM	68.1	83.0	42.3	76.5	73.1	68.8	61.8
19	11:00 AM	69.1	89.5	42.4	77.5	73.3	69.2	62.9
20	12:00 PM	72.1	100.0	41.7	79.2	74.8	70.4	64.6
21	1:00 PM	69.7	89.1	42.2	78.0	74.3	70.0	64.3
22	2:00 PM	68.8	82.7	42.4	77.1	73.6	69.5	63.2
23	3:00 PM	69.5	85.2	42.1	77.3	74.0	70.1	65.2
24	4:00 PM	70.7	86.1	44.3	77.8	75.0	72.0	67.9
CNEL	73.0							

Notes:
(1) See Figure 5 for noise measurement locations. Noise measurement was performed over a 24-hour duration.
(2) Noise measurement performed from June 14, 2023 to June 15, 2023.



Legend

NM 1 Noise Measurement Location

ST NM Short-Term Noise Measurement

LT NM Long-Term Noise Measurement

Figure 4
Noise Measurement Overview Location Map

4. REGULATORY SETTING

This section documents the regulatory framework and applicable noise standards.

FEDERAL REGULATION

Federal Noise Control Act of 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Levels of Environmental Noise). The Levels of Environmental Noise recommended that the Ldn should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In addition, the Levels of Environmental Noise identified five (5) dBA as an "adequate margin of safety" for a noise level increase relative to a baseline noise exposure level of 55 dBA Ldn (i.e., there would not be a noticeable increase in adverse community reaction with an increase of five dBA or less from this baseline level). The EPA did not promote these findings as universal standards or regulatory goals with mandatory applicability to all communities, but rather as advisory exposure levels below which there would be no risk to a community from any health or welfare effect of noise.

In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

LOCAL REGULATIONS

City of Escalon General Plan

The City of Escalon General Plan Noise Element policies and standards which apply to the proposed project are presented below.

Policies and Standards

1 Areas shall be recognized as noise impacted if exposed to existing or projected future noise levels at the exterior of buildings in excess of 65 dB Ldn (or CNEL).

2 Noise sensitive land uses should be discouraged in noise impacted areas unless effective mitigation measures are incorporated into the specific design of such projects to reduce exterior noise levels to 65 dB Ldn (or CNEL) or less and 45 dB Ldn (or CNEL) or less within interior living spaces. Noise sensitive land uses include hospitals, residences, schools, churches, and other uses of a similar nature as determined by the Planning Director.

3 Industrial, commercial, or other noise generating land uses should be discouraged if resulting noise levels will exceed 65 dB Ldn (or CNEL) at the boundary areas of planned or zoned noise sensitive land uses. Noise generating land uses should not be located near roadways or railways that exceed 65 dB(A).

4 The City shall enforce applicable State Noise Insulation Standards (California Administrative Code, Title 24) and Uniform Building Code (UBC noise requirements).

6 The preferred method of noise control used is thoughtful site design. Secondarily, noise control should be achieved through the use of artificial noise barriers.

7 The City shall review all relevant development plans, programs, and proposals to ensure their conformance with the policy framework outlined in this Noise Element.

8 Prior to the approval of a proposed development in a noise impacted area, or the development of an industrial, commercial, or other noise generating land use in or near an area containing existing or planned noise sensitive land uses, an acoustical analysis may be required if any of the following findings are made:

a. The existing or projected future noise exposure at the exterior of buildings which will contain noise sensitive uses or within proposed outdoor activity areas (patios, decks, backyards, pool areas, recreation areas, etc.) exceeds 65 dB Ldn (or CNEL).
b. Interior residential noise levels resulting from offsite noise are estimated to exceed 45 dB(A).
c. Estimated or projected noise levels cannot be reduced to the noise exposure limitations specified in this Noise Element by the application of Standard Noise Reduction Methods.

10 Noise created by temporary activities necessary to provide construction or required services should be permitted for the shortest duration possible and limited to time periods that will have the least possible adverse impact on surrounding land uses.

City of Escalon Municipal Code

The City of Escalon Municipal Code (EMC) addresses noise regulations and standards in Chapter 8.16 Noise Control. The standards applicable to the proposed project have been presented below:

Section 8.16.020 Prohibited generally.

A. It shall be unlawful for any person to willfully or knowingly make, continue or cause to be made any loud and raucous noise.

Section 8.16.030 Enumeration of public nuisances.

The following specific acts, subject to the exemptions provided in EMC 8.16.020, are declared to be public nuisances in violation of EMC 8.16.020, namely:

A. The loud and raucous discharge into the open air of the steam of any steam equipment or exhaust from any stationary internal-combustion engine;

F. The loud and raucous operation or use of any of the following before 7:00 a.m. or after 9:00 p.m. daily (except Saturday and Sunday and state or federal holidays, when the prohibited time shall be before 8:00 a.m. and after 9:00 p.m.):

1. A hammer, or any other device or implement used to pound or strike an object;

2. An impact wrench or other tool or equipment powered by compressed air;

3. A hand-powered saw;

4. Any tool or piece of equipment powered by an internal-combustion engine such as, but not limited to, chain saw, backpack blower, and lawn mower. Except as included in subsection (F)(6) of this section, motor vehicles, powered by an internal-combustion engine and subject to the California Vehicle Code, are excluded from this prohibition;

5. Any electrically powered (whether by alternating current electricity or by direct current electricity) tool or piece of equipment used for cutting, drilling, or shaping wood, plastic, metal, or other materials or objects, such as, but not limited to, a saw, drill, lathe or router;

6. Any of the following: heavy equipment (such as but not limited to bulldozer, steam shovel, road grader, back hoe), ground drilling and boring equipment (such as but not limited to derrick or dredge), hydraulic crane, and boom equipment, portable power generator or pump, pavement equipment (such as but not limited to pneumatic hammer, pavement breaker, tamper, compacting equipment), pile-driving equipment, vibrating roller, sand blaster, gunite machine, trencher, concrete truck and hot kettle pump;

7. Any construction, demolition, excavation, erection, alteration, or repair activity;

8. In the case of necessity and/or in the interest of public health, safety or convenience, the chief building official may issue a permit for exemption from the requirements within subsection F of this section. Such period shall not exceed three working days in length but may be renewed for successive periods. The chief building official may limit such permit as to time of use and/or permitted action, depending upon the nature of the circumstances and the type of action requested;

G. Unless permitted by an approved conditional use permit by the planning commission or otherwise approved by the city planner, outdoor activities that involve the operation of commercial vehicles and diesel operated equipment, other than for the purposes specifically stated in subsection F of this section, shall be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday and from 8:00 a.m. to 5:00 p.m. on Saturdays, Sundays, or holidays. Warm-up and maintenance activities of said vehicles and equipment are specifically prohibited before or after these hours. When considering modification of these hours, the approving body shall consider the factors enumerated in EMC 8.16.020.

Per EMC 8.16.040.E. Activities on or in publicly owned property and facilities, or by public employees while in the authorized discharge of their responsibilities, are exempt; provided, that such activities have been authorized by the owner of such property or facilities or its agent or by the employing authority;

5. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

This section discusses the analysis methodologies used to assess noise impacts.

CONSTRUCTION NOISE MODELING

Construction noise associated with the proposed project was calculated at the sensitive receptor locations, utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. The equipment used to calculate the construction noise levels for each phase were based on the assumptions provided by the project applicant as well as the CalEEMod modeling provided in the Air Quality, Greenhouse Gas, and Energy Technical Memorandum prepared for the proposed project (Ganddini Group Inc., 2023). For construction noise purposes, the distance measured from the project site to sensitive receptors was assumed to be the acoustical center of the construction work area to the property line of residential properties with existing residential buildings. Sound emission levels associated with typical construction equipment as well as typical usage factors provided in Table 3 were utilized for modeling purposes. Construction noise assumptions and worksheets are provided in Appendix D.

STATIONARY SOURCE/OPERATIONAL NOISE MODELING

Two stationary modeling methods were utilized. For the flow control facility noise associated with the propane generator, which was the only noise source of concern was calculated using an excel spreadsheet taking into consideration the sound level of the generator, the distance between the generator and the property line of the closest sensitive receptor (residential property located adjacent to the south). Then the CNEL was calculated assuming the generator would operate 24 hours a day.

Several noise sources are proposed at the pump station including a diesel generator, a 25 Hp pump, three 50 Hp pumps and an HVAC condenser. The combined noise levels associated with this equipment was modeled using the SoundPLAN Noise model so that alternatives could be quickly assessed. The SoundPLAN software utilizes algorithms (based on the inverse square law) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations. In addition to the information provided below, noise modeling input and outputs assumptions are provided in Appendix E.

MOBILE SOURCE NOISE MODELING

Noise from vehicular traffic was projected using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Key model parameters and REMEL adjustments are presented below:

- Roadway classification (e.g., freeway, major arterial, arterial, secondary, collector, etc.)
- Roadway Active Width (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g. soft vs. hard)
- Percentage of total ADT which flows each hour through-out a 24-hour period

The traffic noise calculation worksheets are included in Appendix F.

Table 3 (1 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	-N/A-	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	-N/A-	0
Blasting	Yes	-N/A-	94	-N/A-	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-N/A-	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Forklift[2,3]	No	50	n/a	61	n/a
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	-N/A-	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	-N/A-	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	50	85	77	9
Paving Equipment	No	50	85	77	9
Pneumatic Tools	No	50	85	85	90

Table 3 (2 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rivit Buster/chipping gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	-N/A-	0
Tractor	No	40	84	-N/A-	0
Vacuum Excavator (Vac-truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Notes:

(1) Source: FHWA Roadway Construction Noise Model User's Guide January 2006.

(2) Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4, 2014
http://www.noisetesting.info/blog/carl-strautins/page-3/

(3) Data provided Leq as measured at the operator. Sound Level at 50 feet is calculated using Inverse Square Law.

6. IMPACT ANALYSIS

This section analyzes the significance of project-related noise and groundborne vibration impacts relative to standards established by the City of Moreno Valley and other applicable agencies in the context of CEQA. Appendix G of the California Environmental Quality Act Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations) includes an environmental checklist that identifies issues upon which findings of significance should be made. The CEQA Environmental Checklist Appendix G, XIII. Noise, requires determination if the project would result in:

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

b) *Generation of excessive groundborne vibration or groundborne noise levels?*

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

NOISE IMPACTS

Would the project result in:

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

Finding: Less Than Significant With Mitigation

In relation to the Environmental Checklist noise issue "a", applicable standards established by the City of Escalon can be categorized into the following areas:

- Construction Noise
- Mobile Source Noise (Construction
- Stationary Source Noise

Construction Noise

Construction noise sources are regulated within Section 8.16.030(F)(7) of the City of Escalon's Municipal Code which prohibits the loud and raucous operation or use of construction equipment outside of the hours between the hours of 7:00 AM and 9:00 PM daily except on Saturday, Sunday, and state or federal holidays in which the hours are to be between 8:00 AM and 9:00 PM. Accordingly, the project would result in a significant impact if:

- Loud and raucous noise caused by project construction occurs outside the hours of 7:00 AM and 9:00 PM daily or outside the hours of 8:00 AM and 9:00 PM on Saturday, Sunday, and state or federal holidays.

The District will comply with City Ordinance 8.16.030(F)(7) and therefore, construction impacts would be consistent with applicable plans and policies and impacts would technically be less than significant under CEQA. For discussion purposes and in an effort to minimize construction noise, the following analysis of construction noise in light of the Federal Transit Administration (FTA) construction noise criteria is provided[1].

[1] Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual. Sept. 2018

The project would result in a significant impact if:

- Project construction noise exceeds 80 dBA L_{eq} for an 8-hour period at residential and noise-sensitive outdoor areas.

Sensitive Receptors
Existing sensitive land uses in the project area that may be affected by project construction noise are sensitive outdoor uses associated with residential or other uses per the FTA criteria. Sensitive receptors in the vicinity of the project are front and backyard areas associated with single family lots and large agricultural lots.

Construction Noise Modeling and Findings
Project construction noise levels at nearby sensitive receptors were calculated using FTA methodology (see Section 5). The equipment assumptions provided by SSJID and used in the SSJID Surface Water Connection Air Quality; Greenhouse Gas, & Energy Technical Memorandum (Ganddini 2023) were applied. Construction noise modeling worksheets for each phase are provided in Appendix D. Anticipated noise levels during each construction phase are presented in Table 4. Impacts associated with each project location in light of the above-mentioned FTA noise criteria are discussed below. It should be noted that a use factor was already incorporated into the calculations to account for the fact that not all equipment will be operating all of the time (See Appendix D).

Site Preparation and Grading
Initial site preparation and grading will occur at the Tie-In site along Dodds Road. It will involve clearing the designated area of vegetation and debris, as well as leveling the ground to create a smooth and stable foundation. Equipment associated with site preparation and grading may include one scraper, one tractor/loader/backhoe, one off-highway truck, one skid steer/track loader and one material handling equipment. The combined noise level of this equipment is 85.2 dBA L_{eq} at a distance of 50 feet and 79.5 at the nearest sensitive outdoor use. This impact would be less than significant. No mitigation is required.

Excavation
Excavation will occur at the Tie-In site, the flow control facility site and the pump station site. Excavating will involve digging trenches to access the existing pipe and expose the new alignment to receive the distribution piping. Excavation may include the use of one tractor/loader/backhoe, one off-highway truck, one excavator, one skid steer/track loader, one material handling equipment and one other construction equipment. The combined noise level of this equipment is 86.1 dBA L_{eq} at a distance of 50 feet. Noise levels associated with excavation may reach up to 80.4 dBA Leq at the sensitive outdoor use closest to the Tie-In site, up to 84.5 dBA Leq at the sensitive outdoor use closest to the flow control facility, and up to 85.9 at the sensitive outdoor use closest to the pump station. Noise impacts associated with excavation would be significant and mitigation is required.

Pipeline Cut-in
On-site fabrication will be required to install a T-connection to the existing pipeline within the Dodds Road right-of-way. The contractor will measure and cut the pipes and use a build a tee joint in the existing transmission line. Two tractor/loader/backhoes, one off-highway truck, one forklift, two pumps and one other materials handling equipment may be used to conduct this work. The combined noise level of this equipment is 83.5 dBA L_{eq} at a distance of 50 feet and up to 77.8 dBA Leq at the nearest sensitive outdoor use. This impact would be less than significant. No mitigation is required.

Pipe Installation
Pipeline installation will occur from the Tie-In location in Dodds Road all the way to the proposed pump station location. The contractor will install the water pipeline in an excavated trench by lowering new pipe segments into the trench and connecting them to one another. Two tractor/loader/backhoes, one off-highway truck, one forklift, one excavator, one skid steer/track loader and one other materials handling equipment may be used to conduct this work. The bore and jack method will be used to install the pipeline under Lone Tree

Creek. The combined noise level of this equipment is 87.4 dBA L_{eq} at a distance of 50 feet and 86.9 at the nearest sensitive receptor. This impact would be significant. Mitigation is required.

Backfill and Resurfacing

Backfilling and/or resurfacing will be conducted at all sites. The backfilling and resurfacing process will involve filling excavated trenches with suitable materials, ensuring proper compaction and support for the new pipe, and installing hot-mix asphalt pavement to match the existing grade on either side of the trench. Two tractor/loader/backhoes, one off-highway truck, one plate compactor, one paver, and one skid steer/track loader will be used to conduct this work. The contractor will also fill the void space outside the subterranean tank by adding soil in prescribed lifts and compacting the material upward to reach existing grade using one tractor, one off-highway truck, one plate compactor, one concrete truck and one skid steer/track loader. Noise levels associated with these activities may reach up to 87.0 dBA Leq at a distance of 50 feet and would range between 81.3 and 86.8 on the project site. This impact is significant. Mitigation is required.

Striping/Restriping

Striping/restriping will occur at the Tie-In at Dodd's Road and along the entire pipeline alignment, After resurfacing, the contractor will apply fresh paint and markings to restore those removed during the trenching operation. One off-highway truck, one striping machine, and one other construction equipment is expected to be utilized during striping activities. Noise levels associated with striping/restriping will reach up to 83.4 dBA Leq at a distance of 50 feet; up to 77 dBA Leq at the sensitive outdoor use near the Tie-In site and up to 82.9 dBA Leq at the nearest sensitive outdoor uses along the pipeline route. Impacts in the vicinity of the Tie-In location would not be significant but impacts along the pipeline route would be significant. Mitigation is required along the pipeline route.

Fencing / Restoration

The contractor will install fencing around the newly constructed valve vault and flow control facility. Additionally, the contractor will restore the property to its original condition, removing any construction debris. The contractor will also install fencing around the pump station and restore the site in the existing paved parking lot. Repaving in the existing parking lot around the new pump station will be limited. Noise levels associated with fencing and restoration are expected to reach up to 85.1 dBA Leq at a distance of 50 feet, up to 83.5 at the nearest sensitive outdoor use near the flow control facility and up to 84.9 at the nearest sensitive outdoor use near the pump station location. Impacts would be significant. Mitigation is required.

Tank construction

The contractor will construct a 100,000-gallon subterranean cast-in-place concrete tank after excavation at the pump station site. This work will include building timber forms, installing reinforcement, and pouring concrete. Construction of the tank will include the use of the one skid steer/track loader, two concrete trucks, one concrete pump, one other material handling equipment and one forklift. Noise levels associated with tank construction would reach 85.1 dBA Leq at a distance of 50 feet and up to 84.9 dBA Leq at the nearest sensitive outdoor use. Impacts would be significant. Mitigation is required.

Equipping / Pumps / Piping / Valves

The contractor will install and equip the pump station. Two tractors/loaders/backhoes, one other material handling equipment, one other construction equipment, two pumps, one skid steer/track loader, and one crane may be utilized to equip the pump station site. Noise levels associated with equipping the pump station may reach up to 86.6 dBA Leq at a distance of 50 feet and up to 86.4 at the nearest sensitive outdoor use. This impact would be significant and mitigation is required.

Required Construction Noise Mitigation Measures

Construction noise impacts will be considered less than significant with implementation of the following mitigation measures.

1. During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.

2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site. One-inch plywood or acoustical blankets capable of achieving a reduction level of at least 10 dB shall be used to keep equipment noise from exceeding the 80 dBA noise level standard.

3. Equipment shall be shut off and not left to idle when not in use.

4. Whenever possible, electric power will be used in lieu of internal combustion engine power.

5. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

6. Jackhammers, pneumatic equipment, and all other portable stationary noise sources shall be shielded, and noise shall be directed away from sensitive receptors.

7. The project proponent shall mandate that the construction contractor prohibit the use of music or sound amplification on the project site during construction.

8. The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment.

Mobile Source Noise (Construction)

Based on the City of Escalon General Plan noise source standards, the noise level criteria of 45 dBA CNEL for interior noise and 65 dBA CNEL for exterior noise apply to sensitive receptors in the vicinity of the project site. Also, it is widely accepted that the average healthy human ear can barely perceive changes of 3 dBA in an outdoor environment and that a change of 5 dBA is readily perceptible.[2] Accordingly, the project would result in a significant impact if the addition of project trips on surrounding roadways causes noise levels to increase by:

- 5 dBA in residential areas where the existing ambient noise level is within the City standard (65 dBA exterior or 45 dBA interior); or,
- 3 dBA in residential areas where the existing ambient noise level exceeds the Cinty standard (65 dBA exterior or 45 dBA interior).

Roadway noise levels were calculated for land uses adjacent to Escalon-Bellota Road in the project vicinity based on the FHWA Traffic Noise Prediction Model methodology. As shown in the CalEEMod output files provided in the Air Quality, Greenhouse Gas, and Energy Technical Memorandum prepared for the proposed project (Ganddini Group Inc., 2023), the greatest number of construction-related vehicle trips per day would be a maximum of up to 102 vehicle trips per day (98 for worker trips, and 14 for hauling trips). The most recent traffic counts along Escalon- Bellota Road along the project alignment range between 2,769 and 8,457 average daily trips (ADT)[3]. The lower end of the existing counts was used for modeling purposes in order to show the greatest possible increase in noise levels due to project generated vehicle traffic. Roadway noise levels were calculated for the following scenarios:

- *Existing (without Project)*: This scenario refers to the existing year traffic noise conditions.

[2] California Department of Transportation's Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).
[3] https://sjc-gis.maps.arcgis.com/apps/webappviewer/index.html?id=b031e6e5a21b4c039643eddcb8a13fc3

- *Existing Plus Project Construction*: This scenario refers to the existing year plus project construction traffic noise conditions.

Modeling results show that existing noise levels along Escalon-Bellota Road are 65.5 dBA CNEL and existing plus project noise levels would be 65.7 dBA CNEL. The proposed project would result in a noise increase of less than one decibel and impacts would be less than significant. No mitigation measures are required. FHWA Traffic Noise Prediction Model calculation worksheets are provided in Appendix F.

Stationary Source Noise

Stationary noise source standards are established within the City of Escalon General Plan. Accordingly, the project would result in a significant impact if:

- Operational noise exceeds the City-established exterior noise standard of 65 dB Ldn (or CNEL) at sensitive receptors; or,
- Operational noise exceeds the City-established interior noise standard of 45 dB Ldn (or CNEL) within the interior living spaces of sensitive receptors.

Flow Control Facility

Impacts in Light of the City's Exterior Noise Criteria

A propane generator is the only notable operational noise source that is proposed at the flow control facility. The nearest sensitive receptor is an existing residential land use located directly south of the proposed flow control facility site. Other adjacent parcels are agricultural and are not considered as sensitive receptors.

The propane generator is proposed to be located approximately 55 feet from the property line shared with the existing residential land use. Noise levels associated with the propane generator as measured at the shared property line would reach up to 64 CNEL (See Table 5). The noise calculations assume that the propane generator will be operating all of the time. Noise associated with the proposed propane generator would not exceed the City's established exterior noise standard of 65 dBA CNEL. This impact would be less than significant. No mitigation is required.

Impacts in Light of the City's Interior Noise Goal

The existing house located on the adjacent residential land use that would be affected by noise associated with the proposed propane generator is situated another 50 feet further away from the shared property line, making it 105 feet in distance away from the proposed generator location. Considering the attenuation provided with the additional distance from the source, exterior noise levels at the house would be 58 CNEL. Considering that typical residential construction provides 20 dB of exterior to interior sound reduction with the windows closed (assuming HVAC is provided), the interior noise levels due to project noise in the existing home would be approximately 38 CNEL. Therefore, project operational noise would not exceed the City's interior goal of 45 CNEL for sensitive receptors. This impact would be less than significant. No mitigation related to the anticipated interior noise level is required.

Booster Pump Station

There are two single family residential lots and a nearby park that may be impacted by the operation of the proposed BPS. Equipment proposed to be located at the BMP includes a diesel generator (102 Lw), one 25 Hp pump (88 Lw), three 50 Hp pumps (93 Lw each) and one HVAC condenser unit (70 Lw). Two operational noise scenarios were calculated 1) normal demand and 2) high demand. Normal demand assumes that only one 25 Hp pump is utilized and high demand assumes all four pumps (one 25-Hp pump and three 50 Hp pumps) are utilized.

Impacts in Light of the City's Exterior Noise Criteria

As shown in Figures 5 and 6 and Table 5, pump station operational noise levels would range between 56 and 74 CNEL at sensitive receptor property lines under normal demand and between 58 and 76 CNEL at sensitive receptor property lines during high demand. Project operational noise exceeds the City's exterior noise level criteria of 65 CNEL under both scenarios at Receptors 1 and 3. This impact is significant and mitigation is required.

In order to not exceed a CNEL of 65 at the property line, the sum of all of the equipment being utilized on the pump station site cannot exceed 58 dB L_{eq} at the property line. Three mitigation options that can each achieve this goal are provided below. Mitigation 1 is divided into normal and high demand for clarity and Mitigation options 2 and 3 provide alternatives for achieving 65 CNEL under high demand which would also result in a mitigated condition for normal demand. Impacts would be less than significant with implementation of Mitigation Scenario 1 (for both normal and high demand) OR with implementation of either mitigation scenarios 2 or 3.

Mitigation Option 1 (Normal Demand): A CNEL of 65 can be achieved by using a diesel generator that does not exceed 82 dB at 3 feet or a sound power level of 90; along with the proposed 25 Hp with a sound pressure level of 80 dB at 3 feet (sound power level of 88) and the proposed HVAC condenser with a sound pressure level of 62 dB at 3 feet (power level of 70). This mitigated scenario is shown in Figure 7.

Mitigation Option 1 (High Demand): In order to ensure that operational noise levels do not exceed 65 CNEL under Mitigation Option 1 during high demand, each 50 Hp pump must not have a noise level that exceeds 64 dB at a distance of 3 feet (sound power level of 72). This mitigated scenario is shown in Figure 8.

Mitigation Option 2 (Normal and High Demand): A CNEL of 65 can be achieved using the equipment as proposed by constructing a 10-foot-high concrete barrier along the northern edge of the pad proposed for the pumps and a 7-foot-high barrier along the eastern boundary as shown in Figure 9.

Mitigation Option 3 (Normal and High Demand): A CNEL of 65 can be achieved using the equipment as proposed by constructing a 8-foot-high concrete barrier along the northern property line and a 6-foot barrier along the eastern edge of the pump area pad as shown in Figure 10.

Impacts in Light of the City's Interior Noise Goal

The existing house located on the adjacent residential land use that would be affected by noise associated with the pump station is located 180 feet northwest of the proposed pumps. As shown in Figures 5 and 6, without mitigation, and with the proposed equipment, the exterior noise level at the house would be 61 CNEL during normal demand and up to 62 CNEL during high demand. As stated above, typical residential construction provides 20 dB of exterior to interior sound reduction with the windows closed (assuming HVAC is provided). Therefore, interior noise levels would be approximately 42 CNEL and pump station operational noise would not exceed the City's interior noise standard of 45 dBA CNEL. This impact would be less than significant and no mitigation is required.

GROUNDBORNE VIBRATION IMPACTS

Would the project result in:

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

Finding: Less Than Significant

In relation to the Environmental Checklist noise issue "b", the City of Escalon has not established a specific numerical threshold of significance concerning groundborne vibration. In the absence of City-established thresholds, groundborne vibration impacts are based on guidance from the *Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual* (FTA, September 2018) (see Regulatory Setting section). Accordingly, the project would result in a significant impact if:

- Groundborne vibration levels generated by the project have the potential to cause architectural damage at nearby buildings by exceeding the following PPV:
  - 0.10 in/sec at buildings extremely susceptible to vibration damage
  - 0.20 in/sec at non-engineered timber and masonry buildings
  - 0.30 in/sec at engineered concrete and masonry (no plaster) buildings
  - 0.50 in/sec at reinforced-concrete, steel or timber (no plaster) buildings

The closest structure that may be affected by any of the proposed construction activities is a single-family residence located northeast of the intersection of Escalon-Bellota Road and Lone Tree Road which is located approximately 40 feet from the proposed pipeline alignment. Plate compactors are the most vibratory equipment that may be used near an existing structure. The peak particle velocity (PPV) per square foot associated with these vibratory plates is 0.21 at a distance of 25 feet (see Table 6). They are not, however, expected to be utilized within 25 feet of an existing structure. Other equipment anticipated to be used during project construction generate lower PPV. Therefore, groundborne vibration generated by project construction would not exceed the levels necessary to cause architectural damage.

Use of vibratory rollers could theoretically exceed the threshold for annoyance due to vibration (72 VdB at offsite residential sensitive uses) at the existing residential receptor to the east of the project site, and residents may be temporarily annoyed (Table 12). However, perceptibility of construction vibration would be temporary and would only occur if equipment is utilized within 21 feet of a structure. This impact would be less than significant. No mitigation is required.

The most substantial sources of groundborne vibration during post-construction project operations will include the movement of passenger vehicles and trucks on paved and generally smooth surfaces. Loaded trucks generally have a PPV of 0.076 at a distance of 25 feet (Caltrans 2020), which is a substantially lower PPV than that of a vibratory roller (0.210 in/sec PPV at 25 feet). Therefore, groundborne vibration levels generated by project operation would not exceed those modeled for project construction.

Impacts related to Groundborne vibration would be less than significant. No mitigation is required.

Air Traffic Impacts

Would the project result in:

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

Finding: No Impact

There are no airports within two miles of the project site. Therefore, the proposed project would not expose people residing or working in the area to excessive noise levels. There is no impact, and no mitigation is required.

Table 4
Construction Noise Levels by Location (dBA Leq)

Location	Construction Phase	Noise Level at 50 Feet (dBA Leq)	Distance to Nearest Sensitive Receptor	Total Noise Level at Nearest Sensitive Receptor
Tie-In at Dodds Road	Site Preparation and Grading	85.2	284	79.5
	Excavation	86.1	284	80.4
	Existing Pipe Cut-In	83.5	284	77.8
	Backfill and Resurfacing	87.0	284	81.3
	Striping/Restriping	83.4	284	77.7
Pipeline Installation	Demolition	86.3	30	85.8
	Pipeline Installation	87.4	30	86.9
	Backfill and Resurfacing	87.0	30	86.5
	Striping/Restriping	83.4	30	82.9
Flow Control Facility	Clear and Grub	85.5	20	83.9
	Excavation	86.1	20	84.5
	Piping and Valves	86.3	20	84.7
	Backfill and Resurfacing	87.0	20	85.4
	Fencing/Restoration	85.1	20	83.5
Pump Station	Demolition	86.3	70	86.1
	Excavation	86.1	70	85.9
	Tank Construction	88.1	70	87.9
	Equipping Pumps/Pipes/Valves	86.6	70	86.4
	Backfill	87.0	70	86.8
	Fencing/Restoration	85.1	70	84.9

Table 5
Operational Exterior Noise Levels at Sensitive Receptor Property Lines

Receptor	Equipment	Quantity	Noise Reference Level dBA, Leq[1]	CNEL					
				Normal Demand[2]		High Demand[4]			
				Total Equipment Sound Levels	Mitigated Total Equipment Sound Levels[3]	Total Equipment Sound Levels	Mitigation Scenario 1 Total Equipment Sound Levels	Mitigation Scenario 2 Total Equipment Sound Levels	Mitigation Scenario 3 Total Equipment Sound Levels
Flow Control Facility									
Receptor 1	12kW Kohler Propane Generator (Model #RESV(L))	1	65 at 23 ft	64	n/a	64	n/a	n/a	n/a
Booster Pump Station									
Receptor 1	Diesel Generator	1	73 at 21 ft	74	65	76	65	65	65
	25 Hp Pump	1	80 at 3 ft						
	50 Hp Pump	3	85 at 3 ft						
	Heating and Ventalation Unit Condenser	1	62 at 3 ft						
Receptor 2	Diesel Generator	1	73 at 21 ft	61	51	62	52	57	62
	25 Hp Pump	1	80 at 3 ft						
	50 Hp Pump	3	85 at 3 ft						
	Heating and Ventalation Unit Condenser	1	62 at 3 ft						
Receptor 3	Diesel Generator	1	73 at 21 ft	67	56	68	56	65	65
	25 Hp Pump	1	80 at 3 ft						
	50 Hp Pump	3	85 at 3 ft						
	Heating and Ventalation Unit Condenser	1	62 at 3 ft						
Receptor 4	Diesel Generator	1	73 at 21 ft	56	47	58	47	58	58
	25 Hp Pump	1	80 at 3 ft						
	50 Hp Pump	3	85 at 3 ft						
	Heating and Ventalation Unit Condenser	1	62 at 3 ft						

Notes:

1. Provided by equipment manufaturers.

2. Normal Demand includes the 25 Hp pump only

3. Diesel generator shall not exceed 90 Lw. 25 Hp Pump shall not exceed 88 Lw. Hvac Condenser shall not exceed 70Lw. 50 Hp pumps shall not exceed 72 Lw.

4. High demand includes operation of all of the pumps at the same time

Table 6
Construction Equipment Vibration Source Levels

Equipment		PPV at 25 ft, in/sec	Approximate Lv* at 25 ft
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.170	93
clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment Manual, 2018.
*RMS velocity in decibels, VdB re 1 micro-in/sec

Signs and symbols

Receiver

Point sources (Generator, Pumps and HVAC)

Noise Levels (dBA, CNEL)

Figure 5
Pump Station Operational Noise Levels
As Proposed - Normal Demand

Signs and symbols

Receiver

Point sources (Generator, Pumps and HVAC)

Noise Levels (dBA, CNEL)

Figure 6
Pump Station Operational Noise Levels
As Proposed - High Demand

Figure 7
Pump Station Operational Noise Levels
Mitigation Scenario 1 - Normal Demand

Signs and symbols

Receiver

Point source

Noise Levels (dBA, CNEL)

Figure 8
Pump Station Operational Noise Levels
Mitigation Scenario 1 - High Demand

Signs and symbols

8-10-Ft High CMU wall

Receiver

Point sources (Generator, Pumps and HVAC)

Noise Levels (dBA, CNEL)

Figure 9
Pump Station Operational Noise Levels
Mitigation Scenario 2 - High Demand

Figure 10
Pump Station Operational Noise Levels
Mitigation Scenario 3 - High Demand

7. REFERENCES

California, State of, Department of Transportation (Caltrans)

2020 Transportation and Construction Vibration Guidance Manual. April.

Environmental Protection Agency

1974 "Information on Levels of Environmental Noise Requisite to Protect Public Health And Welfare with an Adequate Margin of Safety," EPA/ONAC 550/9-74-004, March 1974.

Escalon, City of

2005 Escalon General Plan. June 6.

2023 City of Escalon Municipal Code. February 6.

Federal Transit Administration

2018 Transit Noise and Vibration Impact Assessment Manual. Typical Construction Equipment Vibration Emissions.

Office of Planning and Research

2017 State of California General Plan Guidelines

Stautins, Carl

2014 Warehouse & Forklift Noise Exposure – Noise Testing. November 4, 2014.

U.S. Department of Transportation

2006 FHWA Roadway Construction Noise Model User's Guide. January.

APPENDICES

APPENDIX A

LIST OF ACRONYMS

Term	Definition
ADT	Average Daily Traffic
ANSI	American National Standard Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
D/E/N	Day / Evening / Night
dB	Decibel
dBA or dB(A)	Decibel "A-Weighted"
dBA/DD	Decibel per Double Distance
dBA Leq	Average Noise Level over a Period of Time
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
L_{02},L_{08},L_{50},L_{90}	A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period
DNL	Day-Night Average Noise Level
$Leq_{(x)}$	Equivalent Noise Level for '"x" period of time
Leq	Equivalent Noise Level
L_{max}	Maximum Level of Noise (measured using a sound level meter)
L_{min}	Minimum Level of Noise (measured using a sound level meter)
Lp	Sound pressure level
LOS C	Level of Service C
Lw	Sound Power Level
OPR	California Governor's Office of Planning and Research
PPV	Peak Particle Velocities
RCNM	Road Construction Noise Model
REMEL	Reference Energy Mean Emission Level
RMS	Root Mean Square

Appendix B

Glossary

Term	Definition
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.
CNEL	Community Noise Equivalent Level. CNEL is a weighted 24-hour noise level that is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours.
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
DNL, Ldn	Day Night Level. The DNL, or Ldn is a weighted 24-hour noise level that is obtained by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the nighttime hours.
Equivalent Continuous Noise Level, Leq	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
L_{02}, L_{08}, L_{50}, L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
L_{max}, L_{min}	Lmax is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. Lmin is the minimum level.
Offensive/ Offending/Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.

APPENDIX C

NOISE MEASUREMENT FIELD WORKSHEETS

Noise Measurement
Field Data

Project Name: SSJID Surface Water Connection, City of Escalon **Date:** June 14, 2023

Project #: 19628

Noise Measurement #: STNM1 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 12181 Escalon-Bellota Road, Escalon, CA 95320

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just east of residence 12181 Escalon-Bellota Rd. Adjacent: Escalon-Bellota Rd (running N-S) adjacent to east, Dodds Road (running E-W) ~375' north with rural, mostly farm/open land and occasional residences surrounding.

Weather: <5% cloud, sunshine. Sunset 8:27 PM **Settings:** $\boxed{\text{SLOW}}$ FAST

Temperature: 71 deg F **Wind:** 8 mph **Humidity:** 44% **Terrain:** Flat

Start Time: 1:10 PM **End Time:** 1:25 PM **Run Time:**

Leq:	72.8	dB
Lmax	96.5	dB
L2	81.2	dB
L8	76.5	dB
L25	69.3	dB
L50	57.5	dB

Primary Noise Source: Traffic noise from the 62 vehicles passing microphone traveling on Escalon - Bellota Road. Traffic noise from vehicles traveling along Dodds Road.

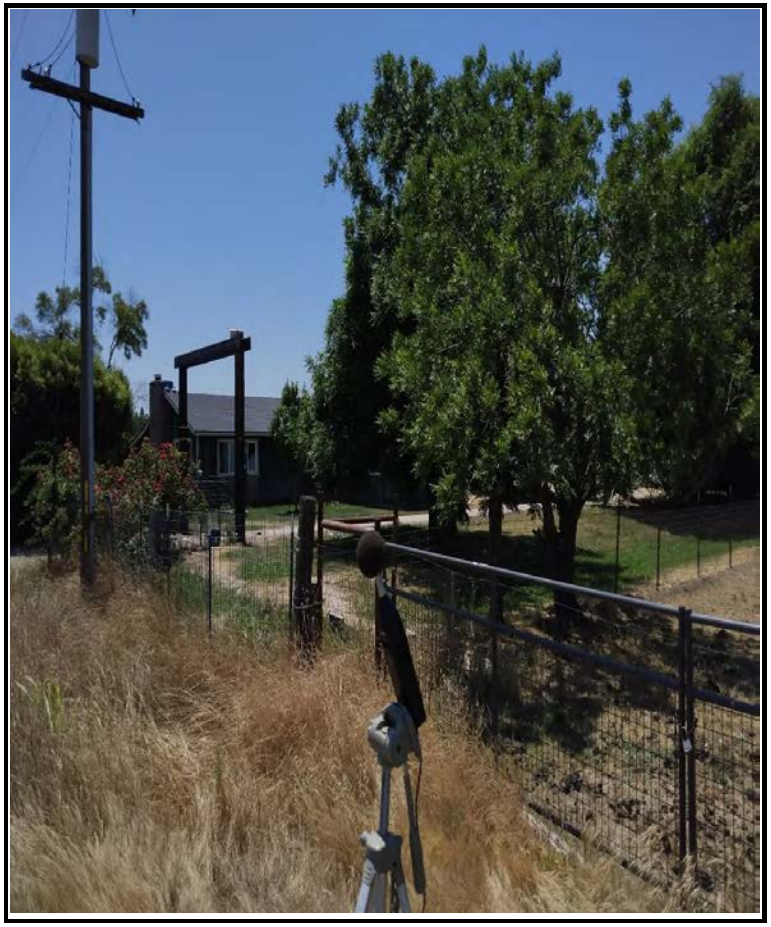
Secondary Noise Sources: Some residential ambiance from nearest residence (children & dogs playing). Bird song. Leaf rustle from 8mph breeze. Farm yard ambiance.

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/17/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	6/14/2023		

Noise Measurement
Field Data

PHOTOS:

STNM1 looking N up Escalon-Bellota Road towards Dodds Road intersection, (stop sign ~375').



STNM1 looking SSW towards driveway & frontyard to residence 12181 Escalon-Bellota Road, Escalon.

Summary	
File Name on Meter	LxT_Data.290.s
File Name on PC	LxT_0003099-20230614 131050-LxT_Data.290.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM1 37°51'19.89"N 120°59'55.44"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19628 SSJID Surface Water Connection, City of Escalon

Measurement	
Start	2023-06-14 13:10:50
Stop	2023-06-14 13:25:50
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-06-14 13:10:32
Post-Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	123.0 dB

Results		
LAeq	72.8	
LAE	102.4	
EA	1.927439 mPa²h	
EA8	61.67806 mPa²h	
EA40	308.3903 mPa²h	
LApeak (max)	2023-06-14 13:11:49	112.5 dB
LASmax	2023-06-14 13:11:49	96.5 dB
LASmin	2023-06-14 13:25:26	39.5 dB

		Statistics	
LCeq	78.6 dB	**LA2.00**	81.2 dB
LAeq	72.8 dB	**LA8.00**	76.5 dB
LCeq - LAeq	5.8 dB	**LA25.00**	69.3 dB
LAIeq	78.6 dB	**LA50.00**	57.5 dB
LAeq	72.8 dB	**LA66.60**	51.8 dB
LAIeq - LAeq	5.7 dB	**LA90.00**	44.2 dB
Overload Count	0		
Overload Duration	0.0 s		

Noise Measurement
Field Data

Project Name: SSJID Surface Water Connection, City of Escalon **Date:** June 14, 2023

Project #: 19628

Noise Measurement #: STNM2 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 14159 Escalon-Bellota Road, Escalon, CA 95320

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just east of residence 14159 Escalon-Bellota Rd. Adjacent: Escalon-Bellota Rd (running N-S) adjacent to east, Mariposa Road (running NW-SE) intersecting w/ Escalon Bellota Rd ~200' to south and. Rural, mostly farm/open land with occasional residences surrouding measurement site.

Weather: <5% cloud, sunshine. Sunset 8:27 PM **Settings:** SLOW FAST

Temperature: 71 deg F **Wind:** 8 mph **Humidity:** 44% **Terrain:** Flat

Start Time: 1:51 PM **End Time:** 2:06 PM **Run Time:**

Leq: 66.8 dB

Lmax 80.1 dB

L2 75.5 dB

L8 72.4 dB

L25 67.2 dB

L50 57.2 dB

Primary Noise Source: Traffic noise from the 74 vehicles passing microphone traveling on Escalon - Bellota Road. Traffic noise from vehicles traveling along Mariposa Road.

Secondary Noise Sources: Some residential ambiance from nearest residence, some farm equipment being worked on. Bird song. Leaf rustle from 8mph breeze. Rural ambiance.

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/17/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	6/14/2023		

PHOTOS:

STNM2 looking NNW towards front yard to residence 14159 Escalon-Bellota Road, Escalon.

STNM2 looking S down Escalon-Bellota Road towards Mariposa Road intersection (~200').

Summary	
File Name on Meter	LxT_Data.291.s
File Name on PC	LxT_0003099-20230614 135112-LxT_Data.291.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM2 37°50'7.14"N 120°59'52.59"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19628 SSJID Surface Water Connection, City of Escalon

Measurement	
Start	2023-06-14 13:51:12
Stop	2023-06-14 14:06:12
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-06-14 13:50:44
Post-Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.9 dB

Results		
LAeq	66.8	
LAE	96.4	
EA	481.8135 µPa²h	
EA8	15.41803 mPa²h	
EA40	77.09016 mPa²h	
LApeak (max)	2023-06-14 14:02:21	98.9 dB
LASmax	2023-06-14 13:53:28	80.1 dB
LASmin	2023-06-14 13:52:40	39.0 dB

		Statistics	
LCeq	72.6 dB	**LA2.00**	75.5 dB
LAeq	66.8 dB	**LA8.00**	72.4 dB
LCeq - LAeq	5.8 dB	**LA25.00**	67.2 dB
LAIeq	68.7 dB	**LA50.00**	57.2 dB
LAeq	66.8 dB	**LA66.60**	53.3 dB
LAIeq - LAeq	1.9 dB	**LA90.00**	48.5 dB
Overload Count	0		
Overload Duration	0.0 s		

Noise Measurement
Field Data

Project Name: SSJID Surface Water Connection, City of Escalon **Date:** June 14, 2023

Project #: 19628

Noise Measurement #: STNM3 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: Escalon-Bellota Road & Magnolia Ave, Escalon, CA 95320

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: ~175' N of Escalon-Bellota Rd & Magnolia Ave intersection, just east of Escalon-Bellota Road. Adjacent: Escalon-Bellota Rd (running N-S) adjacent to west and ~6' high cinderblock wall and residence to east. Rural, mostly farm/open land with occasional residence surrounding.

Weather: <5% cloud, sunshine. Sunset 8:27 PM **Settings:** SLOW FAST

Temperature: 71 deg F **Wind:** 8 mph **Humidity:** 44% **Terrain:** Flat

Start Time: 2:37 PM **End Time:** 2:52 PM **Run Time:**

Leq: 77.2 dB

Lmax 96.8 dB

L2 84.5 dB

L8 80.5 dB

L25 76.5 dB

L50 72.2 dB

Primary Noise Source: Traffic noise from the 201 vehicles passing microphone traveling on Escalon - Bellota Road.

Secondary Noise Sources: Some residential ambiance from nearest residence. Farm equipment in operation W of STNM3. Bird song. Leaf rustle from 8mph breeze. Rural ambiance.

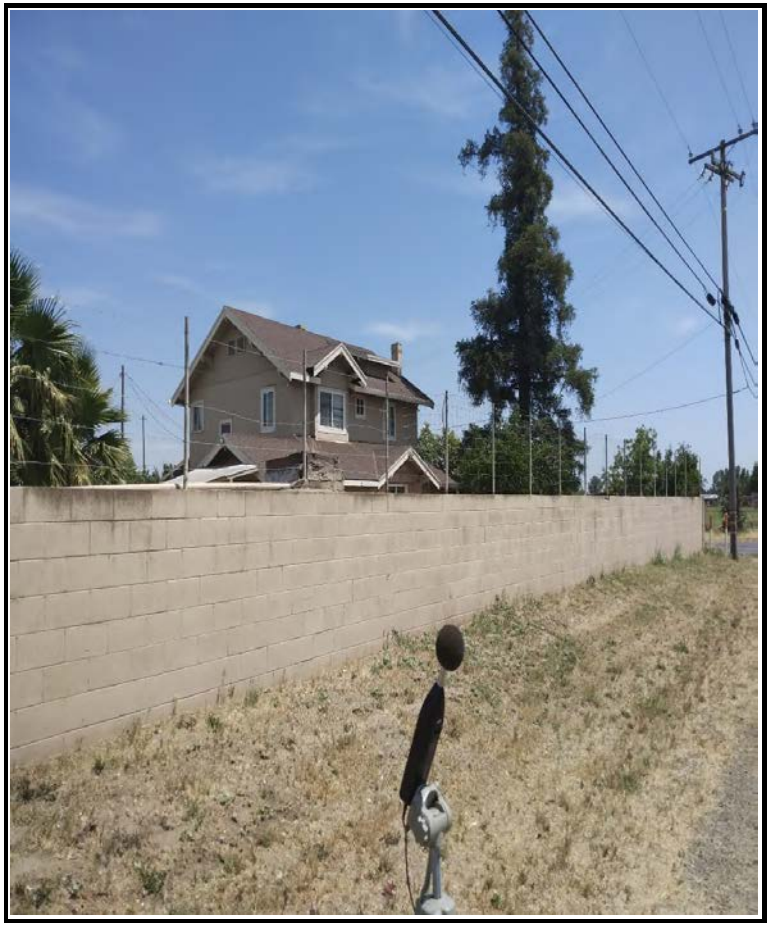
NOISE METER: SoundTrack LXT Class 1
MAKE: Larson Davis
MODEL: LXT1
SERIAL NUMBER: 3099
FACTORY CALIBRATION DATE: 11/17/2021
FIELD CALIBRATION DATE: 6/14/2023

CALIBRATOR: Larson Davis CA 250
MAKE: Larson Davis
MODEL: CA 250
SERIAL NUMBER: 2723
FACTORY CALIBRATION DATE: 11/18/2021

Noise Measurement
Field Data

PHOTOS:

STNM3 looking S down Escalon-Bellota Road towards Magnolia Ave intersection (~175').



STNM3 looking SE towards western perimeter (~6' high cinder block wall) of closest residence on NE corner to Escalon-Bellota Rd & Magnolia Ave intersection.

Summary			
File Name on Meter	LxT_Data.292.s		
File Name on PC	LxT_0003099-20230614 143736-LxT_Data.292.ldbin		
Serial Number	3099		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User	Ian Edward Gallagher		
Location	STNM3 37°49'4.92"N 120°59'49.99"W		
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19628 SSJID Surface Water Connection, City of Escalon		
Measurement			
Start	2023-06-14 14:37:36		
Stop	2023-06-14 14:52:36		
Duration	00:15:00.0		
Run Time	00:15:00.0		
Pause	00:00:00.0		
Pre-Calibration	2023-06-14 14:37:04		
Post-Calibration	None		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1L		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	C Weighting		
OBA Max Spectrum	At LMax		
Overload	122.9 dB		
Results			
LAeq	77.2		
LAE	106.7		
EA	5.209172 mPa²h		
EA8	166.6935 mPa²h		
EA40	833.4675 mPa²h		
LApeak (max)	2023-06-14 14:50:15	114.6 dB	
LASmax	2023-06-14 14:50:15	96.8 dB	
LASmin	2023-06-14 14:49:21	45.1 dB	
			Statistics
LCeq	81.8 dB	**LA2.00**	84.5 dB
LAeq	77.2 dB	**LA8.00**	80.5 dB
LCeq - LAeq	4.6 dB	**LA25.00**	76.5 dB
LAIeq	80.8 dB	**LA50.00**	72.2 dB
LAeq	77.2 dB	**LA66.60**	66.2 dB
LAIeq - LAeq	3.6 dB	**LA90.00**	53.8 dB
Overload Count	0		
Overload Duration	0.0 s		

Noise Measurement
Field Data

Project Name: SSJID Surface Water Connection, City of Escalon **Date:** June 14, 2023

Project #: 19628

Noise Measurement #: STNM4 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 209 Tiffany Ct, Escalon, CA 95320

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just west of backyard to residence 209 Tiffany Court. Adjacent: Escalon-Bellota Rd (running N-S) adjacent ot west with fruit tree field further west and ~7' high block wall & residence to east. Farmland and residential uses throughout surrouding area.

Weather: <5% cloud, sunshine. Sunset 8:27 PM **Settings:** SLOW FAST

Temperature: 71 deg F **Wind:** 8 mph **Humidity:** 44% **Terrain:** Flat

Start Time: 3:26 PM **End Time:** 3:41 PM **Run Time:**

Leq: 72.5 dB

Lmax 89 dB

L2 80.7 dB

L8 77.0 dB

L25 72.5 dB

L50 67.4 dB

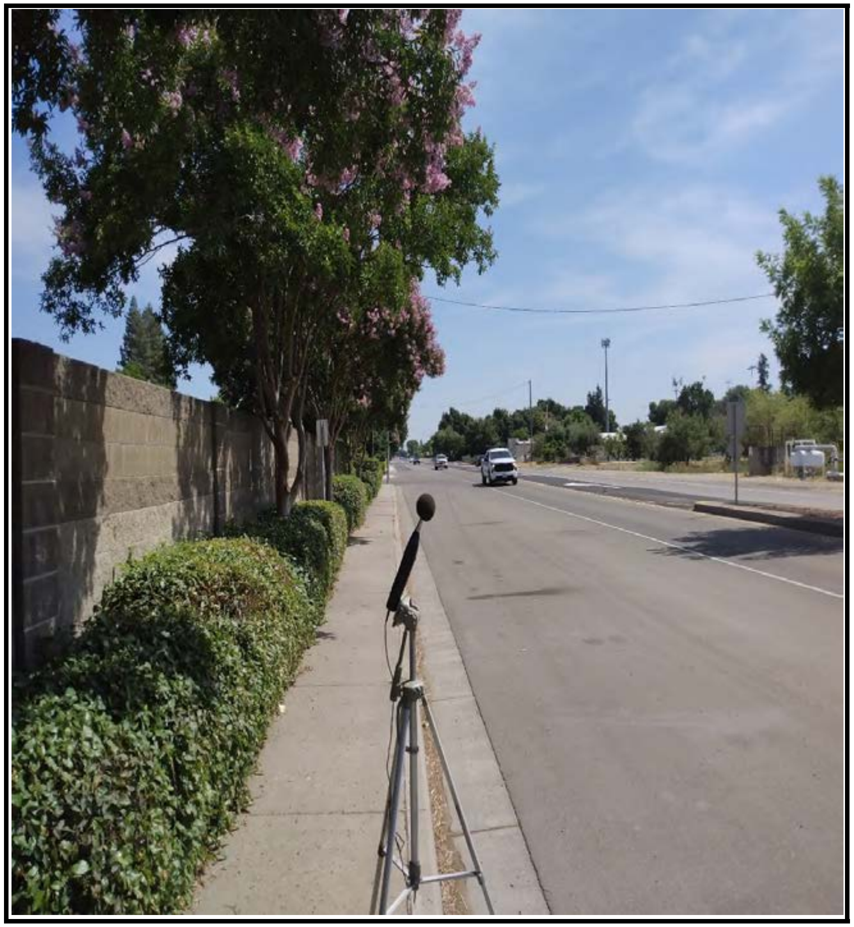
Primary Noise Source: Traffic noise from the 186 vehicles passing microphone traveling on Escalon - Bellota Road.

Secondary Noise Sources: Some residential ambiance from nearest residences. Bird song. Leaf rustle from 8mph breeze. Rural ambiance.

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/17/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	6/14/2023		

Noise Measurement
Field Data

PHOTOS:



STNM4 looking S down Escalon- Bolleta Road. Backyard to residence 209 Tiffany Ct on other side of ~7' tall block wall (left of image). Feed store building, 17407 Bellota Rd, ~600' SSW (on right of image across the road).

STNM4 looking W across Escalon-Bellota Road towards field of fruit trees.

Summary	
File Name on Meter	LxT_Data.293.s
File Name on PC	LxT_0003099-20230614 152617-LxT_Data.293.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM4 37°48'22.46"N 120°59'48.60"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19628 SSJID Surface Water Connection, City of Escalon

Measurement	
Start	2023-06-14 15:26:17
Stop	2023-06-14 15:41:17
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-06-14 15:25:52
Post-Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	123.0 dB

Results		
LAeq	72.5	
LAE	102.0	
EA	1.780276 mPa²h	
EA8	56.96883 mPa²h	
EA40	284.8441 mPa²h	
LApeak (max)	2023-06-14 15:27:58	105.3 dB
LASmax	2023-06-14 15:27:45	89.0 dB
LASmin	2023-06-14 15:33:10	46.6 dB

		Statistics	
LCeq	78.4 dB	**LA2.00**	80.7 dB
LAeq	72.5 dB	**LA8.00**	77.0 dB
LCeq - LAeq	5.9 dB	**LA25.00**	72.5 dB
LAIeq	74.6 dB	**LA50.00**	67.4 dB
LAeq	72.5 dB	**LA66.60**	64.6 dB
LAIeq - LAeq	2.1 dB	**LA90.00**	56.7 dB
Overload Count	0		
Overload Duration	0.0 s		

Noise Measurement
Field Data

Project Name: SSJID Surface Water Connection, City of Escalon **Date:** June 14, 2023

Project #: 19628

Noise Measurement #: STNM5 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 17341 Escalon-Bellota Road, Escalon, CA 95320

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: ~80' S of residence 17341 Escalon-Bellota Rd within gravel parking lot. Adjacent: Residential use to north and gravel parking lot to south, west, and east. Escalon-Bellota Rd (running N-S) ~180' to east, field of fruit trees to west past gravel parking lot, commercial feed supply building ~100' south, & baseball field ~200' to southwest.

Weather: <5% cloud, sunshine. Sunset 8:27 PM **Settings:** $\boxed{\text{SLOW}}$ FAST

Temperature: 71 deg F **Wind:** 8 mph **Humidity:** 44% **Terrain:** Flat

Start Time: 4:00 PM **End Time:** 4:15 PM **Run Time:**

Leq:	54.4	dB
Lmax	68.9	dB
L2	61.2	dB
L8	58.0	dB
L25	54.8	dB
L50	51.9	dB

Primary Noise Source: Traffic noise from vehicles passing microphone traveling on Escalon-Bellota Road ~180' E of STNM5.

Secondary Noise Sources: Some residential ambiance from nearest residence. Bird song. Leaf rustle from 8mph breeze. Rural ambiance. No activity or games in baseball field SW of STNM5 .

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/17/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	6/14/2023		

PHOTOS:

STNM5 looking E along northern edge of parking lot towards Escalon-Bellota Road (~180') & front of residence 740 Escalon Avenue, Escalon (~260').

STNM5 looking S across gravel parking lot towards building 17407 Escalon-Bellota Road, Escalon.

Summary	
File Name on Meter	LxT_Data.294.s
File Name on PC	LxT_0003099-20230614 160020-LxT_Data.294.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM5 37°48'17.96"N 120°59'51.42"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19628 SSJID Surface Water Connection, City of Escalon

Measurement	
Start	2023-06-14 16:00:20
Stop	2023-06-14 16:15:20
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-06-14 15:59:51
Post-Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.8 dB

Results		
LAeq	54.4	
LAE	83.9	
EA	27.52249 µPa²h	
EA8	880.7196 µPa²h	
EA40	4.403598 mPa²h	
LApeak (max)	2023-06-14 16:04:28	82.3 dB
LASmax	2023-06-14 16:12:53	68.9 dB
LASmin	2023-06-14 16:04:26	38.4 dB

		Statistics	
LCeq	67.9 dB	**LA2.00**	61.2 dB
LAeq	54.4 dB	**LA8.00**	58.0 dB
LCeq - LAeq	13.5 dB	**LA25.00**	54.8 dB
LAIeq	56.0 dB	**LA50.00**	51.9 dB
LAeq	54.4 dB	**LA66.60**	50.0 dB
LAIeq - LAeq	1.6 dB	**LA90.00**	45.4 dB
Overload Count	0		
Overload Duration	0.0 s		

Noise Measurement
Field Data

Project Name: SSJID Surface Water Connection, City of Escalon **Date:** June 14-15, 2023

Project #: 19628

Noise Measurement #: LTNM1 Run Time: 24 hours (24 x 1 hours) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 17407 Escalon-Bellota Road, Escalon, CA 95320

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: SE corner of gravel, overflow parking lot near the NE corner of the building at 17407 Escalon-Bellota Rd. Adjacent: Escalon-Bellota Rd (running N-S) ~30' east with residential further east, gravel parking lot to north and west with open farmland further west and residential further north, and commercial use to south.

Weather: <5% cloud, sunshine. Sunset/rise 8:27 PM/5:41AM **Settings:** $\boxed{\text{SLOW}}$ FAST

Temperature: 57-87 deg F **Wind:** 5-10 mph **Humidity:** 40-60% **Terrain:** Flat

Start Time: 5:00 PM **End Time:** 5:00 PM **Run Time:**

Leq:	68.2	dB
Lmax	100.6	dB
L2	76.6	dB
L8	73.0	dB
L25	68.0	dB
L50	59.3	dB

Primary Noise Source: Traffic noise from vehicles passing microphone, traveling on Escalon-Bellota Road ~30' E of LTNM1. Two train tracks in use ~2,000' SW of LTNM1.

Secondary Noise Sources: Residential ambiance. Bird song. Leaf rustle from breeze in trees around area. Rural ambiance. Baseball field ~350' W of LTNM1 .

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/17/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	6/14/2023		

Noise Measurement
Field Data

PHOTOS:

LTNM1 looking at close-up of microphone located in tree about 6' above ground.

LTNM1 looking E at microphone towards Escalon-Bellota Road (~30') & front yard to residence 740 Escalon Ave, Escalon (~80').

Summary	
File Name on Meter	LxT_Data.295.s
File Name on PC	LxT_0003099-20230614 170000-LxT_Data.295.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	LTNM1 37°48'17.20"N 120°59'49.42"W
Job Description	24 hour noise measurement (24 x 1 hours)
Note	Ganddini Project 19628 SSJID Surface Water Connection, City of Escalon

Measurement	
Start	2023-06-14 17:00:00
Stop	2023-06-15 17:00:00
Duration	24:00:00.0
Run Time	24:00:00.0
Pause	00:00:00.0
Pre-Calibration	2023-06-14 16:43:37
Post-Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

Results		
LAeq	68.2	
LAE	117.6	
EA	63.635 mPa²h	
EA8	21.212 mPa²h	
EA40	106.058 mPa²h	
LApeak (max)	2023-06-14 18:37:49	122.5 dB
LASmax	2023-06-14 18:37:49	100.6 dB
LASmin	2023-06-14 23:33:50	32.9 dB

		Statistics	
LCeq	73.3 dB	**LA2.00**	76.6 dB
LAeq	68.2 dB	**LA8.00**	73.0 dB
LCeq - LAeq	5.1 dB	**LA25.00**	68.0 dB
LAIeq	70.5 dB	**LA50.00**	59.3 dB
LAeq	68.2 dB	**LA90.00**	40.9 dB
LAIeq - LAeq	2.3 dB	**LA99.00**	34.9 dB
Overload Count	1		
Overload Duration	2.1 s		

Record #	Date	Time	Run Duration	Run Time	Pause	LAeq	LASmin	LASmin Time	LASmax	LASmax Time	LAS2.00	LAS8.00	LAS25.00	LAS50.00	LAS90.00	LAS99.00
1	2023-06-14	17:00:00	01:00:00.0	01:00:00.0	00:00:00.0	70.7	44.3	17:40:16	87.4	17:52:43	77.5	74.8	71.9	68.0	54.3	46.7
2	2023-06-14	18:00:00	01:00:00.0	01:00:00.0	00:00:00.0	71.5	42.4	18:18:54	100.6	18:37:49	77.7	74.5	71.0	66.0	51.2	45.3
3	2023-06-14	19:00:00	01:00:00.0	01:00:00.0	00:00:00.0	68.8	43.5	19:43:21	84.5	19:01:13	77.4	73.9	69.0	62.0	49.6	45.5
4	2023-06-14	20:00:00	01:00:00.0	01:00:00.0	00:00:00.0	68.0	41.5	20:51:33	88.7	20:42:37	76.6	72.5	67.5	60.0	48.3	43.5
5	2023-06-14	21:00:00	01:00:00.0	01:00:00.0	00:00:00.0	64.8	36.9	21:43:15	81.1	21:54:38	74.0	70.4	63.9	54.8	44.5	39.8
6	2023-06-14	22:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.8	36.5	22:50:58	82.4	22:29:44	73.9	69.2	60.0	49.3	41.2	38.4
7	2023-06-14	23:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.8	32.9	23:33:50	84.9	23:30:46	70.9	62.9	51.4	42.2	34.9	33.7
8	2023-06-15	00:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.5	35.6	00:17:33	85.8	00:12:01	70.7	64.0	51.0	43.8	38.0	36.6
9	2023-06-15	01:00:00	01:00:00.0	01:00:00.0	00:00:00.0	58.9	33.7	01:52:48	80.5	01:18:17	69.8	57.5	45.6	38.6	35.3	34.3
10	2023-06-15	02:00:00	01:00:00.0	01:00:00.0	00:00:00.0	59.0	33.3	02:01:08	80.5	02:33:22	69.0	59.8	48.3	40.4	35.2	34.0
11	2023-06-15	03:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.1	34.1	03:00:46	80.4	03:15:51	73.0	66.0	54.1	46.5	36.6	35.0
12	2023-06-15	04:00:00	01:00:00.0	01:00:00.0	00:00:00.0	65.7	37.6	04:38:01	86.1	04:29:34	75.2	70.1	63.0	54.6	45.6	39.0
13	2023-06-15	05:00:00	01:00:00.0	01:00:00.0	00:00:00.0	68.8	42.2	05:07:07	89.8	05:52:29	77.2	73.3	68.8	62.7	50.8	45.2
14	2023-06-15	06:00:00	01:00:00.0	01:00:00.0	00:00:00.0	68.9	44.9	06:16:23	84.2	06:10:11	76.2	73.5	70.0	65.6	52.7	47.5
15	2023-06-15	07:00:00	01:00:00.0	01:00:00.0	00:00:00.0	69.3	44.9	07:34:35	88.3	07:20:34	77.1	73.7	69.8	65.5	52.5	46.6
16	2023-06-15	08:00:00	01:00:00.0	01:00:00.0	00:00:00.0	68.0	42.5	08:58:37	82.8	08:13:02	76.2	72.8	68.7	63.1	51.5	47.5
17	2023-06-15	09:00:00	01:00:00.0	01:00:00.0	00:00:00.0	67.9	40.3	09:49:09	83.3	09:14:41	76.2	73.0	68.4	61.5	47.6	43.1
18	2023-06-15	10:00:00	01:00:00.0	01:00:00.0	00:00:00.0	68.1	42.3	10:56:07	83.0	10:58:23	76.5	73.1	68.8	61.8	48.2	44.1
19	2023-06-15	11:00:00	01:00:00.0	01:00:00.0	00:00:00.0	69.1	42.4	11:00:03	89.5	11:34:49	77.5	73.3	69.2	62.9	49.1	45.4
20	2023-06-15	12:00:00	01:00:00.0	01:00:00.0	00:00:00.0	72.1	41.7	12:02:49	100.0	12:03:19	79.2	74.8	70.4	64.6	50.2	43.8
21	2023-06-15	13:00:00	01:00:00.0	01:00:00.0	00:00:00.0	69.7	42.2	13:48:20	89.1	13:42:12	78.0	74.3	70.0	64.3	49.4	44.6
22	2023-06-15	14:00:00	01:00:00.0	01:00:00.0	00:00:00.0	68.8	42.4	14:59:31	82.7	14:22:14	77.1	73.6	69.5	63.2	48.7	43.7
23	2023-06-15	15:00:00	01:00:00.0	01:00:00.0	00:00:00.0	69.5	42.1	15:06:49	85.2	15:53:07	77.3	74.0	70.1	65.2	51.8	45.9
24	2023-06-15	16:00:00	01:00:00.0	01:00:00.0	00:00:00.0	70.7	44.3	16:22:01	86.1	16:51:48	77.8	75.0	72.0	67.9	52.9	46.9

Appendix D

Construction Noise Modeling

SSJID - Surface Water Connection - Clear and Grub

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	85.5

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Demolition									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Other Construction Equipment	1	84	50	50	0.50	0.0	-3.0	84.0	81.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	86.3

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Site Preparation/Grading									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Plate Compactors	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Paving Equipment	1	77	50	50	0.50	0.0	-3.0	77.0	74.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	85.2

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Excavation										
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	86.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Pipeline Tie-In									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Pumps	2	68	50	40	0.80	0.0	-1.0	68.0	67.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Forklift	1	61	50	40	0.40	0.0	-4.0	61.0	57.0
Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	83.5

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Backfill and Resurfacing									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Paving Equipment	1	84	50	50	0.50	0.0	-3.0	84.0	81.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Plate Compactors	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	87.0

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Striping/Restriping									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Off Highway Truck	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Striping Machine	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	83.4

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Clear and Grub									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
								0.0	0.0
								0.0	0.0
Jack and Bore Equipment	2	80	50	25				80.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	86.6

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Demolition									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Other Construction Equipment	1	84	50	50	0.50	0.0	-3.0	84.0	81.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Jack and Bore Equipment	2	80	50	25	0.50	0.0	-3.0	80.0	77.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	86.8

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Site Preparation/Grading

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Plate Compactors	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Paving Equipment	1	77	50	50	0.50	0.0	-3.0	77.0	74.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Jack and Bore Equipment	2	80	50	25	0.50	0.0	-3.0	80.0	77.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	85.8

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Excavation										
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Jack and Bore Equipment	2	80	50	25	0.50	0.0	-3.0	80.0	77.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	86.6

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Pipeline Tie-In									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Pumps	2	68	50	40	0.80	0.0	-1.0	68.0	67.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Forklift	1	61	50	40	0.40	0.0	-4.0	61.0	57.0
Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Jack and Bore Equipment	2	80	50	25				80.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	85.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Backfill and Resurfacing

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Paving Equipment	1	84	50	50	0.50	0.0	-3.0	84.0	81.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Plate Compactors	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
Jack and Bore Equipment	2	80	50	25				80.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	87.8

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Striping/Restriping									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Off Highway Truck	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Striping Machine	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
Jack and Bore Equipment	2	80	50	25				80.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	85.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Pipeline Installation									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Jack and Bore Equipment	2	80	50	25	0.50	0.0	-3.0	80.0	77.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	87.4

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Piping and Valves									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
								0.0	0.0
Jack and Bore Equipment	2	80	50	25				80.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	87.2

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Fencing and Restoration									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Plate Compactors	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
								0.0	0.0
Jack and Bore Equipment	2	80	50	25				80.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	86.2

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Tank Construction									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Materials Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Construction Equipment (Forklift)	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Concrete Trucks	2	79	40	40	0.80	1.9	-1.0	80.9	80.0
Concrete Pump Truck	1	81	20	40	0.40	8.0	-4.0	89.0	85.0
								0.0	0.0
Jack and Bore Equipment	2	80	50	25				80.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	88.7

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Piping and Valves									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Pumps	2	68	50	40	0.80	0.0	-1.0	68.0	67.0
Crane	1	81	50	16	0.16	0.0	-8.0	81.0	73.0
Jack and Bore Equipment	2	80	50	25	0.50	0.0	-3.0	80.0	77.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	87.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Piping and Valves									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	86.3

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Fencing and Restoration									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Plate Compactors	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	76	50	50	0.50	0.0	-3.0	76.0	73.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	85.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Tank Construction									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Materials Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Construction Equipment (Forklift)	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Concrete Trucks	2	79	40	40	0.80	1.9	-1.0	80.9	80.0
Concrete Pump Truck	1	81	20	40	0.40	8.0	-4.0	89.0	85.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	88.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

SSJID - Surface Water Connection - Piping and Valves									
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Other Material Handling	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Skid Steer/Track Loader	1	79	50	40	0.40	0.0	-4.0	79.0	75.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Pumps	2	68	50	40	0.80	0.0	-1.0	68.0	67.0
Crane	1	81	50	16	0.16	0.0	-8.0	81.0	73.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								0.0	0.0
								Log Sum	86.6

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site sensitive outdoor area.

Appendix E

SoundPLAN Worksheets

Noise emissions of industry sources

Source name	Reference	Level			Corrections		
		Day dB(A)	Evening dB(A)	Night dB(A)	Cwall dB	CI dB	CT dB
25 Hp Pump	Lw/unit	88.0	88.0	88.0	-	-	-
50 Hp Pump1	Lw/unit	-	-	-	-	-	-
50 Hp Pump2	Lw/unit	-	-	-	-	-	-
50 Hp Pump3	Lw/unit	-	-	-	-	-	-
Diesel Generator	Lw/unit	102.0	102.0	102.0	-	-	-
HVAC	Lw/unit	70.0	70.0	70.0	-	-	-

Receiver list

No.	Receiver name	Building side	Floor	Limit Lden dB(A)	Level Lden dB(A)	Conflict Lden dB
1	1	-	EG	-	74.0	-
2	2	-	EG	-	60.8	-
3	3	-	EG	-	67.0	-
4	4	-	EG	-	56.2	-

GANDDINI GROUP, INC. 550 Parkcenter Drive, Suite 202 Santa Ana CA 92705 USA

Noise emissions of industry sources

Source name	Reference	Level			Corrections		
		Day dB(A)	Evening dB(A)	Night dB(A)	Cwall dB	CI dB	CT dB
25 Hp Pump	Lw/unit	88.0	88.0	88.0	-	-	-
50 Hp Pump1	Lw/unit	93.0	93.0	93.0	-	-	-
50 Hp Pump2	Lw/unit	93.0	93.0	93.0	-	-	-
50 Hp Pump3	Lw/unit	93.0	93.0	93.0	-	-	-
Diesel Generator	Lw/unit	102.0	102.0	102.0	-	-	-
HVAC	Lw/unit	70.0	70.0	70.0	-	-	-

Receiver list

No.	Receiver name	Building side	Floor	Limit Lden dB(A)	Level Lden dB(A)	Conflict Lden dB
1	1	-	EG	-	76.2	-
2	2	-	EG	-	62.5	-
3	3	-	EG	-	67.8	-
4	4	-	EG	-	57.8	-

GANDDINI GROUP, INC. 550 Parkcenter Drive, Suite 202 Santa Ana CA 92705 USA

Noise emissions of industry sources

Source name	Reference	Level			Corrections		
		Day dB(A)	Evening dB(A)	Night dB(A)	Cwall dB	CI dB	CT dB
25 Hp Pump	Lw/unit	88.0	88.0	88.0	-	-	-
50 Hp Pump1	Lw/unit	-	-	-	-	-	-
50 Hp Pump2	Lw/unit	-	-	-	-	-	-
50 Hp Pump3	Lw/unit	-	-	-	-	-	-
Diesel Generator	Lw/unit	90.0	90.0	90.0	-	-	-
HVAC	Lw/unit	70.0	70.0	70.0	-	-	-

Receiver list

No.	Receiver name	Building side	Floor	Limit Lden dB(A)	Level Lden dB(A)	Conflict Lden dB
1	1	-	EG	-	65.1	-
2	2	-	EG	-	51.4	-
3	3	-	EG	-	56.0	-
4	4	-	EG	-	46.6	-

Noise emissions of industry sources

Source name	Reference	Level			Corrections		
		Day	Evening	Night	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB	dB	dB
25 Hp Pump	Lw/unit	88.0	88.0	88.0	-	-	-
50 Hp Pump1	Lw/unit	72.0	72.0	72.0	-	-	-
50 Hp Pump2	Lw/unit	72.0	72.0	72.0	-	-	-
50 Hp Pump3	Lw/unit	72.0	72.0	72.0	-	-	-
Diesel Generator	Lw/unit	90.0	90.0	90.0	-	-	-
HVAC	Lw/unit	70.0	70.0	70.0	-	-	-

Receiver list

No.	Receiver name	Building side	Floor	Limit Lden dB(A)	Level Lden dB(A)	Conflict Lden dB
1	1	-	EG	-	65.3	-
2	2	-	EG	-	51.5	-
3	3	-	EG	-	56.1	-
4	4	-	EG	-	46.7	-

Noise emissions of industry sources

Source name	Reference	Level			Corrections		
		Day	Evening	Night	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB	dB	dB
25 Hp Pump	Lw/unit	88.0	88.0	88.0	-	-	-
50 Hp Pump1	Lw/unit	93.0	93.0	93.0	-	-	-
50 Hp Pump2	Lw/unit	93.0	93.0	93.0	-	-	-
50 Hp Pump3	Lw/unit	93.0	93.0	93.0	-	-	-
Diesel Generator	Lw/unit	102.0	102.0	102.0	-	-	-
HVAC	Lw/unit	70.0	70.0	70.0	-	-	-

Receiver list

No.	Receiver name	Building side	Floor	Limit Lden dB(A)	Level Lden dB(A)	Conflict Lden dB
1	1	-	EG	-	65.3	-
2	2	-	EG	-	57.2	-
3	3	-	EG	-	65.1	-
4	4	-	EG	-	57.8	-

GANDDINI GROUP, INC. 550 Parkcenter Drive, Suite 202 Santa Ana CA 92705 USA

Noise emissions of industry sources

Source name	Reference	Level			Corrections		
		Day	Evening	Night	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB	dB	dB
25 Hp Pump	Lw/unit	88.0	88.0	88.0	-	-	-
50 Hp Pump1	Lw/unit	93.0	93.0	93.0	-	-	-
50 Hp Pump2	Lw/unit	93.0	93.0	93.0	-	-	-
50 Hp Pump3	Lw/unit	93.0	93.0	93.0	-	-	-
Diesel Generator	Lw/unit	102.0	102.0	102.0	-	-	-
HVAC	Lw/unit	70.0	70.0	70.0	-	-	-

GANDDINI GROUP, INC. 550 Parkcenter Drive, Suite 202 Santa Ana CA 92705 USA

Receiver list

No.	Receiver name	Building side	Floor	Limit Lden dB(A)	Level Lden dB(A)	Conflict Lden dB
1	1	-	EG	-	65.3	-
2	2	-	EG	-	62.1	-
3	3	-	EG	-	65.4	-
4	4	-	EG	-	57.8	-

GANDDINI GROUP, INC. 550 Parkcenter Drive, Suite 202 Santa Ana CA 92705 USA

APPENDIX F

FHWA TRAFFIC NOISE MODEL WORKSHEETS

FHWA Sound32 Spreadsheet

Noise Analysis for SSJID

Escalon-Bellota Road - Existing

	DAYTIME AUTOS	DAYTIME M.TRUCKS	DAYTIME H.TRUCKS	NIGHTTIME AUTOS	NIGHTTIME M.TRUCKS	NIGHTTIME H.TRUCKS		
							ADT	2769.00
							SPEED	55.00
							DISTANCE	50.00
INPUT PARAMETERS								
Vehicles per hour	54.80	1.15	1.73	54.80	1.15	1.73	% A	95.00
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.00
NOISE CALCULATIONS								
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	% HT	3.00
ADJUSTMENTS								
Flow	9.68	-7.09	-5.33	9.68	-7.09	-5.33		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	Ldn	65.55
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.14
LEQ	57.33	47.69	53.42	57.33	47.69	53.42	Day hour	89.00
							Absorbtive?	no
	DAY LEQ	59.14		NIGHT LEQ	59.14		Use hour?	no
	CNEL		**65.55**					

FHWA Sound32 Spreadsheet

Noise Analysis for SSJID

Escalon-Bellota Road - Existing Plus Project

	DAYTIME AUTOS	DAYTIME M.TRUCKS	DAYTIME H.TRUCKS	NIGHTTIME AUTOS	NIGHTTIME M.TRUCKS	NIGHTTIME H.TRUCKS
INPUT PARAMETERS						
Vehicles per hour	56.82	1.20	1.79	56.82	1.20	1.79
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS						
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS						
Flow	9.84	-6.93	-5.17	9.84	-6.93	-5.17
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	57.49	47.85	53.57	57.49	47.85	53.57

DAY LEQ 59.29 NIGHT LEQ 59.29

CNEL **65.70**

ADT	2871.00
SPEED	55.00
DISTANCE	50.00
% A	95.00
% MT	2.00
% HT	3.00
LEFT	-90.00
RIGHT	90.00
Ldn	65.70
DAY LEQ	59.29
Day hour	89.00
Absorbtive?	no
Use hour?	no

GANDDINI GROUP INC.

714.795.3100 | ganddini.com