**Errata to the Draft Environmental Impact Report for**
**Conditional Use Permit No. 24-03 (4Creeks / Sozinho Dairy No. 5)**

**Date:** February 12, 2026

**Lead Agency:** Kings County Community Development Agency

**Adress:** 1400 Lacey Blvd., Bldg. 6, Hanford, CA 93230

**Phone Number:** (559) 852-2670

**Introduction**

This errata addresses an administrative error identified in the Draft Environmental Impact Report (DEIR) for the Sozinho Dairy #5 Project. The purpose of this document is to correct the record without altering the substantive analysis, conclusions, or environmental determinations presented in the DEIR. Pursuant to CEQA Guidelines (Section 15164), this errata provides minor corrections that do not require recirculation of the DEIR, as the changes do not introduce new significant environmental impacts, substantially increase the severity of previously identified impacts, or present feasible alternatives or mitigation measures not previously considered.

**Correction Description**

The Initial Study attached as Appendix A to the DEIR was inadvertently an earlier draft version prepared during the internal review process. This draft was not the finalized Initial Study that was officially released for public comment in conjunction with the Notice of Preparation (NOP) issued by Kings County. The correct and final Initial Study is the version distributed with the NOP, which underwent public review and incorporated relevant feedback prior to the preparation of the DEIR.

To correct this error, the attached Initial Study in the DEIR Appendix A should be disregarded and replaced with the NOP-accompanied Initial Study. Copies of the correct Initial Study are available upon request from the Kings County Community Development Agency as well as attached to this errata document.

**Consistency and No Substantive Changes**

All core elements of the Project remain unchanged between the erroneous draft Initial Study and the correct NOP Initial Study. Specifically:

• **Project Location:** The Project site continues to be described as an existing dairy operation in a rural unincorporated area of Kings County, California, east of the City of Hanford, with no modifications to the regional setting or cumulative projects considered.

• **Project Description:** The proposed actions, including facility modifications such as new animal housing structures, expanded feed storage areas, and advanced wastewater treatment systems, are identical in both versions. Project operations, objectives, and required approvals are the same.

• **Environmental Analysis Framework:** The scope of the DEIR, including the environmental setting, impact evaluation criteria, and mitigation measures, is based on the correct NOP Initial Study.

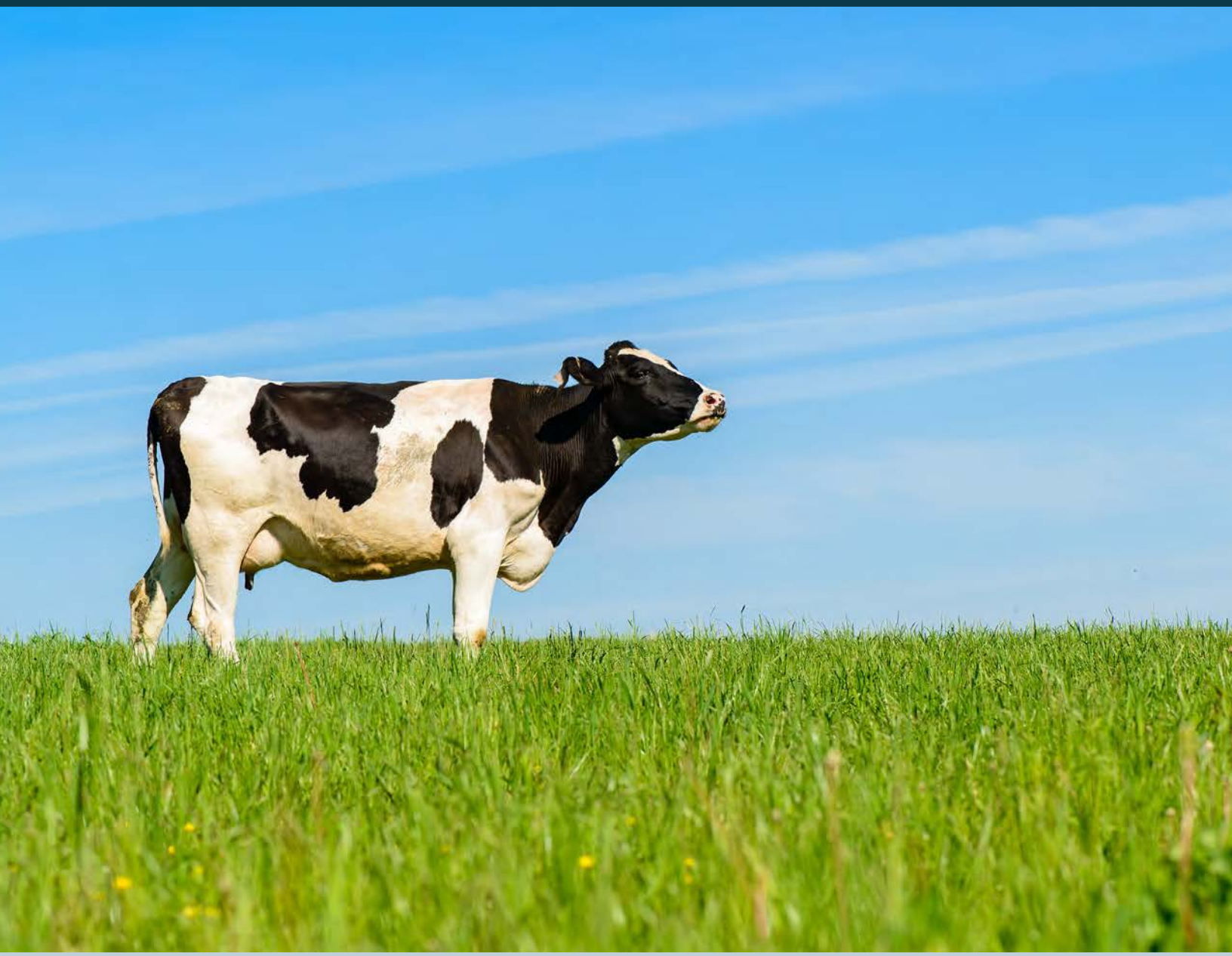
**Analysis of Potentially Significant Impacts**

The DEIR fully analyzes all potentially significant environmental impacts identified in the correct Initial Study. Mitigation measures outlined in the DEIR reduce all identified impacts to less-than-significant levels, consistent with the determinations in the NOP Initial Study. Cumulative impacts, alternatives (including No Project and Reduced Scale alternatives), and other CEQA considerations (growth-inducing effects and irreversible changes) are addressed without deviation from the correct Initial Study.

This correction does not affect the validity of the DEIR's findings or the public review process. Stakeholders are encouraged to refer to the NOP Initial Study for the accurate baseline documentation. For further information, please contact the Kings County Community Development Agency.

# Draft Initial Study for Sozinho Dairy #5

October 2025




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# SECTION 1: CEQA Review Process

***Project Title: Sozinho Dairy #5***

## 1.1 California Environmental Quality Act Guidelines

Section 15063 of the California Environmental Quality Act (CEQA) Guidelines requires that the Lead Agency prepare an Initial Study to determine whether a discretionary project will have a significant effect on the environment. All phases of the project planning, implementation, and operation must be considered in the Initial Study. The purposes of an Initial Study, as listed under Section 15063(c) of the CEQA Guidelines, include:

*(1) Provide the lead agency with information to use as the basis for deciding whether to prepare an EIR or negative declaration;*
*(2) Enable an applicant or lead agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a negative declaration;*
*(3) Assist the preparation of an EIR, if one is required, by:*
  *(a) Focusing the EIR on the effects determined to be significant,*
  *(b) Identifying the effects determined not to be significant,*
  *(c) Explaining the reasons for determining that potentially significant effects would not be significant, and*
  *(d) Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project's environmental effects.*
*(4) Facilitate environmental assessment early in the design of a project;*
*(5) Provide documentation of the factual basis for the finding in a negative declaration that a project will not have a significant effect on the environment.*
*(6) Eliminate unnecessary EIRs;*
*(7) Determine whether a previously prepared EIR could be used with the project.*

## 1.2 Initial Study

The Initial Study provided herein covers the potential environmental effects of the proposed facility modifications to provide animal housing for increased animal comfort and operational ease, feed storage and wastewater treatment infrastructure to further treat existing wastewater generated on site. Kings County will act as the Lead Agency for processing the Initial Study pursuant to the CEQA Guidelines.

## 1.3 Environmental Checklist

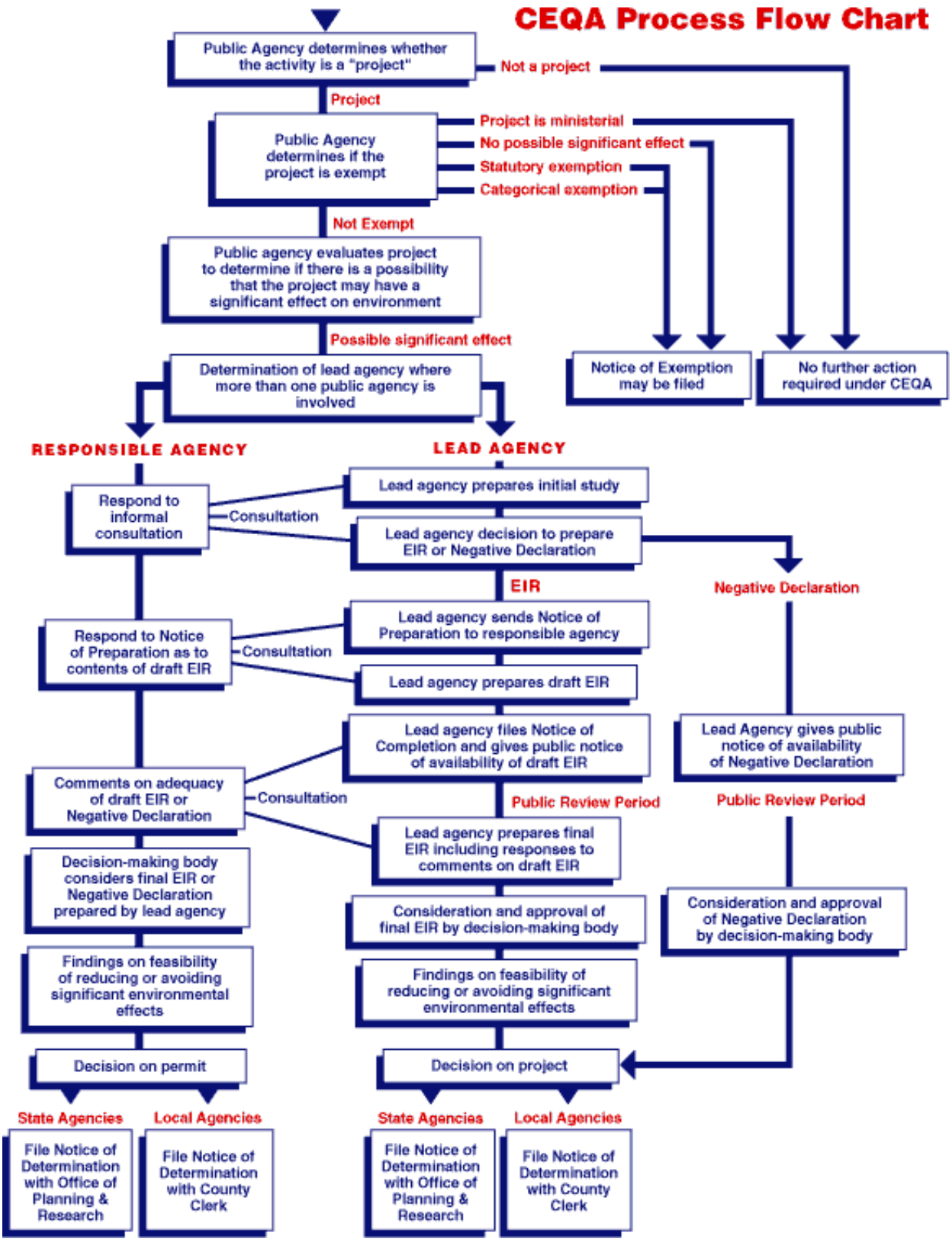
The Lead Agency may use the CEQA Environmental Checklist Form [CEQA Guidelines, Section 15063(d)(3) and (f)] in preparation of an Initial Study to provide information for determination if there are significant effects of the project on the environment. A copy of the complete Environmental Checklist is set forth in **Section Three**.

## 1.4 Notice of Determination (NOD)

The Lead Agency shall file a Notice of Determination within five working days after deciding to approve the project. The Notice of Determination (CEQA Guidelines, Section 15075) shall include the following:

*(1) An identification of the project including the project title as identified on the proposed negative declaration, its location, and the State Clearinghouse identification number for the proposed negative declaration if the notice of determination is filed with the State Clearinghouse.*
*(2) A brief description of the project.*
*(3) The agency's name and the date on which the agency approved the project.*
*(4) The determination of the agency that the project will not have a significant effect on the environment.*
*(5) A statement that a negative declaration or a mitigated negative declaration was adopted pursuant to the provisions of CEQA.*
*(6) A statement indicating whether mitigation measures were made a condition of the approval of the project, and whether a mitigation monitoring plan/program was adopted.*
*(7) The address where a copy of the negative declaration or mitigated negative declaration may be examined.*
*(8) The identity of the person undertaking a project which is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies or the identity of the person receiving a lease, permit, license, certificate, or other entitlement for use from one or more public agencies.*

## 1.5 CEQA Process Flow Chart



## 1.6 Mitigation Measures Included in the Project to Avoid Potentially Significant Effect

The full description of each mitigation measure can be found in Chapter XXII, Mandatory Findings of Significance.

**Mitigation Measure AIR-1 (Odor Management).** To minimize odor impacts from the Project, the Applicant shall implement an odor management plan. The plan will incorporate several odor management strategies. These strategies will include regularly tilling the BIDA beds to prevent stagnation, reducing the potential for odor emissions. Additionally, the drainage channels associated with the BIDA beds shall be routinely maintained to ensure proper drainage and prevent the accumulation of odorous materials. The Applicant shall develop and adhere to a maintenance schedule for tilling and drainage channel upkeep, with records of these activities maintained and available for review by the Kings County Community Development Agency and the San Joaquin Valley Air Pollution Control District to ensure compliance.

**Mitigation Measure AIR-2 (Dust Control During Construction).** To minimize construction-related air quality impacts, the Applicant shall implement a Dust Control Plan in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. This plan shall include measures such as regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles. The Applicant shall ensure these controls are applied throughout the construction phase to reduce dust and exhaust emissions, with documentation of implementation maintained for review by relevant regulatory agencies.

**Mitigation Measure AIR-3 (Wastewater Processing Bed Maintenance).** To minimize operational emissions from the wastewater processing beds, the Applicant shall conduct regular maintenance of the BIDA beds to prevent stagnation and odor release. This shall include adherence to a vermifiltration design that improves wastewater quality and reduces volatile organic compound (VOC) emissions. The Applicant shall develop a maintenance protocol, with records available for inspection by the San Joaquin Valley Air Pollution Control District to verify compliance.

**Mitigation Measure AIR-4 (Silage Management).** To minimize odors and VOC emissions from silage storage, the Applicant shall cover silage piles with tarps or other impermeable materials. Regular monitoring and maintenance of silage piles shall be performed to prevent spoilage and anaerobic conditions that could exacerbate odors. The Applicant shall establish a schedule for these activities, ensuring records are kept and accessible for review by regulatory authorities.

**Mitigation Measure AIR-5 (Feed Storage Dust Suppression).** To minimize fugitive dust emissions from feed storage areas, the Applicant shall utilize enclosed or covered structures where feasible. Dust suppression techniques, such as misting systems or

windbreaks, shall be employed during material handling. The Applicant shall implement these measures in alignment with SJVAPCD-recommended best management practices for agricultural operations, with compliance documentation maintained.

**Mitigation Measure AIR-6 (Agricultural Best Management Practices).** To reduce overall emissions from silage and feed activities, the Applicant shall adhere to SJVAPCD-recommended best management practices, including proper storage and handling protocols. This shall encompass strategies to mitigate odors, VOCs, and particulate matter, with a focus on the proximity of storage areas to sensitive receptors. The Applicant shall prepare a plan outlining these practices, subject to periodic review by the San Joaquin Valley Air Pollution Control District.

**Mitigation Measure AIR-7 (Enhanced Waste Management for Additional Improvements).** To address emissions from expanded dairy operations or waste management systems, the Applicant shall treat wastewater through vermifiltration-based BIDA beds to reduce VOC and ammonia emissions compared to traditional systems. Regular maintenance of these beds shall be conducted to prevent stagnation and odor release, with a documented schedule ensuring ongoing compliance.

**Mitigation Measure AIR-8 (Emission Control Technologies).** To capture odorous compounds and ammonia from animal housing or waste management systems, the Applicant shall incorporate technologies such as biofilters or scrubbers where applicable. These controls shall be integrated into project improvements, aligning with SJVAPCD guidelines, and the Applicant shall maintain records of installation and operation for regulatory verification.

**Mitigation Measure AIR-9 (Operational Controls for Vehicles and Equipment).** To minimize emissions from expanded operational activities, the Applicant shall limit idling times for vehicles and equipment, utilize low-emission machinery where feasible, and implement dust suppression measures in expanded areas. These controls shall be part of a broader operational plan, with adherence documented and available for review by the San Joaquin Valley Air Pollution Control District to ensure air quality impacts remain less than significant.

**Mitigation Measure BIO-1.1 (Temporal Avoidance).** In order to avoid any potential impacts to nesting Swainson's hawks, construction activities will occur, where possible, outside of this species' nesting season, typically defined as March 1-September 15.

**Mitigation Measure BIO-1.2 (Preconstruction Surveys).** If construction activities must occur between March 1 and September 15, then within 10 days prior to the start of construction, a qualified biologist will conduct preconstruction nest surveys for Swainson's hawks on and within ¼ mile of the work area. The survey will consist of

inspecting all accessible, suitable trees of the survey area for the presence of nests and hawks.

**Mitigation Measure BIO-1.3 (Avoidance of Active Nests).** Should any active Swainson's hawk nests be discovered within the survey area, an appropriate disturbance-free buffer will be established around the nest based on local conditions and agency guidelines. Disturbance-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.

**Mitigation Measure BIO-2.1 (Take Avoidance Survey).** A take avoidance survey for burrowing owls shall be conducted by a qualified biologist no less than 14 days prior to the start of construction. This take avoidance survey shall be conducted according to methods described in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The survey area shall include all potential roosting and nesting habitat on and within 200 meters of project impact areas, where accessible.

**Mitigation Measure BIO-2.2 (Avoidance of Active Nests).** If pre-construction surveys are undertaken during the breeding season (February 1 through August 31) and active nest burrows are located within or near construction zones, a construction-free buffer of 250 feet shall be established around all active owl nests. The buffer areas shall be enclosed with temporary fencing or flagging, and construction equipment and workers shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season. After the breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below.

**Mitigation Measure BIO-2.3 (Passive Relocation of Resident Owls).** During the nonbreeding season (September 1-January 31), resident owls occupying burrows in project impact areas may either be avoided, or passively relocated to alternative habitat. If the applicant chooses to avoid active owl burrows within the impact area during the nonbreeding season, a 50-meter disturbance-free buffer shall be established around these burrows. The buffers shall be enclosed with temporary fencing, and shall remain in place until a qualified biologist determines that the burrows are no longer active. If the applicant chooses to passively relocate owls during the non-breeding season, this activity shall be conducted in accordance with a relocation plan prepared by a qualified biologist.

**Mitigation Measure BIO-3.1 (Avoidance).** In order to avoid impacts to native nesting birds, including the tricolored blackbird, the project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.

**Mitigation Measure BIO-3.2 (Preconstruction Surveys).** If project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and native bird nests within 15 days prior to the start of these activities. The survey will include the proposed work area(s) for that particular phase of work and surrounding lands within 250 feet, where accessible, for all nesting birds. If no active nests are found within the survey area, no further mitigation is required.

**Mitigation Measure BIO-3.3 (Establish Buffers).** Should any active nests be discovered in or near proposed work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.

**Mitigation Measure CUL-1: Pre-Construction Cultural Survey Requirement.** Prior to any construction activities, a qualified professional consultant must conduct a field survey of the project site to determine if any cultural resources are present. The results of this survey must be submitted to the Kings County Community Development Agency for review. If any cultural resources are identified, further consultation with the appropriate authorities, including the Native American Heritage Commission, may be necessary to ensure proper management and preservation of these resources. No ground-disturbing activities shall commence until the survey has been completed and the results have been reviewed by the County.

**Mitigation Measure CUL-2: Protection of Cultural Resources**. In order to avoid the potential for impacts to historic and prehistoric archaeological resources, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:

- Cultural Resources Alert on Project Plans: The project proponent shall note on any plans that require ground disturbing activities that there is a potential for exposing buried cultural resources.
- Pre-Construction Briefing: The project proponent shall retain Santa Rosa Rancheria Cultural Staff to provide a pre-construction Cultural Sensitivity Training to construction staff regarding the discovery of cultural resources and the potential for discovery during ground disturbing activities, which will include information on potential cultural material finds and, on the procedures, to be enacted if resources are found.
- Stop Work Near any Discovered Cultural Resources: The project proponent shall retain a professional archaeologist on an "on-call" basis during ground disturbing construction for the project to review, identify and evaluate cultural resources that may be inadvertently exposed during construction. Should previously unidentified cultural resources be discovered during construction of

the project, the project proponent shall cease work within 100 feet of the resources, and Kings County Community Development Agency (CDA) shall be notified immediately. The archaeologist shall review and evaluate any discoveries to determine if they are historical resource(s) and/or unique archaeological resources under CEQA.

- Mitigation for Discovered Cultural Resources: If the professional archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource, he/she shall notify the project proponent and other appropriate parties of the evaluation and recommended mitigation measures to mitigate the impact to a less-than-significant level. Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing, and data recovery, among other options. Treatment of any significant cultural resources shall be undertaken with the approval of the Kings County CDA. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System, Southern San Joaquin Valley Information Center. The resources shall be photo-documented and collected by the archaeologist for submittal to the Santa Rosa Rancheria's Cultural and Historical Preservation Department. The archaeologist shall be required to submit to the County for review and approval a report of the findings and method of curation or protection of the resources. Further grading or sitework within the area of discovery shall not be allowed until the preceding steps have been taken.
- Native American Monitoring: Prior to any ground disturbance, the project proponent shall offer the Santa Rosa Rancheria Tachi Yokut Tribe the opportunity to provide a Native American Monitor during ground disturbing activities. Tribal participation would be dependent upon the availability and interest of the Tribe.
- Disposition of Cultural Resources: Upon coordination with the Kings County Community Development Agency, any prehistoric archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded applicable cultural resources laws and guidelines.

**Mitigation Measure CUL-3: Protection of Buried Human Remains.** In order to avoid the potential for impacts to buried human remains, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:

- Pursuant to State Health and Safety Code Section 7050.5(e) and Public Resources Code Section 5097.98, if human bone or bone of unknown origin is found at any time during on- or off-site construction, all work shall stop within 25 feet of the discovery and the Kings County Coroner shall be notified immediately and the resource shall be protected in compliance with applicable state and federal laws. If the remains are determined to be Native American, the Coroner shall notify the California State Native American Heritage Commission

(NAHC), who shall identify the person believed to be the Most Likely Descendant (MLD) pursuant to Public Resources Code Section 5097.98. The project proponent and MLD, with the assistance of the archaeologist, shall make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Sec. 15064.5(d)). The agreed upon treatment shall address the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. California Public Resources Code allows 48 hours for the MLD to make their wishes known to the landowner after being granted access to the site. If the MLD and the other parties do not agree on the reburial method, the project will follow Public Resources Code Section 5097.98(b) which states that "…. the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."

- Any findings shall be submitted by the archaeologist in a professional report submitted to the project applicant, the MLD, the Kings County Community Development Agency, and the California Historical Resources Information System, Southern San Joaquin Valley Information Center.

**Mitigation Measure HAZ-1:** To ensure compliance with applicable safety regulations and minimize risks associated with the handling, storage, and use of hazardous materials at the Sozinho Dairy #5 facility, the applicant shall prepare and file a Hazardous Materials Business Plan (HMBP), prior to the initiation of any construction or operational activities involving hazardous materials. The HMBP shall include the following components:

- Inventory of Hazardous Materials: A detailed inventory of all hazardous materials to be used, stored, or disposed of on-site, including quantities, storage locations, and handling procedures.
- Emergency Response Plan: Procedures for responding to spills, leaks, or other incidents involving hazardous materials, including notification protocols, containment measures, and cleanup procedures.
- Employee Training: A training program for all employees handling hazardous materials, ensuring they are informed of proper handling, storage, and emergency response procedures in accordance with state and federal regulations.
- Site Map: A detailed site map indicating the locations of hazardous materials storage, handling areas, and emergency response equipment, such as spill kits and fire extinguishers.

The applicant shall submit the HMBP for review and approval by the Kings County Environmental Health Services Division prior to the issuance of any construction or grading permits. The plan shall be updated annually or as required by regulatory authorities, and the applicant shall maintain records of compliance, including inspection reports and employee training logs, for review by the County upon request. Implementation of the HMBP will reduce potential impacts related to hazardous materials to a less than significant level by ensuring safe handling, storage, and emergency response procedures are in place.

**Mitigation Measure HYD-1:** Before the issuance of any construction/grading permit and/or the commencement of any clearing, grading, or excavation, the Applicant shall submit a Notice of Intent (NOI) for discharge from the Project Site to the California SWRCB Storm Water Permit Unit.

- Before issuance of grading permits for Phase 1, the Applicant shall submit a copy of the NOI to the County.
- The County shall review noticing documentation before the approval of the grading permit. County monitoring staff will inspect the Site during construction for compliance.

**Mitigation Measure HYD-2:** The Applicant shall require the building contractor to prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) to the County 45 days before the start of work for approval. The contractor is responsible for understanding the State General Permit and instituting the SWPPP during construction. An SWPPP for Site construction shall be developed before the initiation of grading and implemented for all construction activity on the Project Site in excess of one (1) acre, or where the area of disturbance is less than one acre but is part of the Project's plan of development that in total disturbs one or more acres. The SWPPP shall identify potential pollutant sources that may affect the quality of discharges to stormwater and shall include specific BMPs to control material discharge from the Site. The following BMP methods shall include, but would not be limited to:

- Dust control measures will be implemented to ensure the success of all onsite activities to control fugitive dust;
- A routine monitoring plan will be implemented to ensure the success of all onsite erosion and sedimentation control measures;
- Provisional retention basins, straw bales, erosion control blankets, mulching, silt fencing, sandbagging, and soil stabilizers will be used;
- Soil stockpiles and graded slopes will be covered after two weeks of inactivity and 24 hours before and during extreme weather conditions; and,
- BMPs will be strictly followed to prevent spills and discharges of pollutants on Site, such as material storage, trash disposal, construction entrances, etc.

**Mitigation Measure HYD-3:** A Development Maintenance Manual for the Project shall include comprehensive procedures for maintenance and operations of any stormwater facilities to ensure long-term operation and maintenance of post-construction stormwater controls. The maintenance manual shall require that stormwater BMP devices be inspected, cleaned, and maintained following the manufacturer's maintenance conditions. The manual shall require that devices be cleaned before the onset of the rainy season (i.e., mid-October) and immediately after the end of the rainy season (i.e., mid-May). The manual shall also require that all devices be checked after major storm events. The Development Maintenance Manual shall include the following:

- Runoff shall be directed away from the trash and loading dock areas;
- Bins shall be lined or otherwise constructed to reduce the leaking of liquid wastes;
- Trash and loading dock areas shall be screened or walled to minimize offsite transport of trash; and,
- Impervious berms, trench catch basins, drop inlets, or overflow containment structures nearby docks and trash areas shall be installed to minimize the potential for leaks, spills, or washdown water to enter the drainage system.

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# SECTION 2: Project Description

***Project Title: Sozinho Dairy #5***

## 2.1 Project Description and Purpose

Sozinho Dairy #5 is proposing facility modifications to provide animal housing for increased animal comfort and operational ease, feed storage, implement process water treatment infrastructure to manage existing on-site process water, and establish organic matter operations for nutrient recycling and drying materials generated from animal operations and process water treatment for land applications. The facility is not proposing a herd expansion. The facility is proposing the following:

Organic Matter Operations (3) and Product Storage:

- Manure Processing Area: A 200,000 ft² area for managing manure off the proposed mechanical separators.
- Post Manure Organic Matter Processing Area: A 40,000 ft² area will be used to dry and improve manure for land application. Worms will be introduced to enhance nutrient availability and soil benefits.
- Post BIDA Bed Organic Matter Processing Area: A 150,000 ft² area for handling, storing, and drying material removed from the BIDA beds before land application.
- Processing and Product Storage Area: A 30,000 ft² area used for screening material from the organic matter areas into smaller particle sizes for various types of land application.

Process Water Treatment and Management:

- One (1) Reception Pit: A designated pit for receiving process water from operations, directing process water into appropriate treatment or processing systems.
- Two (2) mechanical separators: Machines used to remove solid particles from process water.
- One (1) Tank and One (1) Concrete Pad: A proposed 14' x 20' tank on a concrete pad for solid separation and collection.
- Two (2) Earthen Berms: Dirt Berms in the wastewater retention pond for additional process water separation and settling.
- Two (2) Lift Stations: A designated pit for receiving process water from operations, directing process water into appropriate treatment or processing systems.
- 216,000 square feet of Process Water Processing Beds: Also called Biodynamic Aerobic (BIDA) beds which utilize a combination of worms, microbes, and wood chips to

remove contaminants within the process water through vermifiltration. Process water will not be stored in the proposed BIDA beds but will be used for filtration and additional process water treatment.

Animal Housing and Operations:

- Three (3) Feed Storage Areas: A designated area for storing silage for animal feed. One is located approximately 650 feet south from the northeast corner of the property and is 13,500 square feet. The second is located in the northwestern corner of the facility and is approximately 84,000 square feet. The third is located in the northeast corner of the facility and is approximately 185,400 square feet.
- Twelve (12) Rows of Calf Hutches: Animal housing for calves ages 0-3 months of age.
- One (1) Freestall Barn: Animal Housing for heifers/cows over existing exercise pens for increased animal comfort and operational ease.
- One (1) Maternity Barn: Animal housing for calving cows over an existing open lot corral for a safe, clean and comfortable environment for pregnant cows to give birth. It offers a controlled space where cows can calve with reduced stress and risk of injury while being monitored.
- Twelve (12) shade structures over existing open lot corrals for animal comfort.
- One (1) Open Lot Corral: An approximately 44,625 square feet (175' x 255') animal housing corral for increased animal comfort and operational ease.
- One (1) Commodity Barn: A commodity barn for the storing of agricultural products.
- One (1) Shop: A shop for the repair of equipment used on the dairy.

The proposed modifications aim to improve wastewater treatment by using vermifiltration to produce higher quality process water for reuse, storage, and land application. The proposed BIDA beds will further treat process water generated and benefit local groundwater quality. At the same time, the facility will enhance animal comfort and health through improved housing and operations, while streamlining daily activities with designated feed storage areas and operational upgrades, ensuring a seamless and efficient workflow.

Service and delivery vehicles occur regularly at the dairy to provide feed, haul milk, haul animals, provide mechanical services, provide veterinary services and breeding services, and fuel deliveries. With the addition of the proposed facility improvements, a minor amount of limited additional maintenance and service vehicles will visit the site a few times per week.

Every other year, the vermifiltration beds will be cleaned out, requiring additional services to haul woodchips from the processing beds to the facility stacking area for processing and land application. This process requires two trucks per day for 14 days to move processed wood chips on-site for land application. The wood chips will be moved to a drying area on-site and then will be transported and land applied following processing.

The addition of calf hutches will require one additional service vehicle per day. However, this improvement is expected to reduce the number of truck trips, as it eliminates the need for

calves to be picked up and returned. No additional service vehicles will be required for the feed storage area, as this location was relocated on-site and existing operations will be utilized, maintaining or potentially reducing the overall truck trips.

The vermifiltration beds and separators will be operated 24 hours per day treating process water generated on site. The calf hutches will be operated within the existing employee operational hours. The modifications will require two additional employees on-site. One of the employees will be required to monitor and maintain the BIDA beds. The other additional employee will be used for calf hutch maintenance and feeding.

There will be minimal air pollution from the proposed project. Overall, the project will improve air quality due to the improved quality of process water entering the retention ponds on-site and enhanced facility flush water. Confirmation of the air study is being verified at a nearby operational vermifiltration bed dairy facility.

The odor in the beds will be minimized through tillage of the beds every two weeks. The tillage promotes movement in the beds, so the woodchips and process water filtering through the beds are not stagnant, which allows constant air exposure. The drainage channels will also be cleaned regularly so the beds drain properly, and odor is not released.

The dust will be controlled using gravel or decomposed granite around the vermifiltration beds. The amount of vectors near the vermifiltration beds will be reduced by tilling the beds to allow airflow and absorb excess moisture. The removal of plants, manure buildup, and puddles of process water near the beds will also aid in the reduction of vectors.

## 2.2 Project Location

The proposed Project is in a rural unincorporated area of Kings County, just east of Hanford. The Site is on the southwest corner of Houston Avenue and 7th Avenue. The Project Site is approximately 79.08 acres on APNs 016-200-005, -029, -028 and -035. The Site is topographically flat and surrounded by agricultural uses and some rural residences to the north. The surrounding areas are zoned as General Agriculture – 20 Acre Minimum (AG-20). Kings County designates the Site as General Agriculture – 20 Acre Minimum and is under agricultural use. The Site has existing features such as process water retention ponds, open lot corrals, freestall barns, a milk barn, a maternity barn, multiple residences, a hay barn, a shop, and a manure stacking area.

## 2.3 Other Permits and Approvals

The following discretionary approvals are required from Kings County and outside agencies for the proposed Project. It should be noted that this list is not exhaustive and additional permits and approvals may also be required:

- Kings County Conditional Use Permit
- Kings County Building and Encroachment Permits
- San Joaquin Valley Air Pollution Control District (SJVAPCD)
- Central Valley Regional Water Quality Control Board (RWQCB), Storm Water Pollution Prevention Plan (SWPPP)
- Central Valley RWQCB, Notice of Intent for Coverage under General Order WQ 2015-0121-DWQ, General Waste Discharge Requirements for Composting Operations

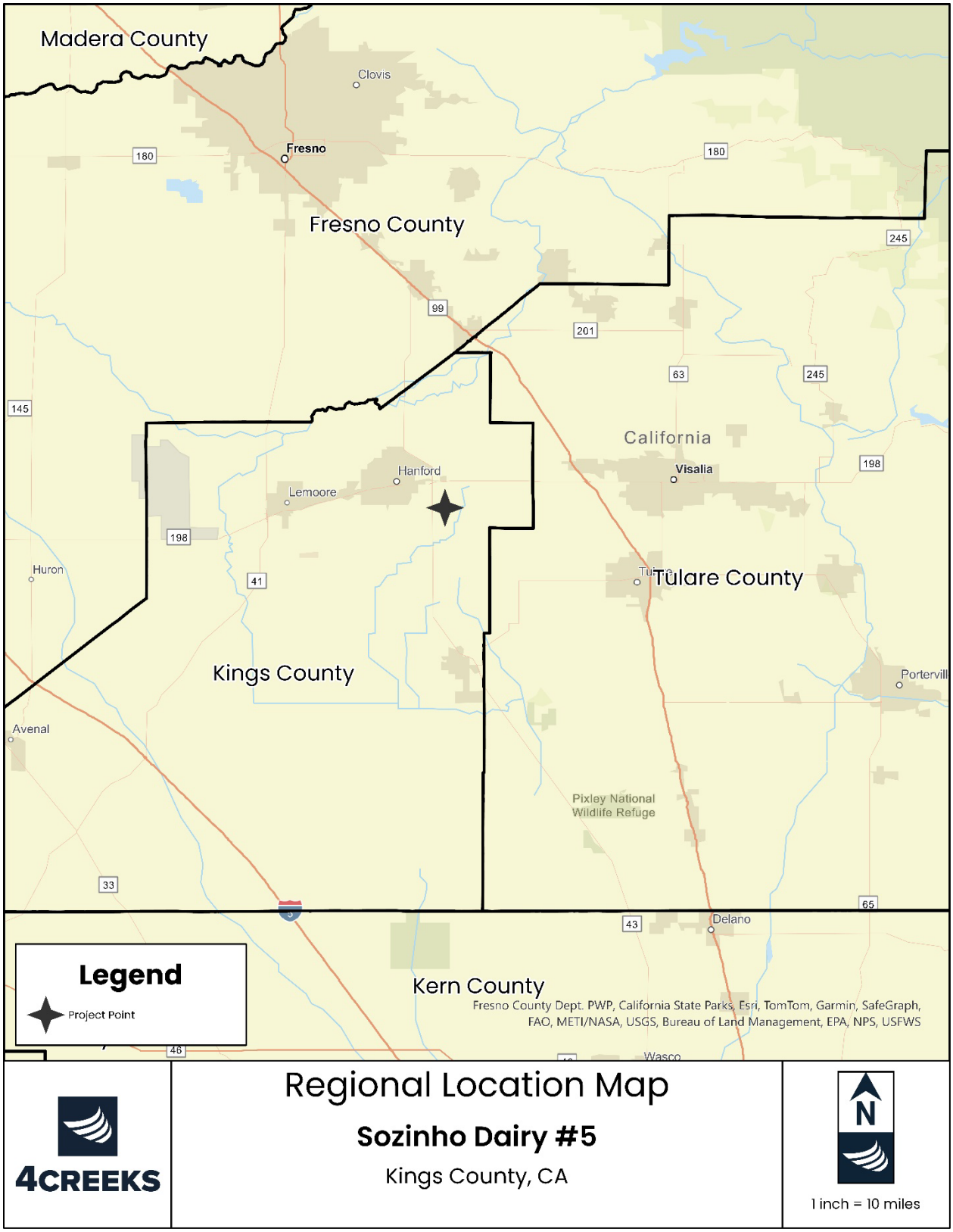



*Figure 2-1. Regional Location Map*




*Figure 2-2. Vicinity Map*

**Kings County**
1400 W Lacey Blvd., Bldg. #6
Hanford, CA 93230

# SECTION 3: Evaluation of Environmental Impacts

***Project Title: Sozinho Dairy #5***

This document is the Initial Study for the proposed facility modifications to house calves, store feed, and further treat and store existing wastewater generated on site. Kings County will act as the Lead Agency for this Project under the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

## 3.1 PURPOSE

This environmental document aims to implement the California Environmental Quality Act. Section 15002(a) of the CEQA Guidelines describes the basic purposes of CEQA:

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

This Initial Study of environmental impacts has been prepared to conform to the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). According to Section 15070, a public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a Project subject to CEQA when:

*(1) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the Project may have a significant effect on the environment, or*
*(2) The initial study identifies potentially significant effects, but:*
  *a) Revisions in the Project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and*
  *b) There is no substantial evidence, in light of the whole record before the agency, that the Project as revised may have a significant effect on the environment.*

## 3.2 INITIAL STUDY

| | |
|---|---|
| **1. Project Title:** | Sozinho Dairy #5 |
| **2. Lead Agency:** | Kings County Community Development Agency<br>Contact Person: Victor Hernandez, Planner IV<br>1400 Lacey Blvd., Bldg. #6<br>Hanford, CA 93230<br>Phone Number: (559) 852-2670 |
| **3. Applicant:** | 4Creeks, Inc.<br>Contact Person: Kyle Parreira<br>324 S. Santa Fe St.<br>Visalia, CA 93292<br>Phone Number: (559) 802-3052 |

**4. Project Location:** The proposed Project is in a rural unincorporated area of Kings County, just east of Hanford. The Site is on the southwest corner of Houston Avenue and 7th Avenue. The Project Site is approximately 79.08 acres on APNs 016-200-005, -029, -028 and -035. The Site is topographically flat and surrounded by agricultural uses and some rural residences to the north. The surrounding areas are zoned as General Agriculture – 20 Acre Minimum (AG-20). Kings County designates the Site as General Agriculture – 20 Acre Minimum and is under agricultural use. The Site has existing features such as process water retention ponds, open lot corrals, freestall barns, a milk barn, a maternity barn, multiple residences, a hay barn, a shop, and a manure stacking area.

**5. General Plan Designation:** The 2035 Kings County General Plan has designated the proposed Project Site as General Agriculture – 20 Acre Minimum.

**6. Zoning Designation:** Kings County zoned the Site as General Agricultural – 20 Acre Minimum (AG-20).

**7. Project Description:** Sozinho Dairy #5 is proposing facility modifications to provide animal housing for increased animal comfort and operational ease, feed storage, implement process water treatment infrastructure to manage existing on-site process water, and establish organic matter operations for nutrient recycling and drying materials generated from animal operations and process water treatment for land applications. The facility is not proposing a herd expansion. The facility is proposing the following:

<u>Organic Matter Operations (3) and Product Storage:</u>

- Manure Processing Area: A 200,000 ft² area for managing manure off the proposed mechanical separators.

- Post Manure Organic Matter Processing Area: A 40,000 ft² area will be used to dry and improve manure for land application. Worms will be introduced to enhance nutrient availability and soil benefits.
- Post BIDA Bed Organic Matter Processing Area: A 150,000 ft² area for handling, storing, and drying material removed from the BIDA beds before land application.
- Processing and Product Storage Area: A 30,000 ft² area used for screening material from the organic matter areas into smaller particle sizes for various types of land application.

Process Water Treatment and Management:

- One (1) Reception Pit: A designated pit for receiving process water from operations, directing process water into appropriate treatment or processing systems.
- Two (2) mechanical separators: Machines used to remove solid particles from process water.
- One (1) Tank and One (1) Concrete Pad: A proposed 14' x 20' tank on a concrete pad for solid separation and collection.
- Two (2) Earthen Berms: Dirt Berms in the wastewater retention pond for additional process water separation and settling.
- Two (2) Lift Stations: A designated pit for receiving process water from operations, directing process water into appropriate treatment or processing systems.
- 216,000 square feet of Process Water Processing Beds: Also called Biodynamic Aerobic (BIDA) beds which utilize a combination of worms, microbes, and wood chips to remove contaminants within the process water through vermifiltration. Process water will not be stored in the proposed BIDA beds but will be used for filtration and additional process water treatment.

Animal Housing and Operations:

- Three (3) Feed Storage Areas: A designated area for storing silage for animal feed. One is located approximately 650 feet south from the northeast corner of the property and is 13,500 square feet. The second is located in the northwestern corner of the facility and is approximately 84,000 square feet. The third is located in the northeast corner of the facility and is approximately 185,400 square feet.
- Twelve (12) Rows of Calf Hutches: Animal housing for calves ages 0-3 months of age.
- One (1) Freestall Barn: Animal Housing for heifers/cows over existing exercise pens for increased animal comfort and operational ease.
- One (1) Maternity Barn: Animal housing for calving cows over an existing open lot corral for a safe, clean and comfortable environment for pregnant cows to give birth. It offers a controlled space where cows can calve with reduced stress and risk of injury while being monitored.
- Twelve (12) shade structures over existing open lot corrals for animal comfort.
- One (1) Open Lot Corral: An approximately 44,625 square feet (175' x 255') animal housing corral for increased animal comfort and operational ease.

- One (1) Commodity Barn: A commodity barn for the storing of agricultural products.
- One (1) Shop: A shop for the repair of equipment used on the dairy.

The proposed modifications aim to improve wastewater treatment by using vermifiltration to produce higher quality process water for reuse, storage, and land application. The proposed BIDA beds will further treat process water generated and benefit local groundwater quality. At the same time, the facility will enhance animal comfort and health through improved housing and operations, while streamlining daily activities with designated feed storage areas and operational upgrades, ensuring a seamless and efficient workflow.

Service and delivery vehicles occur regularly at the dairy to provide feed, haul milk, haul animals, provide mechanical services, provide veterinary services and breeding services, and fuel deliveries. With the addition of the proposed facility improvements, a minor amount of limited additional maintenance and service vehicles will visit the site a few times per week.

Every other year, the vermifiltration beds will be cleaned out, requiring additional services to haul woodchips from the processing beds to the facility stacking area for processing and land application. This process requires two trucks per day for 14 days to move processed wood chips on-site for land application. The wood chips will be moved to a drying area on-site and then will be transported and land applied following processing.

The addition of calf hutches will require one additional service vehicle per day. However, this improvement is expected to reduce the number of truck trips, as it eliminates the need for calves to be picked up and returned. No additional service vehicles will be required for the feed storage area, as this location was relocated on-site and existing operations will be utilized, maintaining or potentially reducing the overall truck trips.

The vermifiltration beds and separators will be operated 24 hours per day treating process water generated on site. The calf hutches will be operated within the existing employee operational hours. The modifications will require two additional employees on-site. One of the employees will be required to monitor and maintain the BIDA beds. The other additional employee will be used for calf hutch maintenance and feeding.

There will be minimal air pollution from the proposed project. Overall, the project will improve air quality due to the improved quality of process water entering the retention ponds on-site and enhanced facility flush water. Confirmation of the air study is being verified at a nearby operational vermifiltration bed dairy facility.

The odor in the beds will be minimized through tillage of the beds every two weeks. The tillage promotes movement in the beds, so the woodchips and process water filtering through the beds are not stagnant, which allows constant air exposure. The drainage channels will also be cleaned regularly so the beds drain properly, and odor is not released.

The dust will be controlled using gravel or decomposed granite around the vermifiltration beds. The amount of vectors near the vermifiltration beds will be reduced by tilling the beds to allow airflow and absorb excess moisture. The removal of plants, manure buildup, and puddles of process water near the beds will also aid in the reduction of vectors.

**8. Surrounding Land Uses and Settings:**

*North*: General Agriculture – 20 Acre Minimum (2035 Kings County General Plan), Rural residences, farmland
*South*: General Agriculture – 20 Acre Minimum (2035 Kings County General Plan), farmland
*East*: General Agriculture – 20 Acre Minimum (2035 Kings County General Plan), farmland
*West*: General Agriculture – 20 Acre Minimum (2035 Kings County General Plan), farmland

**9. Required Approvals:** The following discretionary approvals are required from Kings County and outside agencies for the proposed Project. It should be noted that this list is not exhaustive and additional permits and approvals may also be required:

- Kings County Conditional Use Permit
- Kings County Building and Encroachment Permits
- San Joaquin Valley Air Pollution Control District (SJVAPCD)
- Central Valley Regional Water Quality Control Board (RWQCB), Storm Water Pollution Prevention Plan (SWPPP)
- Central Valley RWQCB, Notice of Intent for Coverage under General Order WQ 2015-0121-DWQ, General Waste Discharge Requirements for Composting Operations

**10. Native American Consultation:** The State requires lead agencies to consider the potential effects of proposed Projects and consult with California Native American tribes during the local planning process to protect Traditional Tribal Cultural Resources through the CEQA Guidelines. Pursuant to PRC Section 21080.3.1, the lead agency shall begin consultation with the California Native American tribe that is traditionally and culturally affiliated with the geographical area of the proposed Project. Such significant cultural resources are either Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe that is either on or eligible for inclusion in the California Historic Register or local historic register, or the lead agency, at its discretion, and support by substantial evidence, choose to treat the resources as a Tribal Cultural Resources (PRC Section 21074(a) (1-2)). According to the most recent census data, California is home to 109 currently recognized Native American Tribes. Tribes in California currently have nearly 100 separate reservations or Rancherias.

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and Project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See PRC Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred

Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3l contains provisions specific to confidentiality.

**11. Parking and access:** The primary vehicular access point for Sozinho Dairy #5 is located at 7205 Houston Avenue, on the northern side of the Project Site. This access point provides direct entry to the dairy facility. The access is designed to accommodate large agricultural vehicles and ensures efficient movement of traffic associated with dairy operations. When the High-Speed Rail improvements are constructed, facility access from Houston Avenue will be consolidated to a single entrance at the northeast corner of the milk barn, rather than the current configuration with access points at both the northeast and northwest sides.

**12. Landscaping and Design:** No landscaping or fencing is proposed for this Project.

**13. Utilities and Electrical Services:** The Project includes wastewater management system that includes wastewater lagoons and a BIDA system, which uses vermifiltration to treat effluent. This system reduces pollutants and pathogens, allowing treated water to be reused for irrigation. The Project also integrates stormwater management, directing surface runoff to on-site basins for treatment, thus minimizing environmental impacts. Water for the dairy is sourced primarily from on-site wells and supplemented by recycled water from the BIDA system, ensuring sustainability and compliance with local and state regulations. Solid waste, mainly manure, is managed on-site with additional waste handled by the Kings Waste and Recycling Authority. The Project does not require new electrical or natural gas services.

## Acronyms

| | |
|---|---|
| AAQS | Ambient Air Quality Standards |
| AB | Assembly Bill |
| BMP | Best Management Practices |
| BPS | Best Performance Standards |
| CAA | Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| CARB | California Air Resources Board |
| CBSC | California Building Standards Commission |
| CCAP | Climate Change Action Plan |
| CCR | California Code of Regulation |
| CDFG | California Department of Fish and Game |
| CEQA | California Environmental Quality Act |
| CRHR | California Register of Historical Resources |
| CWA | California Water Act |
| DOC | California Department of Conservation |
| DTSC | Department of Toxic Substances Control |
| DWR | Department of Water Resources |
| FCSSE | Five County Seismic Safety Element |
| FEMA | Federal Emergency Management Agency |
| FMMP | Farmland Mapping and Monitoring Program |
| EIA | Energy Information Administration |
| HSC | Health and Safety Code |
| GAMAQI | Guidance for Assessing and Mitigating Air Quality Impacts |
| ISMND | Initial Study Mitigated Negative Declaration |
| LCI | Governor's Office of Land Use and Climate Innovation |
| LOS | Level of Service |
| NAAQS | National Ambient Air Quality Standards |
| NOI | Notice of Intent |
| ND | Negative Declaration |
| NAHC | Native American Heritage Commission |
| NRHP | National Register of Historic Places |
| NPDES | National Pollution Discharge System |
| PEIR | Program Environmental Impact Report |
| PRC | Public Resources Code |
| RWQCB | Regional Water Quality Control Board |
| SB | Senate Bill |
| SJVAB | San Joaquin Valley Air Basin |
| SJVAPCD | San Joaquin Valley Air Pollution Control District |
| SSJVIC | Southern San Joaquin Valley Information Center |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resource Control Board |
| TAC | Toxic Air Contaminant |

| | |
|---|---|
| TCR | Tribal Cultural Resource |
| USEPA | United States Environmental Protection Agency |
| USGS | U.S. Geological Survey |
| USDOT | United States Department of Transportation |




*Figure 3-1. Vicinity Map*

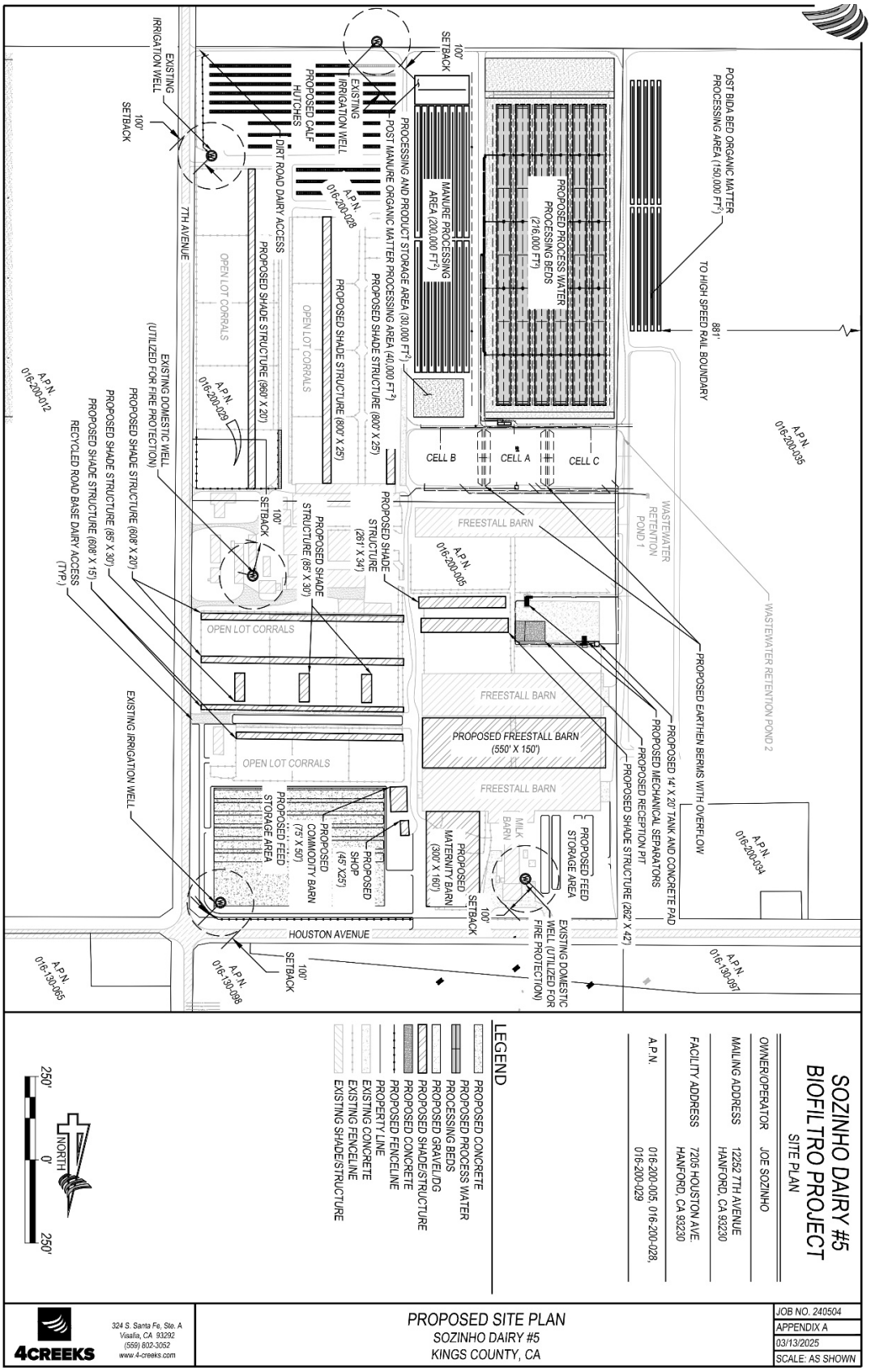



*Figure 3-2: Site Plan*

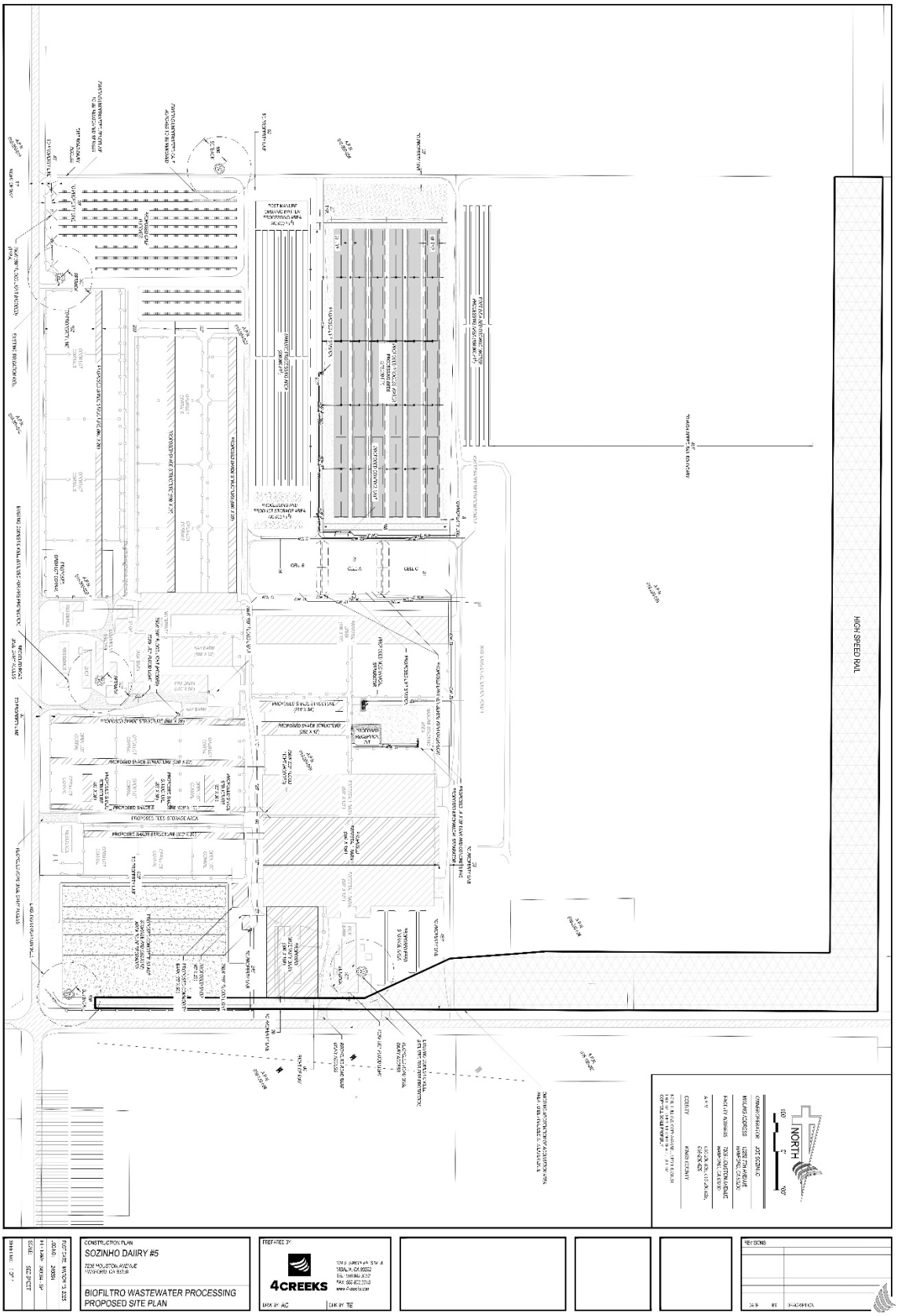



*Figure 3-2: Site Plan*

## 3.3 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites, in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a Project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impact.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c) (3)(D). In this case, a brief discussion should identify the following:

    - Earlier Analysis Used. Identify and state where they are available for review.
    - Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    - Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated

or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

## 3.4 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

**DETERMINATION:** (To be completed by the Lead Agency) Where potential impacts are anticipated to be significant, mitigation measures will be required, so that impacts may be avoided or reduced to insignificant levels.

On the basis of this initial evaluation:

☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☑ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on

attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed Project could have a significant effect on the environment because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is requested.

| | |
|---|---|
| | 10/2/2025 |
| SIGNATURE | DATE |
| Victor Hernandez | Kings County Community Development Agency |
| PRINTED NAME | AGENCY |

## 3.5 ENVIRONMENTAL ANALYSIS

The following section evaluates the impact categories and questions in the checklist and identifies mitigation measures, if applicable.

### I. AESTHETICS

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☑ | ☐ |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within state scenic highway? | ☐ | ☐ | ☐ | ☑ |
| c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the Site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? | ☐ | ☐ | ☐ | ☑ |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☑ | ☐ |

**Environmental Setting**

**Scenic Resources:** Scenic resources include landscapes and features that are visually or aesthetically pleasing. They contribute positively to a distinct community or region, and these resources produce a visual benefit to communities. The Kings River is approximately 9 miles north of the Project Site and is a known aesthetic resource, but there are no other available scenic resources within the Project vicinity. The surrounding areas contain agricultural fields, which Kings County may consider scenic resources. Another scenic resource is small clusters of Valley Oak Woodlands along the Kings River channel, which are a component of the visual character of northern Kings County.

**Scenic Vistas:** A scenic vista is a viewpoint that provides a distant view of highly valued natural or artificial landscape features for the benefit of the public. Located in the central portion of the

San Joaquin Valley floor, the Site may have distant views of the Sierra Nevada Foothills, but these views are often impeded due to distance and poor air quality in the region. The Kings River is considered a scenic vista, and the proposed Site is approximately nine miles of this resource.

**Existing Visual Character:** The following photos demonstrate the aesthetic character of the Project area. As shown, the proposed Project Site area is a relatively flat area characterized by agricultural uses.



*Photo 1: Looking west at the wheat field in different stages of harvest. Proposed location of Biofiltro wastewater processing beds.*



*Photo 2: Looking southeast from the northwest portion of the wheat field. Large, mature trees can be seen in the background. Proposed location of Biofiltro wastewater processing beds and storage area.*



*Photo 3: Looking northwest at wastewater processing beds, the proposed location for two earthen berms. Wheat field shown on the left and freestall barn with cows on the right.*



*Photo 4: Looking west inside freestall barn where a pipeline will be constructed.*



*Photo 5: Looking west at proposed location of stacking pad and mechanical separator.*



*Photo 6*: *Looking west at proposed location of rerouted vacuum track.*

**Regulatory Setting**

**Scenic Roadways:** The California Scenic Highway Program was established in 1963 by the State Legislature to protect and enhance the natural beauty of California highways and adjacent corridors through conservation strategies. The State Scenic Highway System includes a list of highways that have either been officially designated or are eligible for designation. State laws governing the scenic highway program are found in Sections 260-263 in The Street and Highways Code.

**State Scenic Highways:** According to the California Department of Transportation mapping of State Scenic Highways, Kings County has no officially designated State Scenic Highways. However, the County has one segment of eligible State Scenic Highways, the closest being SR 41 west of Kettleman City and towards the northeast boundary of San Luis Obispo County. This portion of the highway is approximately 30.5 miles from the proposed Site.

**Historic Sites:** Kings County has many designated key historical site locations that shall be preserved; however, none are located near the proposed Project Site. According to the Kings County General Plan, the National Register of Historic Places lists four sites within Kings County, and three additional sites that have been designated as California Historical Landmarks. Thirteen other historic sites of local importance also exist within the County.

The nearest Historic Site to the Project is Calvary Cemetery, approximately 2.85 miles to the northwest.

**2035 Kings County General Plan:** The 2035 General Plan *Open Space Element* includes the following goals, objectives, and policies, which would address potential impacts associated with aesthetic resources that relate to the proposed Project:

- **OS GOAL B1: Maintain and protect the scenic beauty of Kings County.**
  - OS OBJECTIVE B1.1: Protect and enhance views from roadways which cross scenic areas or serve as scenic entranceways to cities and communities.
    - *OS Policy B1.1.1*: Coordinate with the Kings County Association of Governments to explore designation of State Route 41, between State Route 33 and the Kern County line, as an Official State Scenic Highway through the Caltrans Transportation Enhancement program.
  - OS OBJECTIVE B1.2: Preserve roadside landscapes which have high visual quality and contribute to the local environment.
    - *OS Policy B1.2.1*: Review new development and utility Projects for compatibility and potential for impacting scenic view sheds along highly traveled scenic routes.
  - OS OBJECTIVE B1.3: Protect the scenic qualities of human-made and natural landscapes and prominent view sheds.
    - *OS Policy B1.3.1*: Require new development to be designed so that it does not significantly impact or block views of Kings County's natural landscape or other important scenic features. Discretionary permit applications will be evaluated against this requirement as part of the development review process. New developments may be required, as appropriate to:
      - Minimize obstruction of views from public lands and rights-of-way.
      - Reduce visual prominence by keeping development and structures below ridgelines.
      - Limit the impact of new roadways and grading on natural settings. Such limits shall be within design safety guidelines.
    - *OS Policy B1.3.2*: Protect the visual access to Kings River and other prominent watercourses by locating and designing new development to minimize visual impacts and obstruction of views of scenic watercourses from public lands and rights-of-way.

**Discussion**

**a) Would the Project have a substantial adverse effect on a scenic vista?**

**Less than Significant Impact:** A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. The Kings River is the primary scenic vista within this area. The Kings River is approximately nine miles north of the proposed Project Site. Another scenic vista in this region is the Sierra Nevada Mountain range. Still, the proposed Site is over thirty miles from the Sierra Nevada foothills. It will be largely unaffected because they are not visible from the proposed Project Site due to far distances and the poor

air quality between the Site and the Sierra Nevada foothills. There is a *Less than Significant Impact.*

**b) Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within state scenic highway?**

**No Impact:** No officially designated State Scenic Highways are located in Kings County. The proposed Project would not damage any scenic resources within a state scenic highway, and there is *No Impact.*

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

**No Impact:** The proposed Project Site is in a non-urbanized agricultural area within an unincorporated portion of Kings County. Because the Project Site is located in a previously disturbed agricultural area, its development is not anticipated to create a visually degraded character or quality to the Site or the properties near and around it. Additionally, it will be required to comply with the design review and design limitations required by the General Plan and the County's Development Code which require setbacks, landscaping, and designs to limit the impact on neighboring properties. The proposed Project would not substantially degrade the existing visual character or quality of public views of the Site and its surroundings. The proposed land use is consistent with the dominant land use in the area, General Agriculture – 20 Acre minimum. There is *No Impact.*

**d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

**Less than Significant Impact:** The Exterior Lighting Plan and the American Society of Agricultural and Biological Engineers (ASAE) Lighting Systems for Agricultural Facilities guidelines, attached as Appendix A, detail the proposed Project's lighting design, which includes ten new lighting sources on the Project Site. This includes two 750-watt 360-degree floodlights and four 750-watt 180-degree floodlights near the center of the site, four 750-watt 360-degree floodlights in the southeast corner near the proposed calf hutches. The 360-degree floodlights would be hooded to prevent light spillage and reduce glare, aligning with best practices for agricultural lighting to minimize adverse effects on surrounding areas. The 180-degree floodlights would be directed away from nearby residences, further minimizing potential impacts. According to the ASAE guidelines for agricultural facilities, proper luminaire design and placement are critical to prevent glare and ensure that light is directed where needed without causing discomfort or visual disruption. As the Project does not involve any structures that would produce glare, and the lighting design follows recommended practices

to prevent significant light trespass or glare, the impact is considered *Less than Significant Impact.*

## II. AGRICULTURE AND FOREST RESOURCES:

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

**Environmental Setting**

Central California is one of the world's premier growing regions. Agriculture is a vital economic resource for Kings County. According to the Kings County 2023 Crop Report, there are 749,100 acres of farmland within the County, resulting in it being the land use for 84.1 percent of the total 890,545 acres of land in the county. The primary commodities produced in Kings County, by total dollar value, are milk, pistachios, cotton, cattle, and tomatoes. The Project is an unincorporated area of Kings County. The proposed Project Site is under a Williamson Act Contract. The proposed Site contains land designated as Confined Animal Enclosure, Prime Farmland, and Farmland of Statewide Importance under the Important Farmland Mapping and Monitoring Program (FMMP).

**Regulatory Setting**

**California Land Conservation Act of 1965:** The California Land Conservation Act of 1965, commonly called the Williamson Act, allows local governments to enter into contracts with private landowners to restrict the activities on specific parcels of land to agricultural or open space uses. The landowners benefit from the contract by receiving significantly reduced property tax assessments. The California Department of Conservation (DOC) oversees the California Land Conservation Act; however, local governments are responsible for determining specific allowed uses and enforcing the contract.

**California Farmland Mapping and Monitoring Program (FMMP):** The FMMP is implemented by the DOC to conserve and protect agricultural lands within the State. The land is included in this program based on soil type, annual crop yields, and other factors that influence the quality of farmland. The FMMP mapping categories for the most important statewide farmland are as follows:

- ***Prime Farmland*** has the ideal physical and chemical composition for crop production. It has been used for irrigated production four years before classification and can produce sustained yields. 12% of Kings County is classified as Prime Farmland.

- ***Farmland of Statewide Importance*** has been used for irrigated production four years before classification and is only slightly poorer quality than Prime Farmland. 35% of Kings County is classified as Farmland of Statewide Importance.

- ***Unique Farmland*** has been cropped four years before classification and does not meet the Prime Farmland or Farmland of Statewide Importance criteria, but it has produced specific crops with high economic value. 2% of Kings County is classified as Unique Farmland.

- ***Farmland of Local Importance*** encompasses farmland that does not meet the criteria for the previous three categories. These may lack irrigation, produce major crops, be zoned as agricultural, and/or support dairy. 1% of Kings County is classified as Farmland of Local Importance.

- ***Grazing Land*** has vegetation that is suitable for grazing livestock. 40% of Kings County is Grazing Land.

**2035 Kings County General Plan:** The 2035 General Plan *Land Use Element* includes the following goals, objectives, and policies, which reduce impacts associated with agricultural land conversion and protect existing agricultural resources that relate to the proposed Project:

- **LU Goal B1: Protect agricultural lands throughout the County, and in particular along the edges of Community Districts and Urban Fringe by maintaining large parcel sizes and preventing the premature development of incompatible urban uses.**
  - LU Objective B1.1: Preserve the integrity of the County's agricultural land resources through agricultural land use designations and other long term preservation policies.
    - *LU Policy B1.1.1*: Designate all agricultural and grazing land outside of planned urban areas as Limited Agriculture, General Agriculture, Exclusive Agriculture, or Natural Resource Conservation.
  - LU Objective B1.2: Maintain large parcel sizes of agricultural designated land within Urban Fringe areas and around Community Districts to retain viable agricultural production until such time as land is planned and ready for conversion to other uses.

- **LU Goal B2: Agricultural production continues to be supported and enhanced in areas designated for agriculture, while conflicts between agriculture and non-agricultural uses are minimized.**
  - LU OBJECTIVE B2.1: Recognize agriculture as the highest and best use of agricultural designated land and preserve the right of farmers and agricultural operations to continue customary and usual agricultural practices, and operate in the most efficient manner possible.
    - *LU Policy B2.1.1*: The primary use of land designated Limited Agriculture, General Agriculture, and Exclusive Agriculture shall remain devoted to agricultural uses and related support services.

The **2035 Kings County General Plan** *Open Space Element* contains the following objective to limit impacts to agricultural resources:

- OS Objective A1.1: Protect agricultural land as an important, sustainable component of the Kings County economy.

The **2035 Kings County General Plan** *Resource Conservation Element* contains the following objectives and policies to limit impacts to agricultural resources:

- RC Objective B1.1: Identify the County's highest priority agricultural lands that are critical to the County's agricultural economy, prime soils, and water availability, and emphasize higher preservation efforts for these areas.
  - *RC Policy B1.1.1*: Maintain the County's Priority Agricultural Land Model to serve as an information resource in evaluating urban growth and impacts related to the County's agricultural economy and redirect that growth where possible to the lowest priority agricultural land. This model is referenced in Kings County's 2008 Agricultural Land Conversion Study.

- *RC Policy B1.1.2*: Use the Priority Agricultural Model as a reference for determining potential economic and resource impacts related to the loss of agricultural land resulting from conversion to urban uses.

➢ RC Objective C1.1: Conserve prime agricultural soils and avoid their conversion to non-agricultural uses.

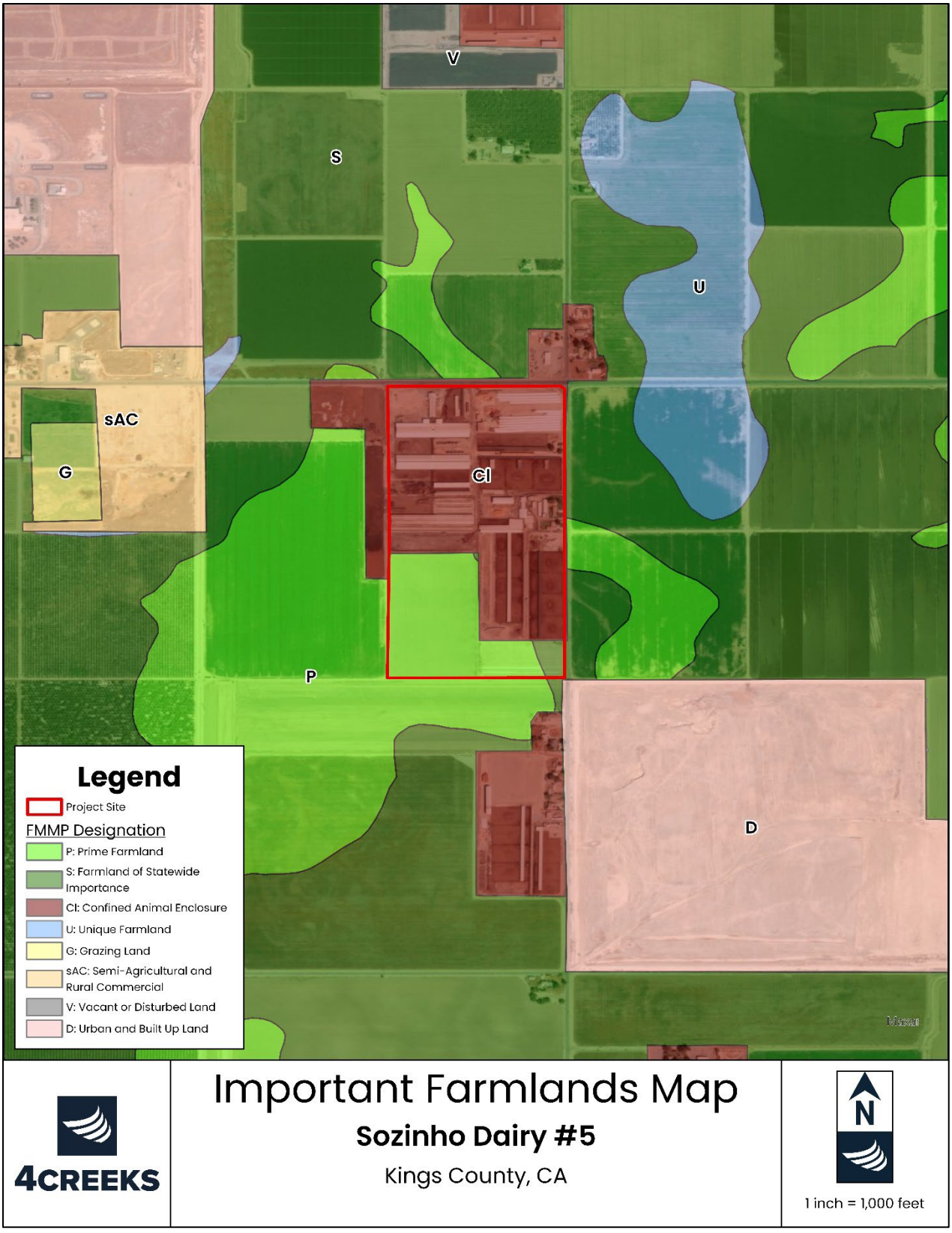



*Figure 3-3: Important Farmlands Map*

**Discussion**

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

**Less Than Significant Impact:** The Project Site is currently a dairy facility surrounded by agricultural properties and a few rural residences. According to the Important Farmland Map, the Site includes land designated as Confined Animal Enclosure, Prime Farmland, and Farmland of Statewide Importance. Most of the proposed wastewater processing beds and related improvements will be located on land designated as Prime Farmland. However, these improvements, including the wastewater processing beds, are integral to the dairy's operations and constitute an agricultural use, as they support the management and treatment of process water generated by the dairy facility.

The Project will not convert Prime Farmland or Farmland of Statewide Importance to non-agricultural use, as the proposed improvements maintain the Site's existing function as a dairy facility, consistent with the General Agriculture – 20 Acre Minimum designation under the 2035 Kings County General Plan. The Biofiltro system and associated infrastructure are designed to enhance the dairy's operational efficiency and environmental sustainability, aligning with agricultural practices. The Project will follow all existing and proposed 2035 General Plan policies to reduce potential impacts. As the proposed development remains an agricultural use and does not alter the site's overall agricultural character, the Project will have a *Less than Significant Impact.*

**b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act Contract?**

**No Impact:** The Sozinho Dairy #5 Project Site and surrounding properties are zoned as General Agriculture – 20 Acre Minimum (AG-20) under the Kings County Development Code, which permits agricultural activities, including dairy operations, as a primary use. The proposed improvements are integral components of the dairy's operations. These improvements are designed to enhance animal comfort, streamline operational efficiency, and improve wastewater management and nutrient recycling, all of which are consistent with the agricultural activities allowed in the AG-20 zoned district.

The Biofiltro wastewater processing beds utilize vermifiltration to treat process water generated on-site, producing higher-quality water for reuse or land application, which supports the dairy's environmental sustainability and operational needs. Similarly, the feed storage areas, animal housing, and organic matter processing areas are directly related to the dairy's core functions of animal care, feed management, and manure processing for land application. These improvements do not alter the Site's primary agricultural use but instead

enhance its functionality as a dairy facility, aligning with the AG-20 zoning designation that explicitly permits such agricultural operations.

The Project Site is also under a Williamson Act Contract, which restricts land use to agricultural or compatible open-space activities in exchange for reduced property tax assessments, as governed by the California Land Conservation Act of 1965. Dairy operations, including the proposed improvements, are considered compatible with the Williamson Act, as they support and enhance agricultural production. The proposed modifications do not involve urban development or other non-agricultural uses that would conflict with the contract's restrictions.

Therefore, the proposed improvements are consistent with the existing AG-20 zoning and the Williamson Act Contract, as they are integral to the dairy's agricultural operations and do not introduce non-agricultural uses. There is *No Impact* on the zoning for agricultural use or the Williamson Act Contract.

**c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned timberland Production (as defined by Government Code section 51104(g)?**

**No Impact:** The Project Site is not zoned for forest or timberland production. Therefore, *No Impacts* would occur.

**d) Would the Project result in the loss of forestland or conversion of forest land to non-forest use?**

**No Impact:** No conversion of forestland, as defined under the Public Resource Code or General Code, will occur as a result of the Project, and there will be *No Impacts*.

**e) Would the Project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?**

**Less than Significant Impact:** As discussed above, the proposed Project does not convert Prime Farmland, Unique Farmland, or Farmland of Statewide importance to non-agricultural use. The Project does not include any features that could result in forestland conversion to non-forest use. There is a *Less than Significant Impact.*

## III. AIR QUALITY

| **Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ☐ | ☑ |
| b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or state ambient air quality standard? | ☑ | ☐ | ☐ | ☐ |
| c) Expose sensitive receptors to substantial pollutant concentrations? | ☑ | ☐ | ☐ | ☐ |
| d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | ☐ | ☑ | ☐ | ☐ |

**Environmental Setting**

Air quality is primarily a function of local climate, local sources of air pollution, and regional pollution transport. The amount of a given pollutant in the atmosphere is determined by the amount of the pollutant released and the atmosphere's ability to transport and dilute the pollutant. The significant determinants of transport and dilution are wind, atmospheric stability, terrain, and, for photochemical pollutants, sunshine.

A region's topographic features directly correlate with air pollution flow and therefore are used to determine the boundary of air basins. The proposed Project is in Kings County, within the jurisdiction of the SJVAPCD, which regulates air quality in the San Joaquin Valley Air Basin (SJVAB). The SJVAB comprises approximately 25,000 square miles and covers seven counties: Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. It also covers the western portion of an eighth county, Kern. The SJVAB is defined by the Sierra Nevada mountains in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation). The SJVAB is topographically flat with a slight downward gradient to the northwest. The SJVAB opens to the sea at the Carquinez Straits, where the San Joaquin-Sacramento Delta empties into San Francisco Bay. An aerial view of the SJVAB would simulate a "bowl" opening only to the north. These topographic features restrict air movement through and out of the SJVAB.

The State of California (State) and the Federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants. As detailed in Table 3-1, these pollutants include ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter less than 10 microns in size (PM10), particulate matter less than 2.5 microns in size (PM2.5), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide (H2S), vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

| Pollutant | Averaging Time | California Standards[1] | | National Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |
| **Ozone (03)[8]** | 1 Hour | 0.09 ppm (180 µg/m³) | Ultraviolet Photometry | -- | Same as Primary Standard | Ultraviolet Photometry |
| | 8 Hour | 0.070 ppm (137 µg/m³) | | 0.070 ppm (137 µg/m³) | | |
| **Respirable Particulate Matter (PM10)[9]** | 24 Hour | 50 µg/m³ | Gravimetric or Beta Attenuation | 150 µg/m³ | Same as Primary Standard | Inertial Separation and Gravimetric Annual Analysis |
| | Annual Arithmetic Mean | 20 µg/m³ | | -- | | |
| **Fine Particulate Matter ($PM_{2.5}$)[9]** | 24 Hour | -- | Gravimetric or Beta Attenuation | 35 µg/m³ | Same as Primary Standard | Inertial Separation and Gravimetric Annual Analysis |
| | Annual Arithmetic Mean | 12 µg/m³ | | 9 µg/m³ | 15 µg/m³ | |
| **Carbon Monoxide (CO)** | 1 Hour | 20 ppm (23 mg/m³) | Non-Dispersive Infrared Photometry (NDIR) | 35 ppm (40 mg/m³) | -- | Non-Dispersive Infrared Photometry (NDIR) |
| | 8 Hour | 9.0 ppm (10 mg/m³) | | 9 ppm (10 mg/m³) | -- | |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m³) | | -- | -- | |
| **Nitrogen Dioxide (NO2)[10]** | 1 Hour | 0.18 ppm (339 µg/m³) | Gas Phase Chemiluminescence | 100 ppb (188 µg/m³) | -- | Gas Phase Annual Chemiluminescence |
| | Annual Arithmetic Mean | 0.030 ppm (57 µg/m³) | | 53 ppb (100 µg/m³) | Same as Primary Standard | |
| **Sulfur Dioxide ($SO_2$)[11]** | 1 Hour | 0.25 ppm (655 µg/m³) | Ultraviolet Fluorescence | 75 ppb (196 µg/m³) | -- | Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method) |
| | 3 Hour | -- | | -- | 0.5 ppm (1300 µg/m³) | |
| | 24 Hour | 0.04 ppm (105 µg/m³) | | 0.14 ppm (for certain areas)[11] | -- | |
| | Annual Arithmetic Mean | -- | | 0.030 ppm (for certain areas)[11] | -- | |
| **Lead[12,13]** | 30 Day Average | 1.5 µg/m³ | Atomic Absorption | -- | -- | High-Volume Sampler and Atomic Absorption |
| | Calendar Quarter | -- | | 1.5 µg/m3 (for certain areas)[13] | Same as Primary Standard | |
| | Rolling 3-Month Average | -- | | 0.15 µg/m³ | | |
| **Visibility Reducing Particles[14]** | 8 Hour | See footnote 14 | Beta Attenuation and Transmittance through Filter Tape | No National Standard | | |
| **Sulfates** | 24 Hour | 25 µg/m³ | Ion Chromatography | | | |
| **Hydrogen Sulfide** | 1 Hour | 0.03 ppm (42 µg/m³) | Ultraviolet Fluorescence | | | |
| **Vinyl Chloride[12]** | 24 Hour | 0.01 ppm (26 µg/m³) | Gas Chromatography | | | |

1. California standards for O3, CO (except 8-hour Lake Tahoe), SO2 (1- and 24-hour), NO2, and PM (PM10, PM2.5, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California AAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than for O3 and PM and those based on the annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration measured at each Site in a year, averaged over 3 years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m3 is equal to or less than 1. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current national policies.
3. Concentration is expressed first in the units in which it was promulgated. Most measurements of air quality are to be corrected to a reference temperature of 25ºC and a reference pressure of 760 torrs; ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas. Equivalent units given in parentheses are based upon a reference temperature of 25ºC and a reference pressure of 760 torrs.
4. Any equivalent measurement method that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. The reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.
8. On October 1, 2015, the national 8-hour O3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On February 7, 2024, the national annual PM2.5 primary standard was lowered from 12.0 μg/m3 to 9.0 μg/m3 . The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 μg/m3 , as was the annual secondary standard of 15.0 μg/m3 . The existing 24-hour PM10 standards (primary and secondary) of 150 μg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years
10. To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each Site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each Site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated as Nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated as Nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.
14. In 1989, CARB converted both the general statewide 10 mi visibility standard and the Lake Tahoe 30 mi visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

| | | |
|---|---|---|
| ºC = degrees Celsius | CO = carbon monoxide | PM2.5 = particulate matter less than 2.5 microns in size |
| mg/m3 = micrograms per cubic meter | mg/m3 = milligrams per cubic meter | PM10 = particulate matter less than 10 microns in size |
| AAQS = ambient air quality standards | mi = mile/miles | ppb = parts per billion |
| USEPA = United States Environmental Protection Agency | NO2 = nitrogen dioxide | ppm = parts per million |
| CARB = California Air Resources Board | O3 = ozone | SO2 = sulfur dioxide |
| | PM = particulate matter | |

*Table 3-1. Ambient Air Quality Standards; Source: California Air Resources Board (CARB) 2024.*

Because the United States Environmental Protection Agency (USEPA) sets the concentration standards at a level that protects public health with an adequate margin of safety, these health effects would not occur unless the standards are exceeded by a large margin or prolonged period. Table 3-2 summarizes the most common health and environmental effects for each of the air pollutants for which there is a National AAQS (NAAQS) or California AAQS (CAAQS), as well as for toxic air contaminants (TACs). CAAQS are typically more stringent than NAAQS. Among the pollutants, $O_3$ and particulate matter ($PM_{2.5}$ and $PM_{10}$) are considered pollutants with regional effects, while the others have more localized effects (CARB 2022a).

| Pollutant | Effects on Health and the Environment |
|---|---|
| Ozone (O3) | • Respiratory symptoms<br>• Worsening of lung disease leading to premature death<br>• Damage to lung tissue<br>• Crop, forest, and ecosystem damage<br>• Damage to a variety of materials, including rubber, plastics, fabrics, paint, and metals. |
| Particulate matter less than 2.5 microns in size ($PM_{2.5}$) | • Premature death<br>• Hospitalization for worsening of cardiovascular disease<br>• Hospitalization for respiratory disease<br>• Asthma-related emergency room visits<br>• Increased symptoms, increased inhaler usage |
| Particulate matter less than 10 microns size ($PM_{10}$) | • Premature death and hospitalization, primarily for worsening of respiratory disease<br>• Reduced visibility and material soiling |
| Nitrogen oxides (NOX) | • Lung irritation<br>• Enhanced allergic responses |
| Carbon monoxide (CO) | • Chest pain in patients with heart disease<br>• Headache<br>• Light-headedness<br>• Reduced mental alertness |
| Sulfur oxides ($SO_x$) | • Worsening of asthma: increased symptoms, increased medication usage, and emergency room visits |
| Lead | • Impaired mental functioning in children<br>• Learning disabilities in children<br>• Brain and kidney damage |
| Hydrogen sulfide ($H_2S$) | • Nuisance odor (rotten egg smell)<br>• At high concentrations: headache & breathing difficulties |
| Sulfate | • Same as $PM_{2.5}$, particularly worsening of asthma and other lung diseases.<br>• Reduces visibility |
| Vinyl chloride | • Central nervous system effects (e.g., dizziness, drowsiness, and headaches)<br>• Long-term exposure (i.e., liver damage and liver cancer) |
| Visibility reducing particles | • Reduced airport safety, scenic enjoyment, road safety, and discourages tourism |
| Toxic air contaminants (TACs). About 200 chemicals have been listed as TACs. | • Cancer<br>• Reproductive and developmental effects<br>• Neurological effects |

*Table 3-2. Summary of Health and Environmental Effects of the Criteria Air Pollutants; Source: California Air Resources Board (CARB). n.d.-a. Common Air Pollutants*

The California Clean Air Act (CCAA) allows SJVAPCD and other air districts to manage transportation activities at indirect sources. Indirect sources of pollution include any facility, building, structure, installation, or combination thereof that attracts or generates mobile-source emissions of any pollutant. In addition, area-source emissions that are generated when minor sources collectively emit a substantial amount of pollution are also managed by the local air districts. Examples would be the motor vehicles at an intersection, at a mall, and on highways. SJVAPCD also regulates stationary sources of pollution throughout its jurisdictional area. The California Air Resources Board (CARB) regulates direct emissions from motor vehicles.

**Air Pollution Constituents and Attainment Status**

The CARB coordinates and oversees both State and Federal air pollution control programs in the State. CARB oversees the activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the USEPA

and local air districts. The CARB has divided the State into 15 air basins based on meteorological and topographical air pollution factors. The CARB and USEPA use data collected at these stations to classify air basins as Attainment, Nonattainment, Nonattainment-Transitional, or Unclassified, based on air quality data for the most recent three calendar years compared with the AAQS.

Attainment areas may be the following:

- **Attainment/Unclassified ("Unclassifiable" in Some Lists):** These basins have never violated the air quality standard of interest or do not have enough monitoring data to establish Attainment or Nonattainment status.

- **Attainment-Maintenance (National Ambient Air Quality Standards [NAAQS] Only):** These basins violated a NAAQS that is currently in use (were Nonattainment) in or after 1990 but now attain the standard and are officially redesignated as Attainment by the USEPA with a Maintenance State Implementation Plan (SIP).

- **Attainment (Usually Only for CAAQS, But Sometimes for NAAQS):** These basins have adequate monitoring data to show attainment, have never been Nonattainment, or, for NAAQS, have completed the official Maintenance period.

- **Nonattainment** areas are imposed with additional restrictions as required by the USEPA. The air quality data is also used to monitor progress in attaining air quality standards. Table 3-3 lists the attainment status for the criteria pollutants in the SJVAB.

**Toxic Air Contaminants**

The public's exposure to TACs is a significant environmental health issue in the State of California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." In addition, substances which have been listed as federal hazardous air pollutants (HAPs) pursuant to Title 42 United States Code (USC) Section 7412 are TACs under the State's air toxics program pursuant to Section 39657(b) of the California Health and Safety Code. The CARB formally made this identification on April 8, 1993 (Title 17, California Code of Regulations [CCR], Section 93001). Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act), AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987), and Senate Bill (SB) 25 (Children's

Environmental Health Protection Act). The Tanner Air Toxics Act sets forth a formal procedure for the CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance for which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

Air toxins from stationary sources are also regulated in California under AB 2588. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the designated Air Quality Management District (AQMD) or Air Pollution Control District (APCD). High-priority facilities are required to perform an HRA and, if specific thresholds are exceeded, are also required to communicate the results to the public in the form of notices and public meetings. To date, the CARB has designated over 200 compounds as TACs. Additionally, the CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel fueled engines (diesel particulate matter [DPM]).

**Local Air Quality**

The SJVAPCD and the CARB maintain ambient air quality monitoring stations. The air quality monitoring station that monitors air pollutant data closest to the Site is the Hanford-S Irwin Street Monitoring Station. The air quality trends from this station are used to represent the ambient air quality in the Project area. The ambient air quality data in Table 3-4 show that $NO_2$ levels are below the applicable State and Federal standards. However, annual average concentrations of $PM_{10}$, $PM_{2.5}$, and $O_3$ concentrations frequently exceed their respective standards. As CO ambient concentrations have become so low throughout the region, no station near the Project Site monitors CO.

| Pollutant | Designation/Classification | |
|---|---|---|
| | Federal Standards | State Standards |
| Ozone – One hour | Standard Revoked | Nonattainment/Severe |
| Ozone – Eight hour | Extreme Nonattainment | Nonattainment |
| PM 10 | Attainment (Maintenance) | Nonattainment |
| PM 2.5 | Nonattainment | Nonattainment |
| Carbon Monoxide | Attainment/Unclassified | Attainment |
| Nitrogen Dioxide | Attainment/Unclassified | Attainment |
| Lead | No Designation/Unclassified | Attainment |
| Sulfur Dioxide | Attainment/Unclassified | Attainment |
| Sulfates | No Federal Regulation | Attainment |
| Hydrogen Sulfide | No Federal Regulation | Unclassified |
| Ozone (1-Hour) | Standard Revoked | Severe/Nonattainment |

$PM_{2.5}$ = particulate matter less than 2.5 microns in size
$PM_{10}$ = particulate matter less than 10 microns in size

*Table 3-3. Air Quality Attainment Status for SJVAB; Source: SJVAPCD Ambient Air Quality Standards & Valley Attainment Status.*

| Pollutant | Standard | 2022 | 2023 | 2024 |
|---|---|---|---|---|
| **$O_3$** | | | | |
| Maximum 1-Hour Concentration (ppm) | State: 0.09 ppm | 0.091 | 0.091 | 0.099 |
| | No. of days exceeded | *0* | *0* | *2* |
| Max 8-hour concentration (ppm) | State: 0.07 ppm | *0.082* | *0.084* | *0.088* |
| | Federal: 0.07 ppm | | | |
| No. of days exceeded | State: | *13* | *14* | *29* |
| | Federal: | *12* | *11* | *25* |
| **$PM_{10}$** | | | | |
| Maximum 24-hour concentration (µg/m³) | State: 50 µg/m³ | *251.6* | *159.3* | *169* |
| | Federal: 150 µg/m³ | | | |
| No. of days exceeded | State: | *143* | *116.5* | *115.8* |
| | Federal: | *1* | *1* | *4* |
| Annual avg. concentration (µg/m³) | | *49.9* | *44.2* | *44.4* |
| Exceeds Standard? | State: 20 µg/m³ | *Yes* | *ND* | *Yes* |
| **$PM_{2.5}$** | | | | |
| Maximum 24-Hour concentration (µg/m³) | Federal: 35 µg/m³ | *14.1* | *12.5* | *11.8* |
| | No. of days exceeded | *27* | *11* | *8* |
| Annual avg. concentration (µg/m³) | State: 12 µg/m³ | *14.1* | *12.5* | * |
| | Federal: 12 µg/m³ | | | |
| **$NO_2$** | | | | |
| Maximum 1-hour concentration (ppb): | State: 180 ppb | *62.9* | *51.9* | *51.5* |
| | Federal: 100 ppb | | | |
| No. of days exceeded | State: | *0* | *0* | *0* |
| | Federal: | *0* | *0* | *0* |
| Annual avg. concentration (ppb): | State: 30 ppb | *8* | *8* | *8* |
| | Federal: 53 ppb | | | |
| Exceeds Standard? | State: | *No* | *No* | *No* |
| | Federal: | *No* | *No* | *No* |

Note: Pollutant concentration data from the Hanford-S Irwin Street Monitoring Station in Hanford, California.
* There was insufficient (or no) data available to determine the value.

| | |
|---|---|
| *µg/m3 = micrograms per cubic meter* | *PM10 = particulate matter smaller than 10 microns in size* |
| *ND = No data available* | *ppb = parts per billion* |
| *NO2 = nitrogen dioxide* | *ppm = parts per million* |
| *O3 = ozone* | *PM2.5 = particulate matter smaller than 2.5 microns in size* |

*Table 3-4. Air Quality Concentrations in the Project Vicinity; Source: California Air Resource Board (CARB).*

**Sensitive Receptors and Land Uses in the Project Vicinity:** Sensitive receptors include residences such as private homes, condominiums, apartments, living quarters, schools, preschools, daycare centers, in-home daycares, health facilities (e.g., hospitals, long-term care facilities, retirement, and nursing homes), community centers, places of worship, parks (excluding trails), prisons, and dormitories. The nearest sensitive receptors to the Project Site are the single-family residences located to the north and south of the Project.

## Regulatory Setting

### Federal Regulations

The 1970 Federal Clean Air Act (FCAA) authorized the establishment of national health-based air quality standards and set deadlines for their attainment. The FCAA Amendments of 1990 changed deadlines for attaining national standards and the remedial actions required for areas of the nation that exceed the standards. Under the FCAA, State and local agencies in

areas that exceed the national standards must develop SIPs to demonstrate how they will achieve the national standards by specified dates.

**State Regulations**

In 1988, the California Clean Air Act (CCAA) required that all air districts in the State endeavor to achieve and maintain CAAQS for CO, $O_3$, $SO_2$, and $NO_2$ by the earliest practical date. The CCAA allows districts to regulate indirect sources and mandates that air quality districts focus on reducing emissions from transportation and area-wide emission sources. Each nonattainment district must adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

The CARB is the State's "clean air agency." The CARB's goals are to attain and maintain healthy air quality, protect the public from exposure to toxic air contaminants, and oversee compliance with air pollution rules and regulations.

**Regional Regulations**

**San Joaquin Valley Air Pollution Control District.** The SJVAPCD has specific air quality-related planning documents, rules, and regulations. This section summarizes the local planning documents and regulations that may apply to the proposed Project as administered by the SJVAPCD with California Air Resources Board (CARB) oversight.

- ***Regulation VIII - Fugitive PM10 Prohibitions.*** This covers rules for controlling particulate matter during construction and other earthmoving activities.
- ***Rule 2280—Portable Equipment Registration.*** Portable equipment used at Project Sites for less than six consecutive months must be registered with the SJVAPCD. The SJVAPCD will issue the registrations 30 days after receipt of the application.
- ***Rule 4201 and Rule 4204—Particulate Matter Concentration and Emission Rates.*** Rule 4201 and Rule 4202 apply to operations that emit or may emit dust, fumes, or total suspended particulate matter.
- ***Rule 4565 - Biosolids, Animal Manure, and Poultry Litter Operations.*** This could apply given the dairy's manure handling and processing activities.
- ***Rule 4570 - Confined Animal Facilities.*** Applicable due to the dairy's operations involving confined animal feeding.
- ***Rule 4622—Gasoline Transfer Into Motor Vehicle Fuel Tanks.*** Rule 4622 applies to any gasoline storage and dispensing operation or mobile fueler from which gasoline is transferred into motor vehicle fuel tanks. The purpose of this rule is to limit emissions of gasoline vapors from the transfer of gasoline escaping into the atmosphere; vapor recovery systems would be implemented to reduce the release of volatile organic compounds.

- ***Rule 4566— Organic Material Composting Operations.*** Rule 4566 limits emissions of volatile organic compounds (VOCs) from composting operations.
- ***Rule 8011—General Requirements: Fugitive Dust Emission Sources.*** Fugitive dust regulations are applicable to outdoor fugitive dust sources. Operations, including construction operations, must control fugitive dust emissions in accordance with SJVAPCD Regulation VIII. According to Rule 8011, the SJVAPCD requires the implementation of control measures for fugitive dust emission sources. For Projects in which construction-related activities would disturb equal to or greater than 1 acre of surface area, the SJVAPCD recommends that demonstration of receipt of an SJVAPCD-approved Dust Control Plan or Construction Notification Form before issuance of the first grading permit be made a condition of approval.

**Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI).** The SJVAPCD prepared GAMAQI to assist lead agencies and Project applicants in evaluating the potential air quality impacts of Projects in the SJVAB. The GAMAQI provides SJVAPCD-recommended procedures for evaluating potential air quality impacts during the CEQA environmental review process. The GAMAQI guides evaluating short-term (construction) and long-term (operational) air emissions. The most recent version of the GAMAQI, adopted on March 19, 2015, was used in this evaluation. It contains guidance on the following:

- Criteria and thresholds for determining whether a Project may have a significant adverse air quality impact;
- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- Methods to mitigate air quality impacts; and
- Information for air quality assessments and environmental documents, including air quality, regulatory setting, climate, and topography data.

**2035 Kings County General Plan:** The 2035 General Plan *Air Quality Element* includes the following goals, objectives, and policies, which reduce impacts associated with air quality that relate to the proposed Project:

- **AQ Goal C1: Use Air Quality Assessment and Mitigation programs and resources of the SJVAPCD and other agencies to minimize air pollution, related public health effects, and potential climate change impacts within the County.**
  - AQ Objective C1.1: Accurately assess and mitigate potentially significant local and regional air quality and climate change impacts from proposed Projects within the County.
    - *AQ Policy C1.1.1*: Assess and mitigate Project air quality impacts using analysis methods and significance thresholds recommended by the SJVAPCD.
    - *AQ Policy C1.1.3*: Ensure that air quality and climate change impacts identified during CEQA review are minimized, consistently, and reasonably mitigated at a minimum, to levels as required by CEQA.

- *AQ Policy C1.1.6*: Encourage and support the development of innovative and effective mitigation measures and programs to reduce air quality and climate change impacts through proactive coordination with the SJVAPCD, Project applicants, and other knowledgeable and interested parties.

❖ **AQ Goal F1: Minimize exposure of the public to hazardous air pollutant emissions, particulates and noxious odors from freeways, major arterial roadways, industrial, manufacturing, and processing facilities.**

➢ AQ Objective F1.1: Locate adequate sites for industrial development and roadway projects away from existing and planned sensitive land uses which minimize or avoid potential health risks to people that might result from hazardous air pollutant emissions.

- *AQ Policy F2.1.1*: Coordinate with the SJVAPCD to ensure that construction, grading, excavation, and demolition activities within County's jurisdiction are regulated and controlled to reduce particulate emissions to the maximum extent feasible.
- *AQ Policy F2.1.2*: Require all access roads, driveways, and parking areas serving new commercial and industrial development are constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.

**Discussion**

**a) Would the Project conflict with or obstruct implementation of the applicable air quality plan?**

**No Impact:** The Sozinho Dairy #5 Project involves facility modifications aimed at enhancing the dairy's operational efficiency, animal welfare, and environmental sustainability. These improvements include the installation of Biodynamic Aerobic (BIDA) beds for wastewater treatment, three feed storage areas, twelve rows of calf hutches, one freestall barn, one maternity barn, twelve shade structures over existing open lot corrals, one additional open lot corral, one commodity barn and one shop. These modifications are designed to support the dairy's agricultural operations while maintaining compliance with air quality plans in the SJVAB, which is designated as nonattainment for $O_3$, $PM_{10}$, and $PM_{2.5}$ under both Federal and State standards.

The SJVAPCD has developed air quality plans, including the 2023 Plan for the Revoked 1-Hour Ozone Standard and the 2022 Plan for the 2015 8-Hour Ozone Standard. The Sozinho Dairy #5 project is consistent with these plans, as the proposed improvements are expected to either maintain or improve air quality through targeted measures to control emissions.

*BIDA Beds and Wastewater Treatment*: The installation of 216,000 square feet of BIDA beds utilizes vermifiltration to treat process water, reducing volatile organic compounds (VOCs) and odors that contribute to ozone formation and other air quality issues. Regular tillage of the beds every two weeks promotes aeration, preventing stagnation and minimizing odor emissions. Additionally, cleaning drainage channels ensures proper drainage, further reducing odor

release. These measures align with SJVAPCD Rule 4565 (Biosolids, Animal Manure, and Poultry Litter Operations) and Rule 4566 (Organic Material Composting Operations), which aim to limit VOC emissions from manure and composting activities.

*Feed Storage Areas*: The three feed storage areas, located at the northeastern and northwestern corners of the facility, are designated for silage storage. These areas relocate existing feed storage operations on-site, maintaining current operational practices without increasing vehicle trips or associated emissions. By consolidating feed storage, the Project minimizes dust generation from handling activities, which could otherwise contribute to $PM_{10}$ and $PM_{2.5}$ emissions. The use of gravel or decomposed granite around these areas, as part of the project's dust control measures, further reduces fugitive dust, complying with SJVAPCD Regulation VIII (Fugitive $PM_{10}$ Prohibitions).

*Calf Hutches, Freestall Barn, Maternity Barn, Shop and Shade Structures*: The addition of twelve rows of calf hutches, one freestall barn, one maternity barn, one shop and twelve shade structures over existing open lot corrals enhance animal comfort and operational efficiency. These improvements do not introduce new sources of air pollutants, as they primarily involve stationary structures that do not generate significant emissions during operation. The calf hutches reduce the need for off-site calf transport, decreasing vehicle-related emissions of criteria pollutants such as nitrogen oxides ($NO_x$) and $PM_{2.5}$. The shade structures and barns reduce dust generation by providing covered areas that limit soil disturbance from animal movement, contributing to lower $PM_{10}$ emissions.

*Open Lot Corral*: The addition of one open lot corral supports animal housing and comfort without significantly altering the site's operational footprint. Dust control measures, such as the use of gravel or decomposed granite and regular maintenance to prevent manure buildup, will minimize fugitive dust emissions, consistent with SJVAPCD Rule 4570 (Confined Animal Facilities).

The Project includes a Dust Control Plan that complies with SJVAPCD Regulation VIII, ensuring that construction activities, such as grading for the BIDA beds or corral installation, do not exceed thresholds for $PM_{10}$ emissions. This plan incorporates Best Management Practices (BMPs), such as dust suppression techniques (e.g., watering, soil stabilizers, and covering stockpiles), to control fugitive dust during construction. Additionally, measures to reduce vectors (e.g., tilling BIDA beds to absorb moisture and removing manure buildup) and control dust around the vermifiltration beds further minimize potential air quality impacts.

Overall, the proposed improvements to the dairy's agricultural operations are designed to reduce emissions of VOCs, odors, and particulate matter through advanced wastewater treatment, dust control, and efficient operational practices. These efforts align with SJVAPCD's air quality plans and regulations, ensuring that the Project does not conflict with or obstruct their implementation. Instead, the Project is expected to contribute positively to local air quality

by reducing emissions from dairy operations. Therefore, the Project will have *No Impact* on the implementation of the applicable air quality plan.

**b) Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or state ambient air quality standard?**

**Potentially Significant Impact:** The SJVAB is currently classified as non-attainment for ozone ($O_3$), $PM_{10}$, and $PM_{2.5}$ under both Federal and State air quality standards. Dairy operations are recognized as significant sources of emissions contributing to these pollutants, including particulate matter ($PM_{10}$), ammonia, methane, and volatile organic compounds (VOCs), which are precursors to ozone formation. The Sozinho Dairy #5 Project proposes modifications, including wastewater treatment enhancements through BIDA beds and vermifiltration, as well as improvements to shades, corrals, and feed storage, which may influence the emission profile of these pollutants.

The Project's wastewater treatment improvements, utilizing BIDA beds and vermifiltration, aim to enhance process water quality before reuse or land application, potentially reducing ammonia and VOC emissions associated with wastewater. The Fugitive Dust Emissions Control Plan (FDECP) outlined in Appendix H includes measures such as regular corral cleaning, controlled vehicle movement, water truck use to suppress dust on unpaved roads, and the application of decomposed granite or gravel around BIDA beds to minimize fugitive dust emissions. These measures are designed to reduce $PM_{10}$ and $PM_{2.5}$ emissions from dust-generating activities.

Odor control measures, including bi-weekly tilling of BIDA beds and regular maintenance of drainage channels, aim to prevent stagnant conditions that could increase VOC and ammonia emissions. However, without a detailed emissions inventory, the Project's net impact on criteria pollutants remains uncertain. The vermifiltration process, involving wood chips, microbial activity, and worms, may alter the emission profile by reducing ammonia volatilization, but it could also introduce new emission sources if not properly managed, as microbial processes can produce VOCs under certain conditions.

The SJVAB's non-attainment status for ozone, $PM_{10}$, and $PM_{2.5}$ underscores the need for rigorous assessment of any new or modified emission sources. The 2022 Ozone Plan for the 2015 8-Hour Ozone Standard and the 2024 Plan for the 2012 PM2.5 Standard, adopted by the SJVAPCD and CARB, emphasize stringent controls on VOCs, ammonia, and particulate matter to achieve attainment. The absence of a comprehensive air quality analysis for the Project, including quantified emissions of VOCs, ammonia, and particulate matter, limits the ability to determine whether these improvements will result in a net increase or decrease in criteria pollutants. Furthermore, dairy operations contribute significantly to regional ammonia emissions, which react with nitrogen oxides to form secondary $PM_{2.5}$, exacerbating the SJVAB's non-attainment challenges.

Given the lack of a detailed emissions inventory and the region's non-attainment status, further analysis is required to evaluate the Project's cumulative impact on air quality. A comprehensive assessment, including modeling of ozone precursors (VOCs and ammonia) and particulate matter emissions, is necessary to determine whether the Project's modifications, including wastewater treatment, shades, corrals, and feed storage improvements, will contribute to a cumulatively considerable net increase in criteria pollutants. Until such an analysis is completed, the Project may result in a potentially significant impact on air quality.

Given these uncertainties, further analysis is required to assess the Project's potential cumulative impact on regional air quality. A detailed emissions inventory, including quantification of ozone precursors, particulate matter, and other pollutants, should be conducted to determine whether the Project results in a net increase in air pollutants. Until such an assessment is completed, the Project may result in a *potentially significant impact* on air quality.

**c) Would the Project expose sensitive receptors to substantial pollutant concentrations?**

**Potentially Significant Impact:** The Sozinho Dairy #5 Project site is located approximately 250 feet southwest of the nearest sensitive receptor, a single-family residence situated across Houston Avenue. The proposed wastewater processing beds, which are the primary source of potential emissions, are located 1,930 feet from this residence. However, the Project includes proposed silage and feed storage areas positioned closer to the residence than the wastewater processing beds, as well as other improvements that may affect air quality. These factors are evaluated below to assess their potential impacts on sensitive receptors and the mitigation measures proposed to address them.

During construction, the Project will generate temporary emissions from activities such as earthmoving, equipment operation, and vehicle traffic. These activities will produce dust (particulate matter, $PM_{10}$ and $PM_{2.5}$) and exhaust emissions (nitrogen oxides, carbon monoxide, and volatile organic compounds, VOCs). The proximity of the proposed silage and feed storage areas to the residence increases the potential for localized dust and particulate matter exposure during construction. To reduce these impacts, the Project will implement a Dust Control Plan in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. This plan includes measures such as regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles. These controls are expected to effectively minimize dust and exhaust emissions, ensuring that construction-related air quality impacts remain less than significant.

Operational emissions from the Project are also expected to be minimal due to the design and function of the BIDA beds, which treat wastewater through vermifiltration. These beds are designed to improve wastewater quality and reduce the emission of VOCs and odors. Additionally, the beds will be regularly maintained to prevent stagnation and odor release, further minimizing potential impacts on air quality.

The proposed silage and feed storage areas, located closer to the residence than the wastewater processing beds, have the potential to generate odors and fugitive dust during material handling, storage, and transport. Silage fermentation can release VOCs and odorous compounds, which may impact the nearby residence if not properly managed. Additionally, dust from feed storage and handling could contribute to localized particulate matter concentrations. To mitigate these impacts, the Project will implement the following measures:

- Silage Management: Silage piles will be covered with tarps or other impermeable materials to reduce VOC emissions and odor release. Regular monitoring and maintenance of silage piles will be conducted to prevent spoilage and anaerobic conditions that exacerbate odors.
- Feed Storage Enclosures: Feed storage areas will utilize enclosed or covered structures where feasible to minimize fugitive dust emissions. Dust suppression techniques, such as misting systems or windbreaks, will be employed during material handling.
- Best Management Practices (BMPs): The Project will adhere to SJVAPCD-recommended BMPs for agricultural operations, including proper storage and handling protocols to reduce emissions from silage and feed activities.

These mitigation measures are expected to substantially reduce the potential for odors and dust from the silage and feed storage areas, minimizing impacts on the nearby residence.

The Project includes additional improvements beyond the wastewater processing beds and silage/feed storage areas, such as potential expansions to dairy operations, infrastructure upgrades, or additional waste management systems. These improvements could introduce new sources of emissions, including VOCs from increased animal housing, ammonia from manure management, or dust from expanded operational activities. To address these potential impacts, the project will implement the following measures in addition to those for silage and feed storage:

- Enhanced Waste Management: The vermifiltration-based BIDA beds will treat wastewater to reduce VOC and ammonia emissions compared to traditional lagoon systems. Regular maintenance of these beds will prevent stagnation and odor release.
- Emission Control Technologies: Where applicable, the Project will incorporate technologies such as biofilters or scrubbers for animal housing or waste management systems to capture odorous compounds and ammonia.
- Operational Controls: The Project will limit idling times for vehicles and equipment, use low-emission machinery where feasible, and implement dust suppression measures for any expanded operational areas.

These measures align with SJVAPCD guidelines and are designed to minimize the incremental increase in emissions from the proposed improvements.

While the individual components of the project (wastewater processing beds, silage/feed storage, and other improvements) are expected to have less than significant impacts with

mitigation, the combined effect of these activities, particularly with the silage and feed storage areas located close to the residences, could potentially result in a more significant air quality impact. If the proposed improvements significantly expand the scale of operations (e.g., a substantial increase in herd size or material handling), further analysis may be required to ensure that cumulative emissions do not exceed SJVAPCD thresholds for pollutants such as VOCs, ammonia, or particulate matter.

The Project will implement a Dust Control Plan during construction and incorporates mitigation measures for the silage and feed storage areas as well as other Project improvements. However, due to the closer proximity of the silage and feed storage areas to the residence and the potential for increased emissions from expanded operations, there is a risk of cumulative air quality impacts, including odors, volatile organic compounds, and particulate matter. Without mitigation measures, these factors could result in a *Potentially Significant Impact* on air quality. Additional analysis and enhanced mitigation may be required to ensure that emissions remain within acceptable limits and to reduce impacts to a less than significant level.

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

**Less Than Significant Impact with Mitigation Incorporation:** The Sozinho Dairy #5 Project includes modifications aimed at improving wastewater treatment, which inherently involves managing potential odor emissions. The Project will implement BIDA beds that utilize vermifiltration to treat wastewater. This process is designed to reduce odors by improving the quality of wastewater before it enters the retention ponds.

The installation of 216,000 square feet of BIDA beds utilizing vermifiltration (aerobic treatment using woodchips, worms, and microbes) is a major enhancement. This system significantly improves the quality of process water prior to discharge into retention ponds, which reduces odor emissions at their source. Regular tilling of the beds and maintenance of drainage channels, required under Mitigation Measure AIR-1, further minimize the potential for stagnant water and anaerobic conditions that cause odors.

The Project includes extensive organic matter processing areas totaling over 400,000 square feet for screening, drying, and storing manure and separated solids. These areas improve material handling and limit the buildup of wet organic material that could otherwise contribute to strong odors. Post-treatment storage and drying ensure that land-applied materials are stabilized, reducing off-site odor potential.

New animal housing structures such as calf hutches, a freestall barn, and a maternity barn provide better containment of manure and improve onsite cleanliness. Shade structures and a commodity barn contribute to animal comfort and organized feed handling. These upgrades reduce open-lot exposure and help manage odor-producing waste more efficiently.

While the Project will result in a minor increase in service and maintenance traffic, the overall truck trips are expected to remain stable or even decrease due to onsite relocation of feed operations and elimination of offsite calf transport. Emissions from these activities are short-term, intermittent, and not expected to result in adverse odor impacts.

The nearest sensitive receptor is approximately 250 feet from the site boundary, but over 1,900 feet from the nearest potential odor source (the BIDA beds). Combined with the Project's mitigation strategies, this spatial buffer provides substantial odor dispersion and ensures that nuisance emissions will not adversely affect surrounding residences.

Overall, the Sozinho Dairy #5 Project has incorporated effective odor management strategies that are designed to minimize any potential impact on surrounding areas. Given these mitigation measures (AIR-1) and the distance to the nearest sensitive receptors, the Project is not expected to result in emissions, such as odors, that would adversely affect a substantial number of people. Therefore, the impact is considered *Less than Significant with Mitigation Incorporation.*

**Mitigation Measures for Impacts on Air Quality Resources**

**Mitigation Measure AIR-1 (Odor Management).** To minimize odor impacts from the Project, the Applicant shall implement an odor management plan. The plan will incorporate several odor management strategies. These strategies will include regularly tilling the BIDA beds to prevent stagnation, reducing the potential for odor emissions. Additionally, the drainage channels associated with the BIDA beds shall be routinely maintained to ensure proper drainage and prevent the accumulation of odorous materials. The Applicant shall develop and adhere to a maintenance schedule for tilling and drainage channel upkeep, with records of these activities maintained and available for review by the Kings County Community Development Agency and the San Joaquin Valley Air Pollution Control District to ensure compliance.

**Mitigation Measure AIR-2 (Dust Control During Construction).** To minimize construction-related air quality impacts, the Applicant shall implement a Dust Control Plan in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. This plan shall include measures such as regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles. The Applicant shall ensure these controls are applied throughout the construction phase to reduce dust and exhaust emissions, with documentation of implementation maintained for review by relevant regulatory agencies.

**Mitigation Measure AIR-3 (Wastewater Processing Bed Maintenance).** To minimize operational emissions from the wastewater processing beds, the Applicant shall conduct regular maintenance of the BIDA beds to prevent stagnation and odor release. This shall include adherence to a vermifiltration design that improves wastewater quality and reduces

volatile organic compound (VOC) emissions. The Applicant shall develop a maintenance protocol, with records available for inspection by the San Joaquin Valley Air Pollution Control District to verify compliance.

**Mitigation Measure AIR-4 (Silage Management).** To minimize odors and VOC emissions from silage storage, the Applicant shall cover silage piles with tarps or other impermeable materials. Regular monitoring and maintenance of silage piles shall be performed to prevent spoilage and anaerobic conditions that could exacerbate odors. The Applicant shall establish a schedule for these activities, ensuring records are kept and accessible for review by regulatory authorities.

**Mitigation Measure AIR-5 (Feed Storage Dust Suppression).** To minimize fugitive dust emissions from feed storage areas, the Applicant shall utilize enclosed or covered structures where feasible. Dust suppression techniques, such as misting systems or windbreaks, shall be employed during material handling. The Applicant shall implement these measures in alignment with SJVAPCD-recommended best management practices for agricultural operations, with compliance documentation maintained.

**Mitigation Measure AIR-6 (Agricultural Best Management Practices).** To reduce overall emissions from silage and feed activities, the Applicant shall adhere to SJVAPCD-recommended best management practices, including proper storage and handling protocols. This shall encompass strategies to mitigate odors, VOCs, and particulate matter, with a focus on the proximity of storage areas to sensitive receptors. The Applicant shall prepare a plan outlining these practices, subject to periodic review by the San Joaquin Valley Air Pollution Control District.

**Mitigation Measure AIR-7 (Enhanced Waste Management for Additional Improvements).** To address emissions from expanded dairy operations or waste management systems, the Applicant shall treat wastewater through vermifiltration-based BIDA beds to reduce VOC and ammonia emissions compared to traditional systems. Regular maintenance of these beds shall be conducted to prevent stagnation and odor release, with a documented schedule ensuring ongoing compliance.

**Mitigation Measure AIR-8 (Emission Control Technologies).** To capture odorous compounds and ammonia from animal housing or waste management systems, the Applicant shall incorporate technologies such as biofilters or scrubbers where applicable. These controls shall be integrated into project improvements, aligning with SJVAPCD guidelines, and the Applicant shall maintain records of installation and operation for regulatory verification.

**Mitigation Measure AIR-9 (Operational Controls for Vehicles and Equipment).** To minimize emissions from expanded operational activities, the Applicant shall limit idling times for vehicles and equipment, utilize low-emission machinery where feasible, and implement dust suppression measures in expanded areas. These controls shall be part of a broader

operational plan, with adherence documented and available for review by the San Joaquin Valley Air Pollution Control District to ensure air quality impacts remain less than significant.

## IV. BIOLOGICAL RESOURCES

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Game or U.S. Fish and Wildlife Service? | ☐ | ☑ | ☐ | ☐ |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | ☐ | ☐ | ☐ | ☑ |
| c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through director removal, filling, hydrological interruption, or other means? | ☐ | ☐ | ☐ | ☑ |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | ☐ | ☐ | ☑ | ☐ |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☐ | ☑ |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☐ | ☑ |

Discussion for this section originates from Live Oak Associates, Inc.'s (LOA) Biological Evaluation prepared for this Project to identify sensitive biological resources, provide Project impact analysis, and recommend mitigation measures. The Biological Evaluation provides information about the biological resources within the Project area. Appendix B contains the Biological Report.

**Environmental Setting**

The Project Site is in the San Joaquin Valley in Kings County, east of Hanford in unincorporated Kings County. It is on the southwest corner of Houston Avenue and 7th Avenue. The Project Site is approximately 0.75 miles east of SR 43 and 2.25 miles south of SR 198. The Site is in the Remnoy U.S. Geological Survey (USGS) 7.5-minute quadrangle; Section 9, Township 19 South, Range 22 East (Mt. Diablo Base and Meridian).

Land use in the area is agricultural. The Project Site contains an operational dairy and associated equipment. The project site consists entirely of ruderal (i.e. disturbed) land. Immediately surrounding lands consist of the existing dairy and agricultural land in every direction. The area's topography is flat, approximately 236 feet above mean sea level.

Aquatic features in the near vicinity of the site include two dairy wastewater retention ponds, one of which is proposed for the construction of two earthen berms within it, an irrigation ditch approximately 0.3 miles west of the project site, a seasonal basin approximately 0.4 miles northwest of the project site, and a percolation basin approximately 0.2 miles southeast of the project site. Guernsey Slough and Cross Creek are located approximately 1.7 miles southeast of the project site and 1.7 miles east of the project site respectively.

Soils of the project site have been substantially altered through ground disturbance during initial dairy and agricultural development, and dairy and agricultural operations. As a result, the soils of the site no longer maintain their native soil characteristics and would, therefore, have no particular significance to biological resources of the site.

Natural biotic habitats are absent from the project site due to years of agricultural uses and activities associated with dairy operations. The land use of the project site can best be characterized as ruderal.

Ruderal lands on the site have experienced disturbance from activities associated with historic farming and ongoing dairy use of the site. At the time of LOA's field survey, vegetation was restricted to the berms of the wastewater pond, a cultivated wheat field, and the edges of the cultivated wheat field. Vegetation consisted primarily of weedy forbs including Palmer amaranth (Amaranthus palmeri), flax leaf horseweed (Erigeron bonariensis), London rocket (Sisymbrium irio), annual yellow sweet clover (Melilotus indicus), and cheeseweed (Malva parviflora).

The site offers little habitat value for many wildlife species. Despite the site's proximity to an irrigation ditch, a seasonal basin, and a percolation basin, amphibians and aquatic reptiles like turtles are expected to be absent from the site due to the lack of suitable aquatic breeding habitat on the site and unsuitable aestivation habitat within the site.

Though amphibians and aquatic reptiles are expected to be absent, some common terrestrial reptile, bird, and mammal species are expected to use the site. Reptile species that may forage on the site include the side-blotched lizard (Uta stansburiana) (observed) and snakes such as the gopher snake (Pituophis melanoleucus) and common kingsnake (Lampropeltis getulus), though these species' numbers would be expected to be quite low, if present at all.

Resident bird species expected to use this habitat would include red-winged blackbirds (Agelaius phoeniceus), Brewer's blackbirds (Euphagus cyanocephalus), mourning doves (Zenaida macroura), and killdeer (Charadrius vociferus), among others. Wintering birds that may utilize the site include the savannah sparrow (Passerella sandwichensis), American pipit (Anthus rubescens), white-crowned sparrow (Zonotrichia leucophrys) and Say's phoebe (Sayornis saya), among others. Summer migrants such as the barn swallow (Hirundo rustica) would be expected to forage over the site as well.

Several California ground squirrel (Otospermophilus beecheyi) burrows were observed along the north edge of the proposed stacking bed location. Burrows were also observed within the vicinity of the project site along the edges of the wheat field and in scattered locations within the dairy but outside the scope of the project site. Other rodents that may occur on the site in limited numbers include Botta's pocket gopher (Thomomys bottae), deer mouse (Peromyscus maniculatus), California vole (Microtus californicus), house mouse (Mus musculus), and Norway rat (Rattus norvegicus).

The site offers some foraging opportunities for mammalian and avian predators. Raptors such as red-tailed hawks (Buteo jamaicensis), American kestrel (Falco sparverius), and barn owls (Tyto alba) may occasionally forage over the site. Various species of bat may forage over the site for flying insects and disturbance-tolerant mammalian predators such as raccoons (Procyon lotor), striped skunks (Mephitis mephitis), and coyotes (Canis latrans) may occasionally forage on or pass through the site as well.

**Regulatory Setting**

**Federal Endangered Species Act (FESA)**: The Federal ESA protects plants and animals listed as endangered or threatened by USFWS and the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs "removing, possessing, maliciously damaging, or destroying any listed plant on Federal land and removing, cutting,

digging up, damaging, or destroying any listed plant on non-Federal land in knowing violation of state law" (16 U.S. Code [USC] 1538). Under Section 7 of ESA, Federal agencies are required to consult with USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its Critical Habitat (see definition of Critical Habitat below). Through consultation and the issuance of a biological opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for issuance of incidental take permits where no other Federal actions are necessary provided a habitat conservation plan (HCP) is developed.

**The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712)**: The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in §§ 3800, 3513, and 3503.5 of the California Fish and Game Code.

**Birds of Prey (CA Fish and Game Code Section 3503.5):** Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California, that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 prohibits explicitly the take or possession of any migratory nongame bird as designated in the MBTA. Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, Subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the Federal MBTA, serve to protect nesting raptors.

**Clean Water Act:** Section 404 of the Clean Water Act of (1972) is to maintain, restore, and enhance the physical, chemical, and biological integrity of the nation's waters. Under Section 404 of the Clean Water Act, the US Army Corps of Engineers (USACE) regulates discharges of dredged and filled materials into "waters of the United States" (jurisdictional waters). Waters of the US, including navigable waters of the United States, interstate waters, tidally influenced waters, and all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries.

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

**2035 Kings County General Plan:** The 2035 General Plan *Resource Conservation Element* contains the following goals, objectives, and action plans relating to biological resources.

- **RC Goal D1: *Preserve land that contains important natural plant and animal habitats.***
  - RC OBJECTIVE D1.1: Require that development in or adjacent to important natural plant and animal habitats minimize the disruption of such habitats.
    - *RC Policy D1.1.2*: Evaluate all discretionary land use applications in accordance with the screening procedures contained in the Biological Resources Survey located in Appendix C. If the results of the Project screening indicate the potential for important biological resources to exist on the Site a biological evaluation (consistent with Appendix C) shall be performed by a qualified biologist. If the evaluation indicates that the Project could have a significant adverse impact, mitigation shall be required or the Project will be redesigned to avoid such impacts. Mitigation shall be provided consistent with the California Environmental Quality Act (CEQA), and applicable state and federal guidelines as appropriate. Mitigation may include habitat improvement or protection, acquisition of other habitat, or payment to an appropriate agency to purchase, improve, or protect such habitat.
- **RC GOAL E1: *Balance the protection of the County's diverse plant and animal communities with the County's economic needs.***
  - RC OBJECTIVE E1.1: Require mitigation measures to protect important plant and wildlife habitats.
    - *RC Policy E1.1.1*: Complete the inquiry process outlined in Appendix C in the initial project review for development permits to determine whether the project is likely to have a significant adverse impact on any threatened or endangered species habitat locations, and to assure appropriate consideration of habitat preservation by development. Maintain current copies of California Department of Fish and Game and United States Fish and Wildlife Service maps showing locations of known threatened and endangered species habitat. If shown to be necessary, require the developer to consult with the California Department of Fish and Game, the United

States Fish and Wildlife Service, and the United States Army Corps of Engineers as to potential impacts, appropriate mitigation measures, and required permits.

- *RC Policy E1.1.2*: Require as a primary objective in the review of development projects the preservation of healthy native oaks and other healthy native trees.
- *RC Policy E1.1.3*: Maintain to the maximum extent practical the natural plant communities utilized as habitat by threatened and endangered species (see Appendix C for a listing and map of these plant communities).

**Discussion**

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

**Less than Significant Impact with Mitigation Incorporated:** The biological evaluation conducted for the Project Site, as detailed in the technical report prepared by Live Oak Associates, Inc. on May 24, 2024, indicates that the project has the potential to affect certain special-status species. However, with the implementation of appropriate avoidance and mitigation measures, impacts to these species are expected to be reduced to less than significant levels.

The Project Site, located within the existing Sozinho Dairy #5 Dairy property, consists of approximately 20 acres of ruderal (disturbed) land that has been heavily altered by decades of dairy operations and agricultural activities. A reconnaissance-level field survey conducted on May 17, 2024, identified no suitable habitat for special-status plant species and limited habitat value for special-status wildlife species. The following special-status species were evaluated for their potential to occur on or near the Project Site: Swainson's Hawk (Buteo swainsoni), Tricolored Blackbird (Agelaius tricolor), Loggerhead Shrike (Lanius ludovicianus), Burrowing Owl (Athene cunicularia), and San Joaquin Kit Fox (Vulpes macrotis mutica). The potential impacts to these species and proposed mitigation measures are discussed below.

**Swainson's Hawk (California Threatened):** A Swainson's Hawk was observed flying over the Project Site during the May 17, 2024, survey, indicating potential foraging activity. However, the Site lacks suitable nesting trees, and the disturbed ruderal lands and surrounding agricultural fields provide only marginal foraging habitat due to limited prey availability, such as California voles, small mammals, and insects. Mature trees suitable for nesting are present within 0.25 miles of the site, and 32 California Natural Diversity Database (CNDDB) nesting occurrences have been recorded within 10 miles. However, the high level of human and vehicular activity associated with dairy operations and the availability of more suitable foraging habitats in the surrounding region suggest that the loss of marginal foraging habitat on the Project site will not significantly impact the regional Swainson's Hawk population. Mitigation Measures BIO 1.1, 1.2, and 1.3 will be implemented to reduce impacts on Swainson's Hawks.

**Tricolored Blackbird (California Threatened):** The Project Site includes a wheat field that could potentially serve as nesting habitat for Tricolored Blackbirds, which are known to nest in agricultural fields due to the loss of wetland habitats in the Central Valley. Two CNDDB nesting occurrences from 2014 were documented 5.75 and 11.5 miles southwest of the site, and recent eBird sightings indicate the species' presence in the region. However, no nesting colonies were observed during the field survey, and the limited extent of suitable habitat on the site, combined with the availability of similar agricultural habitats in the surrounding area, suggests that the loss of potential foraging or nesting habitat will not substantially impact the regional population of Tricolored Blackbirds. Mitigation Measures BIO 3.1, 3.2, and 3.3 will be implemented to reduce impacts on Tricolored Blackbirds.

**Loggerhead Shrike (California Species of Special Concern):** The Loggerhead Shrike prefers open habitats with sparse shrubs and trees for perching and nesting, which are absent from the Project Site. While the species may occasionally forage or fly over the site, no suitable nesting habitat exists within 250 feet of the project site, and no CNDDB occurrences were documented within 10 miles. The impact on Loggerhead Shrike is therefore considered minimal, and no specific mitigation measures are warranted.

**Burrowing Owl (California Species of Special Concern):** Several California ground squirrel burrows, which could potentially serve as Burrowing Owl habitat, were observed along the north edge of the proposed stacking bed location and in adjacent areas. Although no Burrowing Owls or signs of their presence (pellets, feathers, or whitewash) were observed during the survey, nine CNDDB occurrences and five eBird sightings have been recorded within 10 miles, suggesting the species could potentially use the site for foraging, roosting, or nesting. The tall wheat field on the Site is unsuitable for foraging, but adjacent open areas with sparse vegetation provide potential habitat. Mitigation Measures BIO 2.1, 2.2, and 2.3 will be implemented to reduce impacts for Burrowing Owl.

**San Joaquin Kit Fox (Federally Endangered, California Threatened):** The Project Site represents extremely marginal habitat for the San Joaquin Kit Fox due to its disturbed landscape, lack of suitable denning sites, and poor foraging opportunities. Eighteen CNDDB occurrences have been recorded within 10 miles, with the most recent in 2006, approximately 5 miles northwest of the site. However, no evidence of kit fox denning was observed during the survey, and the site is situated within agricultural lands identified as low suitability for the species. The likelihood of San Joaquin Kit Fox occurring on the site is extremely low, and any individuals would likely only pass through during rare dispersal movements. No significant impacts to this species are anticipated, and no specific mitigation measures are warranted.

**Special Status Plants:** The Project Site, characterized by ruderal and developed land, has been heavily disturbed by decades of dairy and agricultural activities, rendering it unsuitable for special-status plant species. A review of the CNDDB and the California Native Plant Society's Online Inventory of Rare and Endangered Vascular Plants identified no occurrences of special-status plants on or near the Site. No special-status plant species were observed during the field

survey, and the potential for such species to occur is considered negligible. Therefore, no impacts to special-status plants are expected, and no mitigation measures are warranted.

The Sozinho Dairy #5 Project has the potential to affect special-status wildlife species, including Swainson's Hawk, Tricolored Blackbird, and Burrowing Owl, due to the presence of marginal foraging habitat and potential nesting or roosting sites. However, the Site's disturbed nature and the availability of similar or more suitable habitats in the surrounding agricultural landscape minimize the significance of these impacts. The implementation of the above mitigation measures will ensure that potential impacts to these species are avoided or minimized to less than significant levels. No impacts to special-status plants or San Joaquin Kit Fox are anticipated. Therefore, with mitigation incorporated, the Project's impacts on special-status species are considered *less than significant.*

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

**No Impact:** The Sozinho Dairy #5 Project is located in an agricultural and developed area that has been extensively modified by ongoing dairy and agricultural operations. The Project Site does not contain any riparian habitats or other sensitive natural communities. The biological survey conducted for the Project did not identify the presence of any riparian habitats or sensitive natural communities on or adjacent to the Site.

The surrounding landscape is dominated by agricultural land, with no natural watercourses or riparian vegetation present within the Project area. Additionally, the Project Site consists primarily of ruderal land that has been disturbed by past and ongoing agricultural activities, which further reduces the potential for the presence of sensitive natural communities.

Given the absence of riparian habitat or other sensitive natural communities on the Project Site, the proposed Project will not have any adverse effects on such habitats. There is *no impact.*

**c) Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through director removal, filling, hydrological interruption, or other means?**

**No Impact:** The Sozinho Dairy #5 Project Site does not contain any state or federally protected wetlands, such as marshes, vernal pools, or coastal wetlands. The Project Site has been heavily modified by agricultural and dairy operations, resulting in the absence of natural wetland features. The biological survey conducted for the Project confirmed that no jurisdictional wetlands or non-wetland waters are present on the Site.

The nearest aquatic features to the Project Site, such as the wastewater retention ponds and irrigation ditches, are man-made and do not qualify as protected wetlands under state or Federal regulations. These features are specifically designed and managed for agricultural purposes and are not considered sensitive natural communities.

Since the Project Site does not support any protected wetlands, the proposed Project will not result in the direct removal, filling, hydrological interruption, or any other impact on state or federally protected wetlands. There is *no impact.*

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

**Less than Significant Impact:** The Sozinho Dairy #5 Project Site is located within an agricultural and developed landscape that has been heavily modified by ongoing farming and dairy operations. The Project Site is primarily composed of ruderal land with limited natural habitat value, and it does not contain any significant natural features, such as rivers, streams, or continuous corridors of native vegetation, that would support the movement of native resident or migratory wildlife species.

The Site is not part of any established wildlife corridor or migratory pathway, and the surrounding land is similarly developed for agriculture, further reducing its potential importance as a movement corridor for wildlife. The Project Site does not contain any aquatic features that would support native resident or migratory fish species, nor does it provide suitable habitat for native wildlife nurseries.

Although some common terrestrial species, such as birds, small mammals, and possibly reptiles, may occasionally use the Site, the disturbed nature of the landscape and the lack of significant habitat features mean that the Project will not substantially interfere with wildlife movement or the use of the Site as a nursery. The Project's construction and operational activities are not expected to create barriers or significant disruptions to wildlife movement.

Given these factors, the impact of the Project on the movement of native resident or migratory wildlife species, wildlife corridors, or native wildlife nursery Sites is considered *less than significant*.

**e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation Action Plan or ordinance?**

**No Impact:** The Project would not conflict with any tree preservation policy or ordinance, preservation policy, or local ordinance which protects native trees. Therefore, no impact would occur. There is *no impact.*

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

**No Impact**: Species or habitats covered within any Habitat Conservation Plan, Critical Habitat Designations, or other approved conservation plans have not been identified within the Project Area. As such, the proposed Project would not be located within an area affected by or subject to a local, regional, or state habitat conservation plan. Therefore, no impact would occur. There is *no impact.*

**Mitigation Measures:**

**Mitigation Measure BIO-1.1 (Temporal Avoidance).** In order to avoid any potential impacts to nesting Swainson's hawks, construction activities will occur, where possible, outside of this species' nesting season, typically defined as March 1-September 15.

**Mitigation Measure BIO-1.2 (Preconstruction Surveys).** If construction activities must occur between March 1 and September 15, then within 10 days prior to the start of construction, a qualified biologist will conduct preconstruction nest surveys for Swainson's hawks on and within ¼ mile of the work area. The survey will consist of inspecting all accessible, suitable trees of the survey area for the presence of nests and hawks.

**Mitigation Measure BIO-1.3 (Avoidance of Active Nests).** Should any active Swainson's hawk nests be discovered within the survey area, an appropriate disturbance-free buffer will be established around the nest based on local conditions and agency guidelines. Disturbance-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.

**Mitigation Measure BIO-2.1 (Take Avoidance Survey).** A take avoidance survey for burrowing owls shall be conducted by a qualified biologist no less than 14 days prior to the start of construction. This take avoidance survey shall be conducted according to methods described in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The survey area shall include all potential roosting and nesting habitat on and within 200 meters of project impact areas, where accessible.

**Mitigation Measure BIO-2.2 (Avoidance of Active Nests).** If pre-construction surveys are undertaken during the breeding season (February 1 through August 31) and active nest burrows are located within or near construction zones, a construction-free buffer of 250 feet shall be established around all active owl nests. The buffer areas shall be enclosed with temporary fencing or flagging, and construction equipment and workers shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season. After the

breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below.

**Mitigation Measure BIO-2.3 (Passive Relocation of Resident Owls).** During the nonbreeding season (September 1-January 31), resident owls occupying burrows in project impact areas may either be avoided, or passively relocated to alternative habitat. If the applicant chooses to avoid active owl burrows within the impact area during the nonbreeding season, a 50-meter disturbance-free buffer shall be established around these burrows. The buffers shall be enclosed with temporary fencing, and shall remain in place until a qualified biologist determines that the burrows are no longer active. If the applicant chooses to passively relocate owls during the non-breeding season, this activity shall be conducted in accordance with a relocation plan prepared by a qualified biologist.

**Mitigation Measure BIO-3.1 (Avoidance).** In order to avoid impacts to native nesting birds, including the tricolored blackbird, the project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.

**Mitigation Measure BIO-3.2 (Preconstruction Surveys).** If project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and native bird nests within 15 days prior to the start of these activities. The survey will include the proposed work area(s) for that particular phase of work and surrounding lands within 250 feet, where accessible, for all nesting birds. If no active nests are found within the survey area, no further mitigation is required.

**Mitigation Measure BIO-3.3 (Establish Buffers).** Should any active nests be discovered in or near proposed work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.

Implementing Mitigation Measures BIO-1, BIO-2, and BIO-3 will ensure that impacts on species identified as a candidate, sensitive, or special status will be reduced to a less than significant impact with mitigation.

## V. CULTURAL RESOURCES

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5? | ☐ | ☑ | ☐ | ☐ |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | ☐ | ☑ | ☐ | ☐ |
| c) Disturb any human remains, including those interred outside of dedicated cemeteries? | ☐ | ☑ | ☐ | ☐ |

**Environmental Setting**

**Records Search:** The Southern San Joaquin Valley Information Center (SSJVIC) conducted a Cultural Resources Records Search on April 22nd, 2024. SSJVIC staff researched historical USGS topographic maps, reports of previous cultural resource investigations, archaeological Site, and survey base maps, cultural resource records (DPR forms) as well as listings of the Historic Properties Directory of the Office of Historic Preservation, General Land Office Maps, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources. The full report can be found in Appendix C.

The records search results indicate no cultural resource studies were previously completed within the project area or within a 0.5-mile radius. As such, there have been no cultural resources recorded within the Project boundary or within a 0.5-mile search radius. According to the information within CHRIS' database, there are no known/recorded resources within the project area. There is one recorded resource within the one-half mile radius: P-16-000250. A historic era agricultural ditch. There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, for the California State Historic Landmarks.

**Native American Outreach:** A request to the Native American Heritage Commission (NAHC) for a Sacred Lands File (SLF) was sent in April 2024 to identify any know sacred lands or traditional use areas within or near the Project site. The results were negative, indicating no sacred lands have been recorded on or in the vicinity of the facility. A Cultural Resources Evaluation conducted through the California Historic Resources Information System confirmed that no previous cultural resource studies or recorded sites are present within the Project area or immediate surroundings.

**Regulatory Setting**

This report defines "cultural resources" as prehistoric or historical archaeological sites and historical objects, buildings, or structures. Following 36 Code of Federal Regulations (CFR) §60.4, "historical" in this report applies to cultural resources at least 50 years old. The significance or importance of a cultural resource is dependent upon whether the resource qualifies for inclusion at the local level in a local register of historical resources, at the state level in the California Register of Historical Resources (CRHR), or the Federal level in the National Register of Historic Places (NRHP). Cultural resources that are determined to be eligible for inclusion in the CRHR are called "historical resources" (California Code of Regulations [CCR] 15064.5[a]). Under this statute, the determination of eligibility is partially based on the consideration of the criteria of significance as defined in 14 CCR 15064.5(a)(3). Cultural resources eligible for the NRHP are deemed "historic properties."

**National Historic Preservation Act:** The National Historic Preservation Act was adopted in 1966 to preserve historical and archeological sites in the United States. The Act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation offices.

**California Environmental Quality Act:** Under CEQA, a historical resource is a resource listed in, or determined to be eligible for listing in, the CRHR. Historical resources may include, but are not limited to, "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically or archaeologically significant" (PRC §5020.1[j]). In addition, a resource included in a local register of historical resources or identified as significant in a local survey conducted per the state guidelines is also considered a historic resource under California Public Resources Code (PRC) Section 5020.1.

CEQA details appropriate measures for the evaluation and protection of cultural resources in §15064.5 of the CEQA Guidelines. According to CEQA guidelines §15064.5 (a)(3), the criteria for listing on the CRHR includes the following:

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

According to CEQA guidelines §21074:
(a) "Tribal cultural resources" are either of the following:

*(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:*
*(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.*
*(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.*
*(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.*

*(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.*

*(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).*

Protection of cultural resources within California is additionally regulated by PRC §5097.5, which prohibits the destruction, defacing, or removal of any historic or prehistoric cultural features on land under the jurisdiction of State or local authorities.

**Health and Safety Code, Section 7050.5:** Section 7050.5 of the California Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC. CEQA Guidelines (Public Resources Code Section 5097) specify the procedures to be followed when discovering human remains on non-Federal land. The disposition of Native American burials falls within the jurisdiction of the NAHC.

**2035 Kings County General Plan:**
Kings County identified sixteen Historical Sites throughout the county. The nearest Historic Site to the Project is Calvary Cemetery, approximately 2.85 miles to the northwest. The *2035 Kings County General Plan Resource Conservation Element* includes the following goals, objectives, and policies that are potentially applicable to the proposed Project:

- **RC GOAL I1:** ***Preserve significant historical and archaeological sites and structures that represent the ethnic, cultural, and economic groups that have lived and worked in Kings County.***
  - RC OBJECTIVE I1.1: Promote the rehabilitation or adaptation to new uses of historic sites and structures.

- *RC Policy I1.1.2*: Direct proposed developments that may affect proposed or designated historic sites or County landmarks to the Kings County Museum Advisory Committee or other similarly purposed advisory body under the Kings County Parks and Recreation Advisory Commission for review and comment.
- *RC Policy I1.1.3*: Encourage the protection of cultural and archaeological sites with potential for placement on the National Register of Historic Places and/or inclusion in the California Inventory of Historic Resources.
- *RC Policy I1.1.4*: Refer applications that involve the removal, destruction, or alteration of proposed or designated historic sites or County landmarks to the Kings County Museum Advisory Committee or its successor for recommended mitigation measures.

➢ RC OBJECTIVE I1.2: Identify potential archaeological and historical resources and, where appropriate, protect such resources.
- *RC Policy I1.2.1*: Participate in and support efforts to identify significant cultural and archaeological resources and protect those resources in accordance to Public Resources Code 5097.9 and 5097.993.
- *RC Policy I1.2.2*: Continue to solicit input from local Native American communities in cases where development may result in disturbance to sites containing evidence of Native American Activity and/or to sites of cultural importance.
- *RC Policy I1.2.3*: Address archaeological and cultural resources in accordance with the California Environmental Quality Act (CEQA) for discretionary land use applications.
- *RC Policy I1.2.4*: The County will respectfully comply with Government Code §65352.3 (SB18) by conducting formal consultations with tribes as identified by the Native American Heritage Commission on all general plan and specific plan amendments.
- *RC Policy I1.2.5*: The County will respectfully comply with Government Code §6254.(r) and 6254.10 by protecting confidential information concerning Native American cultural resources. For example, adopting internal procedures such as keeping confidential archaeological reports away from public view or discussion in public meetings.
- *RC Policy I1.2.1.6*: The County shall work in good faith with the Santa Rosa Rancheria Tachi Yokut Tribe ("Tribe"), the developer and other parties if the Tribe requests return of certain Native American artifacts from private development projects (e.g., for interpretive or educational value). The developer is expected to act in good faith when considering the Tribe's request for artifacts. Artifacts not desired by the Tribe shall be placed in a qualified repository as established by the California State Historical Resources Commission (see Guidelines for the Curation of Archaeological Collections, May 1993). If no facility is available, then all artifacts shall be donated to the Tribe.

**Discussion**

**a) Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?**

**Less Than Significant Impact with Mitigation Incorporation:** The SSJVIC conducted a records search on behalf of the Applicant on April 22nd, 2024, to determine if historical or archaeological sites had previously been recorded within the study area. This was to check if archaeologists had systematically surveyed the Project area before the initial study or whether the region of the field Project was known to contain archaeological sites and to be thereby archaeologically sensitive.

The records search results indicate no cultural resources were previously recorded within the Project boundary or within a 0.5-mile search radius. According to the information within the CHRIS' database, there are no recorded resources within the project area. There is one recorded resource within the one-half mile radius: P-16-000250. A historic era agricultural ditch. There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, for the California State Historic Landmarks.

The Project's construction will include a limited amount of ground disturbance. Although no cultural resources have been identified, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3 will ensure that impacts on this checklist item will be *less than significant with mitigation incorporation.*

**b) Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?**

**Less Than Significant Impact with Mitigation Incorporation:** No known archaeological resources are located within the Project area. Implementing Mitigation Measures CUL-1, CUL-2, and CUL-3 will ensure that the potential impact on unknown archeological resources will be *less than significant with mitigation incorporation.*

**c) Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?**

**Less Than Significant Impact with Mitigation Incorporation:** No known human remains are buried in the Project vicinity. If human remains are unearthed during Project construction, there is a potential for a significant impact. As such, implementation of Mitigation Measure CUL-3 will ensure that impacts remain *less than significant with mitigation incorporation.*

**Mitigation Measures for Impacts on Cultural Resources**

**Mitigation Measure CUL-1: Pre-Construction Cultural Survey Requirement.** Prior to any construction activities, a qualified professional consultant must conduct a field survey of the project site to determine if any cultural resources are present. The results of this survey must be submitted to the Kings County Community Development Agency for review. If any cultural resources are identified, further consultation with the appropriate authorities, including the Native American Heritage Commission, may be necessary to ensure proper management and preservation of these resources. No ground-disturbing activities shall commence until the survey has been completed and the results have been reviewed by the County.

**Mitigation Measure CUL-2: Protection of Cultural Resources**. In order to avoid the potential for impacts to historic and prehistoric archaeological resources, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:

- Cultural Resources Alert on Project Plans: The project proponent shall note on any plans that require ground disturbing activities that there is a potential for exposing buried cultural resources.
- Pre-Construction Briefing: The project proponent shall retain Santa Rosa Rancheria Cultural Staff to provide a pre-construction Cultural Sensitivity Training to construction staff regarding the discovery of cultural resources and the potential for discovery during ground disturbing activities, which will include information on potential cultural material finds and, on the procedures, to be enacted if resources are found.
- Stop Work Near any Discovered Cultural Resources: The project proponent shall retain a professional archaeologist on an "on-call" basis during ground disturbing construction for the project to review, identify and evaluate cultural resources that may be inadvertently exposed during construction. Should previously unidentified cultural resources be discovered during construction of the project, the project proponent shall cease work within 100 feet of the resources, and Kings County Community Development Agency (CDA) shall be notified immediately. The archaeologist shall review and evaluate any discoveries to determine if they are historical resource(s) and/or unique archaeological resources under CEQA.
- Mitigation for Discovered Cultural Resources: If the professional archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource, he/she shall notify the project proponent and other appropriate parties of the evaluation and recommended mitigation measures to mitigate the impact to a less-than- significant level. Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing, and data recovery, among other options. Treatment of any significant cultural resources shall be undertaken with the approval of the Kings County CDA. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System, Southern San Joaquin Valley Information Center. The resources shall be photo-documented and collected by the archaeologist for submittal to the Santa Rosa Rancheria's Cultural and

Historical Preservation Department. The archaeologist shall be required to submit to the County for review and approval a report of the findings and method of curation or protection of the resources. Further grading or sitework within the area of discovery shall not be allowed until the preceding steps have been taken.

- Native American Monitoring: Prior to any ground disturbance, the project proponent shall offer the Santa Rosa Rancheria Tachi Yokut Tribe the opportunity to provide a Native American Monitor during ground disturbing activities. Tribal participation would be dependent upon the availability and interest of the Tribe.
- Disposition of Cultural Resources: Upon coordination with the Kings County Community Development Agency, any prehistoric archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded applicable cultural resources laws and guidelines.

**Mitigation Measure CUL-3: Protection of Buried Human Remains.** In order to avoid the potential for impacts to buried human remains, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:

- Pursuant to State Health and Safety Code Section 7050.5(e) and Public Resources Code Section 5097.98, if human bone or bone of unknown origin is found at any time during on- or off-site construction, all work shall stop within 25 feet of the discovery and the Kings County Coroner shall be notified immediately and the resource shall be protected in compliance with applicable state and federal laws. If the remains are determined to be Native American, the Coroner shall notify the California State Native American Heritage Commission (NAHC), who shall identify the person believed to be the Most Likely Descendant (MLD) pursuant to Public Resources Code Section 5097.98. The project proponent and MLD, with the assistance of the archaeologist, shall make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Sec. 15064.5(d)). The agreed upon treatment shall address the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. California Public Resources Code allows 48 hours for the MLD to make their wishes known to the landowner after being granted access to the site. If the MLD and the other parties do not agree on the reburial method, the project will follow Public Resources Code Section 5097.98(b) which states that "…. the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."
- Any findings shall be submitted by the archaeologist in a professional report submitted to the project applicant, the MLD, the Kings County Community Development Agency, and the California Historical Resources Information System, Southern San Joaquin Valley Information Center.

## VI. ENERGY

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | ☑ | ☐ | ☐ | ☐ |
| b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | ☐ | ☐ | ☐ | ☑ |

**Environmental Setting**

Southern California Edison (SCE) provides electricity services to the region. SCE serves approximately 15 million people throughout a 50,000-square-mile service area in southern and central California. SCE supplies electricity to its customers through various renewable and nonrenewable sources. Table 3-5 below shows the proportion of each energy resource sold to California consumers by SCE in 2022 compared to the statewide average.

| Fuel Type | | SCE Power Mix | California Power Mix |
|---|---|---|---|
| **Coal** | | 0% | 2.1% |
| **Large Hydroelectric** | | 3.4% | 9.2% |
| **Natural Gas** | | 24.7% | 36.4% |
| **Nuclear** | | 8.3% | 9.2% |
| **Other (Oil/Petroleum Coke/Waste Heat)** | | 0.1% | 0.1% |
| **Unspecified Sources of Power**[1] | | 30.3% | 7.1% |
| **Eligible Renewables** | *Biomass* | 0.1% | 2.1% |
| | *Geothermal* | 5.7% | 4.7% |
| | *Small Hydro* | 0.5% | 1.1% |
| | *Solar* | 17.0% | 17.0% |
| | *Wind* | 9.8% | 10.8% |
| | **Total Eligible Renewable** | **33.2%** | **35.8%** |

1. "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

*Table 3-5. 2022 SCE and State average power resources; Source: SCE and California Energy Commission*

SCE also offers Green Rate options, which allow consumers to indirectly purchase 50% to 100% of their energy from renewable sources without installing private rooftop solar panels. To accomplish this, SCE buys the renewable energy necessary to meet the needs of participants.

Southern California Gas (SoCalGas) provides natural gas services to the Project area. Natural gas is an energy source developed from fossil fuels composed primarily of methane (CH4). According to the U.S. Energy Information Administration (EIA), approximately 30% of the natural gas burned in California is used for electricity generation. In addition, the residential sector consumes 21%, the industrial sector consumes 33%, and the commercial sector consumes 11%. Approximately 64,031,169 therms of natural gas are consumed annually within Kings County.

**Regulatory Setting**

**California Code of Regulations, Title 20:** Title 20 of the California Code of Regulations establishes standards and requirements for appliance energy efficiency. The standards apply to a broad range of appliances sold in California.

**California Code of Regulations, Title 24:** Title 24 of the California Code of Regulations is a broad set of standards designed to address the energy efficiency of new and altered homes and commercial buildings. These standards regulate energy consumed for heating, cooling, ventilation, water heating, and lighting.

**California Green Building Standards Code (CALGreen):** The purpose of the CALGreen Code is to "improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental air quality." The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program not established and adopted by the California Building Standards Commission (CBSC).

**SB 100:** SB 100, passed in 2018, set a deadline in 2045 for 100% of energy to be renewable. Additionally, by 2030, 60% of all energy must be renewable. California is targeting this goal through solar and other renewable sources.

**AB 178:** For California to meet its renewable goals, AB 178 was passed in 2018. AB 178 states that starting in 2020, all new low-rise residential buildings must be built with solar power.

**Executive Order B-55-18:** In 2018, Governor Brown signed EO B-55-18 to achieve carbon neutrality by moving California to 100 percent clean energy by 2045. This Executive Order also includes specific measures to reduce GHG emissions via clean transportation, energy-efficient

buildings, directing cap-and-trade funds to disadvantaged communities, and better management of the state's forest land.

**2035 Kings County General Plan:** The *Resource Conservation Element* of the Kings County General Plan contains the following goals, objectives, and policies related to energy conservation:

- **RC GOAL G1: Encourage the development of oil and gas energy sources provided that they do not degrade environmental quality.**
  - RC OBJECTIVE G1.3: Conserve energy to lower energy costs and improve air quality.
    - *RC Policy G1.3.1*: Encourage developers to be innovative in providing landscaping that modifies microclimates, thus reducing energy consumption.
    - *RC Policy G1.3.2*: Require new urban development to provide and maintain shade trees and other landscaping along streets and within parking areas to reduce radiation heating. However, solar access for solar panels shall not be blocked.
    - *RC Policy G1.3.3*: Participate, to the extent feasible, in local and State programs that strive to reduce the consumption of energy.
    - *RC Policy G1.3.4*: Coordinate with local utility providers to provide public education on energy conservation programs.

The *Air Quality Element* of the Kings County General Plan contains the following goals, objectives, and policies related to energy conservation:

- **AQ GOAL D1: Invest in more efficient and effective transportation infrastructure, fleet management and support for trip reduction programs to reduce traffic congestion, vehicle trips and the need for costly new or expanded roadways.**

- **AQ GOAL E1: Minimize air emissions and potential climate change impacts related to energy consumption in the County.**

  - AQ OBJECTIVE E1.1 Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development Projects within the County.
    - *AQ Policy E1.1.1*: Initiate and sustain ongoing efforts with local water and energy utilities and developers to establish and implement voluntary incentive-based programs to encourage the use of energy efficient designs and equipment in new and existing development projects within the County.
    - *AQ Policy E1.1.2*: Initiate and sustain ongoing efforts with agriculture, the building industry, water, and energy utilities and the SJVAPCD to promote enhanced energy conservation and sustainable building standards for new construction.
    - *AQ Policy E1.1.3*: Work with local water and energy utilities and the building industry to develop or revise County design standards relating to solar

orientation of building occupancies, water use, landscaping, reduction in impervious surfaces, parking lot shading and such other measures oriented towards reducing energy demand.

- *AQ Policy E1.1.4*: Actively promote the more efficient location of industries within the County which are labor intensive, utilize cogeneration or renewable sources of energy, support and enhance agricultural activities, and are consistent with other policies of the General Plan.
- *AQ Policy E1.1.5*: County staff will proactively work with the Cooperative Agricultural Extension office, California Energy Commission, local water and energy utilities, the agricultural industry, and other potential partners to seek funding sources and implement programs which reduce water and energy use, reduce air emissions, and reduce the creation of greenhouse gases.

**Discussion**

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

**Potentially Significant Impact:** The Sozinho Dairy #5 Project will require energy consumption during both the construction and operational phases, potentially leading to environmental impacts if energy use is not efficiently managed.

During construction, energy use will primarily involve fuel consumption by construction vehicles and equipment as well as electricity consumption for site preparation and equipment operation. While construction activities will be temporary, there is the potential of inefficient energy use if not managed according to best management practices.

In the operational phase, energy will be required for the continuous operation of wastewater treatment infrastructure, particularly the BIDA beds and mechanical separators. The BIDA beds, which operate 24 hours a day to treat process water through vermifiltration, may lead to increased energy demands due to their round-the-clock operation. Additionally, energy will be consumed by equipment related to feed storage, calf hutch maintenance, and general dairy management operations.

While some energy-saving measures are built into the Project design, such as integrated stormwater and wastewater systems that minimize the need for additional treatment processes, the continuous operation of energy-intensive systems like the BIDA beds may still pose risks of excessive energy consumption. The BIDA system's energy efficiency will depend on how effectively the facility monitors and optimizes its operations to reduce energy use during peak load times and maintain efficient equipment performance.

Additionally, the facility has upgrades to improve other aspects of the dairy, such as freestall barns, shade structures, and expanded feed storage areas. These will also contribute to incremental increases in operational energy consumption.

Given the continuous nature of operational energy demands, further analysis is warranted. A detailed energy use assessment will be conducted to evaluate whether the Project's energy consumption during both construction and operation aligns with state energy efficiency standards and best management practices. This analysis should also determine whether additional mitigation measures are necessary.

Until such an assessment is completed, the Project could result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, further evaluation and potentially additional mitigation are recommended to ensure compliance with California Energy Code requirements and to minimize potential energy-related environmental impacts. There is a *potentially significant impact.*

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

**No Impact:** The Sozinho Dairy #5 Project will comply with all applicable state and local plans related to renewable energy and energy efficiency. The Project is designed to align with California's goals for energy conservation and efficiency, including adherence to the California Green Building Standards Code (CALGreen) and Title 24, which mandate energy-efficient construction practices.

The Project will not obstruct any state or local plans for renewable energy or energy efficiency, as it is consistent with policies that promote energy conservation and the use of renewable energy sources. Therefore, the impact is considered *No Impact.*

## VII. GEOLOGY AND SOILS

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | ☐ | ☐ | ☐ | ☑ |
| ii) Strong seismic ground shaking? | ☐ | ☐ | ☑ | ☐ |
| iii) Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☑ | ☐ |
| iv) Landslides? | ☐ | ☐ | ☐ | ☑ |
| b) Result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☑ | ☐ |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | ☐ | ☐ | ☑ | ☐ |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct and indirect risks to life or property? | ☐ | ☐ | ☑ | ☐ |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | ☐ | ☐ | ☐ | ☑ |
| f) Directly or indirectly destroy a unique paleontological resource or Site or unique geologic feature? | ☐ | ☑ | ☐ | ☐ |

**Environmental Setting**

A Geotechnical Engineering Report was prepared by BSK Engineering (Appendix G). The general conclusion of the study is:

*Based upon the data collected during this investigation and from a geotechnical engineering standpoint, it is our opinion that there are no soil conditions that would preclude the construction of the proposed improvements, provided the recommendations presented in this report are incorporated into the project design and construction. The planned improvements may be supported on shallow isolated/continuous reinforced concrete spread footings, thickened mat foundations, and/or pole footings provided the structural engineer evaluate if the structure can tolerate the estimated settlement.*

**Geologic Stability and Seismic Activity**

- **Seismicity:** According to the *Health and Safety Element of 2035 Kings County General Plan*, Kings County has no known major fault systems within its boundaries. The most significant potential for seismic activity is posed by the San Andreas Fault, which is located approximately four miles west of the Kings County boundary line with Monterey County. The San Andreas Fault divides the Pacific and North American Tectonic Plates, and its closest location relative to the Project area is approximately 70 miles southwest in the Coast Range mountains. Another large fault that may be a potential hazard is the White Wolf fault, which is south of Kings County near Arvin and Bakersfield, approximately 100 miles southeast of the Project area. Additionally, there are faults to the east, mainly on the east side of the Sierra Nevada Mountain Range. According to the *1974 Five County Seismic Safety Element (FCSSE) (Tulare County Association of Governments, 1974),* Kings County is divided into two seismic zone groups based on ground shaking characteristics: Valley Zones (V1-V4) and Coast Ranges Zones (C1 and C2). The Project area is in the "V-1" (Valley-1) zone. The FCSSE identifies the V-1 Zone as having a low risk of seismic activity, as the distance from either fault line is large enough that the effect of seismic activities is minimal. According to the FCSSE, areas in northern Kings County are most likely to be affected by the San Andreas Fault, which lies in the Coast Range mountains about 70 miles southwest of the Project area, the White Wolf Fault, approximately 100 miles southeast of the Project area, and minor faults in the southwestern portion of Kings County along the Kettleman Hills, which is roughly 30 miles southwest of the Project area. The distance from these faults to the Project area is sufficient to protect the area from the most severe forms of damage resulting from ground shaking. The probability of exceeding peak ground acceleration (% g) in the next 50 years has a 20-30% chance in the Project area and its immediate surroundings.

  According to the Geotechnical Report (Appendix G), the Site can be classified as Site Class D (stiff soil profile). Use of the 2019 and 2022 California Building Code (CBC)

seismic design criteria is considered appropriate and the following parameters are considered applicable for the structural design of foundations.

- **Liquefaction**: Liquefaction is a phenomenon whereby unconsolidated or near-saturated soils lose cohesion and are converted to a fluid state due to severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in temporary, fluid-like soil behavior, resulting in landslides, lateral spreading, and structural collapse. The Kings County General Plan *Health and Safety Element* states that the San Joaquin Valley soils have liquefaction potential. Still, the risk and danger associated with liquefaction are considered to be minimal. However, the risk and danger associated with liquefaction are considered to be minimal in seismic zone V1, where the Project Site is located east of Hanford. Risks and dangers associated with liquefaction are proportional to ground shaking intensity, and seismic activity in this area is assessed to pose a low threat, so the potential damage from liquefaction would be minimal.

- **Landslides**: Landslides refer to a wide variety of processes that result in the downward and outward movement of soil, rock, and vegetation under the gravitational influence. Landslides are caused by natural and human-induced slope stability changes and often accompany other natural hazard events, such as floods, wildfires, or earthquakes. Landslide risk is also influenced by precipitation, topography, and geology. The southwestern corner of the County along the Coast Ranges has a moderate to high landslide incident probability due to steep slopes but is designated for Agricultural, and Natural Resource Conservation land uses and is mainly uninhabited and remote. Most of the County, including the proposed Project Site, is considered to have low or no potential for landslide incidence, and any moderate to high areas are located in remote uninhabited sections in the southwestern part of the County.

- **Subsidence**: Land Subsidence refers to the vertical sinking of land due to either manmade or natural underground voids. Subsidence has occurred throughout the San Joaquin Valley due to groundwater, oil, and gas withdrawal. According to the Kings County Seismic Zone Description with data derived from the FCSSE, the proposed Project Site does not have the potential for subsidence, and any areas within the County with the potential for subsidence have minimal risks and dangers associated with this occurrence.

**Soils Involved in the Project:** The proposed Project Site contains two soil types. The properties of the soil are described briefly below. Information is from the Geotechnical Engineering Report located in Appendix G.

- **Kimberlina Fine Sandy Loam:** The Kimberlina series comprises very deep, well-drained soils located on flood plains and recent alluvial fans in the southern San Joaquin Valley

and parts of the Mojave Desert, California, with slopes ranging from 0 to 9 percent. Formed in mixed alluvium primarily from igneous and sedimentary rock sources, these soils are classified as Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents. They feature a fine sandy loam to loam texture in the A and C horizons, with a calcium carbonate equivalent of 0 to 5 percent and neutral to moderately alkaline reaction. The soils are typically dry from April to mid-January, with a mean annual precipitation of 4 to 8 inches and a mean annual temperature of 59 to 65 degrees Fahrenheit. Used primarily for irrigated agriculture, including field, forage, and row crops, and occasionally for livestock grazing, the Kimberlina series is extensive in MLRA 17 and 30, characterized by moderately rapid to moderate permeability and negligible to medium runoff.
Source: USDA, Kimberlina Series.

- **Wasco Sandy Loam, 0 to 5 percent slopes:** The Wasco series consists of very deep, well-drained soils found on recent alluvial fans and flood plains in the southern San Joaquin Valley and parts of the Mojave Desert, California, with slopes ranging from 0 to 5 percent. These soils, formed in mixed alluvium primarily from igneous and sedimentary rock sources, are classified as Coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents. They exhibit a sandy loam to fine sandy loam texture in the A and C horizons, with a reaction ranging from slightly acid to moderately alkaline and minimal carbonate presence, typically below 16 to 40 inches. The soils are dry from mid-April to mid-January, with a mean annual precipitation of 4 to 7 inches and a mean annual temperature of 59 to 65 degrees Fahrenheit. Primarily used for irrigated field, forage, and row crops, with some areas supporting livestock grazing, wildlife habitat, recreation, and homesites, the Wasco series is extensive in MLRA 17 and 30, featuring moderately rapid permeability and negligible to very low runoff.
  Source: USDA, Wasco Series

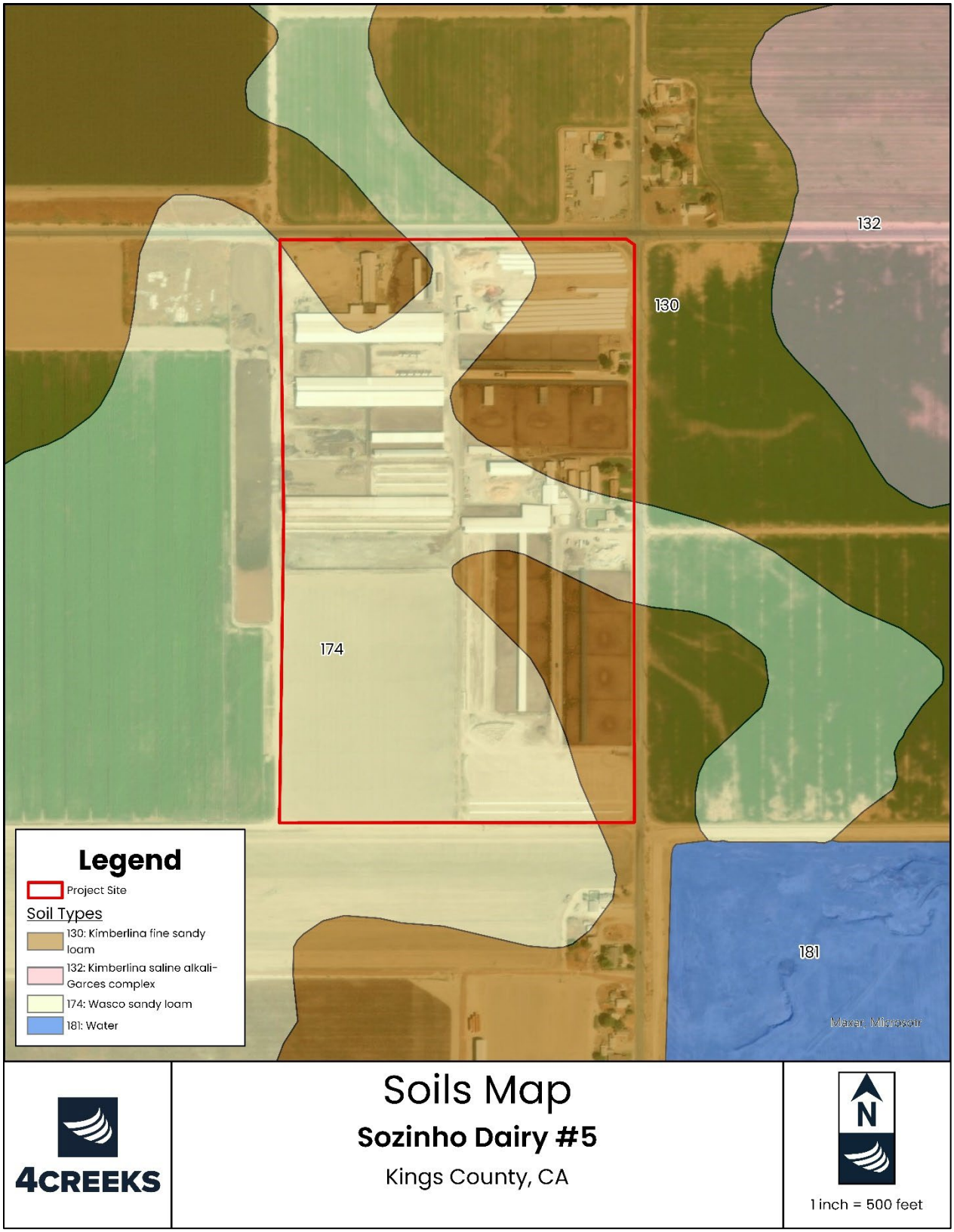



*Figure 3-4: Soils Map. Source: Web Soil Survey, USDA Natural Resources Conservation Service*

**Regulatory Setting**

**California Building Code:** The California Building Code (CBC) contains general building design and construction requirements for fire and life safety, structural safety, and access compliance. CBC provisions provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures and specific equipment.

**2035 Kings County General Plan:**
The *2035 General Plan Health and Safety Element* includes the following policies regarding soils and geology:

- *HS Policy A1.3.1*: Implement natural hazards review criteria for new development that is based upon information provided in the Natural Hazards Section of the *Health and Safety Element* to improve long term loss prevention.
- *HS Policy A1.4.1*: Implement the current California Building Codes and any subsequent amendments as contained within California Code of Regulations Title 24 to improve disaster resistance of future buildings.
- *HS Policy A2.1.1*: Maintain and enforce current building codes and standards to reduce the potential for structural failure caused by ground shaking and other geologic hazards.
- *HS Policy A2.1.3*: Prohibit new construction along known fault zones, and limit uses to nonstructural land uses.
- *HS Policy A2.1.4*: Review all development proposals to determine whether geotechnical soils report is required for new construction.
- *HS Policy A2.1.5*: Consider the environmental review process for land use projects seismic hazards, including subsidence, liquefaction, flooding, local soils, and geologic conditions.

**Discussion**

**a) Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**

**i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.**

**No Impact:** The Sozinho Dairy #5 Project Site is not located within an Alquist-Priolo Earthquake Fault Zone, and there are no known active faults in the immediate vicinity of the Project Site. The closest major fault is the San Andreas Fault, located approximately 70 miles west of the Site. The geotechnical investigation report for the Site confirms that there are no active fault zones nearby, and the potential for fault rupture is negligible. Therefore, the Project is not expected to cause or be affected by the rupture of a known earthquake fault. Therefore, the impact is considered *No Impact.*

**ii. Strong seismic ground shaking?**

**Less than Significant Impact:** The Project Site is located in a seismically active region, with the San Andreas Fault approximately 70 miles away. The geotechnical report classifies the Site as Seismic Design Category D under the 2022 California Building Code (CBC), which is appropriate for areas with a potential for moderate to severe ground shaking. The Project will adhere to the seismic design criteria outlined in the CBC, including specific recommendations for foundations and structural design to withstand seismic events. As a result, the impact of strong seismic ground shaking is considered *Less Than Significant.*

**iii. Seismic-related ground failure, including liquefaction?**

**Less Than Significant Impact:** The geotechnical investigation at the Project Site indicates that the soils present are primarily silty sand and clayey sand, with no groundwater encountered at depths up to 21.5 feet below ground surface. The Site is not located in an area with a high risk of liquefaction, as the depth to groundwater is greater than 50 feet. Additionally, the Site's soil is generally stable, and the risk of seismic-related ground failure, including liquefaction, is minimal. Proper foundation design, will further reduce any potential risks. Therefore, the impact is considered *Less Than Significant.*

**iv. Landslides?**

**No Impact:** The Project Site is located on flat terrain, with no significant slopes or geological features that would contribute to landslide risk. The Site's topography and soil stability indicate that landslides are not a concern. Therefore, the impact is considered *No Impact.*

**b) Would the Project result in substantial soil erosion or the loss of topsoil?**

**Less Than Significant Impact:** The Project Site is relatively flat, which reduces the risk of soil erosion. However, construction activities could temporarily increase the potential for erosion due to soil disturbance. The geotechnical report provides specific recommendations for site preparation, grading, and drainage to control and minimize soil erosion during construction. These recommendations include the implementation of a Stormwater Pollution Prevention Plan (SWPPP) and best management practices (BMPs) to ensure proper soil management. With

these recommendations in place, any erosion-related impacts are expected to be temporary and minimized. Therefore, the impact is considered *Less Than Significant.*

**c) Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

**Less than Significant Impact:** The geotechnical investigation for the Sozinho Dairy #5 Project Site determined that the soils present, including silty sand and clayey sand, are generally stable. No significant issues related to soil instability, such as liquefaction, lateral spreading, or subsidence, were identified at the Site. The depth to groundwater is greater than 50 feet, further reducing the potential for liquefaction. The Project will follow specific recommendations for foundation design and construction to mitigate any risks associated with soil instability. As a result, the potential for the Project to cause or be impacted by unstable soil conditions, including landslide, lateral spreading, subsidence, or collapse, is considered *Less Than Significant.*

**d) Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?**

**Less than Significant Impact:** The geotechnical report for the Sozinho Dairy #5 Project Site indicates that the soils present are primarily sandy loams, which are not considered expansive. Expansive soils are typically clay-rich and prone to significant volume changes with moisture variations, which can cause structural damage. However, the soils at the Project Site do not exhibit these characteristics, and the risk associated with expansive soils is minimal. The Project will implement standard construction practices to ensure stability and minimize any potential risks. Therefore, the impact is considered *Less Than Significant.*

**e) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

**No Impact:** The Sozinho Dairy #5 Project is designed with an on-site wastewater treatment system (BIDA system) specifically engineered for dairy operations. The Project will not rely on septic tanks or alternative wastewater disposal systems. The BIDA system is designed to handle the wastewater generated by the dairy, and the geotechnical conditions of the Site, including soil composition and stability, are suitable for this type of system. Therefore, the Project will not result in any impacts related to soils being incapable of supporting septic tanks or alternative wastewater disposal systems. The impact is considered *No Impact.*

**f) Would the Project directly or indirectly destroy a unique paleontological resource or Site or unique geologic feature?**

**Less Than Significant Impact with Mitigation Incorporation:** The Project Site has been heavily disturbed by ongoing agricultural and dairy operations, and no unique paleontological resources or geologic features have been identified at the Site. However, there is always a possibility that undiscovered paleontological resources could be encountered during construction activities, particularly during ground-disturbing activities such as excavation.

To mitigate this potential impact, the Project will implement mitigation measures that include the requirement to halt work in the area if paleontological resources are discovered. A qualified paleontologist will be consulted to assess the find and recommend appropriate actions to preserve the resource. Implementing Mitigation Measures CUL-1, CUL-2. & CUL-3 will ensure that any impacts resulting from Project implementation remain *less significant with mitigation incorporation.*

## VIII. GREENHOUSE GAS EMISSIONS

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

**Environmental Setting**

GHGs are present in the atmosphere naturally and are released by natural sources or formed from secondary reactions taking place in the atmosphere. The gases that are seen as the principal contributors to human-induced climate change are the following:

- Carbon dioxide ($CO_2$)
- Methane ($CH_4$)
- Nitrous oxide ($N_2O$)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride ($SF_6$)

A description of several different GHGs is shown below in Table 3-6.

| Greenhouse Gas | Description and Physical Properties | Lifetime | GWP | Sources |
|---|---|---|---|---|
| Methane (CH4) | Is a flammable gas and is the main component of natural gas. | 12 years | 21 | Emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal solid waste landfills. |
| Carbon dioxide (CO2) | An odorless, colorless, natural greenhouse gas. | 30-95 years | 1 | Enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees, and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. |
| Chloro-fluorocarbons | Gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are non-toxic nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface). | 55-140 years | 3,800 to 8,100 | Were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone. |
| Hydrofluorocarbons | A man-made greenhouse gasses. It was developed to replace ozone-depleting gases found in a variety of appliances. Composed of a group of greenhouse gases containing carbon, chlorine an at least one hydrogen atom. | 14 years | 140 to 11,700 | Powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases. |
| Nitrous oxide (N2O) | Commonly known as laughing gas, is a chemical compound with the formula N2O. It is an oxide of nitrogen. At room temperature, it is a colorless, non-flammable gas, with a slightly sweet odor and taste. It is used in surgery and dentistry for its anesthetic and analgesic effects. | 120 years | 310 | Emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. |
| Pre-fluorocarbons | Has a stable molecular structure and only breaks down by ultraviolet rays about 60 kilometers above Earth's surface. | 50,000 years | 6,500 to 9,200 | Two main sources of pre-fluorocarbons are primary aluminum production and semiconductor manufacturing. |
| Sulfur hexafluoride | An inorganic, odorless, colorless, and nontoxic nonflammable gas. | 3,200 years | 23,900 | This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing and as a tracer gas. |

*Table 3-6. Greenhouse Gasses; Source: EPA, Intergovernmental Panel on Climate Change*

Over the last 200 years, human activities have released substantial quantities of GHGs into the atmosphere. These extra emissions increase GHG concentrations in the atmosphere and

enhance the natural greenhouse effect, which can cause global warming. Although GHGs produced by human activities include naturally occurring GHGs (e.g., $CO_2$, $CH_4$, and $N_2O$), some gases (e.g., HFCs, PFCs, and $SF_6$) are entirely new to the atmosphere. Water vapor is a GHG, but it is generally excluded from the list of GHGs because it is short-lived in the atmosphere. Natural processes largely determine their atmospheric concentrations (e.g., oceanic evaporation). For this air quality study, the term "GHGs" will refer collectively to the six gases identified in the bulleted list provided above.

## Regulatory Setting

### Federal Regulations

The United States has historically had a voluntary approach to reducing GHG emissions; however, on April 2, 2007, the United States Supreme Court ruled that the USEPA has the authority to regulate $CO_2$ emissions under the CAA. The Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and that the USEPA did not have a valid rationale for not regulating GHGs. In December 2009, the USEPA issued an endangerment finding for GHGs under the CAA.

On December 7, 2009, the USEPA Administrator signed a final action under the CAA, finding that six GHGs (i.e., $CO_2$, $CH_4$, $N_2O$, HFCs, PFCs, and $SF_6$) constitute a threat to public health and welfare and that the combined emissions from motor vehicles cause and contribute to global climate change.

On September 15, 2011, the USEPA and the United States Department of Transportation (USDOT) issued the final rule for the first national standards to improve the fuel efficiency of medium- and heavy-duty trucks and buses from 2014 to 2018. For combination tractors, the agencies proposed engine and vehicle standards that would achieve up to a 20 percent reduction in fuel consumption from the model year 2014 by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies proposed separate gasoline and diesel truck standards, which would achieve up to a 10 percent reduction from the model year 2014 for gasoline vehicles and a 15 percent reduction for diesel vehicles (12 and 17 percent, respectively, if accounting for air conditioning leakage). Lastly, the engine and vehicle standards would achieve up to a 10 percent reduction from the model year 2014 fuel consumption for vocational vehicles. On October 25, 2016, the USEPA and USDOT issued Phase 2 of the national standards to improve fuel efficiency standards for medium- and heavy-duty trucks and buses for model years 2021 to 2027 to achieve vehicle fuel savings high as 25 percent, depending on the vehicle category.

The current administration finalized updated Corporate Average Fuel Economy (CAFE) standards for model years 2024 through 2026. The final rule establishes standards that would require an industrywide fleet average of approximately 49 miles per gallon (mpg) for passenger cars and light trucks in 2026 by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025 and 10 percent annually for model years 2026. The agency projects that the final standards will save consumers nearly $1,400 in total fuel expenses over the

lifetimes of vehicles produced in these model years and avoid the consumption of about 234 billion gallons of gas between 2030 to 2050. The National Highway Traffic Safety Administration also projects that the standards will cut GHGs from the atmosphere, reduce air pollution, and reduce the country's dependence on oil.

**State Agencies**

**California Air Resources Board (CARB):** In 1967, the State Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus (i.e., the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board) to establish CARB. Since its formation, CARB has worked with the public, the business sector, and local governments to find solutions to the State's air pollution problems. California adopted the CCAA in 1988. CARB administers the CAAQS for the ten air pollutants designated in the CCAA. These 10 State air pollutants are the six criteria designated by the Federal CAA and four others: visibility-reducing particulates, $H_2S$, sulfates, and vinyl chloride.

The California Global Warming Solutions Act of 2006, widely known as Assembly Bill (AB) 32, requires CARB to develop and enforce regulations for reporting and verifying statewide GHG emissions. CARB was directed to set a statewide GHG emissions limit and a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

In 2016, the Legislature passed, and Governor Jerry Brown signed, Senate Bill (SB) 32 and AB 197. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown's April 2015 Executive Order (EO) B-30-15. SB 32 builds on AB 32 and keeps California on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels, consistent with an IPCC analysis of the emissions trajectory that would stabilize atmospheric GHG concentrations at 450 parts per million (ppm) $CO_2e$ and reduce the likelihood of catastrophic impacts from climate change. The companion bill to SB 32 (i.e., AB 197) provides additional direction to CARB related to adopting strategies to reduce GHG emissions.

CARB adopted the 2022 Scoping Plan Update on December 15, 2022. The 2022 Scoping Plan Update assesses progress toward the statutory 2030 target while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan Update focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

**SB 97 and *State CEQA Guidelines*:** In August 2007, the Legislature adopted SB 97, requiring the Governor's Office of Planning and Research (OPR) to prepare and transmit new CEQA guidelines for mitigating GHG emissions or the effects of GHG emissions to the California

Natural Resources Agency. The OPR submitted its proposed guidelines to the Secretary for Natural Resources on April 13, 2009, and the *State CEQA Guidelines* amendments became effective on March 18, 2010.

The *State CEQA Guidelines* amendments do not specify a threshold of significance for GHG emissions or prescribe assessment methodologies or specific mitigation measures. Instead, the amendments encourage lead agencies to consider many factors in performing a CEQA analysis but rely on the lead agencies in making their significance determinations based upon substantial evidence. The State CEQA Guidelines amendments also encourage public agencies to use programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

The State CEQA Guidelines amendments require a lead agency to make a good-faith effort based on the extent possible on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions resulting from a project. The State CEQA Guidelines amendments give discretion to the lead agency whether to: (1) use a model or methodology to quantify GHG emissions resulting from a project and which model or methodology to use; and/or (2) rely on a qualitative analysis or performance-based standards. The California Natural Resources Agency is required to periodically update the guidelines to incorporate new information or criteria established by the CARB pursuant to AB 32.

**California Green Building Standards**: The California Green Building Standards Code, Part 11 of the California Code of Regulations, is commonly called the CALGreen Code. The first edition of the CALGreen Code was released in 2008 and contained only voluntary standards. The 2022 CALGreen Code was updated in 2022, became effective on January 1, 2023, and applies to non-residential and residential developments. The CALGreen Code contains requirements for construction site selection, stormwater control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The CALGreen Code provides design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The CALGreen Code also requires building commissioning, which is a process for the verification that all building systems (e.g., heating and cooling equipment and lighting systems) function at their maximum efficiency.

**San Joaquin Valley Air Pollution Control District (SJVAPCD) Climate Change Action Plan.** In August 2008, the SJVAPCD adopted the Climate Change Action Plan (CCAP) (SJVAPCD 2008). The CCAP directed the SJVAPCD to develop guidance to assist lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change.

In December 2009, the SJVAPCD adopted the guidance: *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009a) and the policy: *District Policy – Addressing GHG Emission Impacts for Stationary Source*

*Projects Under CEQA When Serving as the Lead Agency* (SJVAPCD 2009b). The guidance and policy rely on performance-based standards, otherwise known as Best Performance Standards (BPS) (SJVAPCD 2009c), to assess the significance of project-specific GHG emissions on global climate change during the environmental review process, as required by CEQA. Projects implementing BPS in accordance with SJVAPCD's guidance would be determined to have a less than the significant individual and cumulative impact on GHG emissions and would not require project-specific quantification of GHG emissions.

**2035 Kings County General Plan:** The Kings County General Plan *Air Quality Element* includes the following Goals, Objectives, and Action Plans regarding greenhouse gas emissions:

- ***AQ GOAL C1: Use Air Quality Assessment and Mitigation programs and resources of the SJVAPCD and other agencies to minimize air pollution, related public health effects, and potential climate change impacts within the County.***
  - AQ OBJECTIVE C1.1: Accurately assess and mitigate potentially significant local and regional air quality and climate change impacts from proposed projects within the County.
    - *AQ Policy C1.1.1*: Assess and mitigate project air quality impacts using analysis methods and significance thresholds recommended by the SJVAPCD.
    - *AQ Policy C1.1.2*: Assess and mitigate project greenhouse gas/climate change impacts using analysis methods and significance thresholds as defined or recommended by the SJVAPCD, KCAG or California Air Resources Board (ARB) depending on the type of project involved.
    - *AQ Policy C1.1.3*: Ensure that air quality and climate change impacts identified during CEQA review are minimized and consistently and fairly mitigated at a minimum, to levels as required by CEQA.

- ***AQ GOAL G1: Reduce Kings County's proportionate contribution of greenhouse gas emissions and the potential impact that may result on climate change from internal governmental operations and land use activities within its authority.***
  - AQ OBJECTIVE G1.1: Identify and achieve greenhouse gas emission reduction targets consistent with the County's proportionate fair share as may be allocated by ARB and KCAG.
    - *AQ Policy G1.1.1*: As recommended in ARB's Climate Change Adopted Scoping Plan (December 2008), the County establishes an initial goal of reducing greenhouse gas emissions from its internal governmental operations and land use activities within its authority to be consistent with ARB's adopted reduction targets for the year 2020. The County will also work with KCAG to ensure that it achieves its proportionate fair share reduction in greenhouse gas emissions as may be identified under the provisions of SB 375 (2008 Chapter 728) for any projects or activities requiring approval from KCAG.

**Discussion**

**Thresholds of Significance**

*State CEQA Guidelines* Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for a careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

Appendix G of the *State CEQA Guidelines* includes significance thresholds for GHG emissions. A Project would normally have a significant effect on the environment if it did either of the following:

- Generate GHG emissions, either directly or indirectly that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of GHGs.

Currently, no Statewide GHG emissions threshold has been used to determine a project's potential GHG emissions impacts. Threshold methodology and thresholds are still being developed and revised by air districts in California.

Neither Kings County nor SJVAPCD has developed or adopted numeric GHG significance thresholds. Therefore, this analysis evaluates the GHG emissions based on the Project's consistency with the SJVAPCD CCAP and other applicable State GHG reduction goals.

**a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

**Potentially Significant Impact:** The Sozinho Dairy #5 Project is expected to generate greenhouse gas (GHG) emissions during both its construction and operational phases, which could potentially have a significant impact on the environment if not adequately managed.

During the construction phase, GHG emissions will primarily result from the construction equipment, vehicles, and machinery. These activities will release carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$) into the atmosphere. Although construction-related emissions are expected to be temporary and will decrease significantly once the construction phase is complete, they will contribute to the Project's overall GHG footprint during the period of site preparation, facility modifications, and infrastructure installation.

In the operational phase, ongoing GHG emissions are expected, consistent with typical dairy operations. Methane from cattle and manure management represents a key contributor to the

GHG profile, with methane's global warming potential being 28 to 36 times that of $CO_2$ over a 100-year period.

The Project includes BIDA beds, utilizing vermifiltration with wood chips, microbes, and earthworms to treat process water, potentially lowering GHG emissions by enhancing wastewater treatment efficiency and reducing anaerobic conditions that generate methane. Operational practices like weekly corral scraping and dry manure storage in graded areas are also intended to limit methane-producing conditions by avoiding extended anaerobic decay.

However, the absence of methane capture technologies, such as anaerobic digesters or covered lagoon systems, remains a concern. Current industry standards for new dairy projects often suggest such technologies to meet California's climate goals. Without these, operational emissions from livestock and manure could exceed projections, leading to potentially higher GHG levels.

Additionally, the continuous 24-hour operation of the BIDA beds, while beneficial for wastewater treatment, may contribute to additional energy-related GHG emissions, depending on the energy source used. If energy demands are met through non-renewable sources, this could further elevate the Project's GHG emissions profile.

Under State CEQA Guidelines Section 15064(b), a determination regarding the significance of GHG emissions must be based on available scientific and factual data. Although neither Kings County nor the SJVAPCD has established specific numeric thresholds for GHG emissions, the Project's consistency with the SJVAPCD's Climate Change Action Plan (CCAP) and California's GHG reduction goals, as outlined in Assembly Bill (AB) 32 and Senate Bill (SB) 32, must be evaluated.

Given these uncertainties, regarding methane emissions from manure management, energy-related emissions from continuous wastewater treatment operations, and the absence of GHG mitigation strategies—a GHG emissions inventory will be required. This evaluation would determine the total GHG emissions from all operational sources, including livestock, manure management, and energy consumption, and assess the Project's alignment with regional and state climate action plans. The analysis should also determine whether additional mitigation measures, such as the adoption of methane capture technologies, renewable energy systems, or enhanced energy efficiency practices, are required.

Until an evaluation is completed and appropriate mitigation measures are identified and implemented, there is a *Potentially Significant Impact.*

**b) Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

**No Impact:** As discussed above, the SJVAPCD has adopted a CCAP, which includes suggested BPS for proposed development Projects. Appendix J of the SJVAPCD Final Staff Report for the CCAP contains GHG reduction measures; however, these measures are intended for commercial, residential, and mixed-use Projects and would not apply to the Sozinho Dairy #5 Project. The only applicable measure is the following:

- To minimize greenhouse gas emissions and optimize equipment efficiency, all equipment shall be operated following manufacturers' specifications and approved design specifications.

The Sozinho Dairy #5 Project has been designed to be consistent with key state and regional plans, policies, and regulations aimed at reducing GHG emissions, including AB 32 and the 2022 Scoping Plan. These plans provide a framework for reducing GHG emissions across California, with specific focus areas including agriculture and dairy operations, due to their substantial contributions to methane emissions.

The Project's compliance with the SJVAPCD CCAP, which includes performance standards for reducing GHG emissions, further ensures that the Project will not conflict with GHG reduction efforts. Additionally, the Project's design includes measures to optimize energy efficiency, manage waste, and reduce emissions from transportation and other operational activities, all of which are consistent with state GHG reduction goals.

Since the Project aligns with and supports these established plans and regulations, there is no expected conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Therefore, the impact is considered *No Impact.*

## IX. HAZARDS AND HAZARDOUS MATERIALS

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

**Environmental Setting**

The nearest school, Kit Carson Union Elementary School, is located approximately 2.1 miles north of the Project Site. The Site is approximately 2.15 miles southeast of the nearest public airport (Hanford Municipal Airport).

The Department of Toxic Substances Control's (DTSC's) EnviroStor was used to identify any sites associated with the releases of hazardous materials or wastes within the Project area. This research confirmed that the Project would not be located on a site that is included on a list of hazardous materials sites compiled under Government Code Section 65962.5.

**Regulatory Setting**

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S. Code [U.S.C.] §9601 et seq.).** The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or the Superfund Act) authorizes the President to respond to releases or threatened releases of hazardous substances into the environment.

**Occupational Safety and Health Administration.** The Occupational Safety and Health Administration (OSHA) sets and enforces Occupational Safety and Health Standards to assure safe working conditions. OSHA provides training, outreach, education, and compliance assistance to promote safe workplaces. The proposed Project would be subject to OSHA requirements during construction, operation, and maintenance.

**Toxic Substances Control Act of 1976 (15 U.S.C. §2601 et seq.).** The Toxic Substance Control Act was enacted by Congress in 1976 and authorized the EPA to regulate any chemical substances determined to cause an unreasonable risk to public health or the environment.

**Hazardous Waste Control Law, Title 26.** The Hazardous Waste Control Law creates hazardous waste management program requirements. The law is implemented by regulations contained in Title 26 of the California Code of Regulations (CCR), which contains requirements for the following aspects of hazardous waste management:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

**California Code of Regulations, Title 22, Chapter 11.** Title 22 of the California Code of Regulations contains regulations for identifying and classifying hazardous wastes. The CCR defines waste

as hazardous if it has the following characteristics: ignitability, corrosivity, reactivity, and/or toxicity.

**California Emergency Services Act.** The California Emergency Services Act created a multi-agency emergency response plan for California. The Act coordinates various agencies, including CalEPA, Caltrans, the California Highway Patrol, regional water quality control boards, air quality management districts, and county disaster response offices.

**Kings County Department of Public Health:** The Kings County Department of Public Health implements the Hazardous Waste Program and the Hazardous Waste Treatment/Tiered Permit Program throughout Kings County. These programs aim to ensure that all hazardous waste generated in Kings County businesses is appropriately handled, recycled, treated, stored, and disposed. Environmental Health staff inspects facilities that generate hazardous waste, investigates reports of illegal hazardous waste disposal, and responds to emergency spills of hazardous chemicals. Environmental Health staff also participates in public education programs to inform industries and residents about the laws and regulations relating to the safe disposal of hazardous waste.

**2035 Kings County General Plan:** The Kings County 2035 General Plan *Safety Element* includes the following goals, objectives, and policies on hazards and hazardous materials and have been relevant to this analysis:

- ***HS GOAL A1: Preventative measures reduce the potential impacts of natural hazards upon people's lives, property, and the environment.***
  - HS OBJECTIVE A1.3: Limit growth and development in hazard areas to minimize new areas susceptible to higher risk of natural hazards.
    - *HS Policy A1.3.1*: Implement natural hazards review criteria for new development that is based upon information provided in the Natural Hazards Section of the Health and Safety Element to improve long term loss prevention.
- ***HS GOAL B1: Promote the health and well-being of County residents, and support healthy living environments, physical activity opportunities, medical services, and readily available nutritious food sources.***
  - HS OBJECTIVE B1.5: Ensure adequate protection of County residents from new generations of toxic or hazardous waste substances.
    - *HS Policy B1.5.1*: Evaluate development applications to determine the potential for hazardous waste generation and be required to provide sufficient financial assurance that is available to the County to cover waste cleanup and/or site restoration in instances where the site has been abandoned or the business operator is unable to remove hazardous materials from the site.

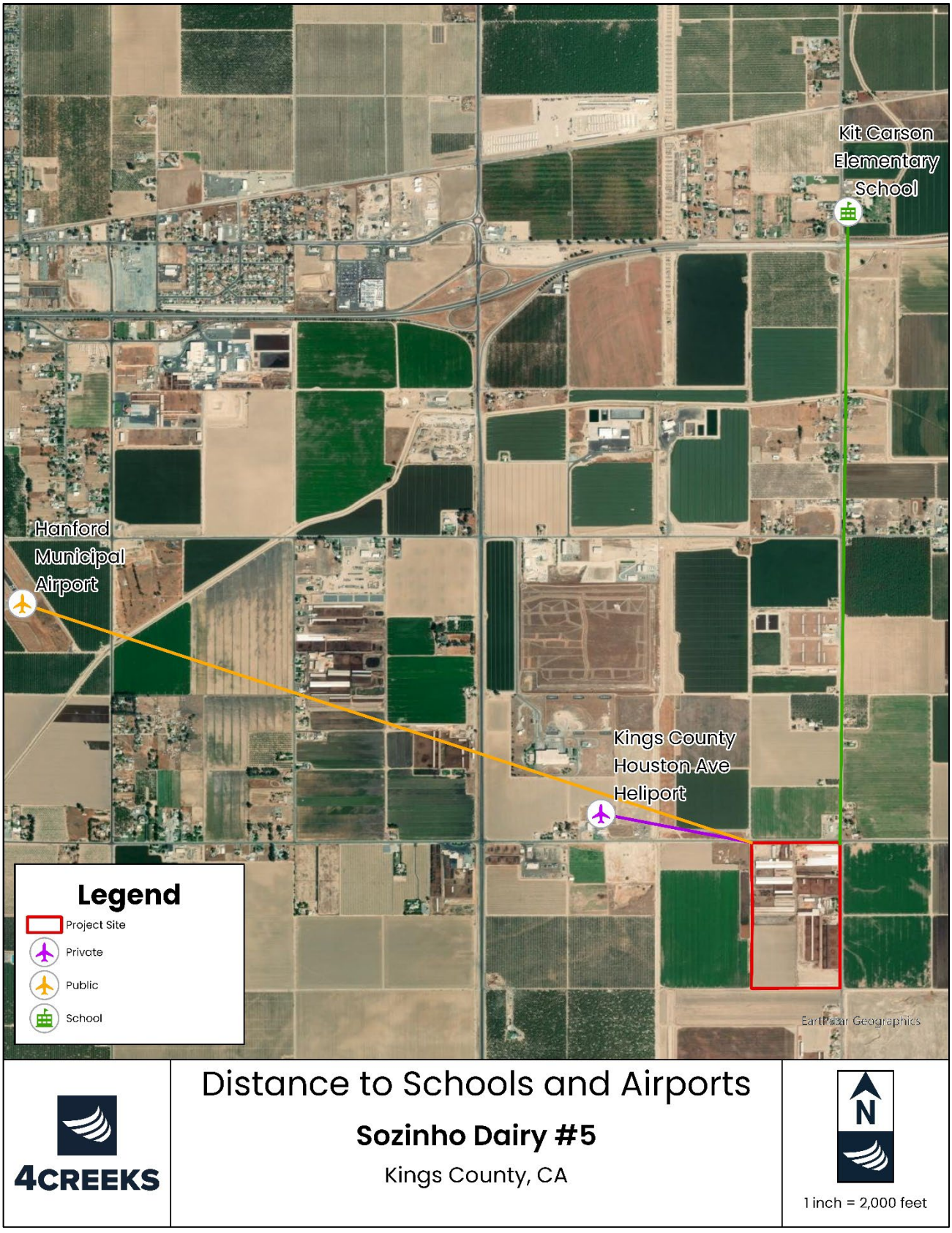



*Figure 3-5: Distance to Schools and Airports*

**Discussion**

**a) Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

**Less than Significant Impact with Mitigation Incorporation:** The Sozinho Dairy #5 Project will involve the use of hazardous materials typical of agricultural and dairy operations, such as fuels, oils, and cleaning agents. During construction, materials like diesel fuel and lubricants will be used to operate machinery. Operation of the dairy will involve the storage and use of materials such as diesel fuel, hydraulic oil, motor oil, and propane. The Project will not involve large-scale transport or disposal of hazardous materials, and it will not generate hazardous waste in quantities that would pose a significant risk.

To ensure compliance with safety regulations and minimize potential hazards, Mitigation Measure HAZ-1 requires the preparation and implementation of a Hazardous Materials Business Plan (HMBP). The HMBP will outline procedures for the safe handling, storage, and disposal of hazardous materials, as well as emergency response protocols, in accordance with the California Health and Safety Code, Chapter 6.95, the Hazardous Materials Transportation Act, and CCR, Title 8 and Title 22. Additionally, Best Management Practices (BMPs) will be implemented during construction and operation to further reduce risks associated with hazardous materials.

With the incorporation of Mitigation Measure HAZ-1 and adherence to applicable regulations, the Project's impacts related to the routine transport, use, or disposal of hazardous materials are expected to be *Less Than Significant with Mitigation Incorporation.*

**b) Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

**Less than Significant Impact:** While the use of hazardous materials during construction and operation poses some risk, the Project includes BMPs to prevent and manage accidental releases. These measures include proper storage, handling, and disposal of hazardous materials, as well as immediate response protocols in the event of a spill.

Additionally, the Project's use of a reinforced composite polyethylene (RCPE) liner in waste management systems will minimize the risk of hazardous materials contaminating groundwater or surface waters. Given these precautions, any accidental release of hazardous materials is not reasonably foreseeable to result in significant environmental harm. Therefore, the impact is considered *Less Than Significant.*

**c) Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

**No Impact:** The nearest school, Kit Carson Union Elementary School, is located approximately 2.1 miles north of the Project Site. Since the Project is not within one-quarter mile of any existing or proposed schools, and does not involve the emission or handling of acutely hazardous materials near a school, the impact is considered *No Impact.*

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

**No Impact:** The Project Site is not listed on any hazardous materials sites under Government Code Section 65962.5. DTSC's EnviroStor database confirms that the Site is not associated with any releases of hazardous materials or waste that would pose a risk to the public or environment. Therefore, the impact is considered *No Impact.*

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

**No Impact:** The nearest public airport, Hanford Municipal Airport, is located approximately 2.15 miles northwest of the Project Site. The Project is outside the influence area of the airport and is not subject to any airport land use plans. Therefore, there is no safety hazard associated with the proximity to the airport, and the impact is considered *No Impact.*

**f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

**No Impact:** The Project will not interfere with any existing emergency response or evacuation plans. The Project design and site plan will be reviewed by local authorities, including the Fire Department, to ensure compliance with all relevant emergency planning requirements. Therefore, the impact is considered *No Impact.*

**g) Would the Project expose people or structures, either directly or indirectly, to significant risk of loss, injury or death involving wildland fires?**

**No Impact:** The Project Site is located in an agricultural area that is not prone to wildland fires. The surrounding land is primarily farmland with low vegetation density, reducing the risk of wildland fires. Additionally, the Kings County General Plan indicates that the fire hazard in the Project area is low. Therefore, the Project will not expose people or structures to significant risks from wildland fires, and the impact is considered *No Impact.*

**Mitigation Measures for Impacts on Hazards and Hazardous Materials**

**Mitigation Measure HAZ-1: Hazardous Materials Business Plan.** To ensure compliance with applicable safety regulations and minimize risks associated with the handling, storage, and use of hazardous materials at the Sozinho Dairy #5 facility, the applicant shall prepare and file a Hazardous Materials Business Plan (HMBP), prior to the initiation of any construction or operational activities involving hazardous materials. The HMBP shall include the following components:

- Inventory of Hazardous Materials: A detailed inventory of all hazardous materials to be used, stored, or disposed of on-site, including quantities, storage locations, and handling procedures.
- Emergency Response Plan: Procedures for responding to spills, leaks, or other incidents involving hazardous materials, including notification protocols, containment measures, and cleanup procedures.
- Employee Training: A training program for all employees handling hazardous materials, ensuring they are informed of proper handling, storage, and emergency response procedures in accordance with state and federal regulations.
- Site Map: A detailed site map indicating the locations of hazardous materials storage, handling areas, and emergency response equipment, such as spill kits and fire extinguishers.

The applicant shall submit the HMBP for review and approval by the Kings County Environmental Health Services Division prior to the issuance of any construction or grading permits. The plan shall be updated annually or as required by regulatory authorities, and the applicant shall maintain records of compliance, including inspection reports and employee training logs, for review by the County upon request. Implementation of the HMBP will reduce potential impacts related to hazardous materials to a less than significant level by ensuring safe handling, storage, and emergency response procedures are in place.

## X.HYDROLOGY AND WATER QUALITY

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Violate any water quality standards or waste discharge requirements or otherwise sustainably degrade surface or ground water quality? | ☑ | ☐ | ☐ | ☐ |
| b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | ☐ | ☐ | ☑ | ☐ |
| c) Substantially alter the existing drainage pattern of the Site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would: | | | | |
| (i) result in substantial erosion or siltation on- or off-site? | ☐ | ☑ | ☐ | ☐ |
| (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite? | ☐ | ☑ | ☐ | ☐ |
| (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or | ☐ | ☑ | ☐ | ☐ |
| (iv) impede or redirect flood flows? | ☐ | ☐ | ☑ | ☐ |
| d) In flood hazard, tsunami, or seiche zones risk the release of pollutants due to project inundation? | ☐ | ☐ | ☐ | ☑ |
| e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater movement plan? | ☐ | ☐ | ☐ | ☑ |

**Environmental Setting**

**Surface Water:** The proposed Project Site is within the Tulare Lake Basin Watershed, covering portions of Fresno, Kern, Kings, and Tulare Counties. More than 16 rivers and creeks flow from

surrounding mountains into the Basin's small lakes and wetlands. The most prominent rivers and streams within the Watershed are the Kings River and the Kaweah River. The alluvial fans of the Kings River and Kaweah River dominate the Kings County Water District landscape.

Aquatic features in the near vicinity of the site include two dairy wastewater retention ponds, one of which is proposed for the construction of two earthen berms within it, an irrigation ditch approximately 0.3 miles west of the project site, a seasonal basin approximately 0.4 miles northwest of the project site, and a percolation basin approximately 0.2 miles southeast of the project site. Guernsey Slough and Cross Creek are located approximately 1.7 miles southeast of the project site and 1.7 miles east of the project site respectively.

**Groundwater:** The proposed Project would be located within the Tulare Lake Subbasin. Within the Tulare Lake Subbasin, the Site is under the jurisdiction of the Mid-Kings River Groundwater Sustainability Agency. The Project is within the Kings River Conservation District.

**Stormwater Drainage:** The stormwater management system at Sozinho Dairy #5 is designed to effectively control runoff, prevent erosion, and minimize environmental impact. The Site has been strategically graded to ensure that surface water is directed away from operational areas and toward designated collection and treatment basins. This helps prevent water accumulation around structures and operational zones, reducing the risk of standing water and potential contamination.

Manure storage and process water areas are carefully designed to ensure that any stormwater runoff is collected within the wastewater retention ponds rather than flowing into surrounding agricultural lands. The facility also incorporates erosion control measures, such as rock aprons and stabilized drainage channels, to prevent soil displacement during heavy rainfall events. These features enhance the stability of the Site and protect surrounding areas from potential sediment runoff.

Once collected, stormwater is directed to retention basins, where it undergoes controlled treatment before either being reused or discharged in compliance with regulatory standards. The underlying soil composition, primarily Kimberlina fine sandy loam and Wasco sandy loam, provides effective drainage while minimizing the risk of stormwater infiltration into groundwater. Additionally, the facility maintains compliance with local and state stormwater management regulations, including those established by the DWR and the SJVAPCD. By implementing these stormwater management strategies, Sozinho Dairy #5 ensures that its operations do not negatively impact surrounding water resources or agricultural land.

**Regulatory Setting**

**Clean Water Act:** The Clean Water Act (CWA) is enforced by the U.S. EPA and was developed in 1972 to regulate discharges of pollutants into the waters of the United States. The Act made it

unlawful to discharge any pollutant from a point source into navigable waters unless a National Pollution Discharge Elimination System (NPDES) Permit is obtained.

**National Flood Insurance Act:** The Federal Emergency Management Agency (FEMA) is tasked with responding to, planning for, recovering from, and mitigating against disasters. The Federal Insurance and Mitigation Administration within FEMA is responsible for administering the National Flood Insurance Program (NFIP) and administering programs that aid with mitigating future damages from natural hazards.

**California Water Quality Porter-Cologne Act:** California's primary statute leading water quality and water pollution concerns with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resource Control Board (SWRCB) and each of the nine Regional Water Quality Boards (RWQCB) power to protect water quality and further develop the Clean Water Act within California. The applicable RWQCB for the proposed Project is the Central Valley RWQCB.

**Central Valley RWQCB:** The proposed Project Site is within the jurisdiction of the RWQCB. The Central Valley RWQCB requires a NPDES Permit and a SWPPP for projects disturbing more than one acre of total land area. Because the Project is greater than one acre, an NPDES Permit and SWPPP will be required.

**Mid-Kings River Groundwater Sustainability Agency:** The MKRGSA is a joint powers authority, comprised of three local public agencies (Kings County Water District, City of Hanford and County of Kings). The MKRGSA is responsible for the implementation of California's Sustainable Groundwater Management Act (SGMA) compliance within the GSA's boundary of the Tulare Lake Subbasin.

**2035 Kings County General Plan**

The Kings County General Plan *Resource Conservation Element and Health and Safety Element* contains the following Goals, Objectives, and Action Plans on flood control and water use that are potentially applicable to the proposed Project:

- ***HS GOAL A4: Prevent unnecessary exposure of people and property to flood damage.***
  - HS OBJECTIVE A4.1: Direct new growth away from designated flood hazard risk areas and regulate new development to reduce the risk of flood damage to an acceptable level.
    - *HS Policy A4.1.1*: Review new development proposals against current Federal Emergency Management Agency (FEMA) digital flood insurance rate maps and California Department of Water Resource special flood hazard maps to determine project site susceptibility to flood hazard.
    - *HS Policy A4.1.2*: Reserve FEMA designated flood hazard areas for agricultural and natural resource conservation uses along the floodway channels and Tulare Lake Basin.

- *HS Policy A4.1.3*: Determine base flood elevations for new development proposals within or adjacent to 100-year flood zone areas as identified in latest FEMA Digital Flood Insurance Rate Map, to definitively assess the extent of property potentially subject to onsite flood hazards and risks.
- *HS Policy A4.1.4*: Direct new urban growth to existing cities and community districts, or away from New Community Discouragement Areas to avoid flood hazard areas and increased risk to people and property.
- *HS Policy A4.1.5*: Regulate development, water diversion, vegetation removal, and grading to minimize any increase in flood damage to people and property.
- *HS Policy A4.1.6*: New development shall provide onsite drainage or contribute towards their fair share cost of off-site drainage facilities to handle surface runoff.
- *HS Policy A4.1.7*: Consider and identify all areas subject to flooding in the review of all land divisions and development projects.
- *HS Policy A4.1.8*: Enforce the "Kings County Flood Damage Prevention Ordinance," Chapter 5A of the Kings County Code of Ordinances.

❖ ***RC GOAL A1: Beneficially use, efficiently manage, and protect water resources while developing strategies to capture additional water sources that may become available to ensure long term sustainable water supplies for the region.***

➢ RC OBJECTIVE A1.4: Protect the quality of surface water and groundwater resources in accordance with applicable Federal, state, and regional requirements and regulations.

- *RC Policy A1.4.1*: Evaluate proposed land uses and development projects for their potential to create surface and groundwater contamination from point and non-point sources. Confer with other appropriate agencies, as necessary, to assure adequate water quality review to prevent soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products or waste; floating debris; and runoff from the site.
- *RC Policy A1.4.2*: Monitor and enforce provisions to control water pollution contained in the U.S. EPA National Pollutant Discharge Elimination System (NPDES) program as implemented by the California Water Quality Control Board, Central Valley Region.
- *RC Policy A1.4.3*: Require the use of feasible and cost-effective Best Management Practices (BMPs) and other measures designed to protect surface water and groundwater from the adverse effects of construction activities and urban and agricultural runoff in coordination with the California Water Quality Control Board, Central Valley Region.
- *RC Policy A1.4.4*: Encourage and support the identification of degraded surface water and groundwater resources and promote restoration where appropriate.

➢ RC OBJECTIVE A1.6: Protect groundwater quality by applying development standards which seek to prevent pollution of surface or groundwater and net loss of natural water features.

- *RC Policy A1.6.2*: Support measures to ensure that water users do not unreasonably use groundwater resources.

- RC OBJECTIVE C2.2: Ensure that land use decisions are compatible with the control of soil erosion and the maintenance of soil quality.
  - *RC Policy C2.2.1*: Require erosion control measures for any development involving construction or grading near waterways, or on land with slopes over ten percent. Require that improvements such as roads and driveways be designed to retain natural vegetation and topography to the extent feasible.
  - *RC Policy C2.2.2*: Continue to require the application of construction related erosion control measures, including Stormwater Pollution Protection Plans (SWPPP) for all new construction.

## Discussion

**a) Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?**

**Potentially Significant Impact:** The Sozinho Dairy #5 Project is located within the Tulare Lake Basin Watershed and proposes an on-site wastewater treatment system that utilizes BIDA beds and vermifiltration to manage and treat process water. The BIDA beds use a combination of wood chips, microbes, and earthworms to treat wastewater by removing contaminants before the water is reused for irrigation, storage, or further recirculation throughout the facility. While these systems are designed to enhance wastewater treatment efficiency, their effectiveness in consistently meeting regulatory thresholds must be carefully verified.

The Project does not propose any increase in herd size and no additional water use is expected beyond current operational demands. The BIDA beds are part of a wastewater treatment upgrade utilizing existing process water only, with no new or additional discharge volume generated. Evidence of current water use and confirmation of no increase in usage is provided to the Mid-Kings River GSA under separate cover.

The wastewater management system proposed by the Project includes several structural improvements, such as mechanical separators to remove solid waste from liquid effluent, earthen berms for additional process water separation, and retention ponds for temporary wastewater storage. Additionally, the facility's stormwater management system is integrated with the wastewater treatment infrastructure to ensure that surface runoff from operational areas is captured and treated before potential discharge or reuse. The geotechnical and groundwater evaluations conducted for the Project confirm that shallow groundwater was not encountered in soil borings drilled to a depth of 21.5 feet below ground surface. The California Department of Water Resources indicates the depth to regional groundwater at the Project Site is greater than 50 feet below ground surface (bgs). which exceeds the five-foot minimum separation requirement, thereby reducing the likelihood of groundwater contamination.

The geotechnical and groundwater evaluations conducted for the Project confirm that shallow groundwater was not encountered in soil borings drilled to a depth of 21.5 feet below ground surface. The California Department of Water Resources indicates the depth to regional groundwater at the Project Site is greater than 50 feet bgs. This significant depth separation reduces the immediate risk of contamination from surface activities. Moreover, the Site's underlying soils, classified as Kimberlina fine sandy loam and Wasco sandy loam, provide additional protection due to their low erosion potential. These soil characteristics further limit the potential for vertical migration of contaminants into groundwater.

Despite these protective measures, the effectiveness of the wastewater and stormwater management systems must be validated through ongoing compliance with NPDES regulations, including the SWPPP during construction and operational phases. The wastewater retention ponds and BIDA beds must be managed to prevent the buildup of solids that could compromise storage capacity and increase the risk of uncontrolled discharges. Failure to properly manage these systems could lead to surface water degradation, particularly if process water or stormwater runoff is not adequately treated prior to land application.

Additionally, the RWQCB requires semi-annual groundwater sampling to monitor potential impacts from facility operations. This includes testing for nitrate, ammonia, total Kjeldahl nitrogen, and other relevant contaminants. The Central Valley Dairy Representative Monitoring Program (CVDRMP), which the facility participates in, also plays a role in assessing regional groundwater impacts from dairy operations. Continued participation in this program is necessary to ensure that the facility's operations remain protective of groundwater quality and in compliance with regulatory standards.

Given these factors, there remains a potentially significant impact if the proposed wastewater treatment system and stormwater management measures are not properly implemented or fail to meet NPDES requirements. While the facility's current design has a high potential for compliance, additional verification through detailed water quality monitoring, operational inspections, and regulatory reporting is essential.

Therefore, further analysis is warranted to determine whether the Project's wastewater treatment systems, stormwater infrastructure, and management practices will achieve the necessary compliance with water quality standards. If compliance issues are identified, mitigation measures may be required to reduce impacts to a less-than-significant level. There is a *Potentially Significant Impact.*

**b) Would the Project substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?**

**Less than Significant Impact:** The Sozinho Dairy #5 Project is located within the Tulare Lake Subbasin and is managed by the Mid-Kings River Groundwater Sustainability Agency. The

Project includes water recycling processes that reduce the demand for groundwater and incorporates wastewater retention ponds that help maintain groundwater recharge. The system is designed to prevent significant impacts on groundwater supplies or recharge rates, ensuring that the Project does not interfere with sustainable groundwater management.

The BIDA beds only treat process water generated from existing dairy operations, and no freshwater is added to the system. As a result, the Project will not cause any increase in groundwater usage.

No increase in water demand is anticipated. The Project will not increase groundwater pumping, and all process water treated by the BIDA beds is recycled from existing operations. There is no proposed increase in herd size. Documentation of current water use and confirmation of no increase has been or will be provided to the Mid-Kings River GSA for their review.

By ensuring proper stormwater management and wastewater treatment, the impact on groundwater resources is considered *Less Than Significant.*

**c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:**

**i. Result in substantial erosion or siltation on- or off-site?**

**Less than Significant with Mitigation Incorporation:** The Project includes grading and construction activities that could lead to erosion or siltation. However, Mitigation Measure HYD-2 requires the preparation of a SWPPP that includes BMPs such as the use of provisional retention basins, silt fencing, and soil stabilization techniques to control erosion and siltation. The implementation of these BMPs will ensure that any potential impacts are minimized, resulting in a *Less Than Significant Impact with Mitigation Incorporation.*

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

**Less than Significant with Mitigation Incorporation:** The stormwater drainage system is designed to handle runoff from significant storm events, including a 25-year, 24-hour storm, preventing flooding on- or off-site. The Project includes measures such as rock aprons and proper grading to manage runoff efficiently. Mitigation Measure HYD-2 further ensures that the system will be monitored and maintained and reduce the likelihood of flooding. Mitigation Measure HYD-3 ensures that stormwater facilities are properly maintained to handle runoff, preventing any increase in flooding risk, and resulting in a *Less Than Significant Impact with Mitigation Incorporation.*

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

**Less than Significant with Mitigation Incorporation:** The Project's stormwater management system is designed to manage runoff without exceeding the capacity of the existing drainage system. The WMP confirms that the wastewater retention ponds and stormwater drainage system have adequate capacity to handle both normal operational runoff and storm events. Mitigation Measure HYD-2 ensures that BMPs will be in place to control and monitor runoff. Mitigation Measure HYD-3 ensures long-term maintenance of these systems to prevent pollution and manage runoff effectively. The impact is therefore *Less Than Significant Impact with Mitigation Incorporation.*

**iv. Impede or redirect flood flows?**

**Less than Significant Impact:** The Project's design and stormwater management system are intended to retain water on-site, preventing any alteration of existing drainage patterns that could lead to redirected flood flows. The WMP and stormwater drainage system ensure that flood risks are managed effectively, resulting in a *Less Than Significant Impact.*

**d) Would the Project, in flood hazard, tsunami, or seiche zones, risk the release of pollutants due to Project inundation?**

**No Impact:** The Project Site is located inland, away from oceanic or large water bodies, eliminating the risk of tsunamis. Additionally, the Site is not within a 100-year flood hazard zone, and the relatively flat topography reduces the risk of inundation. Consequently, there is no risk of pollutant release due to inundation, resulting in *No Impact.*

**e) Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

**No Impact:** The Project complies with local and regional water management plans, including the Mid-Kings River Groundwater Sustainability Plan and the RWQCB guidelines. The Project's design and operations adhere to all applicable water quality and groundwater management regulations, ensuring no conflict with these plans.

The Project is being reviewed by the Mid-Kings River GSA. The applicant has confirmed no increased water demand, and no expansion of herd size, consistent with the sustainability goals of the Mid-Kings River GSP. Correspondence with the GSA has been initiated to ensure consistency with the groundwater management plan. Therefore, the impact is considered *No Impact.*

**Mitigation Measures for Hydrology and Water Quality**

**Mitigation Measure HYD-1:** Before the issuance of any construction/grading permit and/or the commencement of any clearing, grading, or excavation, the Applicant shall submit a Notice of Intent (NOI) for discharge from the Project Site to the California SWRCB Storm Water Permit Unit.

- Before issuance of grading permits for Phase 1, the Applicant shall submit a copy of the NOI to the County.
- The County shall review noticing documentation before the approval of the grading permit. County monitoring staff will inspect the Site during construction for compliance.

**Mitigation Measure HYD-2:** The Applicant shall require the building contractor to prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) to the County 45 days before the start of work for approval. The contractor is responsible for understanding the State General Permit and instituting the SWPPP during construction. An SWPPP for site construction shall be developed before the initiation of grading and implemented for all construction activity on the Project Site in excess of one (1) acre, or where the area of disturbance is less than one acre but is part of the Project's plan of development that in total disturbs one or more acres. The SWPPP shall identify potential pollutant sources that may affect the quality of discharges to stormwater and shall include specific BMPs to control material discharge from the Site. The following BMP methods shall include, but would not be limited to:

- Dust control measures will be implemented to ensure the success of all onsite activities to control fugitive dust;
- A routine monitoring plan will be implemented to ensure the success of all onsite erosion and sedimentation control measures;
- Provisional retention basins, straw bales, erosion control blankets, mulching, silt fencing, sandbagging, and soil stabilizers will be used;
- Soil stockpiles and graded slopes will be covered after two weeks of inactivity and 24 hours before and during extreme weather conditions; and,
- BMPs will be strictly followed to prevent spills and discharges of pollutants on Site, such as material storage, trash disposal, construction entrances, etc.

**Mitigation Measure HYD-3:** A Development Maintenance Manual for the Project shall include comprehensive procedures for maintenance and operations of any stormwater facilities to ensure long-term operation and maintenance of post-construction stormwater controls. The maintenance manual shall require that stormwater BMP devices be inspected, cleaned, and maintained following the manufacturer's maintenance conditions. The manual shall require that devices be cleaned before the onset of the rainy season (i.e., mid-October) and immediately after the end of the rainy season (i.e., mid-May). The manual shall also require that all devices be checked after major storm events. The Development Maintenance Manual shall include the following:

- Runoff shall be directed away from the trash and loading dock areas;
- Bins shall be lined or otherwise constructed to reduce the leaking of liquid wastes;
- Trash and loading dock areas shall be screened or walled to minimize offsite transport of trash; and,
- Impervious berms, trench catch basins, drop inlets, or overflow containment structures nearby docks and trash areas shall be installed to minimize the potential for leaks, spills, or washdown water to enter the drainage system.

## XI. LAND USE AND PLANNING

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Physically divide an established community? | ☐ | ☐ | ☐ | ☑ |
| b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☐ | ☑ |

**Environmental Setting**

The proposed Project is located in an unincorporated area of Kings County, approximately 2.1 miles southeast of Hanford and 10 miles east of Lemoore. The Project Site and the surrounding properties are primarily designated for agricultural land use under the Kings County General Plan. While there are several agricultural residences within a half-mile radius of the Project Site, all the land within this area is zoned for agricultural purposes, ensuring that the Project remains consistent with the surrounding land use designations.

**Regulatory Setting**

**Kings County Development Code:** As shown in Figure 3-6, Kings County has zoned the Project Site and surrounding properties as General Agriculture, 20 acres minimum. This district is intended primarily for application to rural areas of the county which are generally characterized by extensive or intensive agricultural uses of land north of Kansas Avenue where farm sizes have historically been smaller than in other areas of the county. These areas should be reserved for commercial agricultural uses because of their high-quality soil, existing or potential irrigation works, exclusive agricultural character of the area, or the need to reserve areas for intensive agricultural uses, which by their nature may be incompatible with nonagricultural or quasi-agricultural uses. The minimum parcel size in the AG-20 zoning district is 20 acres in size.

**2035 Kings County General Plan:** The 2035 Kings County General Plan *Land Use Element* contains the following Goals, Objectives, and Action Plan on flood control and water use that are potentially applicable to the proposed Project:

- ***LU GOAL B1: Protect agricultural lands throughout the County, and in particular along the edges of community districts and Urban Fringe by maintaining large parcel sizes and preventing the premature development of incompatible urban uses.***
  - LU OBJECTIVE B1.1: Preserve the integrity of the County's agricultural land resources through agricultural land use designations and other long term preservation policies.
    - *LU Policy B1.1.1*: Designate all agricultural and grazing land outside of planned urban areas as Limited Agriculture, General Agriculture, Exclusive Agriculture, or Natural Resource Conservation.
    - *LU Policy B1.1.2*: Continue to use Williamson Act and Farmland Security Zone contracts on all priority agricultural lands outside the Primary Sphere of Influence of City and Community District boundaries as defined by LAFCO, so long as State "Open Space Subvention Act" funds remain available.
  - LU OBJECTIVE B1.2: Maintain large parcel sizes of agricultural designated land within Urban Fringe areas and around Community Districts to retain viable agricultural production until such time as land is planned and ready for conversion to other uses.
- ***LU GOAL B2: Agricultural production continues to be supported and enhanced in areas designated for agriculture, while conflicts between agriculture and non-agricultural uses are minimized.***
  - LU OBJECTIVE B2.1: Recognize agriculture as the highest and best use of agricultural designated land and preserve the right of farmers and agricultural operations to continue customary and usual agricultural practices and operate in the most efficient manner possible.
    - *LU Policy B2.1.1: The primary use of land designated Limited Agriculture, General Agriculture, and Exclusive Agriculture shall remain devoted to agricultural uses and related support services.*
    - *LU Policy B2.1.3: Maintain implementation of the County's "Right to Farm Ordinance" adopted in 1996 to continue placing landowners on notice that they live within an agricultural County and may be subject to agriculture related inconveniences or discomforts.*
  - LU OBJECTIVE B2.2: Minimize and reduce the potential for conflicts between agriculture and non-agricultural urban uses.
  - LU OBJECTIVE B2.3: Increase diversified business opportunities within agricultural areas when they are compatible with agricultural operations.
    - *LU Policy B2.3.1: Value added agriculturally related businesses may be allowed when the business operation is primarily associated with the commercial farming operation. Additional employees may be allowed to work at the business.*
- ***LU GOAL B3: Allow agricultural support services within areas designated General Agriculture.***
  - LU OBJECTIVE B3.1: Direct agricultural support services to General Agriculture land use designated areas, while ensuring that services are not harmful to the long-term

agricultural use of the land or potential future urban growth if within the Blueprint Urban Growth Boundary.

- *LU Policy B3.1.1: Allow permanent agricultural service and processing facilities in areas designated General Agriculture, while restricting these types of services in Limited Agriculture and Exclusive Agriculture designated areas.*
- *LU Policy B3.1.2: Review of agricultural service establishments under Site Plan Review shall consider the compatibility of such establishments with the potential future urban growth accommodation when proposed within the Blueprint Urban Growth Boundary.*

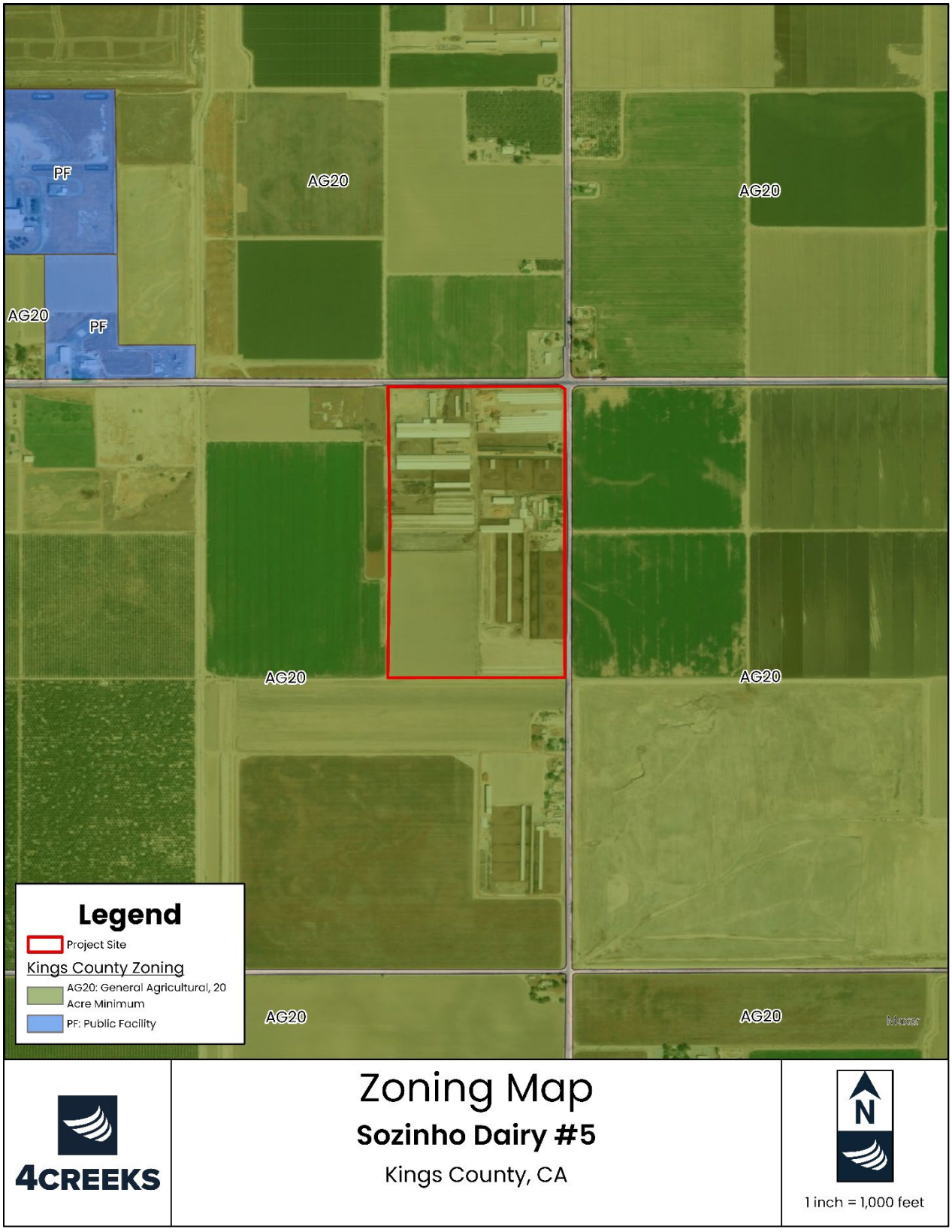



*Figure 3-6: Zoning Map*

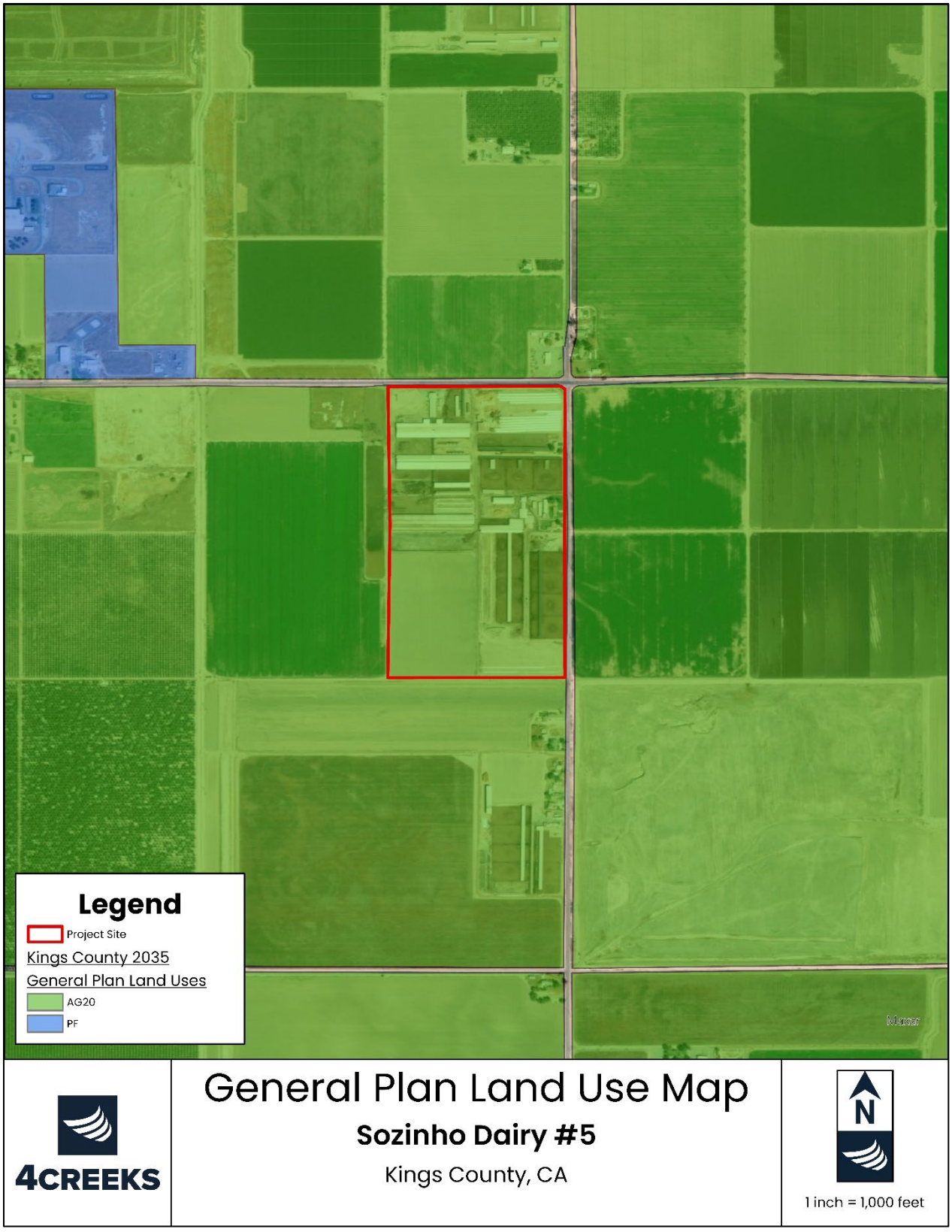



*Figure 3-7: General Plan Land Use Map*

**Discussion**

**a) Would the Project physically divide an established community?**

**No Impact:** The proposed Project will not physically divide an established community. No established communities are nearby, and it does not expand onto any land outside the Site. The proposed Project Site is designated General Agriculture – 20 Acre minimum under the County's General Plan and would operate as agricultural-related uses following Project implementation. There is *no impact.*

**b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?**

**No Impact:** The Project Site is located on land designated for agricultural uses. The proposed Project does not conflict with this land use or any other policy or regulation adopted to avoid or mitigate an environmental effect. There is *no impact.*

## XII. MINERAL RESOURCES

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☐ | ☑ |
| b) Result in the loss of availability of a locally important mineral resource recovery Site delineated on a local general plan, specific plan or other lands use plan? | ☐ | ☐ | ☐ | ☑ |

**Environmental Setting**

There are no mineral resource zones in Kings County, and no mineral extraction occurs on or adjacent to the proposed Project Site. According to the *Resource Conservation Element* of the Kings County General Plan, historical mines within the County include an open-pit gypsum mine and a mercury mine; however, these mines are now closed.

**Regulatory Setting**

**California State Surface Mining and Reclamation Act**: The California State Surface Mining and Reclamation Act was adopted in 1975 to regulate surface mining, prevent adverse environmental impacts, and preserve the state's mineral resources. The Act is enforced by DOC's Division of Mine Reclamation.

**Discussion**

**a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

**No Impact**: The Project Site has no known mineral resources that would be of value to the region and the state's residents. The Project Site is not designated as an important mineral resource recovery Site under the County's General Plan. Therefore, the proposed Project would not result in the loss or impede the mining of regionally or locally important mineral resources. There is *no impact.*

**b) Would the Project result in the loss of availability of a locally important mineral resource recovery Site delineated on a local general plan, specific plan or other lands use plan?**

**No Impact**: No known mineral resources are important to the region, and the Project Site is not designated under the County's General Plan as an important mineral resource recovery Site. Therefore, the proposed Project would not result in the loss of availability of known regionally or locally important mineral resources. There is *no impact.*

## XIII. NOISE

| **Would the Project result in:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Generation of a substantial temporary or permeant 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 ground-borne 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 public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels? | ☐ | ☐ | ☐ | ☑ |

**Environmental Setting**

Noise is often described as an unwanted sound, while sound is the variation in air pressure that the human ear can detect. If the pressure variations occur at least 20 times per second, they can be detected by the human ear. The number of pressure variations per second is called the frequency of sound. The frequency is expressed as cycles per second, called Hertz (Hz).

Ambient noise is the "background" noise of an environment. Ambient noise levels on the proposed Project Site are primarily due to agricultural activities and traffic. Construction activities usually result in an increase in sound above ambient noise levels.

Vibration is sound radiated through the ground. Vibration can result from a source (e.g., train operations, motor vehicles, machinery equipment, etc.), causing the adjacent ground to move, creating vibration waves that propagate through the soil to the foundations of nearby buildings. This effect is a ground-borne vibration.

**Sensitive Receptors:** Noise level allowances for different land types reflect the varying noise sensitivities associated with those uses. Residences, hotels/motels, hospitals, schools, and libraries are some of the most sensitive types of noise intrusion. Therefore, these have more stringent noise level allowances than most commercial or agricultural uses that are not subject

to impacts such as sleep disturbance. The nearest sensitive receptor to the Sozinho Dairy #5 Project Site is a single-family residence located approximately 250 feet to the northeast, across Houston Avenue.

**Regulatory Setting**

**2035 Kings County General Plan:** The Kings County General Plan, particularly its Noise Element, establishes specific noise level standards for various land uses associated with agricultural operations. Rather than setting a specific maximum exterior noise level for agricultural zones, the Plan emphasizes that agricultural uses are the principal and protected land uses in designated agricultural areas. Under the County's Right-to-Farm Ordinance, typical agricultural activities, including equipment and animal noise, are recognized as occurring 24 hours a day, seven days a week, and are not generally considered nuisances. The Noise Element explicitly states that elevated sound levels from normal agricultural operations are expected and accepted, and due to the variability and seasonal intensity of such activities, quantifying noise impacts using standard thresholds is not considered feasible.

**Right-To-Farm Ordinance:** The Kings County Right-To-Farm Ordinance acknowledges that agricultural activities, including those at dairy farms, often generate noise from equipment, animals, and other operations. This ordinance provides protections for farmers by ensuring that typical farming noise is not deemed a nuisance, provided it falls within the acceptable noise levels established by the County's General Plan. The ordinance emphasizes that agricultural operations are a vital part of the County's economy and landscape, and therefore, noise generated from these activities is expected and tolerated.

**Discussion**

**a) Would the Project result in generation of a substantial temporary or permeant 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?**

**Less than Significant Impact:** The expansion of Sozinho Dairy #5 is anticipated to result in only minimal increases in noise levels compared to the existing operations, which include noise from tractors, trucks, pumps, and livestock. The Project will not introduce any new significant noise sources. The Kings County General Plan allows for noise levels of up to 70 dB (Ldn) in agricultural areas, and the expected noise levels from the expanded dairy operations will remain within this acceptable range.

Additionally, the Kings County Right-To-Farm Ordinance recognizes that elevated noise levels from agricultural activities are a normal part of farming operations and are not typically considered a nuisance. The Project's noise levels will not exceed 70 dB (Ldn), ensuring

compliance with the General Plan's Noise Element and the Right-To-Farm Ordinance. Therefore, the impact of noise from the Project is considered *Less Than Significant.*

**b) Would the Project result in generation of excessive ground-borne vibration or groundborne noise levels?**

**Less than Significant Impact:** The Sozinho Dairy #5 expansion does not include activities that would generate significant ground-borne vibration or noise levels. Construction activities, such as the operation of heavy machinery, may produce some temporary vibrations, but these will be minor and intermittent. Given the agricultural setting and the distance to the nearest sensitive receptors, these vibrations are not expected to have a significant impact. Sources that may produce perceptible vibrations are provided in Table 3-7.

| Equipment | Peak Particle Velocity (PPV) (inches/second) at 25 feet | Approximate Vibration Level (VdB) at 25 feet |
|---|---|---|
| Large Bulldozer | 0.089 | 87 |
| Loaded Trucks | 0.076 | 86 |
| Jackhammer | 0.035 | 79 |
| Small bulldozer | 0.003 | 58 |

*Table 3-7. Vibration Levels Generated by Construction Equipment. Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, September 2018.*

The primary source of vibration during Project construction would likely be from a bulldozer, which would generate 0.089 inches per second PPV at 25 feet with an approximate vibration level of 87 VdB. Vibration from the bulldozer would be intermittent and not a source of continual vibration. There are no adopted County standards or thresholds of significance for vibration. The evaluation of potential impacts related to construction vibration levels is based on the published data in the 2018 FTA Guidelines. At 25 feet, the buildings most susceptible to vibration could be impacted at .12 inches/second. Because vibrations generated by Project construction would not exceed 0.12 inches/second, and there are no existing buildings within 25 feet of the construction areas, the impact is *Less Than Significant.*

**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 public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?**

**No Impact:** The Sozinho Dairy #5 Project Site is located approximately 2.15 miles southeast of Hanford Municipal Airport, but it is not within an airport land use plan area. Given this distance and the nature of the dairy operations, the Project will not expose residents or workers to excessive noise levels related to dairy operations. Therefore, the impact is considered *No Impact*.

## XIV. POPULATION AND HOUSING

| **Would the Project:** | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | ☐ | ☐ | ☑ | ☐ |
| b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☑ |

**Environmental Setting**

The United States Census Bureau estimated the population in Kings County to be 152,981 as of 2022.

**Regulatory Setting**

The Kings County population size is controlled by the Kings County Development Code and Land Use Element of the General Plan. These documents regulate the number of dwelling units per acre allowed on residential land uses and establish minimum and maximum lot sizes. These factors have a direct impact on the County's population size.

The Land Use Element of the 2035 Kings County General Plan highlights energy conservation opportunities as a factor affecting building and population growth. The Land Use Element also includes goals for preserving agricultural lands from premature urbanization. Other policies and goals of the 2035 General Plan include those that encourage growth in more urbanized areas of the County and the preservation of agricultural uses and industries.

The Housing Element of the 2035 Kings County General Plan includes policies that address housing, employment, growth management, and adequate provision of resources, facilities, and services. The Housing Element contains several goals and policies intended to encourage continuous analysis and evaluation of population trends and housing needs to allow for the development of Sites and facilities that sustain population growth in the county; encourage development in existing communities; and acknowledge the governmental, environmental, infrastructure, and land use constraints.

**Discussion**

**a) Would the Project induce substantial unplanned population growth in an area, either directly (for example, by new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

**Less than Significant Impact:** The construction and operation of the Project will not result in any substantial unplanned growth or population displacement in Kings County. The Project will not construct or remove any homes. The employees of the dairy are likely to live in Kings County currently and would not directly or indirectly impact population growth. There is *a less than significant impact.*

**b) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

**No Impact:** The construction and operation of the Project would not result in existing residences being removed, and no individuals would be displaced because of the Project. The Project would not result in any existing residences being removed, and no individuals would be displaced because of the Project. There is *no impact*.

## XV. PUBLIC SERVICES

| **Would the Project:** | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable serve ratios, response times or other performance objectives for any of the public services: | | | | |
| i. Fire protection? | ☐ | ☐ | ☑ | ☐ |
| ii. Police protection? | ☐ | ☐ | ☑ | ☐ |
| iii. Schools? | ☐ | ☐ | ☐ | ☑ |
| iv. Parks? | ☐ | ☐ | ☐ | ☑ |
| v. Other public facilities? | ☐ | ☐ | ☑ | ☐ |

**Environmental Setting**

**Fire:** The Kings County Fire Department (KCFD), headquartered in Hanford, provides Fire protection for the Project Site. The KCFD operates ten fire stations within the county's unincorporated areas, the nearest located approximately 0.4 miles west of the Site at 7622 Houston Avenue. The KCFD has 88 full-time employees and responds to over 5,100 calls annually. The KCFD responds to various calls, including structure, vehicle, wildland and grass fires, medical aids, traffic accidents, hazardous materials incidents, and various public assistance calls.

**Police:** The Kings County Sheriff's Department (KCSD), headquartered in Hanford, provides law enforcement for the Project Site. The County is divided into six districts with five Sheriff Substations throughout Kings County, located in Avenal, Corcoran, El Rancho, Kettleman City, and Stratford. The nearest station to the Project Site is the headquarters located in Hanford. Each district has at least one deputy sheriff on duty to serve the unincorporated communities and surrounding County areas. The California Highway Patrol provides traffic enforcement on State Highways and County roads. Kings County is within the California Highway Patrol's Central Division. The nearest CHP office to the Project Site is in Hanford.

**Schools:** The proposed Project Site is located within the Kit Carson Union Elementary School District and Hanford Joint Union High School District. The nearest school, Kit Carson Union Elementary School, is located approximately 2.1 miles north of the Project Site.

**Regulatory Setting**

The California Department of Education regulates the School Districts, and the California Department of Justice regulates the Sheriff's Department.

**2035 Kings County General Plan:** Objectives and Policies related to Public Services are included in the *Health and Safety Element* of the 2035 Kings County General Plan. These Objectives and Policies are as follows:

- ***HS GOAL B1: Promote the health and well being of County residents, and support healthy living environments, physical activity opportunities, medical services, and readily available nutritious food sources.***
  - HS OBJECTIVE B1.4: Provide local health services and emergency medical services in the County's Community Districts to meet the needs of a growing population.
    - *HS Policy B1.4.3: Ensure that County Fire Department personnel remain trained and equipped to provide emergency medical services to those in need of such services within the unincorporated areas of the County.*
- ***HS GOAL C2: Support Countywide safety through adequate law enforcement, quality fire protection, emergency preparedness, and accessibility in times of emergency.***
  - HS OBJECTIVE C2.1: Provide sufficient law enforcement presence within each community district and other unincorporated areas of the County to protect residents, businesses, and visitors from personal and property crimes.
  - HS OBJECTIVE C2.2: Provide quality fire protection services throughout the County by the Kings County Fire Department, and Fire safety preventative measures to prevent unnecessary exposure of people and property to fire hazards in both County Local Responsibility Areas and State Responsibility Area.
    - *HS Policy C2.2.1: Community planning efforts should evaluate the projected need for Fire Department personnel and equipment and necessary funding support to maintain current levels of service as community growth occurs.*
    - *HS Policy C2.2.2: Development proposals and code revisions shall be referred to the County Fire Department for review and comment.*
    - *HS Policy C2.2.3: Use the 1997 Uniform Code for the abatement of Dangerous Buildings. All new structures to be occupied shall be built to current Fire Code Standards.*
    - *HS Policy C2.2.4: Review development proposals according to California Department of Forestry and Fire Protection "Fire Hazard Severity Zone Maps" to*

*determine whether a Site is located within a Very High Fire Hazard Severity Zone and subject to Wildland-Urban Interface Fire Area Building Standards and defensible space requirements as adopted under Senate Bill 1595 and effective January 1, 2009.*

- *HS Policy C2.2.5: Forward for review and comment all proposed structures within the State Responsibility Area to the California Department of Forestry and Fire Protection within all State Responsibility Areas.*

**Discussion**

**a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable serve ratios, response times or other performance objectives for any of the public services:**

**i. Fire protection?**

**Less than Significant Impact:** The KCFD will provide fire protection services to the Project Site. The Project will not result in the need for new facilities for the KCFD because the Project will not contribute to increased population size within the Kings County Fire Department service area, nor will it extend the boundaries of the Service Area. The impact is *less than significant.*

**ii. Police protection?**

**Less than Significant Impact:** Kings County will provide police protection services to the Project Site. The Project will not result in the need for new facilities for the KCSD because the Project will not contribute to increased population size within the service area, nor will it extend to the boundaries of the Kings County Sheriff Department Service Area. The impact is *less than significant.*

**iii. Schools?**

**No Impact:** The Project will not result in additional residents to Kings County and will not increase the number of students in the school district. There is *no impact*.

**iv. Parks?**

**No Impact:** Because the Project will not result in additional residents, the Project will not create a need for additional parkland. There is *no impact.*

**v. Other public facilities?**

**Less than Significant Impact**: Additional development fees may be required to offset the increased demand for public services related to transportation, water, wastewater, groundwater recharge, storm drainage, recreation, and general governmental services. Fees for transportation, water, wastewater, and general government are based on building square

footage and will be calculated before the issuance of building permits. Fees for groundwater recharge and storm drainage are based on Site acreage.

While the payment of development fees could result in the construction of new or altered public service facilities, no specific projects have been identified. As new or expanded public service facilities become necessary, construction or expansion projects would be subject to their own separate CEQA review to identify and mitigate potential environmental impacts. Therefore, the impact is *less than significant*.

## XVI.PARKS AND RECREATION

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

**Environmental Setting**

The nearest recreational area to the Project Site is Home Garden Community Park, approximately 2.45 miles west.

**Regulatory Setting**

**2035 Kings County General Plan:** The *Open Space Element* of the 2035 Kings County General Plan contains the following objectives and policies relating to parks and recreation.

- OS OBJECTIVE D1.1: Maintain and enhance the existing County Park system within available funding constraints.
  - *OS Policy D1.1.1: Apply the "Public/Quasi-Public" land use designation to County parks.*
  - *OS Policy D1.1.2: Community Plans should facilitate the development and maintenance of community park(s) within Community District areas to expand recreational resources available to residents.*
  - *OS Policy D1.1.3: Support community involvement that builds capacity for the long-term maintenance and upkeep of open space and community park space within Community Districts.*
- OS OBJECTIVE D1.2: Encourage the development of private recreational facilities compatible with the rural character of Kings County.
  - *OS Policy D1.2.1: Support the establishment of new commercial recreational development, provided it is compatible with surrounding land uses and the intensity of such development does not exceed the ability of the natural*

*environment of the Site and the surrounding area to accommodate it. Such facilities may include, but are not limited to campgrounds, recreational camps, hotels and destination resorts, ball courts and ball fields, skeet clubs and facilities, hunting and fishing clubs, and equestrian facilities.*

**Discussion**

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

**No Impact:** The Project will not result in additional residents, so the Project will not increase the use of existing parkland or create a need for additional parkland. There is *no impact.*

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

**No Impact:** No parkland or recreational facilities are associated with the Project. The Project will not result in additional residents and will not create a need for additional parkland. There is *no impact.*

## XVII. TRANSPORTATION

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

**Environmental Setting**

**Vehicular Access:** The primary vehicular access point for Sozinho Dairy #5 is located at 7205 Houston Avenue, on the northern side of the Project Site. This access point provides direct entry to the dairy facility and is used for the transportation of goods, materials, and livestock to and from the Site. The access is designed to accommodate large agricultural vehicles and ensures efficient movement of traffic associated with dairy operations.

**Transportation Facilities:** Transportation facilities near the proposed Project area include Houston Avenue, which connects to other significant local roads. Additionally, 7th Avenue and other agricultural access roads surround the dairy. These roads are designed to support the heavy machinery and transportation vehicles typically used in dairy and agricultural operations. The Site is also relatively close to larger transportation routes (Highways 198 and 43) that connect the agricultural area to the broader region, supporting logistics and supply chain activities vital to the dairy industry. The Kings County Association of Governments (KCAG) is the County's Regional Transportation Planning Agency and Metropolitan Planning Organization.

**Regulatory Setting**

**CEQA Guidelines Section 15064.3, Subdivision (b): Criteria for Analyzing Transportation Impacts**

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.
(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, a lead agency may tier from that analysis as provided in Section 15152.
(3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.
(4) Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

**Kings County Improvement Standards:** The Kings County Improvement Standards are developed and enforced by the Kings County Public Works Department to guide the development and maintenance of County Roads. The cross-section drawings in the County Improvement Standards dictate the development of roads within the county.

**2035 Kings County General Plan:** The 2035 Kings County General Plan *Circulation Element* establishes policies relating to transportation:

- C OBJECTIVE A1.3: Maintain an adequate Level of Service operation for County roadways and ensure proper maintenance occurs along critical routes for emergency response vehicles.

- *C Policy A1.3.1: Maintain and manage County roadway systems to maintain a minimum Level of Service Standard "D" or better on all major roadways and arterial intersections.*
- *C Policy A1.3.2: Require proposed developments that have the potential to generate 100 peak hour trips or more to conduct a traffic impact study that follows the most recent methodology outlined in Caltrans Guide to the Preparation of Traffic Impact Studies.*

**Discussion**

**a) Would the Project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?**

**Potentially Significant Impact:** The Sozinho Dairy #5 Project is located in a rural unincorporated area of Kings County, where the transportation infrastructure primarily supports agricultural traffic. The Project's daily operations will generate truck trips for feed deliveries, manure transportation, milk hauling, and maintenance services. These additional trips have the potential to affect the Level of Service (LOS) on local rural roads and nearby intersections.

A Traffic Analysis Letter (Appendix E) was reviewed by the Kings County Association of Governments (KCAG), suggesting the Project is unlikely to lower the current LOS on key county roads. However, this analysis lacks a full Traffic Impact Study, therefore it is unknown what the potential impacts caused by the cumulative effects of increased truck traffic from dairy operations, especially given regional agricultural traffic trends and potential road deterioration.

The Project's proposed modifications, including the BIDA beds, calf hutches, and organic matter processing areas, could result in periodic increases in truck traffic. For instance, the BIDA beds will require biannual servicing, involving two trucks per day for 14 consecutive days to transport processed wood chips for land application. Although this impact is temporary, it could contribute to short-term congestion and increased wear on local rural roads. Additionally, while the relocation of feed storage areas on-site is expected to reduce some truck trips, other operational improvements, such as the addition of calf hutches, will require one additional service vehicle per day.

Since truck traffic for dairy operations, particularly for feed deliveries, manure hauling, and milk transport, has the potential to increase congestion and accelerate roadway wear, a more detailed evaluation may be necessary.

Given these uncertainties, further analysis is warranted to determine the Project's transportation impacts and whether mitigation measures—such as roadway improvements, traffic scheduling adjustments, or infrastructure upgrades—may be necessary. Until such an evaluation is completed, the Project could result in a Significant Impact on the local circulation system, requiring further assessment to ensure compliance with applicable transportation policies and

to determine the appropriate mitigation measures, if necessary. There is a *Potentially Significant Impact.*

**b) Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?**

**Less than Significant Impact:** Section 15064.3(b) establishes criteria for analyzing the transportation impacts of proposed Projects, as required under AB 734. Among the changes to the guidelines was the removal of vehicle delay and LOS as the sole basis of determining CEQA impacts. With the implementation of the adopted guidelines, transportation impacts will be evaluated based on a project's effect on VMT. This section states that "vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact."

A Technical Advisory was issued by the Governor's OPR in 2018 to guide the implementation of AB 734. The OPR TA states that small projects generating less than 110 daily trips are estimated to have minimal effect on VMT and are eligible to be screened out from a detailed VMT analysis. The TA letter confirms that the Sozinho Dairy #5 Project is not expected to increase the number of trips per day, keeping the VMT consistent with current levels. The Project does not exceed the thresholds that would require a detailed VMT analysis. Therefore, the Project is anticipated to have a *Less Than Significant* VMT impact and could be screened out from a detailed VMT analysis.

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

**No Impact:** The Project does not introduce new roadways or design features that could create traffic hazards. The existing access points and roadways, including Houston Avenue, are designed to handle the type of agricultural traffic generated by the dairy operations. The Project's design does not include any incompatible uses that would increase traffic hazards. Therefore, there is *No Impact.*

**d) Would the Project result in inadequate emergency access?**

**No Impact:** The primary vehicular access to the Sozinho Dairy #5 is via Houston Avenue, which is adequately sized and designed to accommodate emergency vehicles. The Project will comply with all relevant public works and fire code standards to ensure that emergency access remains unobstructed and fully functional. The only improvement proposed by the California High-Speed Rail Authority on the property is a planned Houston Avenue overpass. This structure will begin near the front of the facility along Houston Avenue and extend to cross over the proposed High-Speed Rail alignment, which runs perpendicular to the roadway approximately 1,000 feet west of the facility's boundary. When the High-Speed Rail improvements are constructed, facility access from Houston Avenue will be consolidated to a single entrance at the northeast corner of the milk barn, rather than the current configuration

with access points at both the northeast and northwest sides. As a result, the Project will have *No Impact* on emergency access.

## XVIII. TRIBAL CULTURAL RESOURCES

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: | | | | |
| i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | ☐ | ☑ | ☐ | ☐ |
| ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | ☐ | ☑ | ☐ | ☐ |

**Environmental Setting**

**Records Search:** The SSJVIC conducted a Cultural Resources Records Search on April 22nd, 2024. SSJVIC staff researched historical USGS topographic maps, reports of previous cultural resource investigations, archaeological Site, and survey base maps, cultural resource records (DPR forms) as well as listings of the Historic Properties Directory of the Office of Historic Preservation, General Land Office Maps, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources. The full report can be found in Appendix C.

The records search results indicate no cultural resources were previously recorded within the Project boundary or within a 0.5-mile search radius. According to the information within CHRIS' database, there are no recorded resources within the project area. There is one recorded

resource within the one-half mile radius: P-16-000250. A historic era agricultural ditch. There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, for the California State Historic Landmarks.

**Native American Outreach:** A request to the NAHC for a SLF was sent to identify any known places of the religious, sacred activity or traditional use or gathering areas are present in or near the Project area. The NAHC responded on April 15th, 2024, with a letter, including contact information for local Native American tribal representatives who may have knowledge or interest in sharing information about resources in the Project area and surrounding area. The results of the SLF search were negative.

Each Native American representative listed was sent a nongovernmental outreach letter and a map notifying them of the Project and asking if they had any knowledge of the Project area or surrounding vicinity. The SLF results are in Appendix D.

**Regulatory Setting**

**Historical Resources**: Historical resources are defined by CEQA as resources that are listed in or eligible for the California Register of Historical Resources, resources that are listed in a local historical resource register, or resources that are otherwise determined to be historical under California Public Resources Code Section 21084.1 or California Code of Regulations Section 15064.5. Under these definitions, Historical Resources can include archaeological resources, Tribal cultural resources, and Paleontological Resources.

**Archaeological Resources:** As stated above, archaeological resources may be considered historical resources. If they do not meet the qualifications under the California Public Resources Code 21084.1 or California Code of Regulations Section 15064.5, they are instead determined to be "unique" as defined by the CEQA Statute Section 21083.2. A unique archaeological resource is an artifact, object, or site that: (1) contains information (for which there is a demonstrable public interest) needed to answer important scientific research questions; (2) has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) is directly associated with a scientifically recognized important prehistoric or historical event or person.

**Tribal Cultural Resource (TCR):** Tribal Cultural Resources can include site features, places, cultural landscapes, sacred places, or objects which are of cultural value to a Tribe. It is either listed on or eligible for the CA Historic Register or a local historic register or determined by the lead agency to be treated as TCR.

**Paleontological Resources:** For this section, "paleontological resources" refers to the fossilized plant and animal remains of prehistoric species. Fossilized remains, such as bones, teeth,

shells, and leaves, are found in geologic deposits (i.e., rock formations). Paleontological resources generally include the geologic formations and localities in which the fossils are collected. Paleontological Resources are a limited scientific and educational resources valued for the information they yield about the history of the earth and its ecology.

**Native American Reserve (NAR):** This designation recognizes tribal trust and reservation lands managed by a Native American Tribe under the United States Department of the Interior's Bureau of Indian Affairs over which the County has no land use jurisdiction. The County encourages the adoption of tribal management plans for these areas that consider compatibility and impacts upon adjacent area facilities and plans.

**National Historic Preservation Act:** The National Historic Preservation Act was adopted in 1966 to preserve historical and archeological sites in the United States. The Act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation offices.

**Health and Safety Code, Section 7050.5:** Section 7050.5 of the California Health and Safety Code requires that construction or excavation be stopped near discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the California NAHC. CEQA Guidelines (Public Resources Code Section 5097) specify the procedures to be followed in case of the discovery of human remains on non-Federal land. The disposition of Native American burials falls within the jurisdiction of the NAHC.

**2035 Kings County General Plan:**

- **RC GOAL I1:** ***Preserve significant historical and archaeological sites and structures that represent the ethnic, cultural, and economic groups that have lived and worked in Kings County.***
  - RC OBJECTIVE I1.1: Promote the rehabilitation or adaptation to new uses of historic sites and structures.
    - *RC Policy I1.1.2*: Direct proposed developments that may affect proposed or designated historic sites or County landmarks to the Kings County Museum Advisory Committee or other similarly purposed advisory body under the Kings County Parks and Recreation Advisory Commission for review and comment.
    - *RC Policy I1.1.3*: Encourage the protection of cultural and archaeological sites with potential for placement on the National Register of Historic Places and/or inclusion in the California Inventory of Historic Resources.
    - *RC Policy I1.1.4*: Refer applications that involve the removal, destruction, or alteration of proposed or designated historic sites or County landmarks to the Kings County Museum Advisory Committee or its successor for recommended mitigation measures.

- RC OBJECTIVE I1.2: Identify potential archaeological and historical resources and, where appropriate, protect such resources.
  - *RC Policy I1.2.1*: Participate in and support efforts to identify significant cultural and archaeological resources and protect those resources in accordance to Public Resources Code 5097.9 and 5097.993.
  - *RC Policy I1.2.2*: Continue to solicit input from local Native American communities in cases where development may result in disturbance to sites containing evidence of Native American Activity and/or to sites of cultural importance.
  - *RC Policy I1.2.3*: Address archaeological and cultural resources in accordance with the California Environmental Quality Act (CEQA) for discretionary land use applications.
  - *RC Policy I1.2.4*: The County will respectfully comply with Government Code §65352.3 (SB18) by conducting formal consultations with tribes as identified by the Native American Heritage Commission on all general plan and specific plan amendments.
  - *RC Policy I1.2.5*: The County will respectfully comply with Government Code §6254.(r) and 6254.10 by protecting confidential information concerning Native American cultural resources. For example, adopting internal procedures such as keeping confidential archaeological reports away from public view or discussion in public meetings.
  - *RC Policy I1.2.6*: The County shall work in good faith with the Santa Rosa Rancheria Tachi Yokut Tribe ("Tribe"), the developer and other parties if the Tribe requests return of certain Native American artifacts from private development projects (e.g., for interpretive or educational value). The developer is expected to act in good faith when considering the Tribe's request for artifacts. Artifacts not desired by the Tribe shall be placed in a qualified repository as established by the California State Historical Resources Commission (see Guidelines for the Curation of Archaeological Collections, May 1993). If no facility is available, then all artifacts shall be donated to the Tribe.

**Discussion**

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

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

**Less Than Significant Impact with Mitigation Incorporation:** The Sozinho Dairy #5 Project Site has been reviewed through a cultural resources records search conducted by the Southern San Joaquin Valley Information Center (CHRIS). The search indicated that there are no

previously recorded tribal cultural resources listed or eligible for listing in the California Register of Historical Resources within the Project area or within a half-mile radius.

Additionally, a Sacred Lands File (SLF) search by the NAHC returned negative results, indicating no known sacred sites within the Project area. However, the absence of documented resources does not preclude the possibility of encountering undocumented resources during ground-disturbing activities.

To ensure that any potential tribal cultural resources are protected, Mitigation Measures CUL-1 and CUL-2 will be implemented, requiring that construction activities cease if any unknown resources are encountered. A qualified historical resources specialist will assess the significance of the find and recommend appropriate measures. These steps will ensure that any impacts on tribal cultural resources are mitigated to a *Less Than Significant Level with Mitigation Incorporation.*

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

**Less Than Significant Impact with Mitigation Incorporation:** Although no tribal cultural resources have been identified within the Project Site, there is a possibility that unanticipated resources could be discovered during construction. To address this, Mitigation Measures CUL-2 and CUL-3 will be implemented, requiring that if human remains are discovered, all work must halt until the County Coroner and, if applicable, the NAHC are notified to ensure proper handling of the remains according to state law.

Furthermore, Mitigation Measure CUL-1 will require a pre-construction cultural survey by a qualified professional to identify any potential resources before any ground disturbance. These measures will ensure that any impacts on significant tribal cultural resources are mitigated to a *Less Than Significant Level with Mitigation Incorporation.*

## XIX. UTILITIES AND SERVICE SYSTEMS

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

**Environmental Setting**

**Wastewater:** The Sozinho Dairy #5 Project, located in an unincorporated area of Kings County, is not connected to municipal sewer services and instead relies on an advanced wastewater management system tailored for dairy operations.

The facility proposes a comprehensive wastewater treatment system, including BIDA beds, wastewater retention ponds, and mechanical separators. The existing retention ponds serve as primary storage and treatment facilities for process water generated by dairy operations, including flush water from freestall barns and cleaning water from the milk barn. These ponds maintain a minimum five-foot separation from groundwater, as required by regulatory

standards, and have adequate capacity to handle wastewater from the facility, including stormwater runoff.

A key upgrade in the Project is the integration of BIDA beds, which utilize vermifiltration—a process that combines wood chips, microbial activity, and earthworms—to treat wastewater naturally. This system removes contaminants and enhances water quality before reuse in irrigation and land application. Additionally, the facility will incorporate mechanical separators to filter solid waste from the liquid stream, further optimizing wastewater treatment efficiency.

To prevent stormwater contamination, the wastewater management system is integrated with the Site's drainage infrastructure, ensuring that all runoff is directed toward the wastewater treatment system rather than flowing into nearby agricultural lands or waterways.

The facility's wastewater management practices comply with local and state regulations, including those set by the RWQCB and the SJVAPCD. These measures reduce the environmental impact of dairy operations while ensuring compliance with groundwater protection and wastewater reuse standards.

**Solid Waste:** Solid waste from Sozinho Dairy #5 includes manure, organic matter from process water treatment, and general operational waste. The organic waste generated by dairy operations is managed through a structured process that includes:

- A 200,000 ft² manure processing area where manure is separated and prepared for land application.
- A 40,000 ft² post-manure organic matter processing area, where worms are introduced to enhance nutrient availability and soil benefits.
- A 150,000 ft² post-BIDA bed organic matter processing area for handling, storing, and drying material removed from the BIDA beds before land application.
- A 30,000 ft² area used for screening material from the organic matter areas into smaller particle sizes for various types of land application.

All solid manure and organic matter are either land-applied as organic fertilizer on associated cropland or stored and processed for future use. Manure storage areas are graded to prevent runoff and ensure proper drainage to wastewater retention ponds.

General solid waste, including non-organic waste, is managed through the Kings Waste and Recycling Authority (KWRA), which oversees collection, recycling, and disposal services for Kings County and its incorporated cities. Waste from the facility is transported to the KWRA Material Recovery Facility and Transfer Station, where recyclable materials are diverted from landfills. The remaining non-recyclable waste is sent to the Kettleman Hills Facility, which operates municipal and hazardous waste landfills.

These practices ensure compliance with local solid waste regulations while promoting sustainability through recycling and organic material reuse.

**Water**: The Sozinho Dairy #5 facility sources its water primarily from on-site wells to support livestock hydration, cleaning, irrigation, and wastewater treatment. The facility adheres to a water conservation strategy, which includes the use of recycled water from the BIDA beds and wastewater retention ponds for irrigation and flushing operations, reducing dependence on fresh water. This recycled water is carefully monitored to ensure it meets quality standards before being applied to crops or other uses on-site.

Additionally, the stormwater management system is integrated with the water facilities, allowing rainwater to be collected, treated, and reused where possible. This not only helps conserve water but also minimizes runoff that could impact surrounding agricultural lands.

The geotechnical and groundwater evaluations conducted for the Project confirm that shallow groundwater was not encountered in soil borings drilled to a depth of 21.5 feet below ground surface. The California Department of Water Resources indicates the depth to regional groundwater at the Project Site is greater than 50 feet bgs, well below any facility operations. Additionally, all irrigation wells meet Kings County well construction standards, with proper seals and setbacks to prevent contamination.

**Stormwater:** The stormwater management system at Sozinho Dairy #5 is designed to effectively control runoff, prevent erosion, and minimize environmental impact. The Site has been strategically graded to ensure that surface water is directed away from operational areas and toward designated collection and treatment basins. This helps prevent water accumulation around structures and operational zones, reducing the risk of standing water and potential contamination.

Manure storage and process water areas are carefully designed to ensure that any stormwater runoff is collected within the wastewater retention ponds rather than flowing into surrounding agricultural lands. The facility also incorporates erosion control measures, such as rock aprons and stabilized drainage channels, to prevent soil displacement during heavy rainfall events. These features enhance the stability of the Site and protect surrounding areas from potential sediment runoff.

Once collected, stormwater is directed to retention basins, where it undergoes controlled treatment before either being reused or discharged in compliance with regulatory standards. The underlying soil composition, primarily Kimberlina fine sandy loam and Wasco sandy loam, provides effective drainage while minimizing the risk of stormwater infiltration into groundwater. Additionally, the facility maintains compliance with local and state stormwater management regulations, including those established by the DWR and the SJVAPCD. By implementing these stormwater management strategies, Sozinho Dairy #5 ensures that its operations do not negatively impact surrounding water resources or agricultural land.

**Electric Power and Natural Gas:** The proposed Project will not require new electrical or natural gas services.

**Regulatory Setting**

**CalRecycle:** California Code of Regulations, Title 14, Natural Resources – Division 7 contains all current CalRecycle regulations regarding nonhazardous waste management in the state. These regulations include standards for the handling of solid waste, standards for the handling of compostable materials, design standards for disposal facilities, and disposal standards for specific types of waste.

**Central Valley RWQCB:** The Central Valley RWQCB requires a SWPPP for projects disturbing more than one acre of the total land area. Because the Project is more than one acre, a SWPPP to manage stormwater generated during construction will be required. The Central Valley RWQCB regulates Wastewater Discharges to Land by establishing thresholds for discharged pollutants and implementing monitoring programs to evaluate program compliance. This program regulates approximately 1500 dischargers in the region.

The Central Valley RWQCB is also responsible for implementing the Federal program, the NPDES. The NPDES Program is the Federal permitting program that regulates the discharges of pollutants to the surface waters of the U.S. Under this program, an NPDES permit is required to discharge pollutants into the Waters of the U.S. There are 350 permitted facilities within the Central Valley Region.

**2035 Kings County General Plan:** The 2035 General Plan *Resource Conservation Element* includes the following goals, objectives, and policies which would reduce potential impacts on water supply and utility infrastructure:

- ***RC GOAL A1: Beneficially use, efficiently manage, and protect water resources while developing strategies to capture additional water sources that may become available to ensure long term sustainable water supplies for the region.***
  - RC OBJECTIVE A1.1: Maintain and Protect Existing Water Supplies
    - *RC Policy A1.1.2*: Review new discretionary development proposals, including new or expanded uses within agricultural zone districts, to ensure that there are adequate water supplies to accommodate such uses. Projects should provide evidence of adequate and sustainable water availability prior to approval of a tentative map or other land use approval.
  - RC OBJECTIVE A1.2: Conserve and reuse water to provide for the efficient use of water resources.

- *RC Policy A1.2.2*: Require the use of low water consuming, drought-tolerant and native landscaping and other water conserving techniques, such as mulching, drip irrigation and moisture sensors, for new development.
- *RC Policy A1.2.3*: Continue to support efforts and educational programs intended to reduce water consumption on agricultural lands and enhance groundwater recharge.
- *RC Policy A1.2.4*: Encourage and support the development of recycled water systems in Kings County.
- *RC Policy A1.2.5*: Encourage and support the safe use of gray water for landscaping, agriculture, recreation and open space areas.

❖ ***RC GOAL C1: Encourage the conservation of soil resources that are critical to the long-term protection and sustainability of the County's agricultural productivity and economy.***

❖ ***RC GOAL C2: Encourage soil conservation and management practices that maintain the productivity of prime soils throughout the County.***

➢ RC OBJECTIVE C2.2: Ensure that land use decisions are compatible with the control of soil erosion and the maintenance of soil quality.

- *RC Policy C2.2.2*: Continue to require the application of construction related erosion control measures, including Stormwater Pollution Protection Plans (SWPPP) for all new construction.

**Discussion**

**a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relation of which could cause significant environmental effects?**

**Less than Significant Impact:** The Sozinho Dairy #5 Project, located in an unincorporated area of Kings County, does not have access to municipal sewer services and is designed to manage all wastewater, stormwater, and utility needs on-site.

The Project includes comprehensive wastewater treatment infrastructure, including wastewater retention ponds, mechanical separators, and BIDA beds. The BIDA system uses vermifiltration, combining wood chips, microbes, and earthworms to remove contaminants from process water before reuse in irrigation and land application. The wastewater retention ponds have adequate capacity to handle all facility wastewater, including runoff from rainfall events, in compliance with RWQCB standards.

Stormwater drainage is integrated with the wastewater system, ensuring proper collection and treatment before discharge or reuse. The Site's topography directs surface runoff toward designated collection areas, preventing erosion and minimizing uncontrolled runoff. Erosion

control measures, including rock aprons and stabilized drainage channels, further ensure stormwater is properly managed.

The Project does not require new or expanded electrical or natural gas services, as existing infrastructure is sufficient to support all operational needs, including wastewater treatment, animal housing, and feed storage operations. Given that all wastewater, stormwater, and utility needs are handled within the Project Site, without requiring off-site facility expansions, the potential environmental effects from construction or relocation of utilities are minimal, resulting in a *Less than Significant Impact.*

**b) Would the Project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?**

**Less than Significant Impact:** The Sozinho Dairy #5 Project sources water from private on-site wells, which provide a reliable and sufficient supply to support livestock hydration, cleaning, irrigation, and wastewater treatment needs.

A key component of the Project's water conservation strategy is the reuse of treated wastewater from the BIDA system and retention ponds for irrigation and facility operations, reducing reliance on groundwater extraction. This recycling process ensures that water use is efficient and sustainable, aligning with state water conservation goals and agronomic best practices.

The geotechnical and groundwater evaluations conducted for the Project confirm that shallow groundwater was not encountered in soil borings drilled to a depth of 21.5 feet below ground surface. The California Department of Water Resources indicates the depth to regional groundwater at the Project Site is greater than 50 feet bgs, and all facility wells meet Kings County well construction standards, ensuring protection against contamination. The Project's water use is relatively low compared to other agricultural operations in the area, and existing water supplies are sufficient to meet demand, even under dry and multiple dry year scenarios.

Current water usage at the facility is primarily driven by livestock needs, facility cleaning, and irrigation, sourced from on-site wells. While specific metered data for the facility is unknown, the BIDA beds are designed to treat operational wastewater and do not generate additional water. By harnessing the digestive activity of worms and microbes, the system removes up to 99% of wastewater contaminants within four hours, producing high-quality water. This treated water can then be reused for agricultural irrigation, facility operations, or safely applied over fewer acres, helping to meet or exceed nutrient management goals. As a result, the Project supports cleaner water usage onsite, reduces overall water demand, and aligns with SIGMA goals by enabling increased water reuse and more efficient irrigation practices.

In comparison to other agricultural operations in Kings County and the San Joaquin Valley, the dairy's water demand is moderate. For example, almond orchards, a prevalent crop in the region, require approximately 3.5-4 acre-feet of water per acre annually (equivalent to about 1.1-1.3 million gallons per acre), according to data from the California Water Impact Network. Dairy operations like Sozinho #5, focused on animal housing and feed storage rather than extensive cropping, typically consume less direct water per acre than nut or field crops.

The Project is anticipated to result in a net decrease in water usage, due to the BIDA system's efficient wastewater treatment and reuse capabilities. The BIDA beds process existing wastewater volumes (generated from cleaning and animal operations) without adding new water inputs. This reduction offsets any minor increases from new calf hutches or operational adjustments, leading to overall lower groundwater extraction compared to baseline conditions.

Existing water supplies are deemed sufficient based on several factors: the BIDA system's reuse minimizes net demand, enhancing sustainability during dry and multiple dry years when groundwater reliance increases across the Valley, and the Project's modifications do not expand herd size or introduce water-intensive activities. These elements ensure that on-site wells can meet demands without straining regional resources. Therefore, the Project's impact on water supply availability is *Less than Significant.*

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

**No Impact:** The Project manages all wastewater on-site through a dedicated system, eliminating reliance on external treatment providers. The facility generates wastewater primarily from existing operations, with no additional process wastewater from proposed modifications. The BIDA beds treat this operational water, while extra wastewater arises only from rainfall on the beds, contaminated by manure, and is redirected to the facility's retention ponds. Calculations confirm the ponds' capacity suffices for the non-irrigation period (November 1 to February 28, 120 days), accommodating typical precipitation multiplied by a factor of 1.5, plus runoff from the largest 25-year, 24-hour storm event. This ensures all wastewater is effectively handled without off-site treatment needs. Since the Project does not require municipal or third-party wastewater treatment services, there is *No Impact*.

**d) Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**

**Less than Significant Impact:** The primary solid waste generated by the Sozinho Dairy #5 Project consists of manure and organic matter from dairy operations and wastewater treatment.

Manure management is a core component of the facility's operations, with all manure either land-applied as organic fertilizer, processed for nutrient recycling, or stored in designated areas. The Project includes three separate organic matter processing areas, where manure and BIDA bed materials are dried and improved before land application, ensuring compliance with nutrient management regulations.

Non-organic solid waste, including packaging, general refuse, and operational waste, will be handled by the KWRA. The KWRA operates the Material Recovery Facility and Transfer Station in Hanford, where recyclable materials are diverted from landfills, and remaining waste is transported to the Kettleman Hills Facility.

Because the majority of waste is reused on-site and any additional solid waste falls within local disposal capacity, the Project will not exceed state or local solid waste infrastructure limits. The facility's compliance with waste management regulations ensures that its impact on solid waste infrastructure remains *Less than Significant.*

**e) Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?**

**No Impact:** The Sozinho Dairy #5 Project is designed to fully comply with all applicable federal, state, and local solid waste regulations, ensuring proper management and disposal of all waste materials.

Solid waste management at the facility adheres to the California Integrated Waste Management Act of 1989 (AB 939) and the Kings County Integrated Waste Management Plan, which promote recycling and waste reduction. The Project's manure and organic matter recycling operations align with state-mandated sustainability goals, while non-organic waste is processed through KWRA in compliance with local regulations.

Because the facility's waste management practices are in full compliance with all relevant statutes and regulatory requirements, there is *No Impact.*

## XX.WILDFIRE

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

**Environmental Setting**

There are no State Responsibility Areas (SRAs) within the vicinity of the Project Site, and the Project Site is not categorized as a "Moderate," "High," or "Very High" Fire Hazard Severity Zone (FHSZ) by CalFire. This CEQA topic only applies to areas within an SRA or a Very High FHSZ.

**Regulatory Setting**

*Fire Hazard Severity Zones*: Geographical areas designated under California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated under California Government Code, Sections 51175 through 51189.

**Kings County Emergency Operations Plan (2015):** The Kings County Emergency Operations Plan establishes goals, priorities, and strategies in the event of an emergency. The goals and priorities are outlined below.

- 2.1 Goals, Priorities, and Strategies: During the response phase, emergency managers set goals, prioritize actions, and outline operational strategies. This plan provides a broad overview of those goals, priorities, and strategies and describes what should occur during each step, when, and at whose direction.
- 2.1.1 Operational Goals: During the response phase, the agencies that are charged with responsibilities in this plan should focus on the following five goals:
  - Mitigate hazards.
  - Meet basic human needs.
  - Address needs of people with disabilities and others with access and functional needs.
  - Restore essential services.
  - Support community and economic recovery.
- 2.1.2 Operational Priorities: Operational priorities govern resource allocation and the response strategies for the Kings County and its political subdivisions during an emergency. Below are operational priorities addressed in this plan.
  - Save Lives – The preservation of life is the top priority of emergency managers and first responders, and takes precedence over all other considerations.
  - Protect Health and Safety – Measures should be taken to mitigate the impact of the emergency on public health and safety.
  - Protect Property – All feasible efforts must be made to protect public and private property and resources, including critical infrastructure, from damage during and after an emergency.
  - Preserve the Environment – All possible efforts must be made to preserve California's environment and protect it from damage during an emergency.

**2035 Kings County General Plan:** The 2035 General Plan Health and Safety *Element* includes the following policies which would reduce potential impacts from wildfires:

- *HS Policy C2.2.2*: Development proposals and code revisions shall be referred to the County Fire Department for review and comment.

**Discussion**

**If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:**

**a) Substantially impair an adopted emergency response plan or emergency evacuation plan?**

**No Impact:** The Project would not substantially impair an adopted emergency response or evacuation plan. The Project will be reviewed by the Kings County Fire Department to ensure that the Project does not impair emergency response or emergency evacuation. The Site is also not located within an SRA or a Very High FHSZ. There is *No Impact.*

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

**No Impact**: The Project is located on a flat area of agricultural land at little risk of fire. The proposed Project Site is also not located within an SRA or a Very High FHSZ. There is *no impact.*

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

**Less than Significant Impact:** The Project's construction involves the construction of wastewater processing beds and the necessary infrastructure for wastewater management. All improvements would be subject to County standards and Fire Marshal approval. The proposed Project would not exacerbate fire risk, and the impact would be *Less than Significant.*

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

**No Impact:** The Project Site is not located in an area designated as a Fire Hazard Severity Zone and the lands associated with the Project Site are relatively flat. Therefore, the Project would not be susceptible to downslope or downstream flooding or landslides because of post-fire instability or drainage changes. There is *No Impact.*

## XXI. MANDATORY FINDINGS OF SIGNIFICANCE

| **Would the Project:** | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☑ | ☐ | ☐ | ☐ |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | ☐ | ☐ | ☑ | ☐ |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ☑ | ☐ | ☐ | ☐ |

**Discussion**

**a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?**

**Potentially Significant Impact:** This Initial Study found the Project could significantly impact Air Quality, Biological Resources, Historical/Cultural Resources, Energy Resources, Geological & Soils Resources, Greenhouse Gas Emissions, Hazards & Hazardous Materials, Transportation, Tribal Cultural Resources, and Hydrology & Water Quality Resources. However, implementing

the identified mitigation measures for each respective section would help reduce some of the impacts to less than significant. Those sections that cannot be reduced to a less than significant impact with mitigation incorporation will be analyzed in the Project's EIR as they may cause a *Potentially Significant Impact*.

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

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

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

**Potentially Significant Impact:** The Initial Study identified multiple environmental resource areas where the Project could result in potentially significant impacts on human beings unless specific mitigation measures are implemented. These include:

Air Quality: The Project would generate odors and air pollutants during operation, particularly from the process water treatment system and manure handling. Mitigation Measure AIR-1 requires implementation of an odor management plan, including regular tilling and drainage maintenance of BIDA beds, to reduce potential odor emissions to a less than significant level.

Energy and Greenhouse Gas Emissions: The Project could result in increased energy consumption and GHG emissions through expanded operational infrastructure. However, the application of Best Performance Standards and improved wastewater treatment using BIDA beds is expected to offset these increases. Still, mitigation measures were recommended to minimize GHG output and ensure energy efficiency.

Hydrology and Water Quality: Construction and operation could result in water quality degradation due to stormwater runoff or improper wastewater handling. Mitigation Measures HYD-1 through HYD-3 require submission of a Notice of Intent, development of a Storm Water

Pollution Prevention Plan (SWPPP), and a long-term Development Maintenance Manual to prevent water contamination.

Transportation: While minimal increases in vehicle trips are expected, the Initial Study noted that additional service and delivery vehicles could contribute to localized traffic and safety concerns. Mitigation included operational planning and route adjustments to reduce transportation impacts to acceptable levels.

Based on the above findings, the Project has the potential to cause substantial adverse effects on human beings in the absence of mitigation. However, with implementation of the identified mitigation measures across the affected environmental categories, these impacts can be reduced to less-than-significant levels, while others require additional analysis. Therefore, this checklist item is appropriately categorized as *Potentially Significant Impact.*

## XXII. MITIGATION MONITORING AND REPORTING PROGRAM

As required by Public Resources Code Section 21081.6, subd. (a)(1), a Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the Project to monitor the implementation of the mitigation measures that have been adopted for the Project. This Mitigation Monitoring and Reporting Program (MMRP) has been created based upon the findings of the Initial Study (IS) for the Sozinho Dairy #5 Project in the Kings County.

The first column of the table identifies the mitigation measure. The second column names the party responsible for carrying out the required action. The third column, "Timing of Mitigation Measure" identifies the time the mitigation measure should be initiated. The fourth column, "Responsible Party for Monitoring," names the party ensuring that the mitigation measure is implemented. The last column will be used by the County to ensure that the individual mitigation measures have been monitored.

| Mitigation Measure | Responsible Party for Implementation | Implementation Timing | Responsible Party for Monitoring | Verification |
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| **Mitigation Measure AIR-1 (Odor Management).** To minimize odor impacts from the Project, the Applicant shall implement an odor management plan. The plan will incorporate several odor management strategies. These strategies will include regularly tilling the BIDA beds to prevent stagnation, reducing the potential for odor emissions. Additionally, the drainage channels associated with the BIDA beds shall be routinely maintained to ensure proper drainage and prevent the accumulation of odorous materials. The Applicant shall develop and adhere to a maintenance schedule for tilling and drainage channel upkeep, with records of these activities maintained and available for review by the Kings County Community Development Agency and the San Joaquin Valley Air Pollution Control District to ensure compliance. | Project Applicant | During Project Operation | Kings County | |
| **Mitigation Measure AIR-2 (Dust Control During Construction).** To minimize construction-related air quality impacts, the Applicant shall implement a Dust Control Plan in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. This plan shall include measures such as regular watering of exposed soils, stabilizing unpaved roads, limiting vehicle speeds, and covering material stockpiles. The Applicant shall ensure these controls are applied throughout the construction phase to reduce dust and exhaust emissions, with documentation of implementation maintained for review by relevant regulatory agencies. | Project Applicant | Prior to the Start of Project Construction | Kings County | |
| **Mitigation Measure AIR-3 (Wastewater Processing Bed Maintenance).** To minimize operational emissions from the wastewater processing beds, the Applicant shall conduct regular maintenance of the BIDA beds to prevent stagnation and odor release. This shall include adherence to a vermifiltration design that improves wastewater quality and reduces volatile organic compound (VOC) emissions. The Applicant shall develop a maintenance protocol, with records available for inspection by the San Joaquin Valley Air Pollution Control District to verify compliance. | Project Applicant | During Project Operation | Kings County | |

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| **Mitigation Measure AIR-4 (Silage Management).** To minimize odors and VOC emissions from silage storage, the Applicant shall cover silage piles with tarps or other impermeable materials. Regular monitoring and maintenance of silage piles shall be performed to prevent spoilage and anaerobic conditions that could exacerbate odors. The Applicant shall establish a schedule for these activities, ensuring records are kept and accessible for review by regulatory authorities. | Project Applicant | During Project Operation | Kings County | |
| **Mitigation Measure AIR-5 (Feed Storage Dust Suppression).** To minimize fugitive dust emissions from feed storage areas, the Applicant shall utilize enclosed or covered structures where feasible. Dust suppression techniques, such as misting systems or windbreaks, shall be employed during material handling. The Applicant shall implement these measures in alignment with SJVAPCD-recommended best management practices for agricultural operations, with compliance documentation maintained. | Project Applicant | During Project Operation | Kings County | |
| **Mitigation Measure AIR-6 (Agricultural Best Management Practices).** To reduce overall emissions from silage and feed activities, the Applicant shall adhere to SJVAPCD-recommended best management practices, including proper storage and handling protocols. This shall encompass strategies to mitigate odors, VOCs, and particulate matter, with a focus on the proximity of storage areas to sensitive receptors. The Applicant shall prepare a plan outlining these practices, subject to periodic review by the San Joaquin Valley Air Pollution Control District. | Project Applicant | During Project Operation | Kings County | |
| **Mitigation Measure AIR-7 (Enhanced Waste Management for Additional Improvements).** To address emissions from expanded dairy operations or waste management systems, the Applicant shall treat wastewater through vermifiltration-based BIDA beds to reduce VOC and ammonia emissions compared to traditional systems. Regular maintenance of these beds shall be conducted to prevent stagnation and odor release, with a documented schedule ensuring ongoing compliance. | Project Applicant | During Project Operation | Kings County | |
| **Mitigation Measure AIR-8 (Emission Control Technologies).** To capture odorous compounds and ammonia from animal housing or waste management systems, the Applicant shall incorporate technologies such as biofilters or scrubbers where applicable. These controls shall be integrated into project improvements, aligning with SJVAPCD guidelines, and the Applicant shall maintain records of installation and operation for regulatory verification. | Project Applicant | During Project Operation | Kings County | |
| **Mitigation Measure AIR-9 (Operational Controls for Vehicles and Equipment).** To minimize emissions from expanded operational activities, the Applicant shall limit idling times for vehicles and equipment, utilize low-emission machinery where feasible, and implement dust suppression measures in expanded areas. These controls shall be part of a broader operational plan, with adherence documented and available for review by the San Joaquin Valley Air Pollution Control District to ensure air quality impacts remain less than significant. | Project Applicant | During Project Operation | Kings County | |
| **Mitigation Measure BIO-1.1 (Temporal Avoidance).** In order to avoid any potential impacts to nesting Swainson's hawks, construction activities will occur, where possible, outside of this species' nesting season, typically defined as March 1-September 15. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |

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| **Mitigation Measure BIO-1.2 (Preconstruction Surveys).** If construction activities must occur between March 1 and September 15, then within 10 days prior to the start of construction, a qualified biologist will conduct preconstruction nest surveys for Swainson's hawks on and within ¼ mile of the work area. The survey will consist of inspecting all accessible, suitable trees of the survey area for the presence of nests and hawks. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |
| **Mitigation Measure BIO-1.3 (Avoidance of Active Nests).** Should any active Swainson's hawk nests be discovered within the survey area, an appropriate disturbance-free buffer will be established around the nest based on local conditions and agency guidelines. Disturbance-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |
| **Mitigation Measure BIO-2.1 (Take Avoidance Survey).** A take avoidance survey for burrowing owls shall be conducted by a qualified biologist no less than 14 days prior to the start of construction. This take avoidance survey shall be conducted according to methods described in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The survey area shall include all potential roosting and nesting habitat on and within 200 meters of project impact areas, where accessible. | Project Applicant | Prior to the start of construction | Kings County | |
| **Mitigation Measure BIO-2.2 (Avoidance of Active Nests).** If pre-construction surveys are undertaken during the breeding season (February 1 through August 31) and active nest burrows are located within or near construction zones, a construction-free buffer of 250 feet shall be established around all active owl nests. The buffer areas shall be enclosed with temporary fencing or flagging, and construction equipment and workers shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season. After the breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |
| **Mitigation Measure BIO-2.3 (Passive Relocation of Resident Owls).** During the nonbreeding season (September 1-January 31), resident owls occupying burrows in project impact areas may either be avoided, or passively relocated to alternative habitat. If the applicant chooses to avoid active owl burrows within the impact area during the nonbreeding season, a 50-meter disturbance-free buffer shall be established around these burrows. The buffers shall be enclosed with temporary fencing, and shall remain in place until a qualified biologist determines that the burrows are no longer active. If the applicant chooses to passively relocate owls during the non-breeding season, this activity shall be conducted in accordance with a relocation plan prepared by a qualified biologist. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |
| **Mitigation Measure BIO 3.1 (Avoidance).** In order to avoid impacts to native nesting birds, including the tricolored blackbird, the project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |

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| **Mitigation Measure BIO 3.2 (Preconstruction Surveys).** If project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and native bird nests within 15 days prior to the start of these activities. The survey will include the proposed work area(s) for that particular phase of work and surrounding lands within 250 feet, where accessible, for all nesting birds. If no active nests are found within the survey area, no further mitigation is required. | Project Applicant | Prior to the start of construction | Kings County | |
| **Mitigation Measure BIO 3.3 (Establish Buffers).** Should any active nests be discovered in or near proposed work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |
| **Mitigation Measure CUL-1: Pre-Construction Cultural Survey Requirement.** Prior to any construction activities, a qualified professional consultant must conduct a field survey of the project site to determine if any cultural resources are present. The results of this survey must be submitted to the Kings County Community Development Agency for review. If any cultural resources are identified, further consultation with the appropriate authorities, including the Native American Heritage Commission, may be necessary to ensure proper management and preservation of these resources. No ground-disturbing activities shall commence until the survey has been completed and the results have been reviewed by the County. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |

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| **Mitigation Measure CUL-2: Protection of Cultural Resources.** In order to avoid the potential for impacts to historic and prehistoric archaeological resources, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:<br>• Cultural Resources Alert on Project Plans: The project proponent shall note on any plans that require ground disturbing activities that there is a potential for exposing buried cultural resources.<br>• Pre-Construction Briefing: The project proponent shall retain Santa Rosa Rancheria Cultural Staff to provide a pre-construction Cultural Sensitivity Training to construction staff regarding the discovery of cultural resources and the potential for discovery during ground disturbing activities, which will include information on potential cultural material finds and, on the procedures, to be enacted if resources are found.<br>• Stop Work Near any Discovered Cultural Resources: The project proponent shall retain a professional archaeologist on an "on-call" basis during ground disturbing construction for the project to review, identify and evaluate cultural resources that may be inadvertently exposed during construction. Should previously unidentified cultural resources be discovered during construction of the project, the project proponent shall cease work within 100 feet of the resources, and Kings County Community Development Agency (CDA) shall be notified immediately. The archaeologist shall review and evaluate any discoveries to determine if they are historical resource(s) and/or unique archaeological resources under CEQA.<br>• Mitigation for Discovered Cultural Resources: If the professional archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource, he/she shall notify the project proponent and other appropriate parties of the evaluation and recommended mitigation measures to mitigate the impact to a less-than- significant level. Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing, and data recovery, among other options. Treatment of any significant cultural resources shall be undertaken with the approval of the Kings County CDA. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System, Southern San Joaquin Valley Information Center. The resources shall be photo-documented and collected by the archaeologist for submittal to the Santa Rosa Rancheria's Cultural and Historical Preservation Department. The archaeologist shall be required to submit to the County for review and approval a report of the findings and method of curation or protection of the resources. Further grading or sitework within the area of discovery shall not be allowed until the preceding steps have been taken.<br>• Native American Monitoring: Prior to any ground disturbance, the project proponent shall offer the Santa Rosa Rancheria Tachi Yokut Tribe the opportunity to provide a Native American Monitor during ground disturbing activities. Tribal participation would be dependent upon the availability and interest of the Tribe.<br>• Disposition of Cultural Resources: Upon coordination with the Kings County Community Development Agency, any prehistoric archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded applicable cultural resources laws and guidelines. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |

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| **Mitigation Measure CUL-3: Protection of Buried Human Remains**. In order to avoid the potential for impacts to buried human remains, the following measures shall be implemented, as necessary, in conjunction with the construction of the Project:<br>• Pursuant to State Health and Safety Code Section 7050.5(e) and Public Resources Code Section 5097.98, if human bone or bone of unknown origin is found at any time during on- or off-site construction, all work shall stop within 25 feet of the discovery and the Kings County Coroner shall be notified immediately and the resource shall be protected in compliance with applicable state and federal laws. If the remains are determined to be Native American, the Coroner shall notify the California State Native American Heritage Commission (NAHC), who shall identify the person believed to be the Most Likely Descendant (MLD) pursuant to Public Resources Code Section 5097.98. The project proponent and MLD, with the assistance of the archaeologist, shall make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Sec. 15064.5(d)). The agreed upon treatment shall address the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. California Public Resources Code allows 48 hours for the MLD to make their wishes known to the landowner after being granted access to the site. If the MLD and the other parties do not agree on the reburial method, the project will follow Public Resources Code Section 5097.98(b) which states that "…. the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."<br>• Any findings shall be submitted by the archaeologist in a professional report submitted to the project applicant, the MLD, the Kings County Community Development Agency, and the California Historical Resources Information System, Southern San Joaquin Valley Information Center. | Project Applicant | Prior to the start of construction and ongoing during construction | Kings County | |

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| **Mitigation Measure HAZ-1: Hazardous Materials Business Plan.** To ensure compliance with applicable safety regulations and minimize risks associated with the handling, storage, and use of hazardous materials at the Sozinho Dairy #5 facility, the applicant shall prepare and file a Hazardous Materials Business Plan (HMBP), prior to the initiation of any construction or operational activities involving hazardous materials. The HMBP shall include the following components:<br><br>• Inventory of Hazardous Materials: A detailed inventory of all hazardous materials to be used, stored, or disposed of on-site, including quantities, storage locations, and handling procedures.<br>• Emergency Response Plan: Procedures for responding to spills, leaks, or other incidents involving hazardous materials, including notification protocols, containment measures, and cleanup procedures.<br>• Employee Training: A training program for all employees handling hazardous materials, ensuring they are informed of proper handling, storage, and emergency response procedures in accordance with state and federal regulations.<br>• Site Map: A detailed site map indicating the locations of hazardous materials storage, handling areas, and emergency response equipment, such as spill kits and fire extinguishers.<br><br>The applicant shall submit the HMBP for review and approval by the Kings County Environmental Health Services Division prior to the issuance of any construction or grading permits. The plan shall be updated annually or as required by regulatory authorities, and the applicant shall maintain records of compliance, including inspection reports and employee training logs, for review by the County upon request. Implementation of the HMBP will reduce potential impacts related to hazardous materials to a less than significant level by ensuring safe handling, storage, and emergency response procedures are in place. | Project Applicant | During Project Operation | Kings County | |
| **Mitigation Measure HYD-1: Notice of Intent.** Before the issuance of any construction/grading permit and/or the commencement of any clearing, grading, or excavation, the Applicant shall submit a Notice of Intent (NOI) for discharge from the Project Site to the California SWRCB Storm Water Permit Unit.<br>• Before issuance of grading permits for Phase 1, the Applicant shall submit a copy of the NOI to the County.<br>• The County shall review noticing documentation before the approval of the grading permit. County monitoring staff will inspect the Site during construction for compliance. | Project Applicant | Prior to the start of construction | Kings County | |

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| **Mitigation Measure HYD-2: Stormwater Pollution Prevention Plan.** The Applicant shall require the building contractor to prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) to the County 45 days before the start of work for approval. The contractor is responsible for understanding the State General Permit and instituting the SWPPP during construction. An SWPPP for Site construction shall be developed before the initiation of grading and implemented for all construction activity on the Project Site in excess of one (1) acre, or where the area of disturbance is less than one acre but is part of the Project's plan of development that in total disturbs one or more acres. The SWPPP shall identify potential pollutant sources that may affect the quality of discharges to stormwater and shall include specific BMPs to control material discharge from the Site. The following BMP methods shall include, but would not be limited to:<br>• Dust control measures will be implemented to ensure the success of all onsite activities to control fugitive dust;<br>• A routine monitoring plan will be implemented to ensure the success of all onsite erosion and sedimentation control measures;<br>• Provisional retention basins, straw bales, erosion control blankets, mulching, silt fencing, sandbagging, and soil stabilizers will be used;<br>• Soil stockpiles and graded slopes will be covered after two weeks of inactivity and 24 hours before and during extreme weather conditions; and,<br>• BMPs will be strictly followed to prevent spills and discharges of pollutants on Site, such as material storage, trash disposal, construction entrances, etc. | Project Applicant | Prior to the start of construction | Kings County | |
| **Mitigation Measure HYD-3: Development Maintenance Manual.** A Development Maintenance Manual for the Project shall include comprehensive procedures for maintenance and operations of any stormwater facilities to ensure long-term operation and maintenance of post-construction stormwater controls. The maintenance manual shall require that stormwater BMP devices be inspected, cleaned, and maintained following the manufacturer's maintenance conditions. The manual shall require that devices be cleaned before the onset of the rainy season (i.e., mid-October) and immediately after the end of the rainy season (i.e., mid-May). The manual shall also require that all devices be checked after major storm events. The Development Maintenance Manual shall include the following:<br>• Runoff shall be directed away from the trash and loading dock areas;<br>• Bins shall be lined or otherwise constructed to reduce the leaking of liquid wastes;<br>• Trash and loading dock areas shall be screened or walled to minimize offsite transport of trash; and,<br>• Impervious berms, trench catch basins, drop inlets, or overflow containment structures nearby docks and trash areas shall be installed to minimize the potential for leaks, spills, or washdown water to enter the drainage system. | Project Applicant | Prior to the start of construction | Kings County | |

## 3.6 Supporting Information and Sources


1. **2035 Kings County General Plan EIR**. Available at: https://www.countyofkings.com/home/showpublisheddocument/5897/635342995809030000
2. **2035 Kings County General Plan**. Available at: https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan
3. **Kings County Development Code**. Available at: https://www.countyofkingsca.gov/departments/community-development-agency/information/zoning-ordinance
4. **2024 CEQA Statute & Guidelines**. Available at: https://www.califaep.org/docs/2024_CEQA_Statute_and_Guidelines_Handbook.pdf

Aesthetics

5. **Caltrans State Scenic Highways**. Available at: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa

Agriculture and Forest Resources

6. **California Department of Conservation Farmland Mapping and Monitoring Program**. Available at: https://www.conservation.ca.gov/dlrp/fmmp
7. **Kings County 2022 Crop Report**. Available at: https://www.countyofkingsca.gov/home/showpublisheddocument/32164/638307941453970000

Air Quality

8. **CARB, 2016. Ambient Air Quality Standards**. Available at: https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards
9. **CARB, 2017. California's 2017 Climate Change Scoping Plan**. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf
10. **CARB 2022a. Scoping Plan for Achieving Carbon Neutrality**. Available at: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents
11. **CARB 2022b. State and Federal Area Designations**. Available at: https://ww2.arb.ca.gov/our-work/programs/state-and-federal-area-designations
12. **CARB. Common Air Pollutants**. Available at: https://ww2.arb.ca.gov/resources/common-air-pollutants
13. **CARB. Air Quality Data Statistics**. Available at: https://www.arb.ca.gov/adam/topfour/topfour1.php
14. **California Clean Air Act, 1988, Cal. Health & Safety Code §§ 39000–41504.** Available at: https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=HSC&division=26
15. **Federal Clean Air Act.** Available at: https://www.epa.gov/clean-air-act-overview
16. **SJVAPCD Rules and Regulations**. Available at: https://www.valleyair.org/rules-and-planning/current-district-rules-and-regulations/

17. **SJVAPCD Ambient Air Quality Standards & Valley Attainment Status**. Available at: https://ww2.valleyair.org/air-quality-information/ambient-air-quality-standards-valley-attainmnet-status/
18. **SJVAPCD, 2015. Guidance for Assessing and Mitigating Air Quality Impacts**. Available at: https://www.valleyair.org/media/g4nl3p0g/gamaqi.pdf

Biological Resources

19. **Calflora. 2024. Calflora: An online database of plant identification and distribution [web application]. Calflora, Berkeley, California.** Available at: http://www.calflora.org.
20. **California Department of Fish and Game. 2012. Staff report on Burrowing Owl Mitigation.** Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843
21. **California Department of Fish and Game. 2021. California Fish and Game Code: 2021 Edition.** Matthew Bender 7 Company. Inc. Colorado Springs, CO. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=178840&inline
22. **California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database.** The Resources Agency, Sacramento, CA. Attached as Appendix I.
23. **California Soil Resource Lab. 2024. SoilWeb [web application]. University of California, Davis and Natural Resources Conservation Service, Davis, California** Available at: https://casoilresource.lawr.ucdavis.edu/gmap/
24. **Cypher, B. L., S. E. Phillips, and P. A. Kelly. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation.** 16:25-31. Available at: https://www.canids.org/CBC/16/san_joaquin_kit_fox_habitat_suitability.pdf
25. **eBird. 2024. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York.** Available at: http://www.ebird.org.
26. **Estep J. A. 1989. Biology, Movements, and Habitat Relationships Of The Swainson's Hawk In The Central Valley Of California, 1986-87. State Of California Department Of Fish And Game Wildlife Management Division Nongame Bird And Mammal Section.** Available at: https://www.sandiegocounty.gov/content/dam/sdc/pds/ceqa/JVR/AdminRecord/IncorporatedByReference/Appendices/Appendix-D---Biological-Resources-Report/Estep%201989.pdf
27. **Gervais J. A., C. M. Hunter, and R.G. Anthony. 2006. Interactive Effects Of Prey And p,p'-DDE On Burrowing Owl Population Dynamics. Ecological Applications, 16(2), 2006, pp. 666–677.** Available at: https://www.birdpop.org/docs/pubs/Gervais_et_al_2006_Interactive_Effects_of_Prey_and_DDE_on_BUOW.pdf
28. **Jepson Flora Project. 2024. Jepson eFlora. [web application]. University of California, Berkeley; Berkeley, California.** Available at: https://ucjeps.berkeley.edu/eflora/
29. **Smith D.A, K. Ralls, B.L. Cypher, H.O. Clark, P.A. Kelly, D.F. Williams, and J.E. Maldonado. 2006. Relative Abundance of Endangered San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Based on Scat–Detection Dog Surveys. The Southwestern Naturalist** 5:210–219. Available at: https://carangeland.org/images/Relative_Abundance_of_Endangered_San_Joaquin_Kit_Foxes_Based_on_Scat-Detection.pdf
30. **US Army Corps of Engineers. 2000. Wetlands Management Handbook. C.B. Schneider and S.W. Sprecher.** ERDC/EL SR-00-16. Available at: https://www.spl.usace.army.mil/Portals/17/docs/regulatory/Mitigation/UsefulLinks/WetlandsManagementHandbook_Dec2000.pdf

31. **Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White. Ed. 1988. California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals.** Department of Fish and Game. Sacramento, CA. Digitized and updated as life history accounts in the California Wildlife Habitat Relationships System, California Department of Fish and Wildlife, Available at: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range

Cultural Resources

33. **California Health and Safety Code Section 7050.5**. Available at: https://california.public.law/codes/ca_health_and_safety_code_section_7050.5#:~=California%20Health%20and%20Safety%20Code%20Sec.%207050.5%20%28a%29,in%20Section%205097.99%20of%20the%20Public%20Resources%20Code
34. **California Register of Historical Resources**. Available at: https://ohp.parks.ca.gov/?page_id=21238
35. **National Register of Historic Places**. Available at: https://www.nps.gov/subjects/nationalregister/index.htm
36. **Office of Historic Preservation**. Available at: https://ohp.parks.ca.gov/

Energy

37. **PG&E Power Resources.** Available at: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page?WT.mc_id=Vanity_cleanenergy
38. **EIA California Natural Gas Consumption.** Available at: https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm
39. **2022 Building Energy Efficiency Standards.** Available at: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency

Geology and Soils

40. **Fault Activity Map of California**. Available at: https://maps.conservation.ca.gov/cgs/fam/
41. **Tulare County Association of Governments, 1974. Five County Seismic Safety Element**. Available at: https://tularecounty.ca.gov/rma/planning-building/environmental-planning/environmental-planning-resources/five-county-seismic-safety-element-1974/
42. **Web Soil Survey, USDA Natural Resources Conservation Service, Soil Report**. Available at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx
43. **USDA, Soil Data Explorer, Kimberlina Series.** Available at: https://casoilresource.lawr.ucdavis.edu/sde/?series=kimberlina#osd
44. **USDA, Soil Data Explorer, Wasco Series.** Available at: https://casoilresource.lawr.ucdavis.edu/sde/?series=wasco#osd

Greenhouse Gas Emissions

45. **Overview of Greenhouse Gases, EPA**. Available at: https://www.epa.gov/ghgemissions/overview-greenhouse-gases
46. **SJVAPCD, 2009a. Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act, Final Staff Report**. Available at: https://ww2.valleyair.org/media/mdfm0lsd/1-ccap-final-ceqa-ghg-staff-report-dec-17-2009.pdf

47. **SJVAPCD, 2009b. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA**. Available at: https://www.valleyair.org/media/dnsnicdv/3-ccap-final-lu-guidance-dec-17-2009.pdf
48. **SJVAPCD, 2009c. Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency**. Available at: https://ww2.valleyair.org/media/disb2jna/2-ccap-final-district-policy-ceqa-ghg-dec-17-2009.pdf

Hazards and Hazardous Materials

49. **California Building Code**. Available at: https://www.dgs.ca.gov/BSC/Codes
50. **Department of Toxic Substances Control's EnviroStor**. Available at: https://dtsc.ca.gov/your-envirostor/
51. **TIA-222-I**. Available at: https://tiaonline.org/standardannouncement/tia-issues-new-structural-standard-for-antenna-supporting-structures-antennas-and-small-wind-turbine-support-structures-standard/

Hydrology and Water Quality

52. **California Water Impact Network. California Almond Water Usage.** Available at: https://www.c-win.org/cwin-water-blog/2024/9/23/california-almond-water-usage-updated#:~:text=Almonds%20use%20approximately%203%20to,water%20per%20acre%20per%20year
53. **FEMA National Flood Hazard Mapping**. Available at: https://msc.fema.gov/portal/home

Noise

54. **FTA Transit Noise and Vibration Impact Assessment**. Available at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

Population and Housing

55. **Kings County Census Data**. Available at: https://www.census.gov/quickfacts/kingscountycalifornia

Transportation

56. **Technical Advisory on Evaluating Transportation Impacts under CEQA**. Available at: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-10-1st-edition-tac-fnl-a11y.pdf

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# Appendix A

## Exterior Lighting Plan

# ASAE EP344.3 JAN2005
# Lighting Systems for Agricultural Facilities



American Society of
Agricultural and Biological Engineers

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# Lighting Systems for Agricultural Facilities

*This Engineering Practice combines and therefore supersedes ASAE R286, Lighting for Dairy Farms, and ASAE R332, Poultry Industry Lighting, developed by the joint Illuminating Engineering Society—ASAE Farm Lighting Committee, EPP-46. R286 was adopted by ASAE June 1965; R332 was adopted by ASAE December 1969. This document was approved by the ASAE Electric Power and Processing Division Standards Committee and adopted by ASAE as ASAE Recommendation R344 February 1971; revised editorially and reclassified as an Engineering Practice December 1975; reconfirmed December 1980; revised March 1982; reconfirmed July 1986, December 1987; revised July 1988; reaffirmed December 1993, December 1998; December 1999; revised editorially March 2000; revised January 2005*

## 1 Purpose and scope

**1.1** This Engineering Practice is intended to guide those responsible for or concerned with, the design of lighting installations on or within agricultural facilities.

**1.2** This Engineering Practice applies to the effective performance of workers as they accomplish specific tasks requiring various levels of illuminance and it applies to lighting installations used to change the physiological or biological properties of livestock, birds, fish and plants to alter their production capabilities.

**1.3** The lighting recommendations are based on information obtained from search of current literature, from people and organizations active in this field, and from field measurements of lighting requirements for difficult seeing tasks. This document is in accordance with the latest knowledge and practice of the lighting field, and conforms to all official IESNA reports. However, future progress in agriculture and lighting will undoubtedly make revisions desirable.

**1.4** Lighting systems must be installed safely. In all cases, the National Electrical Code and Building Codes, plus local codes, will take precedence. This document is primarily for effective, efficient production in agriculture.

## 2 Introduction

### 2.1 Lighting equipment

**2.1.1 Lamps** Light sources available for agriculture lighting applications include incandescent, fluorescent, low pressure sodium and high intensity discharge (HID). HID sources include mercury, metal halide and high-pressure sodium lamps. HID lamps are more efficient, have longer rated lives, and generate 2 to 5 times more light than the incandescent filament for the same amount of electrical energy. Refer to IESNA Lighting Handbook, Part II Lighting Engineering, Chapter 6 Light Sources.

**2.1.1.1 Incandescent Lamps** These lamps come in a variety of types and sizes. They are a high brightness source and should be used in appropriate luminaire to minimize glare. No auxiliary electrical equipment is required. These lamps can be dimmed.

**2.1.1.2 Fluorescent Lamps** These lamps provide a large light source. Even though surface brightness is relatively low, fluorescent lamps should always be housed in a suitable luminaire to minimize glare. In high humidity environments or areas subject to wash down, gasketted or weatherproof housings are required to prevent corrosion and premature failure of the light system. Fluorescent lamps are available in different sizes, types, and colors, which can provide good color rendering, cool or warm colors. Light output is highly dependant on operating temperature. At very high or extremely low ambient temperatures, light output drops. Cold start or low temperature starting ballasts along with an enclosure to maintain to temperature should be used in cold areas. Refer to IESNA Lighting Handbook, Part II Lighting Engineering, Chapter 6 Light Sources.

**2.1.1.3 High Intensity Discharge Lamps** HID lamps are used both outdoors and indoors. Ballasts are required for their operation. HID lamps differ in their color rendering ability, generally being lower than fluorescent or incandescent lamps. These lamps are not suited to applications where lights operate intermittently for a short duration due to their slow warm up time.

**2.1.2 Luminaires**

**2.1.2.1** Light is emitted from most lamps in many directions.
A luminaire is designed to control the direction at which light is emitted so glare will be reduced and light directed more effectively on the objects to be seen. In most cases, luminaires should direct light downward to minimize losses. In some applications, it is desirable to have a portion of the light directed toward the ceiling. Some of the light striking a light-colored ceiling is reflected back to the visual tasks.

**2.1.2.2** Luminaires control light distribution with reflectors (enamel, aluminum, glass, or plastic), refractors (glass or plastic diffusing lenses), or diffusers (glass or plastic diffusing shields). One or more of these devices might be used in the same luminaire. Reflectors and refractors direct light for more efficient utilization. Reflectors, refractors, and diffusing shields prevent glare. Refer to IESNA Lighting Handbook, Part II Lighting Engineering, Chapter 6 Light Sources.

**2.1.2.3** A luminaire prevents water from striking hot lamps when used in damp locations, outdoor areas or areas which are washed. Weatherproof or gasketted housings are available for lamps used in humid environments, areas where water spray is a problem or when lamps are exposed to the weather.

**2.1.3 Controls** Electric lighting systems in agricultural applications can be controlled electronically. There are several reasons for equipping a lighting system with an electronic control.

- Visual and Production Performance: match light intensity to the application. Occupant visual performance may depend on the quantity and quality of the light; for example, visually inspecting livestock for health or produce for quality purposes is a demanding visual task. The application may be specific to the reproductive, growth or behavioural needs of the plant or livestock.
- Energy Management: matches light application to demand; thereby, reducing unnecessary energy, time of use and/or demand charges.

A wide variety of controls are used in agricultural operations depending on the application. These controls include switches, dimmers, photosensors, occupancy sensors, and timers. The information provided in this section comes from IESNA Lighting Handbook, Part V Special Topics, Chapter 27 Lighting Controls. For details on any of the areas discussed, please refer to the Handbook.

**2.1.3.1 Switching** Switching control allows lights to be switched on and off manually with simple wall-box switches, or remotely with relays, switchable circuit breakers, a control system, or occupancy sensors. The choice of switching control will depend on the application. Local manual switching controls give control over light levels according to their needs or the task are inexpensive.
Central switching controls are well suited to scheduled activities such as occupation of a space during prescribed hours of the day and week. Control systems are ideal for applications with multiple zones and changing lighting requirements over time. Greenhouse operations, for example, employ lighting control systems to match light requirements to the crop being grown in a particular zone.
Occupancy or motion sensors are used in applications where lights are required only during occupancy of a space. These sensors are ideally

Table 1 – Relative Life & Efficacy of Various Light Sources (IESNA Figure 6-3; Ontario Hydro, 1992)

| System | Lamp Power (W) | Lamp Life (hrs) | Initial Lumens | Initial Efficacy (lm/W) | Mean Lumens | Mean Efficacy (lm/W) | Efficacy (Compared to mean regular incandescent) |
|---|---|---|---|---|---|---|---|
| Regular life Incandescent | 100 | 1,000 | 1,650 | 17 | 1,535 | 16.5 | --- |
| Long life Incandescent | 100 | 5,000 | 1,240 | NA | 1,200 | 12.4 | 0.75 |
| 26 W Electro-Magnetic Compact Fluorescent | 26W + 6W ballast | 10,000 | 1,800 | 70 | 1,655 | 51.7 | 3.2 |
| 32 W double tube T-8 with electronic ballast | 64W + 6W ballast | 20,000 | 5,600 | 88 | 4,760 | 68.0 | 4.7 |

suited to walkways, hallways, entrances to buildings, or to spaces where the user's hands are not free to activate a switch.

**2.1.3.2 Dimming** Dimming control allows the illuminance in an area to be adjusted smoothly and continuously to meet the lighting requirements of the occupants. Dimming systems are employed in the poultry industry for example to control daily light levels and light levels during the growout period of a crop of broiler chickens for instance.

Most incandescent lamp dimmers currently rely on solid-state switching components. These components can generate electromagnetic and audible noise as well as harmonic distortion, which requires filtering. The light output, life and color temperature of the lamp are affected by dimming. By reducing light output by 25%, lamp life triples. The lamp color appears warmer with reduced voltage.

Fluorescent lamps can be controlled with dimmers. Dimming is not as simple as reducing the input voltage, which eventually extinguishes the arc and reduces lamp life. Dimmers are available for lamps operated with standard magnetic ballasts, magnetic dimming ballasts, or electronic dimming ballasts. There are many factors affecting the reliability, stability and cost of dimming systems.

High Intensity Discharge lamps can be dimmed; however, the restrike delay, long warmup, and color shift limit their use in agricultural applications. Multi-level ballasts allow illuminance to be changed in steps. Continuous dimming to less than 20% full light output is available with certain equipment. Metal halide lamps shift color toward blue-green, and high-pressure sodium to yellow. The color shifts become noticeable below 60% of rated lamp power for metal halide and 40% for high-pressure sodium lamps.

**2.1.3.3 Timing Devices** Timers control lighting based on known or scheduled events, ideal for poultry, swine and dairy operations. They range from simple integral timers (spring-wound) to microprocessors. Microprocessors can be programmed for a sequence of events or multiple events and lighting effects for years in advance. An override is required in order to deviate from the preset schedule.

**2.1.3.4 Sensing Devices** Sensing devices include photosensors and occupancy or motion sensors. A photosensor transforms visible radiation (light) into an electrical signal, which controls a lighting system or lamp. The photosensor generally does not respond to UV and IR radiation. Design, placement, and calibration of interior photosensors are critical to ensure high quality lighting.

Occupancy or motion sensors provide local on-off control of luminaires automatically based on the presence or absence of occupants. Energy consumption is reduced and demand may be reduced as well.

**2.1.4 Energy Efficient Lighting** Energy efficiency varies with the type of light source. Table 1 shows the approximate efficiency of a number of light sources compared to a regular life incandescent source. Fluorescent, metal halide, and high-pressure sodium lighting systems have significantly higher first costs compared to incandescent. However, the energy cost savings combined with longer lamp life offsets the higher initial costs for energy efficient lighting systems. The energy efficient alternative will typically pay for itself in two years or less in applications where the lights are operated 8 hours per day or more (Chastain, 1992).

**2.1.5 Starting Characteristics** The two starting characteristics that influence lamp selection are starting temperature and warm-up period.

**2.1.5.1** Starting temperature generally is only important when selecting a lighting system for unheated spaces in cold climates, such as naturally ventilated structures. Incandescent and high-pressure sodium lamps perform well at cold temperatures (-29°C or colder). The minimum starting temperatures for standard fluorescent lamps and ballasts is 10°C. Ballasts are available that allow fluorescent lamps to start at -29°C.

**2.1.5.2** Incandescent and halogen lamps do not have a warm-up period. Standard fluorescent lamps have a slight starting delay, but it is not significant in most applications. Quick starting ballasts can be purchased if required. All of the high intensity discharge lamps have a significant warm-up period. The warm-up period can range from 1 to 15 minutes.

**2.1.6 Emergency Lighting** The need for emergency lighting must be evaluated during the design phase of the building. If the facility does not have an automatic start generator, emergency lighting units may be required, to illuminate the exit passageways in the building(s) in the event of a power outage. Be sure to consult federal, state, provincial and local codes that may apply. NFPA (National Fire Protection Association) 101 - The Life Safety Code can be used as a reference along with the State Fire Marshal's Office in the State where the facility will be built. Even if not required, the Engineer designing the building must always consider how to get people out of the building(s) in the event of an emergency. Auxiliary Generators must be installed in accordance with NFPA (National Fire Protection Association) 70, the National Electrical Code, NFPA 110 Standard for Emergency and Standby Power Systems and any other federal, state, provincial and local codes that may apply. The local electrical utility also must approve any installation and the equipment used. The appropriate NFPA, federal, state, provincial and local codes must be followed with regard to the installation of fuel tanks. In some instances, fuel tanks may be located inside the building, if the appropriate codes are followed and authorities such as State Fire Marshal's Offices are consulted. Be sure to check and see if the insurance company insuring the facility has any guidelines that must be met.

**2.1.7 Codes** Many federal, state, provincial and local codes govern the use of lighting equipment. Some public health codes specify minimum illuminance levels required in processing plants, egg handling areas, milking and milk handling areas to maintain health standards. These required levels address the concern for proper sanitation and often are below those recommended for efficient performance of visual tasks.

Table 2 – General Characteristics of Light Sources

| Lamp Type | Lamp Power (W) | CRI | Efficacy (lm/W) | Typical Lamp Life (hrs) |
|---|---|---|---|---|
| Incandescent | 34 - 200 | 100 | 11 - 20 | 750 - 2,000 |
| Halogen | 50 - 150 | 100 | 18 - 25 | 2,000 - 3,000 |
| Fluorescent | 32 - 100 | 70 - 95 | 75 - 98 | 15,000 - 20,000 |
| Compact Fluorescent | 5 - 50 | 80 - 90 | 50 - 80 | 10,000 |
| Metal Halide | 70 – 1,000 | 60 - 80 | 60 - 94 | 7,500 - 20,000 |
| High-pressure Sodium | 35 – 1,000 | 20 - 80 | 63 - 125 | 15,000 - 24,000 |

Agriculture facilities include many types of environments, which may be wet, damp, corrosive, dirty, surrounded by combustible materials, or saturated with gasoline fumes. It is mandatory to follow the National Fire Protection Association Standard No. 70, National Electrical Code, and any local regulations that may be in effect when installing lighting equipment. Contact a local electrician, electric power supplier for assistance or refer to the Agricultural Wiring Handbook published by the National Food and Energy Council (US).

### 2.2 Lighting Quality

The initial quality of light in a work area must be considered in addition to the quantity. An installation's light quality is influenced by the color of the light source, light uniformity, glare, flicker, horizontal and vertical illuminance, luminaire noise, the environment and many more listed in IESNA Lighting Handbook, Part III Quality of the Visual Environment, Chapter 10 Quality of the Visual Environment. Maintenance of the lighting system keeps both the quality and quantity of light at acceptable levels over time.

#### 2.2.1 Color

The color of the light source is an important light quality factor in agricultural facilities. Certain specialized visual tasks, notably color discrimination processes and some inspection activities, depend on appropriate light source color. Color also has certain psychological effects upon people. These factors should be considered when selecting light sources to obtain quality lighting. One measure of the color of a light source is the Color Rendering Index (CRI). The CRI and other typical characteristics are presented in Table 2. Incandescent and halogen lamps provide the greatest color rendition and have a CRI of 100. A CRI of 80 or more is recommended for office, milking, washing, product inspection, plant growth and animal treatment areas. High quality fluorescent or metal halide lamps can provide an energy efficient light source when a CRI of 80 or greater is needed.

#### 2.2.2 Uniformity

**2.2.2.1** The uniformity of illuminance is typically expressed as a uniformity ratio (maximum measured illuminance ÷ minimum measured illuminance). The formula for the coefficient of variation (CV=*standard deviation÷mean*) provides a more meaningful, unbiased measure of uniformity. Furthermore, the *CV* provides a normalized measure of the interval about the mean that contains a certain portion of the measurements. The *CV* can be expressed in units of percentage by multiplying by 100; therefore, CV = (standard deviation / mean) x 100.

**2.2.2.2** One method of insuring uniformity in a lighting system is to lay out the luminaires with a "spacing-to-mounting-height ratio" less than the luminaire's published "Spacing Criterion" (SC) value. The spacing-to-mounting-height ratio is equal to the ratio of the fixture spacing, *s*, to the mounting height above the work plane, *Hp*. The value of *Hp* is the difference between the actual mounting height of the fixture above the floor and the work height. If an obvious work height is not apparent, then use a work height of 0.6 m, which is the approximate height of an animal's eyes for breeding purposes.

**2.2.2.3** Light sources should be located to minimize shadows cast on the work area by workers and obstructions. Objects should receive illuminance from more than one direction to minimize the density of shadows and to provide uniform illuminance.

#### 2.2.3 Glare

Glare is any brightness within the field of vision that causes discomfort, annoyance, reduction in vision, or eye fatigue. It usually is the result of uncontrolled light emitted directly by a luminaire, or reflected from a glossy surface that is in the normal line of sight in the work area. Proper selection and mounting of the luminaires (above the line of sight), and use of reflective matte finishes on interior surfaces will greatly reduce glare.

#### 2.2.4 Environment

**2.2.4.1** Room surfaces should have high reflectance, matte finishes to help prevent excessive brightness ratios. The ceilings, walls and floors can increase the utilization of light within a room by acting as a secondary large- area light source. Luminaires that direct some light upward toward a ceiling having a relatively high reflectance will help create a comfortable visual environment. Recommended reflectance values are presented in Table 4.

**2.2.4.2** Maintenance is necessary to ensure that a high quality light environment is provided. Lamps, luminaires and room surfaces in production facilities tend to become quite dirty. Regular cleaning is required to maintain illuminance levels.

### 2.3 Lighting Quantity

**2.3.1 General Comments** Modern agriculture facilities need a high quality work environment to optimize plant, animal and worker efficiency, and comfort. Proper lighting is an environmental factor that is often overlooked, or given little attention during the planning, construction, and maintenance of a facility. However, it is just as important as ventilation, heating, or cooling.

The amount of the illumination needed in agriculture facilities varies depending on the type of production and the tasks performed in the work area. In response to the variability of lighting system requirements, this discussion is divided into several sections and subsections.

**2.3.2 Livestock** Lighting system requirements vary with the housing and livestock type. The housing system and task will determine whether natural and or supplemental lighting is required.

Table 3 – Summary of Lighting Uniformity Criteria for Livestock Facilities (Chastain et al., 1997)

| Task Classification | Maximum *CV* (%) | Corresponding *s*/*Hp* |
|---|---|---|
| Visually intensive (i.e. milking) | 25 | 0.87 |
| Handling of livestock and equipment | 45 | 1.57 |
| General low-intensity lighting | 55 | 1.92 |

**Table 4 – Recommended Matte Reflectance Values**

| Surface | Reflectance (%) |
|---|---|
| Ceiling | 80 to 90 |
| Wall | 40 to 60 |
| Desk and bench top, equipment | 25 to 45 |
| Floor | 20 minimum |

**2.3.2.1 Natural and Artificial Lighting** Light sources can be natural or artificial depending on the task and quality of light required. Natural lighting is well suited to work areas where tasks can be adequately lit during the daytime, such as open feedlots, naturally ventilated facilities, or areas within buildings that can be illuminated by windows.

Natural light may be supplemented with artificial light for some tasks. In these cases, supplemental light might be required to maintain adequate light quality and photoperiod. Photoperiod refers to the duration of the light period. Many animals and plants require specific photoperiod (light) and scotoperiod (dark) phases for reproduction and growth. Natural daylight is significant in naturally ventilated, curtain-sided buildings. Winter light levels ranging from 200 lux (lx) on a cloudy day to as much as 53,000 lx on a clear day have been measured in curtain-sided dairy facilities (Chastain, et al., 1997). In these types of buildings, artificial lighting supplements the natural day length. A timer and photocell control the supplemental light system's operation.

In totally enclosed buildings, artificial lighting alone must provide the needed light quality and day length.

**2.3.2.2 Buildings** This section will discuss lighting systems in buildings housing various types of livestock.

**2.3.2.2.1 Dairy and Beef Cattle Facilities** High quality light at adequate levels and duration is required in facilities housing dairy and beef cattle. Based on a field study of lighting in dairy buildings, a *CV* of 25% or less represents a high degree of uniformity (Chastain, 1994). The coefficient of variation was found to correlate well with respect to the ratio of the average fixture spacing and mounting height above the work plane (*s/Hp*) (Chastain et al., 1997). The recommended uniformity criteria for livestock facilities are summarized in Table 2.

Research trials indicate that supplementing lactating cows with 16 to 18 hours of light per day increases milk production by 5 to 16% as compared to cows exposed to 13.5 hours or less of light per day (Peters, 1994; Dahl et al., 2000). The expected result of supplemental lighting for a commercial herd is a 5 lb increase in milk production coupled with a corresponding increase in feed intake. The response to supplemental lighting however is not immediate. The cows will require several weeks to adapt, and the increase in milk production precedes the increase in feed intake (Dahl et al., 2000).

In order to stimulate milk production, the lighting system must provide the following:

1) 150 lx of illuminance throughout the barn.
2) 16 to 18 hour continuous block of light. Providing illuminance for 24 hours a day does not produce a sustainable increase in milk yield, and operating the lighting system more than necessary wastes energy.

**Table 5 – Recommended Illuminance Levels for Dairy Livestock Facilities (NFEC, 1993; MWPS, 1992; Leech and Person, 1993).**

| Work Area or Task | Illuminance (lx) |
|---|---|
| Parlour, pit and near udder | 500 |
| Parlour, stalls & return lanes | 200 |
| Parlour, holding area | 100 |
| Milk room, general | 200 |
| Milk room, washing | 750-1,000 |
| Stall barn, manger alley | 100 |
| Stall barn, milking alley | 200 |
| Drive-through feed alley | 200 |

In contrast to extended light in lactating cows, recent evidence suggests that reduced photoperiod is of benefit to cows during the dry period (Miller et al., 2000). Cows that received 8 hours of light and 16 hours of darkness each day when dry produced 7 lbs more milk per day in the next lactation than contemporaries exposed to 16 hours of light per day. Furthermore, reduced photoperiod during the dry period improves immune function and health in cows as they transition into lactation relative to cows on longer photoperiods (Dahl et al., 2003).

Improved daily gains have also been observed for beef steers and dairy heifers (Peters, 1994). The lighting period needed is similar to that for lactating cows.

Recommended illuminance levels for dairy facilities are presented in Table 5.

In addition to providing adequate levels and duration of illuminance for production, a high level of uniformity is required in the parlour pit, office, and milk room washing area. These areas require high uniformity to perform demanding visual tasks.

**2.3.2.2.2 Swine Facilities** Lighting plays a significant role in reproductive and overall swine production performance. The cost of electricity for lighting is a small percentage of the cost of production for swine; however, it is possible to reduce energy costs, increase lighting levels and actually improve performance with well designed, energy efficient lighting systems. A good light system should provide proper light levels economically with low maintenance costs.

Incandescent lighting is very common in swine barns. A 100W 1,000 hour standard rated incandescent bulb should last 63 days in the breeding barn. Long life incandescent bulbs at 5,000 hours rated life still only last 312 days and the actual light output is reduced by about 25% over the regular 1,000 hour bulb.

Compact fluorescent (C.F.) lamp and ballast systems provide good energy efficiency and are easily retrofitted into incandescent fixtures. However, the shorter equipment life and higher cost to replace lamps and ballasts compared to T-8 fluorescent tube systems increases operating costs and reduces cash flow.

Barns with a ceiling height of less than 3.6 m should install T-8 fluorescent lamps with matching electronic ballast, mounted in a weatherproof fibreglass or plastic housing with gasketted diffuser. These units are more than four times as efficient and the lamps last at least 24 times as long as a regular life incandescent lamp. Refer to Table 2 for relative system efficiencies and lamp life.

Where barn ceiling height exceeds 3.6 m, the more efficient high intensity discharge (HID) fixtures should be considered. They are easier to install, maintain and require fewer fixtures to provide the same level of light. Types to be considered include:

- metal halide (white light, good color rendition, good to excellent life)
- high-pressure sodium (can be color corrected for good color rendition, excellent life, low cost)

Ceilings and walls should be white to maximize reflectance and reduce the number of lighting fixtures required.

Recommended Light Intensities and Photoperiods for Swine

Each level of production requires different light levels and photoperiods. See Table 6: Recommended Light Levels and Photoperiods for Swine Housing. The 1993 Recommended Code of Practice for the Care and Handling of Farm Animals - Pigs (Publication 1898/E, Agriculture and Agri-Food Canada) recommends at least 8 h of light per day, at a level adequate to observe pigs. Five footcandles are adequate and will be at least twice as much light as typically is found in many older swine barns. Design is critical to maximize light efficiency and minimize overlit or underlit areas.

Breeding/Gestation barns require lighting photoperiods from 14-16 hours per day, to bring on more quickly and extend breeding sow estrus. Nursery pigs, particularly those in SEW, should have 24 hours of light at low levels and higher levels for day time feeding, inspection, etc. Farrowing rooms also should have 24 hours of light per day, particularly where heat lamps are not used. Again, it can be low level during night time.

Table 6 – Recommended Light Levels and Photoperiods for Swine Housing (Allmond, 1986; Brandt et al., 1990; Claus et al., 1985; Evans et al., 1996; Feddes et al., 1988; Hoagland et al., 1981; Mutton, 1987; Ntunde et al., 1979; Perara et al., 1984; Petchey, 1987; Stevenson et al., 1983; Wheelhouse, 1982)

| Type of Housing | Light Levels (lx) | Photoperiod (hrs/day) | Comments |
|---|---|---|---|
| Breeding/Gilts | >100 | 14-16 | - necessary for estrus cycling |
| Gestation | >50 | 14-16 | - to assist missed cycles, bring estrus on again |
| Farrowing | 50-100 | 8 | - if no heat lamps, light in room 24 h/d |
| Nursery | 50 | 8 | - light in room 24 h/d |
| Grower-Finisher | 50 | 8 | |

**2.3.2.2.3 Poultry Facilities** Poultry farms and processing plants vary in function, size, layout and degree of mechanization; however, there are some areas common to most facilities. The following are brief discussions describing the operations in the major areas. Lighting requirements vary with the type of production and the task. The amount and duration of light required by the birds is significantly different from worker requirements. See Table 7 Lighting Guide for Poultry Production for light levels and photoperiod requirements directly associated with affecting production. Table 8 Lighting Guide for Poultry Industry Tasks provides information on tasks associated with but not directly affecting production.

*Broiler Houses* Broiler chicks are placed into large houses inside which they move about freely. The structures may utilize natural light with artificial supplement or rely totally on artificial light. A low level of general lighting is required so the birds can find food and water during non-daylight periods or for certain time periods each day in completely enclosed facilities. The light levels and photoperiod may be adjusted during the growing period to maximize growth and control losses. Light control is provided by a dimmer and timer system. Higher levels of supplemental lighting may be required occasionally in the confinement area for workers to perform tasks such as reading charts or controls, inspecting the birds and equipment, and cleaning. These lights may be on a separate circuit from the lighting circuit used to stimulate growth.
In many facilities, monitoring and control equipment as well as records are housed in a separate room. Localized, higher intensity lighting is needed in this area for record keeping, observation and adjustment of alarm and control systems and monitoring equipment.

*Breeder Barns*
Breeder birds are placed in separate facilities, which generally are totally enclosed blocking out all natural light. Artificial lighting on timing circuits controls the perceived day length. The hours of light per day stimulate reproduction and control the breeding process.
The lights for production are on their own circuit. A separate lighting circuit provides general lighting for feeding, inspection and cleaning. Localized, higher intensity lighting is needed for record keeping, observation and adjustment of alarm and control systems and monitoring equipment.

*Laying Houses*
Facilities housing laying hens may range in size from a few thousand to several hundred thousand birds. There are basically two types of laying houses, the floor type house and the cage type house. In floor type houses, the hens are free to move about the floor area. In cage type houses, hens are confined to cages with three to four hens per cage. A common size cage for housing four birds is 300 millimetres (12 inches) wide, 460 millimetres (18 inches) deep, and 400 millimetres (16 inches) high. Artificial lighting systems control the perceived day length in order to extend the egg laying period during the year.
Lights to stimulate production are on one circuit. General lighting for inspection and cleaning is on a separate circuit. Localized, higher

Table 7 – Lighting Guide For Poultry Production

| Type of Poultry | Age (Weeks) | Minimum Light Level (lx) | Photoperiod (hrs/day) |
|---|---|---|---|
| *Chickens* | | | |
| Broilers | 0 to 2.5 | 20-30 | 24 |
| | 2.5 to market | 5-10 | 24 |
| Breeders | 0 to 3 | 30-50 | 14 |
| | 4 to 20 | 30-50 | 8 |
| | 20 to 64 | 30-50 | 15 |
| Layers | 0 to 6 | 10-30 | 16 |
| | 6 to 18 | 5-10 | 8 |
| | 18 to 80 | 5-10 | 15 |
| *Turkeys* | | | |
| New Hens | 0 to 8 | 30-50 | 8 |
| Grow Out, Hens | 8 to market | 30-50 | 8 |
| New Toms | 0 to 8 | 30-50 | 16 |
| Grow Out, Toms | 8 to market | 10-30 | 16 |
| Breeder Hens | 0 to 5 | 20 | 24 |
| | 5 to 8 | 20 | 8 |
| | 8 to 22 | 20 | 8 |
| | 22 to 30 | 20 | 8 |
| | 30 and up | 20 | 13 to 15 |
| Breeder Toms | 0 to 5 | 20 | 24 |
| | 5 to 30 | 20 | 13 to 15 |
| | 30 and up | 30 | 13 to 15 |

Table 8 – Lighting Guide For Poultry Industry Tasks

| Area And Visual Tasks | Minimum on Task (lx) | Explanation |
|---|---|---|
| ***Brooding, Production and Laying Houses*** | | |
| Feeding, Inspection and Cleaning | 200 | Provided by a lighting circuit separate from the circuit used to stimulate production and growth. |
| Charts and Records | 300 | Localized lighting is needed where charts and records are kept. |
| Thermometers, thermostats, and light controls | 500 | Localized lighting is needed to accurately determine readings or setting. |
| ***Hatcheries*** | | |
| General area and loading platform | 200 | Needed for operators to move about readily. Needed for cleanliness of the general area. |
| Inside incubators | 300 | Portable or localized lighting is needed for inspection and cleaning inside incubators. |
| Dubbing station | 1,500 | Needed to prevent excessive cuts and injury to chicks. Supplementary lighting in addition to general lighting. |
| Sexing | 10,000 | Needed for sex sorting of baby chicks. Supplementary lighting should be used in a closed area to prevent excessive luminance ratios between the task area and the immediate surrounding area. |
| ***Egg Handling, Packing and Shipping*** | | |
| General Cleanliness | 500 | General illuminance is needed to keep area clean and to detect any unsanitary conditions. |
| Egg quality inspection | 500 | Needed to examine and grade eggs. Note: Candling and other special grading equipment are used as separate devices for examining and grading eggs. |
| Loading platform, egg storage area, etc. | 200 | Needed for easy operator movement, and for operation of mechanical and loading equipment. |
| ***Egg Processing*** | | |
| General lighting | 700 | Should meet food preparation area cleanliness requirements. Includes liquid processing, pasteurizing, and freezing of raw eggs. |
| **Fowl Processing Plant** | | |
| General (excluding killing and unloading area) | 700 | General lighting for cleanliness, inspection, and sanitation. Should meet food preparation area requirements. |
| Government inspection station and grading stations | 1,000 | Needed to detect diseases and blemishes. Vertical illuminance is needed if birds are hanging. |
| Unloading and killing area | 200 | Needed to move about readily. |
| ***Feed Storage*** | | |
| Grain, feed rations | 100 | Needed to read labels, scales, and detect impurities and spoilage in feed. |
| Processing | 100 | Needed for easy operator movement, read labels, scales, and equipment dials. Supplementary lighting is needed if machine repairs are necessary. |
| Charts and records | 300 | If detailed records or charts are kept in the feed room, localized lighting in this area is needed. |

intensity lighting also is needed for record keeping, observation and adjustment of alarm and control systems and monitoring equipment.

*Egg Handling, Packing and Shipping*

The egg handling area may be located in a separate or adjoined building. When the eggs arrive at the egg processing area, they are either stored in a refrigerated area or loaded directly onto a washer. After the eggs have been washed, they are sorted and graded. Rough shells, cracked shells, and dirty or stained eggs are removed at the grading table. Candling equipment is used inside an enclosed booth to sort eggs that have internal defects such as blood spots or meat spots. If mechanization is used, the eggs are sorted according to size by a machine and placed in an egg carton for shipment. The cartons are held in refrigerated storage until they are ready for shipment to retail outlets. General lighting is needed to keep the area clean and detect any unsanitary conditions. Higher intensity, task specific lighting is necessary to examine and grade eggs. In the loading platform and egg storage areas, general lighting is needed for operation of mechanical and loading equipment.

*Raw Egg Processing*

Eggs, which are to be marketed as liquid, frozen, or powdered products, are processed in this area. The area must meet the sanitary requirements of a public food preparation area as set up by the health department. Cracked eggs, eggs with shell defects and stains, plus grade A eggs, are utilized in the processing of liquid eggs. The eggs are broken out of their shells and pumped into a holding tank. The liquid eggs for interstate shipment are pasteurized and packaged. Some states also require all broken-out eggs to be pasteurized for intrastate shipment. In addition, liquid eggs may be frozen at the processing area and shipped as a frozen product. General lighting must supply adequate light levels and uniformity to ensure that cleanliness requirements for a food preparation area are met.

*Hatchery*

Fertile eggs are brought to the hatchery, loaded onto trays and placed in incubators. The incubators maintain a temperature required for embryo development. After twenty-one days, the chick is hatched. When hatched, baby chicks are sorted according to sex. The male chicks are

disposed of and the females are marketed as layers. Most of the female chicks have their combs dubbed, a process whereby the top of the comb is clipped off. As a result, the mature bird has a smooth comb, which helps prevent the comb from catching in the wires of the laying cages. Broiler chicks are handled in much the same manner except they are not sex-sorted or dubbed.

General lighting is needed for cleaning and easy movement of operators. Supplementary lighting is required for inspecting and cleaning inside incubators, and at dubbing stations to prevent cuts and injuries to chicks. Task specific lighting is necessary for sex sorting and should be provided in a closed area to prevent excessive luminance ratios between task area and the immediate surrounding area.

*Poultry Processing Plant*

The birds are brought to the plant in crates of about 20 per crate. Crates are unloaded and the birds hung by the feet on a continuously revolving overhead carriage. They pass by an area where they receive a slight electrical shock, which stuns them just before killing. They move through a bleeding area and then into the scalding tanks. Feathers are then removed by machine and the birds move on to the processing area. All birds are government inspected for wholesomeness after eviscerating, are thoroughly washed, inspected again, and sorted according to grade. Generally, the processed birds are then packed in ice and shipped to retail outlets.

General lighting is needed for cleanliness, inspection and sanitation. Supplementary lighting is required to detect diseases and blemishes (vertical illuminance if the birds are hanging).

#### 2.3.2.2.4 Other

*Horses*

**Brood Mare**

Day length is the primary environmental factor that regulates the seasonal reproductive cycle of the mare (King, 1993; Evans et al., 1990). Since all foals are given a birthday of January 1, it is a relatively common practice to manipulate the estrous cycle in the mare to produce a foal as close to January 1 as possible. Due to an 11 month gestation period, this requires that the mare be bred out of season in winter. Provision of 14 to 16 hours of light followed by darkness has been shown to stimulate estrous. The minimum amount of light needed is 22 to 32 lux (Vogelsang, 1993; Evans et al., 1990). Since 108 lux are needed in a box stall (Table 9), this light requirement can be satisfied by controlling the stall fixture with a timer.

**Table 10 – Recommended Illuminance Levels for Common Indoor Work Areas in Livestock Facilities (NFEC, 1993; MWPS, 1992; Leech and Person, 1993)**

| Work Area or Task | Illuminance (lx) |
|---|---|
| General, all types of livestock | |
| Housing area & feed bunk | 100 |
| Animal handling | 200 |
| Veterinary treatment | 1,000 |
| Office, General | 500 |
| Office, Task lighting | 750–1,000 |
| Feed room, mixing | 200 |
| Ladders & stairs | 200 |
| Toilet | 200–300 |
| Farm shop, active storage | 100 |
| General machinery repair | 300 |
| Rough bench work | 500 |
| Detailed bench work | 1,000 |
| General storage | 50 |
| Loading platform | 200 |
| Read charts, thermometers, etc. | 200–300 |
| Haymow & silo | 30 |
| Equipment & utility rooms | 100–200 |
| Sheep | |
| Lambing | 100 |
| Growing & finishing | 100 |

**Table 9 – Recommended Illuminance Levels for Horse Facilities (NFEC, 1993; MWPS, 1992; Leech and Person, 1993)**

| Work Area or Task | Illuminance (lx) |
|---|---|
| Box stalls | 100 |
| Tack room | 300-400 |
| Breeding | 150-200 |

**Stallion**

Day length also influences sperm production in the stallion. Sperm production in the winter is typically half of that produced in the summer breeding season (King, 1993). Controlling the photoperiod for the stallion in the same way as for the mare will improve off-season breeding performance (Hudson, 1996). Table 9 Recommended Illuminance Levels for Horse Facilities lists light intensities for different work areas in a horse barn.

#### 2.3.2.2.5 General Work Areas

Illuminance levels recommended for general livestock facility work areas within buildings are presented in Table 10. The IESNA lists recommended lighting levels for general workplace lighting in offices and industrial facilities. An attempt has been made to provide a fairly comprehensive list of tasks that might be performed in livestock facilities. In the event that a task is not listed in Table 10, please refer to IESNA Lighting Handbook, Part IV Lighting Application, Chapter 11 Office Lighting, and Chapter 19 Industrial Lighting for further information.

### 2.3.2.3 Open Lot Facilities

Important considerations in lighting beef and dairy cattle feedlots include comfort for the workers and cattle, production efficiency of the cattle, and feedlot security.

#### 2.3.2.3.1 Lighting Systems and Principles

Principles of selection for cattle feedlot lighting systems consist of:

A) using the lowest lamp wattage to yield acceptable lighting levels in various areas
B) selecting an efficient type of lamp/luminaire
C) providing automatic control of lighting/lamp operation
D) providing adequate lighting system maintenance.

#### 2.3.2.3.2 Feed Pen Lighting

Feedlot and dairy cattle feed pen lighting is provided for several production reasons. Feed pen lighting allows the animals to ″see″ where the food and water sources are as well as feel more comfortable during dark periods since cattle are inherently nervous in the dark. During high temperature periods, cattle are more likely to eat during the coolest part of the day so providing light over the food source helps maintain production. The lighting also allows workers to move about during the night and not scare or spook the animals, allowing various work activities to be performed at every hour of the day.

Lighting sources should be located over or very near feed bunks, which generally are located adjacent to the alleyways along which feed trucks move to deposit feed into the feed bunks. Common lamp types used in cattle feed pens include mercury vapour and high-pressure sodium. The mounting pole height influences the lamp size, which in turn affects energy efficiency of the lamp. Lamp efficiency increases with lamp wattage and taller poles allow larger, more efficient lamps to be used. The use of taller poles, larger wattage lamps and good directional control will reduce the number of poles and luminaires required. Taller poles may cost more, but the extra expense may be offset by a reduction in the number required and energy savings from the increased lamp efficiency. Most feed yard lighting systems are operated with single-phase 120-volt service; however, higher voltage 240 and 277-volt systems can also be found. Individual photoelectric control on each light generally is used to

**Table 11 – Recommended Lighting Levels in Areas of Feedyards**

| Feed Yard Area or Task | Illuminance (lx) |
|---|---|
| Feed Processing | |
| Scales | 50 |
| Commodity Receiving Areas | 100 |
| Hay and Grain Storage | 50 |
| Concentrate Storage | 100 |
| Feed Processing | 200 |
| Special Pens and Chutes | |
| General | 100 |
| Sick Animal Treatment | 500 |
| Feed Pens | |
| Feed Bunk Area | 10–30 |
| Waterer Area | 2.5 |
| Centre and Rear of Pens | 2.5 |
| Security Lighting | 2 |

turn individual lights on and off when light levels change. Individual photocell control allows for better continuity of service when photocells fail.

**2.3.2.3.3 Loading Pens & Chutes** A higher level of illuminance for worker convenience is required in loading areas and chutes where cattle may be moved, visually evaluated, and/or treated for illness. It is important to provide light from several directions in these areas so that the potential for shadows is reduced.

**2.3.2.3.4 Feed Mill/Office** Many larger feedlots operate the feed milling facilities at night to take advantage of lower time-of-day electricity rates. Lighting recommendations for general offices and commercial grain elevators or similar work areas and tasks will generally apply with these types of facilities.

**2.3.2.3.5 Recommended Lighting Levels** The Illuminating Engineering Society and ASAE have developed standards for various industries and tasks, including various components of cattle feedlots. A summary of recommended lighting levels in cattle feedlots is presented in Table 11. Good color rendition is necessary in feedlot offices, cattle sorting, feed processing, and veterinary service areas, but is not as essential in feed pens.

**2.3.2.3.6 Lighting System Maintenance** Lighting system maintenance at cattle feedlots should be performed once every three months. All automatic control equipment should be checked to ensure it is functioning properly and not leaving the lights on during daylight periods. Faulty lamps should be replaced, and dirty lamps/fixtures should be cleaned.

**2.3.3 GREENHOUSE LIGHTING SYSTEM DESIGN** The use of electrical light sources to supplement natural lighting in greenhouse production systems has become a common practice. The application of lighting systems in greenhouses is a complex technology that is dependent on the types of plants grown, the local incidence of natural sunlight, the availability of electric energy, and the availability of control systems to maximize lighting for enhanced plant performance. While the term "light" strictly applies only to visible electromagnetic radiation (approximately 380 to 770 nm), it will be used in this discussion also to refer to electromagnetic radiation that is useful for growth and development of plants (between 400 and 700 nm). See the photobiology section of the Illuminating Engineering Society handbook for a discussion of specific plant responses to electromagnetic radiation.

Supplemental lighting in greenhouses generally is designed to either enhance photosynthesis in the crop (assimilation lighting), or to control flowering and fruiting (photoperiod lighting).

Supplemental lighting provides a number of advantages to the grower:

- reduced dependency on sunlight
- increased productivity
- higher plant quality
- shorter growing times
- opportunity for controlled seedling production
- control over timing of flowering of plants/shrubs
- control over timing of plant production (to best meet market needs)

**2.3.3.1 Design Objectives** Greenhouse lighting systems generally are designed to meet three main objectives:

- instantaneous light intensity or daily light integral
- uniformity
- photoperiod.

The light intensity available for plant growth, in the 400-700 nm range, generally is reported in the units of micromoles of photons ("particles" of light) per square meter per second. One mole equals Avogadro's number of photons and one micromol equals a millionth of a mole. This radiation range frequently is referred to as Photosynthetic Photon Flux Density (PPFD). It closely approximates the photosynthetic response curve, and sensors are readily available to measure in this unit (McCree, 1972). Conversion factors between PAR (µmol $m^{-2}$ $s^{-1}$ ) and visible light (lux) depend on the light source, and are shown in Table 12. Additional useful conversion factors are presented in Table 13.

Optimum PAR or daily integrated PAR levels are not always readily available for many crops. The designer must ascertain from the client or from research data what design values to select, and also adjust for incoming solar radiation at the site (Spaargaren, 2001). A general guideline for research greenhouses is that the natural sunlight plus supplemental lighting supply a minimum daily light integral of 26 moles per $m^2$ per day (Dietzer et al., 1994). Generally, supplemental PAR intensities for commercial greenhouses are in the range of 50 - 200 µmol $m^{-2}$ $s^{-1}$ . However, if the lighting system is used only for photoperiod control, then much lower PAR intensities in the range of 1-3 µmol $m^{-2}$ $s^{-1}$ are usually suitable (Mpelkas, 1991; Weir, 1975). These values are measured on a horizontal plane at the surface of the crop canopy.

Ideally, the PAR intensity at the top of the crop canopy would be perfectly uniform. However, luminaire spacing and intensity distributions, combined with economic considerations, require the acceptance of a degree of variation in the PAR intensity (Albright and Both, 1994; Both et

**Table 12 – Converting Light Units for Several Different Light Sources (Spaargaren, 2001; Thimijan and Heins, 1983).**

| Light Source | PAR 400-700 nm ($\mu$ mol $m^{-2}$ $s^{-1}$ ) | Visible 380-770 nm (lx) | Visible 380-770 nm (fc) | Solar Radiation 280-2,800 nm (W $m^{-2}$ ) |
|---|---|---|---|---|
| Sunlight | 100 | 5,600 | 520 | 48.3 |
| High-pressure Sodium (HPS) | 100 | 8,500 | 790 | 44.4 |
| Metal Halide (MH) | 100 | 7,100 | 660 | 48.3 |
| Incandescent (INC) | 100 | 5,000 | 465 | 48.3 |
| Fluorescent, Cool White (FCW) | 100 | 7,400 | 688 | 44.4 |
| Low Pressure Sodium (LPS) | 100 | 10,600 | 985 | 45.2 |

Note: For example, for sunlight: 100 $\mu$ mol $m^{-2}$ $s^{-1}$ (PAR) = 520 (fc) (visible radiation) = 5,600 lux (visible radiation) = 48.3 W $m^{-2}$ (solar radiation). The last conversion assumes that 45% of the solar radiation occurs in the PAR waveband.

**Table 13 – Additional Useful Light Conversion Factors.**

| |
|---|
| Solar radiation (280-2,800 nm): |
| 1 Langley (Ly) = 1 cal $cm^{-2}$ |
| 1 cal $cm^{-2}$ = 4.184 J $cm^{-2}$ |
| PAR (400-700 nm): |
| 1 Einstein $m^{-2}$ = 1 mol $m^{-2}$ |
| 1 $\mu$ Einstein $m^{-2}$ $s^{-1}$ = 1 $\mu$ mol $m^{-2}$ $s^{-1}$ |
| Visible radiation (380-770 nm): |
| 1 fc = 10.76 lux |
| Conversion from solar radiation to PAR: |
| 1 MJ $m^{-2}$ = 2.08 mol $m^{-2}$ (Ting and Giacomelli, 1987) |
| 100 Ly $d^{-1}$ = 8.70 mol $m^{-2}$ $d^{-1}$ |

al., 2002; Ciolkosz et al., 2001). In research greenhouses, a maximum variability of +/- 15% from average is considered acceptable (Both, 1994), while commercial greenhouses tend to vary somewhat more.

Photoperiod requirements of a lighting system can be best thought of in terms of the length of the dark period plants are exposed to during a 24 hour period. Thus, if a plant requires a minimum photoperiod of 17 hours, the corresponding dark period is 7 hours. If the night length at the site is naturally 12 hours long, then photoperiod control can be obtained by turning the lighting system on for 30 minutes in the middle of the night, thus effectively reducing the maximum dark period to just under 6 hours. Some species have a maximum allowable dark period in order to grow and develop properly, while some require a dark period that is longer than a certain minimum amount. It is important to take the length of the dark period into consideration if assimilative lighting is to be used during nighttime hours. Also, it is important to evaluate the site for sources of stray light from neighboring structures. Stray light, if bright enough, may have an unwanted photoperiodic effect on the crop.

**2.3.3.2 System Selection** Lamps for greenhouse lighting generally are selected for their electrical efficiency because of the high electrical demand from the systems. Compact size also is a positive attribute because smaller lamps and luminaires tend to create smaller shadows. Currently, the high-pressure sodium lamp is preferred. Low pressure sodium lamps generally are not used because their large reflector size tends to block a high amount of incoming sunlight.

Spectral quality of the light source is usually not an issue because the high proportion of sunlight received by the plants tends to overcome any spectral deficiencies in the light sources (Ehret et al., 1989). Some plant species however, show slightly different growth responses under different light sources. In these installations, a less efficient light source may result in better economic value for the crop (Clarke and Devine, 1984).

Photoperiodic lighting systems historically have used incandescent lamps because of their relatively low installation cost; and even though they are electrically inefficient, they are needed only for a few minutes each night. A recent energy and cost efficient alternative to incandescent lamps are the compact fluorescent lamps (deGraaf-van der Zande and Blacquiere, 1992).

Greenhouse luminaires are specially designed for operation in the greenhouse environment. Other luminaire types should not be considered unless they can perform well in the hot, humid, corrosive environment. Factors to consider in luminaire selection include optical efficiency, electrical efficiency (Both et al., 1997), reflector size, mounting height, ease of installation and maintenance, and ballast location. Occasionally, it can be desirable to locate the ballasts remotely in order to reduce the shading effect of the luminaire.

Switching and controls usually are a component of a greenhouse environmental control system, which is supplied separately from the lighting system. Communication with the controls provider is imperative to ensure that the client receives the type of system control needed, and that either the electrical or controls contractor provides all system components. Manual override controls should be included as part of the control system. Dimming controls are rarely an economic alternative for greenhouse lighting systems. The control of supplemental lighting can be integrated with the control of the shading system (Albright et al., 2000), particularly when control of the daily integrated PAR level is desired.

**2.3.3.3 Layout and Design** Luminaire layout generally is done on a rectangular grid above the plant canopy (Mpelkas, 1984). Alternatively, luminaries can be mounted in a staggered grid in an attempt to improve light uniformity (Ciolkosz et al., 2001). When possible, locate the luminaires on structural members of the greenhouse to reduce the need for additional support. Luminaires should be located below thermal screens so that the screens may be drawn at night even when the lamps are operating. The effect of any screens or curtains in the greenhouse needs to be taken into account during the design process, provided that they will be drawn while the lamps are operating. Decreasing PAR intensities at the edges of the greenhouse can be countered by increasing the number of luminaires along the greenhouse perimeter (Both, 1994).

**2.3.3.4 Maintenance** System maintenance generally consists of regular luminaire cleaning, and relamping as needed. The client should be informed of the importance of these tasks. Depending on the specifics of the design, group relamping may be an economical alternative.

**2.3.3.5 Headhouse Lighting** The headhouse is a structure used for plant handling procedures such as planting, grading, and shipping plant material. It usually is located directly adjacent to the greenhouse. Lighting requirements for the headhouse correspond to the activities taking place in the various areas. Generally, these activities include potting, sorting, packing, shipping, and (cold) storage. The design for these areas should be conducted based on the client's needs and the appropriate design criteria for those tasks, as set forth in Table 10.

**2.3.4 Fruit and Vegetable Processing and Storage** Fruit and vegetable sorting operations can benefit from lighting changes that match the characteristics and color output of the light with the color of the produce being sorted. Most defects on produce are in the brown or gray tones. Light provided for inspection must have both the right intensity and spectral quality to reveal these defects. Proper lighting design also reduces worker fatigue and eyestrain, resulting in better sorting efficiency. Many operations currently use cool white or warm white lights, which researchers say can mask defects. Many of these lights are being phased out by government mandate because they are not energy efficient.

High CRI SP-30 lights are recommended for most fruit and vegetable inspection areas. SP-30s are 2 times more expensive than cool white, but the relative light output of the SP-30 lamp was among the highest tested. Tungsten halogen quartz lighting also produced good color recognition and enhanced the ability to see brown defects, but is more expensive.

The average illuminance level needed at the produce level for effective visual sorting is between 2,500 and 5,000 lux. The lower levels are adequate for light-colored produce and the higher level is needed for dark-colored produce.

The color of the sorting surface is also important. Using black or gray (but not glossy) belts is beneficial.

Select dark colors for equipment parts and employee clothing. It is important to screen task lights so they do not glare in the workers' eyes. Minimize the influence of natural, stray, and general area lighting in the sorting area.

**2.3.5 Indoor Aquaculture** Indoor aquaculture is a relatively new industry. The lighting needs for fish production are limited. Lighting however can play a crucial role in the productivity of a facility and as such must be considered in the overall design.

**2.3.5.1 Effects of Lighting on Fish Production** Lighting effects on fish populations can be classified in three categories: growth rate effects, maturation effects, and vigour.

**2.3.5.1.1 Growth Rate Effects** Photoperiod and light intensity in many species influence growth rate. Often, only a very low light level difference is needed (<1 lux) to induce photoperiod responses in fish, which include increased activity and time spent feeding. Fish can be extremely sensitive to environmental shock - including sudden changes in light level. The resulting stress can negatively affect feeding and growth of the fish. Thus, dimming circuits or banked lamps on a slow ramp-up and down may be needed to prevent stress and insure proper growth.

**2.3.5.1.2 Maturation Effects** Manipulating the photoperiod can control speed of maturation of some fish species. One method is to vary the photoperiod above the fish tanks from day to day so as to simulate the natural fluctuations in day length from season to season. In selected species, the annual maturation cycle of the fish can be compressed to 9 or even 6 months by compressing the day length cycle to that period.

**2.3.5.1.3 Vigour** Fish vigour, or survival rate, also is dependant on lighting. Generally, increased photoperiods will result in greater vigour of the fish crop.

**2.3.5.2 Specific Species Recommendations** The following recommendations need to be used with some caution. Current research is insufficient for many species; as a result, the recommendations regarding lighting are based on limited data. Combining these recommendations with the knowledge and desires of the grower will assist in the design of a system that optimizes production.

*Atlantic Salmon* - Long photoperiods during the freshwater period result in an increased growth rate relative to shorter photoperiods (Sigholt et al, 1989) and continuous light results in a higher growth rates than the use of a simulated daylight cycle (Krakenes et al., 1991). Long photoperiods interrupted by 2 months of short photoperiods results in faster maturation and higher survival rates, compared to constant long photoperiods (Duston et al., 1995).
*Coho Salmon* - Absence of a dark period (24 hr light/day) results in reduced growth rate, silvering index, and seawater adaptability (Thorarensen et al., 1989).
*Pink Salmon* – Mature faster by accelerating the seasonal photoperiod (Beacham et al., 1993).
*Greenback Flounder* - Absence of lighting results in death of the species. An 18-24 hour photoperiod is recommended for optimum production (Hart et al., 1996).
*Silver Carp* - A light level of 100 lux at the water surface is recommended for raising larvae of this species (Radenko et al., 1992).
*Rainbow Trout* - A long photoperiod (16 hr) results in increased growth and feed conversion (Mason et al., 1991).
*Striped Bass* - Reproductive cycles can be compressed to 6 or 9 months by compressing the photoperiod cycle, but reproductive success diminishes as a result (Blythe et al., 1994).

**2.3.5.3 Lighting Other Areas in the Facility** Lighting systems for walkway, processing, packaging, and shipping areas should be designed according to recommendations in the General Work Areas section. Often, lighting requirements for operation of the facility will not be compatible with the needs of the fish. Thus, care must be taken to ensure that lighting for human needs does not negatively affect the fish population.

## 3 Glossary of terms

**3.1 Diffuser:** A device used to redirect the illumination by the process of diffuse transmission.

**3.2 Candela:** The SI unit of luminous intensity. One candela is one lumen per steradian. Formerly known as Candle. For more information on this term, see the IESNA Lighting Handbook Reference Volume.

**3.3 Footcandle (fc):** The unit of illuminance when the foot is the unit of length. It is the illuminance on a surface one square foot in area on which is uniformly distributed a flux of one lumen. It equals one lumen per square foot.

**3.4 General lighting:** Lighting designed to provide a uniform level of illuminance throughout the area involved.

**3.5 Glare:** The effect of brightness or brightness differences within the visual field sufficiently high to cause annoyance, discomfort, or loss in visual performance.

**3.6 Illuminance:** The density of the luminous flux incident on a surface; it is the quotient of the luminous flux by the area of the surface when the latter is uniformly illuminated.

**3.7 Local Lighting:** Illuminance provided over a relatively small area or confined space without any surrounding general lighting.

**3.8 Louver:** A series of baffles used to shield a source from direct view at certain angles or to absorb unwanted light.

**3.9 Lumen (lm):** The unit of the time rate of flow of light (luminous energy) equal to the energy emitted through a unit solid angle (one steradian) from a uniform point source of one candela.

**3.10 Luminaire:** A complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.

**3.11 Lux (lx):** The unit of illuminance when the meter is the unit of length. It is the illuminance on a surface one square meter in area on which is uniformly distributed a flux of one lumen. It equals one lumen per square meter.

**3.12 Reflector:** A device used to redirect the light from a source primarily by the process of reflection.

**3.13 Refractor:** A device used to redirect the illuminance primarily by the process of refraction. (The bending of a ray of light as it passes obliquely from one medium to another in which its velocity is different.)

**3.14 Shielding Angle (of a luminaire):** The angle between a horizontal line through the light center and the line of sight at which the base source first becomes visible.

**3.15 Supplemental Lighting:** Lighting used to provide a specific amount or quality of illuminance which cannot be readily obtained by the general lighting system, and which supplements the general lighting system.

**3.16 Visual Task:** Conventionally designates those details and objects that must be seen for the performance of a given activity, and includes the immediate background of the details or objects.

**3.17 Work Plane:** The plane at which work is done, and on which, illuminance is specified and measured. Unless otherwise indicated, this is assumed to be a horizontal plane 0.75 m (2.5 ft) above the floor.

## 4 References


Agriculture and Agrifood Canada. 1993. Recommended Code of Practice for the Care and Handling of Farm Animals. Ottawa, ON.

Albrecht, J. 1996. Personal Communication on Lighting Needs for Swine. Professor and Extension Swine Specialist, Department of Animal and Veterinary Sciences, Clemson University, Florence SC.

Albright, L.D. and A.J. Both. 1994. Comparison of Luminaires: Efficacies and System Design. Proceedings of the International Lighting in Controlled Environments Workshop, March 27–30, 1994. Madison, WI. NASA CP-95-3309. pp. 281-397.

Albright, L.D., A.J. Both, and A.J. Chiu. 2000. Controlling Greenhouse Light to a Consistent Daily Integral. Transactions of the ASAE 43(2): 421-431.

Allmond, G. W. 1986. Influence of Extended Photoperiod on Lactational and Postweaning Performance in the Sow. Paper Presented at the Annual Meeting of the American Association of Swine Practitioners. March 16- 18.

ASAE. 1997. EP344.2. Lighting for Dairy Farms and the Poultry Industry. ASAE Standards. 44th Edition. American Society of Agricultural Engineers. St. Joseph, MI.

Beacham, T. D., and C. B. Murray. 1993. Acceleration of Maturity of Pink Salmon (*Oncorhynchus gorbuscha*) Using Photoperiod Control. Aquaculture. 109: 315-325.

Beck, L. 1995. Good Reasons for Lighting Upgrades. Engineer's Digest. September, pp 34 and 38.

Blythe, W. G., Helfrich, L. A., Libey, G., and W. E. Beal. 1994. Induced Maturation of Striped Bass *Morone saxatilis* Exposed to 6, 9, and 12 Month Photothermal Regimes. Journal of the World Aquaculture Society. 25(2): 183-192.

Both, A. J., 1994. Luminaire Layout: Design and Implementation. Proceedings of the International Lighting in Controlled Environments Workshop. March 27-30, 1994. Madison, WI. NASA CP-95-3309. pp. 299-301.

Both, A. J., 1994. HID Lighting in Horticulture: A Short Review. Proceedings of the Greenhouse Systems Automation, Culture, and Environment Conference. July 20-22, 1995. New Brunswick, NJ. Northeast Region Agricultural Engineering Service publication NRAES 72. Ithaca, NY.

Both, A. J., L.D. Albright, R.W. Langhans, B.G. Vinzant, and P.N. Walker. 1997. Electric Energy Consumption and PPFi Output of Nine 400 Watt High Pressure Sodium Luminaires and a Greenhouse Application of the Results. Acta Horticulturae. 418: 195-202.

Both, A. J., D.E. Ciolkosz, and L.D. Albright. 2002. Evaluation of Light Uniformity Underneath Supplemental Lighting Systems. Acta Horticulturae. 580: 183-190.

Brandt, K. E., M. A. Diekman, D. M. Greiger, and G. E. Moss. 1990. Effect of Supplemental Lighting on Puberty, Follicular Development, Pituitary and Serum Concentration of LH and Hypothalamic Content on $G_N$ RH in Gilts. Animal Production. 51: 365-373.

Chastain, J. P. 1992. Lighting Requirements for the Milking Centre. In: Milking Centre Design, Proceedings from the National Milking Centre Design Conference (NRAES-66), Harrisburg, PA. Nov. 17-19. pp 214-229.

Chastain, J. P. 1994. On-Site Investigation of Indoor Lighting Systems for Dairy Facilities. ASAE Paper No. 945507, American Society of Agricultural Engineers, 2950 Niles Rd., St. Joseph, MI 49085-9659.

Chastain, J. P., L. D. Jacobson, and J. Martens. 1997. Lighting Design for Livestock Buildings. In Livestock Environment V, Proceedings of the Fifth International Symposium. American Society of Agricultural Engineers, 2950 Niles Rd., St. Joseph, MI 49085-9659. II: 816-826.

Ciolkosz, D.E., A.J. Both, and L.D. Albright. 2001. Selection and Placement of Greenhouse Luminaires for Uniformity. Applied Engineering in Agriculture. 17(6): 875-882.

Clarke and Devine. 1984. Supplementary Lighting for Research Greenhouses. Canadian Journal of Plant Science. 64(July): 337-339.

Clause, R., and U. Weiler. 1985. Influence of Light and Photoperiodicity on Pig Prolificacy. Journal of Reproductive Fertility. 33(Supplement): 185-197.

Dahl, G.E., B.A. Buchanan and H.A. Tucker. 2000. Photoperiodic effects on dairy cattle: A review. J. Dairy Sci.83:885-893.

Dahl, G.E., T.L. Auchtung, J.L. Salak-Johnson and D.E. Morin. 2003. "Photoperiod and immune function in dairy cows". Published as pp. 20-25 in the Proceedings of the 5$^{th}$ International Dairy Housing Conference, American Society of Agricultural Engineers, K.A. Janni ed. and as pp. 175-181 in the Proceedings of the 42$^{nd}$ Annual Meeting of the National Mastitis Council.

de Graaf-van der Zande, M. T., and Tjeerd Blacquiere. 1992. Light Quality During Longday Treatment for Poinsettia and China Aster. Acta Horticulturae. 327:87-93.

Dietzer, G., R. Langhans, J. Sager, A. Spomer, and T. Tibbitts. 1994. Guidelines for Lighting in Controlled Environments. Proceedings of the International Lighting in Controlled Environments Workshop, March 27-30, 1994. Madison, WI. NASA CP-95-3309. pp. 391-393.

Duston, J., and R. L. Saunders. 1995. Advancing Smolting to Autumn in Age 0+ Atlantic Salmon by Photoperiod, and Long Term Performance in Sea Water. Aquaculture. 135: 295-309.

Ehret, D. L., P. A. Jolliffe, and J. M. Molnar. 1989. Lighting for Greenhouse Vegetable Production - An Overview. Canadian Journal of Plant Science. 69(Oct. 1989): 1409-1426.

Evans, J. W., A. Borton, H. Hintz, and L. D. Van Vleck. 1990. The Horse. 2nd Edition, W. H. Freeman and Company, New York, NY, p. 409.

Evans, M., F. D. Evans, R. R. Hacker, J. R. Morris, and R. Friendship. Studies on Behavioral Estrus. Ridgetown College, University of Guelph, Guelph, ON.

Evans, M., J. Morris, V. Osborne, R. R. Hacker, and C. Okere. 1996. Inseminating Sows at a Specific Hour with Regards to Weaning Time and Eliminating Estrus Detection. Ontario Swine Research Review. 38-39.

Feddes, J. J. R., B. A. Young, and J. A. DeShazer. 1988. Feeding Behavior in Pigs: Influence of Light and Temperature. ASAE Paper No. 88-4502. American Society of Agricultural Engineers, 2950 Niles Rd., St. Joseph, MI 49085-9659.

Frier, J. P. 1987. Principles of Lighting Design as Applied to Agriculture. ASAE Paper No. 87-3538, American Society of Agricultural Engineers, 2950 Niles Rd., St. Joseph, MI 49085-9659.

Hart, P. R., Hutchinson, W. G., and G. J. Purser. 1996. Effects of Photoperiod, Temperature and Salinity on Hatchery-Reared Larvae of the Greenback Flounder (*Rhombosolea tapirina* Gunther, 1862). Aquaculture. 144: 303-311.

Hoagland, T. A., M. A. Diekman, and P. V. Malven. 1981. Failure of Stress and Supplemental Lighting to Affect Release of Prolactin in Swine. Journal of Animal Science. 53(2).

Hudson, L. 1996. Personal Communication on Effects of Photoperiod on Estrus in Brood mares and Sperm Production in the Stallion. Professor and Extension Equine Specialist, Department of Animal and Veterinary Sciences, Clemson University, Clemson SC.

Illuminating Engineering Society of North America. 2000. Lighting Handbook: Reference and Application. 9$^{th}$ Edition. Illuminating Engineering Society of North America, 120 Wall Street, 17$^{th}$ Floor, New York, NY, 10005-4001.

King, S. S. 1993. Reproductive Anatomy and Physiology of the Mare (HIH 910). In: Horse Industry Handbook, American Youth Horse Council, 4093 Iron Works Pike, Lexington, KY 40511-8434.

Krakenes, R., Hansen, T., Stefansson, S. O., and G. L. Taranger. 1991. Continuous Light Increases Growth Rate of Atlantic Salmon (*Salmo salar* L.) Postmolts in Sea Cages. Aquaculture. 95: 281-287.

Leech, J. F. and H. L. Person. 1993. Housing for Horses (HIH 320). In: Horse Industry Handbook, American Youth Horse Council, 4093 Iron Works Pike, Lexington, KY 40511-8434.

MacDonald, R. and G. Henderson. 1991. Applications of Energy Efficient Lighting Systems in Livestock and Poultry Facilities. ASAE Paper No. 913545, American Society of Agricultural Engineers, 2950 Niles Rd., St. Joseph, MI 49085-9659.

Mason, E. G., Gallant, R. K., and L. Wood. 1991. Productivity Enhancement of Rainbow Trout Using Photoperiod Manipulation. Bulletin of the Aquaculture Association of Canada. 91(3): 44-46.

McCree, K. J. 1972. Test of Current Definitions of Photosynthetically Active Radiation Against Leaf Photosynthesis Data. Agricultural Meteorology. 10:443-453.

Miller, A.R.E., L.W. Douglass, R.A. Erdman and G.E. Dahl. 2000. Effects of photoperiodic manipulation during the dry period of dairy cows. *J. Dairy Sci.* 83:962-967.

Mpelkas, C. C. 1981. Horticultural Light Sources. Sylvania Engineering Bulletin 0-352. Sylvania Lighting, Danvers, MA.

Mpelkas, C. C., 1984. Horticultural Lighting Design. Sylvania Engineering

Bulletin 0-361. Sylvania Lighting, Danvers, MA.

Mutton, W. J. 1987. The Influence of Photoperiod and Light Intensity on the Farrowing Sow and Litter. Pig Housing and Environment. British Society of Animal Production. Occasional Publication No. 11.

MWPS. 1992. Farm Buildings Wiring Handbook. MWPS-28. Midwest Plan Service, Ames IA 50011.

NFEC. 1993. Agricultural Wiring Handbook. National Food and Energy Council, 409 Vandiver West, Suite 202, Columbia, Missouri 65202.

Ntunde, B. N., R. R. Hacker and G. J. King. 1979. Influence of Photoperiod on Growth, Puberty and Plasma LH Levels in Gilts. Journal of Animal Science. 48(6)

Ontario Hydro. 1992. Lighting Reference Guide. 5$^{th}$ Edition. Ontario Hydro, 700 University Ave. Toronto ON.

Perera, A. N. M., and R. R. Hacker. 1984. The Effects of Different Photoperiods on Reproduction in the Sow. Journal of Animal Science. 58(6).

Petchey, A. M. 1987. Supplementary Light and Pig Performance. Farm Building Progress. 88(April).

Peters, R R. 1994. Photoperiod and Management of Dairy Cows: A Practical Review. In: Dairy Systems for the 21st Century, Proceedings of the Third International Dairy Housing Conference. American Society of Agricultural Engineers, 2950 Niles Rd., St. Joseph, MI 49085-9659. pp. 662-666.

Philips Lighting. 1992. Artificial Lighting in Horticulture. Application Document #3222 634 00681. The Netherlands: Philips Lighting Co.

Radenko, V. N., and I. A. Alimov. 1992. Significance of Temperature and Light for Growth and Survival of Larvae of Silver Carp, *Hypophthalmichthus molitrix*. Journal of Ichthyology. 32(1): 16-27.

Sigholt, T., Jarvi, T., and R. Lofthus. 1989. The Effect of Constant 12-Hour Light and Simulated Natural Light on Growth, Cardiac-Somatic Index and Smolting in the Atlantic Salmon (*Salmo salar*). Aquaculture. 82: 127-136.

Skewes, P. 1996. Personal Communication on Lighting Programs Used for Broiler and Egg Production. Professor and Extension Poultry Specialist. Department of Poultry Science, Clemson University, Clemson SC.

Spaargaren, J.J. 2001. Supplemental Lighting for Greenhouse Crops. Published by P.L. Light Systems Inc. Beamsville ON Canada. 178 pp.

Stevenson, J. S., D. S. Pollmann, D. L. Davis, and J. P. Murphy. 1983. Influence of Supplemental Light on Sow Performance During and After Lactation. Journal of Animal Science, 56(6).

Thimijan, R. W., and R. D. Heins. 1983. Photometric, Radiometric, and Quantum Light Units of Measure: A Review of Proceedures for Interconversion. Hortscience. 18(6): 818-822.

Thorarensen, H., Clarke, W. C., and A. P. Farrell. 1989. Effects of Photoperiod and Various Intensities of Night Illumination on Growth and Seawater Adaptability of Juvenile Coho Salmon (*Oncorhynchus kisutch*). Aquaculture. 82: 39-49.

Ting, K.C., and G.A. Giacomelli. 1987. Availability of Solar Photosynthetically Active Radiation. Transactions of the ASAE. 30(5): 1453-1457.

Vogelsang, M. M. 1993. Detection of Estrus and Manipulation of Estrous Cycle (HIH 930). In: Horse Industry Handbook, American Youth Horse Council, 4093 Iron Works Pike, Lexington, KY 40511-8434.

Weir, J. 1975. Artificial Lighting for Commercial Horticulture. Lighting Research and Technology. 7(4): 209- 225.

Wheelhouse, R. K., and R. R. Hacker. 1982. The Effect of Four Different Types of Fluorescent Light on Growth, Reproductive Performance, Pineal Weight and Retinal Morphology of Yorkshire Gilts. Canadian Journal of Animal Science. 62(June): 417-424

HIGH SPEED RAIL

881'
TO HIGH SPEED RAIL BOUNDARY

A.P.N.
016-200-035

A.P.N.
016-200-034

A.P.N.
016-130-097

ONGOING NEGOTIATION OF ACQUISITION AREA.
AREA TO BE FINALIZED AT A LATER DATE

POST BIDA BED ORGANIC MATTER
PROCESSING AREA (150,000 FT²)

WASTEWATER RETENTION POND 2

WASTEWATER RETENTION POND 1

8'
TO PROPERTY LINE

33'
TO PROPERTY LINE

PROPOSED 14' X 20' TANK AND CONCRETE PAD

PROPOSED MECHANICAL SEPARATOR

PROPOSED EARTHEN BERMS WITH OVERFLOW

453'
TO PROPERTY LINE

EXISTING DOMESTIC WELL
(UTILIZED FOR FIRE PROTECTION)

RECYCLED ROAD BASE
DAIRY ACCESS

750W 180° FLOOD LIGHT

RECYCLED ROAD BASE
DAIRY ACCESS

80'
RIGHT OF WAY

20'
TO PROPERTY LINE

A.P.N.
016-130-098

30'
TO PROPERTY LINE

40' TYP.

15' TYP.

20'
TYP.

PROPOSED PROCESS WATER
PROCESSING BEDS
(216,000 FT²)

388'

900'

PROPOSED CONTROL UNIT

PROPOSED LIFT STATION

CELL C

CELL A

CELL B

A.P.N.
016-200-056

MANURE PROCESSING AREA
(200,000 FT²)

POST MANURE
ORGANIC MATTER
PROCESSING AREA
(40,000 FT²)

PROCESSING AND
PRODUCT STORAGE AREA
(30,000 FT²)

PROPOSED LIFT STATION

MANURE STACKING
AREA

PROPOSED
RECEPTION
PIT

PROPOSED FEED
STORAGE AREA

FREESTALL
BARN
(600' X 88')

FREESTALL BARN
(537' X 127')

PROPOSED
FREESTALL
BARN
(550' X 150')

FREESTALL BARN
(537' X 127')

MILK
BARN

100'
SETBACK

PROPOSED SHADE STRUCTURE
(261' X 34')

PROPOSED SHADE STRUCTURE
(262' X 42')

A.P.N.
016-200-005

PROPOSED
MATERNITY BARN
(300' X 160')

750W 360° FLOOD
LIGHT (HOODED)

110'

125'

66'

137'

27'

248'
TO PROPERTY LINE

52'
TO PROPERTY LINE

A.P.N.
016-200-028

750W 180° FLOOD LIGHT

PROPOSED SHADE STRUCTURE (800' X 25')

100'
SETBACK

167'

OPEN LOT
CORRALS

OPEN LOT
CORRALS

PROPOSED SHADE STRUCTURE (800' X 25')

EXISTING UNPERMITTED CALF
HUTCHES TO BE REMOVED

PROPOSED CALF
HUTCHES

203'

HAY BARN
(188' X 82')

HAY BARN
(105' X 54')

HAY BARN

MATERNITY

750W 360° FLOOD LIGHT (HOODED)

750W 180° FLOOD LIGHT

MILK BARN

SHOP

EQUIPMENT
SHADES

100'
SETBACK

PROPOSED SHADE STRUCTURE (960' X 20')

EXISTING UNPERMITTED FENCELINE
TO BE RELOCATED 19' WEST

DIRT ROAD DAIRY
ACCESS

20'
TO PROPERTY LINE

43'
TO PROPERTY LINE

100'
SETBACK

162'
TO PROPERTY LINE

OPEN LOT
CORRALS

OPEN LOT
CORRALS

A.P.N.
016-200-029

PROPOSED
OPEN LOT CORRAL

RESIDENCE

RESIDENCE

PROPOSED SHADE STRUCTURE (608' X 20')

PROPOSED SHADE STRUCTURE (608' X 20')

PROPOSED SHADE STRUCTURE (608' X 15')

PROPOSED SHADE S

PROPOSED FEED STORAGE AREA

PROPOSED SHADE STRUCTURE (600' X 20')

OPEN LOT
CORRAL

OPEN LOT
CORRAL

OPEN LOT
CORRAL

OPEN LOT
CORRAL

OPEN LOT
CORRAL

OPEN LOT
CORRAL

OPEN LOT
CORRAL

PROPOSED SHADE
STRUCTURE
(85' X 30')

PROPOSED SHADE
STRUCTURE
(85' X 30')

PROPOSED SHADE
STRUCTURE
(85' X 30')

600'
TO PROPERTY LINE

RESIDENCE

PROPOSED CONCRETE SILAGE
STORAGE PAD (362'X512')
AREA TO BE REGRADED

750W 180° FLOOD LIGHT

PROPOSED SHOP
(45' X 25')

PROPOSED COMMODITY
BARN (75' X 50')

100'
SETBACK

A.P.N.
016-200-016

50'
RIGHT OF WAY

750W 360° FLOOD LIGHT (HOODED)
(TYP.4)

EXISTING IRRIGATION WELL

A.P.N.
016-200-012

EXISTING DOMESTIC WELL (UTILIZED FOR FIRE PROTECTION)

RECYCLED ROAD
BASE DAIRY ACCESS

30'
TO PROPERTY LINE

RECYCLED ROAD BASE DAIRY ACCESS

EXISTING IRRIGATION WELL

NORTH

100' 0' 100'

| | |
|---|---|
| OWNER/OPERATOR | JOE SOZINHO |
| MAILING ADDRESS | 12252 7TH AVENUE<br>HANFORD, CA 93230 |
| FACILITY ADDRESS | 7205 HOUSTON AVENUE<br>HANFORD, CA 93230 |
| A.P.N | 016-200-005, 016-200-028,<br>016-200-029 |
| COUNTY | KINGS COUNTY |

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CONSTRUCTION PLAN
SOZINHO DAIRY #5
7205 HOUSTON AVENUE
HANFORD, CA 93230

BIOFILTRO WASTEWATER PROCESSING
PROPOSED SITE PLAN

| | |
|---|---|
| PLOT DATE: | MARCH 13, 2025 |
| JOB NO.: | 240504 |
| FILE NAME: | 240504 - SP |
| SCALE: | SEE SHEET |
| SHEET NO.: | 1 OF 1 |

# Appendix B

## Biological Evaluation

LIVE OAK
ASSOCIATES, INC.

# SOZINHO #5 DAIRY IMPROVEMENTS
# BIOLOGICAL EVALUATION
# KINGS COUNTY, CALIFORNIA

Prepared by

LIVE OAK ASSOCIATES, INC.

Austin Pearson, Vice President
Natalie Neff, Staff Ecologist

Prepared for

Issac Garcia
4Creeks, Inc.
324 S. Santa Fe Suite A
Visalia, CA 93292

September 3, 2025 PN 2885-01

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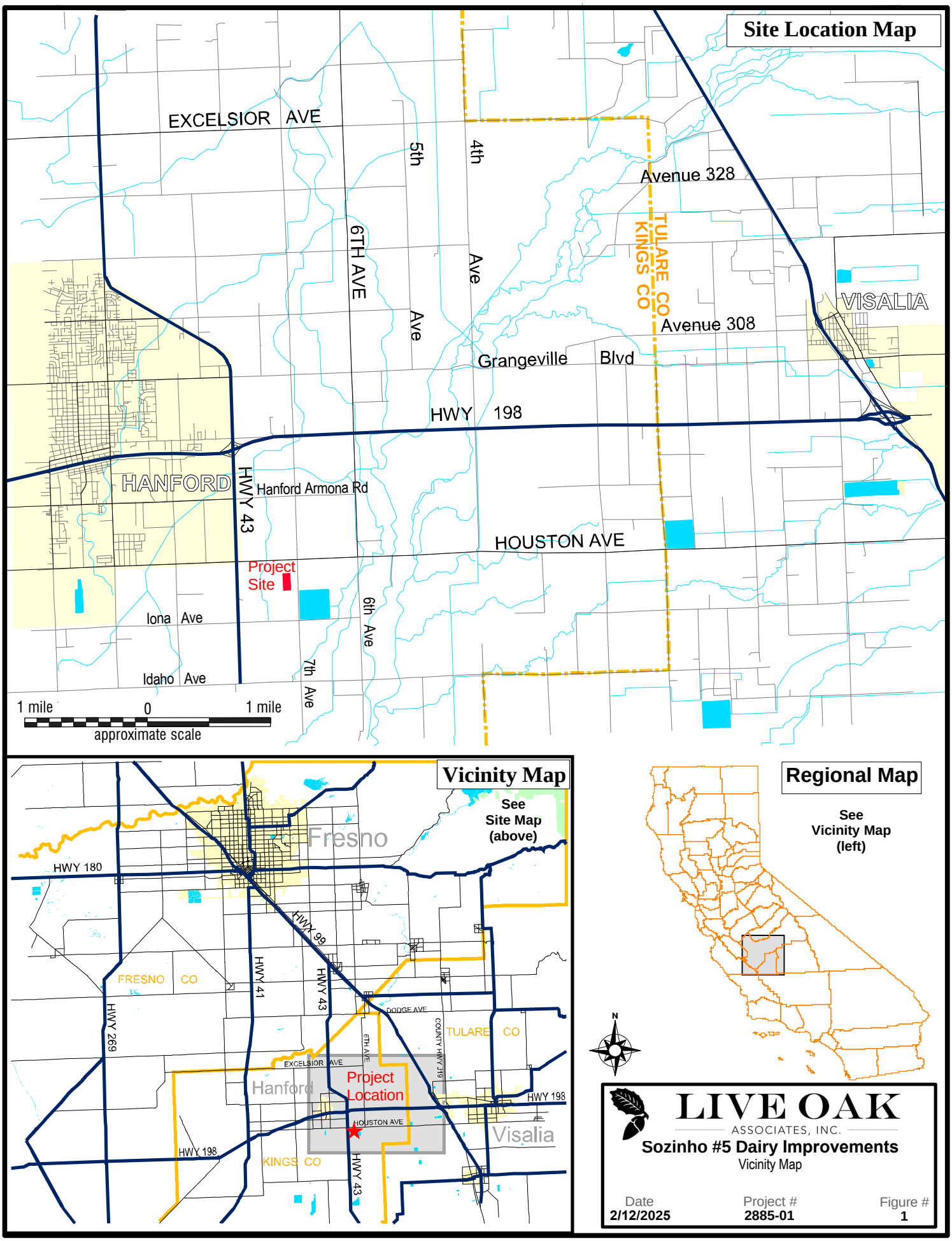
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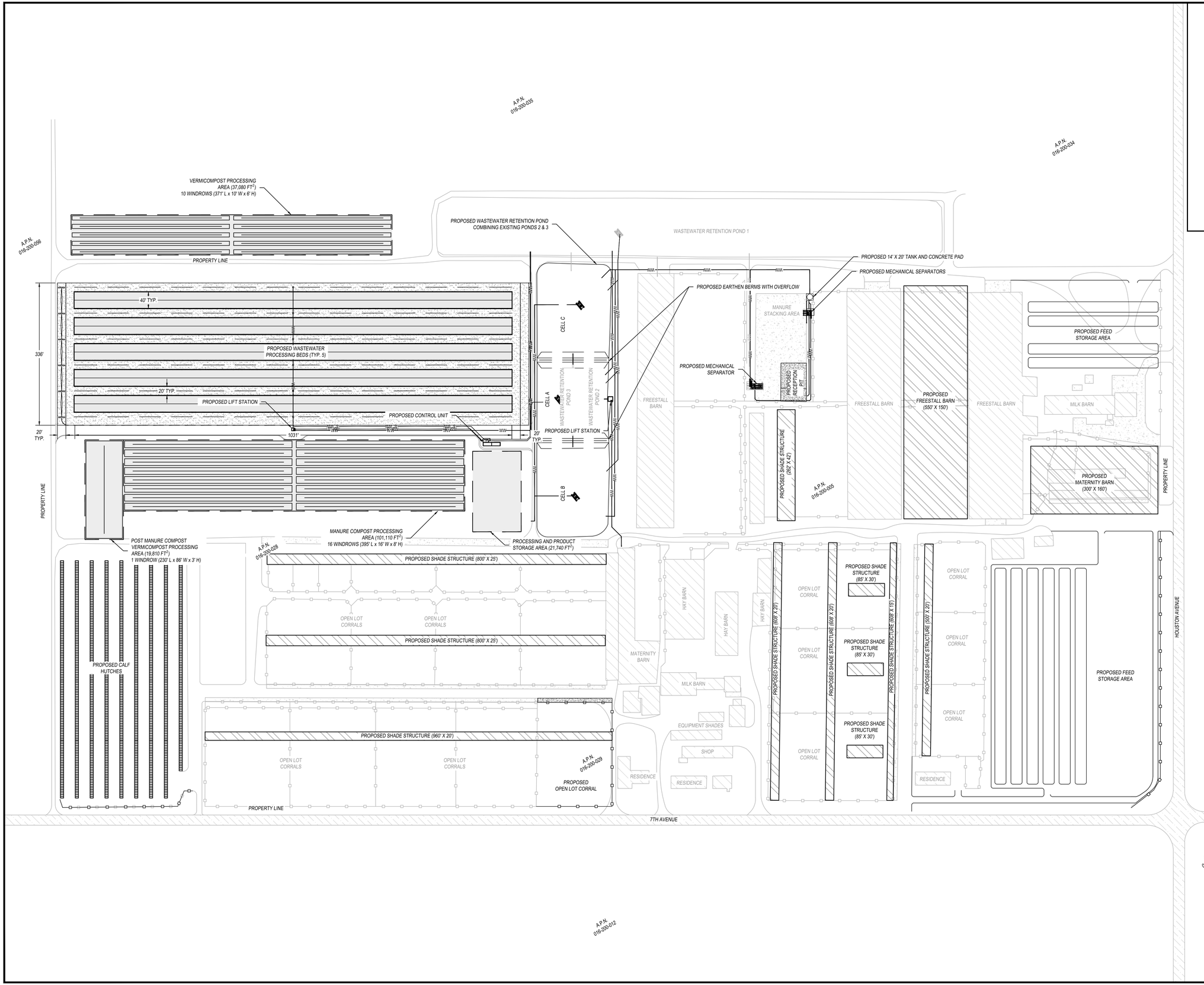
# 1.0 INTRODUCTION

The technical report that follows describes the biotic resources of areas within and adjacent to the existing Sozinho #5 Dairy facility where improvements are proposed (hereafter referred to as the "site" or "project site") and evaluates possible impacts to sensitive or protected biological resources that could result from these improvements (hereafter referred to as the "project"). The project site is located in northeast Kings County approximately 0.75 miles east of State Route 43 and 2.25 miles south of State Route 198, southwest of the intersection of Houston Avenue and 7th Avenue. (Figure 1). The project site is located within the Remnoy U.S. Geological Survey (USGS) 7.5-minute quadrangle; Section 9, Township 19 South, Range 22 East (Mt. Diablo Base and Meridian).

## 1.1 PROJECT DESCRIPTION

The project consists of the combination of two (2) existing lagoons into one (1) lagoon with two (2) constructed earthen berms in an existing lagoon, two (2) mechanical separators, one (1) reception tank and concrete pad, one (1) reception pit, five (5) wastewater processing beds with a total area of 8.58 acres (1,112' x 336'), one (1) product storage area, three (3) compost processing areas, two (2) feed storage areas, nine (9) rows of calf hutches, eleven (11) corral shade structures, one (1) open lot corral, one (1) maternity barn, and one (1) freestall barn. The proposed improvements are located over the existing Sozinho Dairy #5 facility and crops. Improvements will allow the facility to further treat wastewater generated by facility operations and will grow cattle in a healthy, well-managed, cattle-friendly environment. These improvements have a collective footprint of approximately 40 acres. A site plan is presented in Figure 2.


Site Location Map
EXCELSIOR AVE
5th
4th
Avenue 328
6TH AVE
Ave
Ave
TULARE CO
KINGS CO
VISALIA
Avenue 308
Grangeville
Blvd
HWY 198
HANFORD
HWY 43
Hanford Armona Rd
HOUSTON AVE
Project Site
Iona Ave
6th Ave
Idaho Ave
7th Ave
1 mile
0
1 mile
approximate scale
Vicinity Map
See Site Map (above)
Fresno
HWY 180
HWY 99
FRESNO CO
HWY 41
HWY 43
HWY 269
DODGE AVE
TULARE CO
COUNTY HWY J19
6TH AVE
EXCELSIOR AVE
Hanford
Project Location
HOUSTON AVE
HWY 198
Visalia
HWY 198
KINGS CO
HWY 43
Regional Map
See Vicinity Map (left)
N
LIVE OAK
ASSOCIATES, INC.
Sozinho #5 Dairy Improvements
Vicinity Map
Date
2/12/2025
Project #
2885-01
Figure #
1




| | |
|---|---|
| OWNER/OPERATOR | JOE SOZINHO |
| MAILING ADDRESS | 12252 7TH AVENUE HANFORD, CA 93230 |
| FACILITY ADDRESS | 7205 HOUSTON AVENUE HANFORD, CA 93230 |
| A.P.N | 016-200-005, 016-200-028, 016-200-029, 016-200-035 |
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CONSTRUCTION PLAN
SOZINHO DAIRY #5
7205 HOUSTON AVENUE
HANFORD, CA 93230

BIOFILTRO WASTEWATER PROCESSING
PROPOSED SITE PLAN

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| PLOT DATE: | Jan 27, 2025 |
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| SHEET NO.: | 1 OF 1 |

## 1.2 REPORT OBJECTIVES

Development of agricultural areas has the potential to damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, and/or covered by local policies and ordinances. Specifically, this investigation and report were completed in compliance with Policy DE 3.3a of the Dairy Element of the Kings County General Plan, which requires all applications for new or expanded dairies to include a Biological Resources Survey for wetlands and habitat for sensitive species. As such, the objectives of this report are to summarize all site-specific information related to existing biological resources and, if necessary, identify appropriate avoidance and mitigation measures that would reduce the magnitude of potential project-related impacts to biological resources.

## 1.3 STUDY METHODOLOGY

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the project site discussed in Section 2.0. Sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFW 2024), (2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024), and (3) manuals, reports, and references related to plants and animals of the San Joaquin Valley region. A reconnaissance-level field survey of the project site was conducted on May 17, 2024 by LOA biologist Natalie Neff. This survey consisted of a visual inspection of the survey area while systematically walking the site in order to assure full visual coverage. During the field visit the principal land uses of the site were identified and the constituent plants and animals of each were noted. The field survey conducted for this study was sufficient to assess the significance of possible biological impacts associated with the dairy expansion and to assess the need for more detailed studies that could be warranted if potentially sensitive biotic resources were identified in this initial survey.

# 2.0 EXISTING CONDITIONS

## 2.1 PROJECT SITE

The project site consists entirely of ruderal (i.e. disturbed) land. Immediately surrounding lands consist of the existing dairy and agricultural land in every direction. Topographically, the site is relatively level at an average elevation of approximately 236 ft. National Geodetic Vertical Datum (NGVD).

The project site experiences a Mediterranean climate where warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 100 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely rise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation within the project site is about 9 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain. Storm water readily infiltrates the soils.

Aquatic features in the near vicinity of the site include two dairy wastewater retention ponds, one of which is proposed for the construction of two earthen berms within it, an irrigation ditch approximately 0.2 miles west of the project site, a seasonal basin approximately 0.4 miles northwest of the project site, and a percolation basin approximately 200 feet southeast of the project site. Guernsey Slough and Cross Creek are located approximately 1.7 miles southeast of the project site and 1.7 miles east of the project site respectively.

Two soil mapping units occur on the project site: Wasco sandy loam, 0-5 percent slopes and Kimberlina fine sandy loam, saline-alkali (California Soil Resource Lab, 2024). These soil mapping units are not considered hydric soils, meaning the soil would not be prone to wetland development.

Soils of the project site have been substantially altered through ground disturbance during initial dairy and agricultural development, and dairy and agricultural operations. As a result, the soils of the site no longer maintain their native soil characteristics and would, therefore, have no particular significance to biological resources of the site.

## 2.2 BIOTIC HABITATS/LAND USES

Natural biotic habitats are absent from the project site due to years of agricultural uses and activities associated with dairy operations. The land use of the project site can best be characterized as ruderal. A list of the vascular plant species observed within the project site and a list of the terrestrial vertebrates using, or potentially using, the site is provided in Appendices A and B, respectively.

Ruderal lands on the site have experienced disturbance from activities associated with historic farming and ongoing dairy use of the site. At the time of LOA's field survey, vegetation was largely restricted to the berms of the wastewater pond, cultivated wheat fields, and the edges of the cultivated wheat fields. Vegetation consisted primarily of weedy forbs including Palmer amaranth (*Amaranthus palmeri*), flax leaf horseweed (*Erigeron bonariensis*), London rocket (*Sisymbrium irio*), annual yellow sweet clover (*Melilotus indicus*), and cheeseweed (*Malva parviflora*).

The site offers little habitat value for many wildlife species. Despite the site's proximity to an irrigation ditch, a seasonal basin, and a percolation basin, amphibians and aquatic reptiles like turtles are expected to be absent from the site due to the lack of suitable aquatic breeding habitat on the site and unsuitable aestivation habitat within the site.

Though amphibians and aquatic reptiles are expected to be absent, some common terrestrial reptile, bird, and mammal species are expected to use the site. Reptile species that may forage on the site include the side-blotched lizard (*Uta stansburiana*) (observed) and snakes such as the gopher snake (*Pituophis melanoleucus*) and common kingsnake *(Lampropeltis getulus*), though these species' numbers would be expected to be quite low, if present at all.

Resident bird species expected to use this habitat would include red-winged blackbirds (*Agelaius phoeniceus*), Brewer's blackbirds (*Euphagus cyanocephalus*), mourning doves (*Zenaida macroura*), and killdeer (*Charadrius vociferus*), among others. Wintering birds that may utilize the site include the savannah sparrow (*Passerella sandwichensis*), American pipit (*Anthus rubescens*), white-crowned sparrow (*Zonotrichia leucophrys*) and Say's phoebe (*Sayornis saya*),

among others. Summer migrants such as the barn swallow (*Hirundo rustica*) would be expected to forage over the site as well.

Several California ground squirrel (*Otospermophilus beecheyi*) burrows were observed along the north edge of the proposed stacking bed location. Burrows were also observed within the vicinity of the project site along the edges of the wheat fields and in scattered locations within the dairy. Other rodents that may occur on the site in limited numbers include Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), house mouse (*Mus musculus*), and Norway rat (*Rattus norvegicus*).

The site offers some foraging opportunities for mammalian and avian predators. Raptors such as red-tailed hawks (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and barn owls (*Tyto alba*) may occasionally forage over the site. Various species of bat may forage over the site for flying insects and disturbance-tolerant mammalian predators such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and coyotes (*Canis latrans*) may occasionally forage on or pass through the site as well.

## 2.3 SPECIAL STATUS PLANTS AND ANIMALS

Many species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.0, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such a listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2024). Collectively, these plants and animals are referred to as "special status species."

A review of the California Natural Diversity Data Base (CNDDB) Bios 5 Data Viewer (CDFW 2024) identified no special status plant species occurrences on or in the near vicinity of the project site, and the project site provides no habitat for special status plant species due to disturbance from decades of dairy and farming activities. The following special status animal species have been documented in the project vicinity: Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), loggerhead shrike (*Lanius ludovicianus*), burrowing owl (*Athene cunicularia*), and San Joaquin kit fox (*Vulpes macrotis mutica*). The potential for each of these special status species to occur on the project site is discussed below.

### 2.3.1 Swainson's Hawk (California Threatened)

The Swainson's hawk typically nests in large trees along riparian systems, but may also nest in oak groves, or lone, mature trees in agricultural fields or along roadsides. Nest sites are typically located adjacent to suitable foraging habitat such as grasslands, lightly grazed pastures, or alfalfa or other hay crops. In the Central Valley, California voles account for about 45% of non-insect prey taken by the Swainson's hawk, followed by birds (32%), and gophers, mice, and other small mammals (20%) (Estep 1989). Insects comprise a large proportion of individual prey items, but a negligible proportion of total prey biomass.

During the May 17$^{th}$ survey, a Swainson's hawk was spotted flying over the project site. Though the project site does not contain any trees, several mature trees lie within 0.25 mile of the project site. These large, mature trees could provide suitable nesting habitat for Swainson's hawk. There are 32 CNDDB nesting occurrences of Swainson's hawk within 10 miles of the project site and over 20 ebird sightings within the vicinity as well. The ruderal lands of the project site may occasionally be used for foraging by the Swainson's hawk; however, the history of ground disturbance due to dairy operations and farming activities such as wheat cultivation likely limits the availability of vertebrate prey across the site, reducing its foraging suitability for this species.

### 2.3.2 Tricolored Blackbird (California Threatened)

Tricolored blackbirds historically bred in marshes across California's Central Valley but are now most often found nesting in soy and wheat fields due to loss of wetland habitat. These birds nest closely together in breeding colonies made up of thousands of mating pairs. They are

opportunistic foragers, consuming a variety of invertebrates and grains found in agricultural fields and grasslands.

Two CNDDB nesting occurrences from 2014 were documented 5.75 miles southwest and 11.5 miles southwest of the project site and there are several recent ebird sightings of this species as well. Given the presence of tricolored blackbirds in the area and the wheat fields on the project site, tricolored blackbirds could nest on the project site.

### 2.3.2 Loggerhead Shrike (California Species of Special Concern)

This bird frequents open habitats with sparse shrubs and trees and is a common species found in cropland. It requires elevated perches and trees for nesting. The loggerhead shrike's diet consists of arthropods and small vertebrates that they will spear on the end of sharp branches or barbed wire fences.

Although multiple ebird sightings of this species were documented within 10 miles of the project site, there were no CNDDB occurrence within 10 miles of the project site and there are no suitable nesting trees on or within 250ft of the project site. Nesting loggerhead shrikes would therefore be absent from the project site, though they could occasionally forage or fly over the project site.

### 2.3.3 Burrowing Owl (California Species of Special Concern; California Candidate Endangered)

The burrowing owl is associated with open habitats including grasslands, grazed pastures, open shrub lands, and occasionally agricultural fields. The primary indicators of suitable habitat for this species are relatively short vegetation and underground burrows or similar features for roosting and nesting. In California, burrowing owls primarily roost and nest in the burrows of California ground squirrels, but may also use badger, coyote, or fox dens. The burrowing owl diet includes a broad array of arthropods, small rodents, birds, reptiles, and amphibians. In California, burrowing owl survival and reproductive success appear to be linked to rodent populations, particularly California vole (Gervais et al. 2006)

Although several California ground squirrel burrows were found on site (which provide potential burrowing owl habitat), there was no sign of burrowing owls on site. There are nine CNDDB

burrowing occurrences documented within 10 miles of the project site, and five eBird occurrences within that distance. Though the tall, thick wheat fields provide unsuitable foraging habitat for this species, open areas with sparse vegetation adjacent to the project site provide possible habitat for this species and burrows on and adjacent to the project site could be utilized by individuals. As a result, burrowing owls may occur on the project site or immediately surrounding lands.

### 2.3.4 San Joaquin Kit Fox (Federally Endangered, California Threatened)

The San Joaquin kit fox (SJKF) historically occupied the dry plains of the San Joaquin Valley from San Joaquin County to southern Kern County but has been extirpated from much of its historic range. Core SJKF populations are located in the natural lands of western Kern County, the Carrizo Plain Natural Area in San Luis Obispo County, and the Ciervo-Panoche Natural Area in western Fresno and eastern San Benito Counties (USFWS 1998). The kit fox prefers habitats of open or low vegetation with loose soils, including various types of grassland and scrub. It may also be found in urban settings and in areas adjacent to tilled or fallow fields. The SJKF requires underground dens to raise pups, regulate body temperature, and avoid predators.

Habitat for kit fox is absent to extremely marginal within the project site. Eightenn CNDDB recorded occurrences of this species are documented within a 10-mile radius of the project site. The most recent San Joaquin kit fox occurrence was in 2006, approximately 5 miles northwest of the project site within the City of Hanford. Currently, there are no extant kit fox populations known to occur in Kings County. No evidence of San Joaquin kit fox denning was found on the site during LOA's field survey. The site represents extremely marginal habitat for the kit fox due to its disturbed landscape and human activities. Moreover, the site is situated within a mosaic of agricultural lands that have been identified as low suitability for kit fox (Cypher et al. 2013), such that kit fox would be unlikely to occur in the project vicinity in the first place. At most, kit fox may, on rare occasions, pass through the site during dispersal movements.

## 2.4 NESTING BIRDS AND RAPTORS

There are very few trees or large bushes located on or within 250 ft of the project site, which limits the availability of nesting habitat for birds and there are no suitable nesting trees for

raptors on or within 500 ft of the project site. Despite the lack of trees and bushes, some avian species may still utilize the site for nesting. Disturbance tolerant ground nesters like Killdeer (*Charadrius vociferus*) could nest in the hardpacked earth within and adjacent to the project site and birds that build mud nests, like Cliff Swallows (*Petrochelidon pyrrhonota*), have the potential to nest in freestall barns in and adjacent to the project site.

## 2.5 WETLANDS AND OTHER JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the CDFW, and the California Regional Water Quality Control Board (RWQCB).

Potential jurisdictional waters and wetlands are absent from the project site. The nearest natural drainages are Guernsey Slough and Cross Creek. Guernsey Slough lies approximately 1.7 miles southeast of the project at the nearest point and Cross Creek lies approximately 1.7 miles east of the project site at the nearest point. Guernsey Slough's natural drainage features have been heavily altered or destroyed due to decades of agriculture and development. Cross Creek has maintained most of its natural features, though it too has been altered by agriculture and development.

## 3.0 RELEVANT GOALS, POLICIES, AND LAWS

### 3.1 KINGS COUNTY GENERAL PLAN DAIRY ELEMENT BIOLOGICAL RESOURCES SURVEY (POLICY DE 3.3A):

The Kings County General Plan contains a Dairy Element that requires environmental review of all new dairies or the expansion of an existing dairy. The environmental review requirements that pertain to biological resources are stated below.

> "The results of a Biological Resources Survey shall be made a part of the Technical Report submitted with each application to either establish a new dairy or expand an existing dairy. The survey of habitat for sensitive species and wetlands shall be conducted by a qualified wildlife biologist prior to initiation of grading for each dairy facility to confirm the presence or absence of any nesting activity at each location. If habitat for sensitive species or wetlands is found, appropriate measures shall be taken to avoid destruction of active dens or nests. An appropriate buffer zone shall be established around any active den or nest based on consultation with representatives of the California Department of Fish and Wildlife. Construction activities shall be restricted in this zone until the qualified biologist has determined that the young animals are no longer using the dens or nests. Passive relocation methods shall be used by the qualified biologist in the event that removal of any wildlife from the impact area is deemed necessary by a regulatory agency with appropriate jurisdiction."

### 3.2 THREATENED AND ENDANGERED SPECIES

In California, imperiled plants and animals may be afforded special legal protections under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (FESA). Species may be listed as "threatened" or "endangered" under one or both Acts, and/or as "rare" under CESA. Under both Acts, "endangered" means a species is in danger of extinction throughout all or a significant portion of its range, and "threatened" means a species is likely to become endangered within the foreseeable future. Under CESA, "rare" means a species may become endangered if their present environment worsens. Both Acts prohibit "take" of listed species, defined under CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt,

pursue, catch, capture or kill" (California Fish and Game Code, Section 86), and more broadly defined under FESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). The USFWS commonly interprets "take" to include the loss of habitat utilized by a listed species.

When state and federally listed species have the potential to be impacted by a project, the USFWS and CDFW must be included in the CEQA process. These agencies review the environmental document to determine the adequacy of its treatment of endangered species issues and to make project-specific recommendations for the protection of listed species. Projects that may result in the "take" of listed species must generally enter into consultation with the USFWS and/or CDFW pursuant to FESA and CESA, respectively. In some cases, incidental take authorization(s) from these agencies may be required before the project can be implemented.

### 3.3 CALIFORNIA FULLY PROTECTED SPECIES

The classification of certain animal species as "fully protected" was the State of California's initial effort in the 1960s, prior to the passage of the California Endangered Species Act, to identify and provide additional protection to those species that were rare or faced possible extinction. Following CESA enactment in 1970, many fully protected species were also listed as California threatened or endangered. The list of fully protected species are identified, and their protections stipulated, in California Fish and Game Code Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and fish (5515). Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take, except in conjunction with necessary scientific research and protection of livestock.

### 3.4 DESIGNATED CRITICAL HABITAT

The USFWS often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is defined by section 3(5)(A) of the federal Endangered Species Act as "(i) The specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species."

The Act goes on to define "conservation" as "the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which listing under the Act is no longer necessary."

The designation of a specific area as critical habitat does not directly affect its ownership. Federal actions that result in destruction or adverse modification of critical habitat are, however, prohibited in the absence of prior consultation with the USFWS according to provisions of the act. Furthermore, recent appellate court cases require that federal actions affecting critical habitat promote the recovery of the listed species protected by the critical habitat designation.
The USFWS designates critical habitat for a species by identifying general areas likely to contain the species' "primary constituent elements," or physical or biological features of the landscape that the species needs to survive and reproduce. Although a unit of critical habitat for a particular species may be quite large, only those lands within the unit that contain the species' primary constituent elements are actually considered critical habitat by the USFWS.

### 3.5 MIGRATORY BIRDS

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Native birds are also protected under California state law. The California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

### 3.6 BIRDS OF PREY

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5), which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted

pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

### 3.7 NESTING BIRDS

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of "take" by the CDFW.

### 3.8 HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS

Section 10 of the federal Endangered Species Act establishes a process by which non-federal projects can obtain authorization to incidentally take listed species, provided take is minimized and thoroughly mitigated. A Habitat Conservation Plan (HCP), developed by the project applicant in collaboration with the USFWS and/or NMFS, ensures that such minimization and mitigation will occur, and is a prerequisite to the issuance of a federal incidental take permit. Similarly, a Natural Community Conservation Plan (NCCP), developed by the project applicant in collaboration with CDFW, provides for the conservation of biodiversity within a project area, and permits limited incidental take of state-listed species.

### 3.9 WETLANDS AND OTHER "JURISDICTIONAL WATERS"

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344), defined in the CWA as "the waters of the United States, including the territorial seas" (33 U.S.C. §1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency

(EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are presently defined by the EPA and USACE's joint 2023 Revised Definition of 'Waters of the U.S.' Rule (2023 WOTUS Rule), with certain interpretive modifications imposed by the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*. Generally speaking, these waters include:

- 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.
- The territorial seas
- Interstate waters including interstate wetlands.
- Impoundments of waters otherwise defined as waters of the United States under the definition.
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters

The 2023 WOTUS Rule also defines a number of exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems
- Prior converted cropland
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water
- Certain artificial features, e.g. irrigation basins, swimming pools, borrow pits, and artificially irrigated areas
- Swales and erosional features characterized by low volume, infrequent, or short duration flow

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board (SWRCB) has regulatory authority to protect the water quality of all surface water and groundwater in the State of California. In practice, however, not all such waters are considered jurisdictional "waters of the State." Broadly, waters of the State include all waters of the U.S., all natural wetlands, certain artificial wetlands, and various other features. Nine RWQCBs, each corresponding to a different region of the state, regulate discharges of fill and pollutants into waters of the State through the issuance of various permits and orders. Discharges into waters of the State that are also waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining a Section 404 Clean Water Act permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a water of the U.S. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be

prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

# 4.0 PROJECT IMPACTS

The following impact analysis assumes project-related disturbance to approximately 40 acres within the existing Sozinho Dairy #5 property, as shown in figure 2.

## 4.1 PROJECT IMPACTS TO SPECIAL STATUS SPECIES

Potential project impacts to each of the special status species identified as having the potential to occur in the project vicinity are discussed below, as well as measures to minimize potential impacts.

### 4.1.1 Special Status Plants

**Impact:** The project site and surrounding lands have experienced several decades of farming and dairy use and contain no suitable habitat for special status plant species. Special status plants have no appreciable potential to occur on site or to be affected by the project.

**Mitigation:** None warranted.

### 4.1.2 Swainson's Hawk

**Impact:** The project site does not contain any suitable nesting trees, however, there are many mature trees within a half-mile radius of the project site. The distance of these trees from the project site and the high level of human and vehicular activity associated with the surrounding dairy operations are such that, even if Swainson's hawks are nesting in any of the trees at the time of construction, they would be unlikely to distinguish project construction activities from existing ambient disturbance.

The loss of approximately 40-acres of marginal foraging habitat situated within a region with many square miles of similar to more suitable foraging habitat in the form of agricultural fields would not constitute a significant loss of Swainson's hawk foraging habitat or significantly impact regional populations of Swainson's hawks.

**Mitigation:**

***Mitigation Measure 4.1.4a* (*Temporal Avoidance*).** In order to avoid any potential impacts to nesting Swainson's hawks, construction activities will occur, where possible, outside of this species' nesting season, typically defined as March 1-September 15.

***Mitigation Measure 4.1.4b (Preconstruction Surveys).*** If construction activities must occur between March 1 and September 15, then within 10 days prior to the start of construction, a qualified biologist will conduct preconstruction nest surveys for Swainson's hawks on and within ¼ mile of the work area. The survey will consist of inspecting all accessible, suitable trees of the survey area for the presence of nests and hawks.

***Mitigation Measure 4.1.4c (Avoidance of Active Nests).*** Should any active Swainson's hawk nests be discovered within the survey area, an appropriate disturbance-free buffer will be established around the nest based on local conditions and agency guidelines. Disturbance-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.

### 4.1.3 Burrowing Owl

**Impact:** Burrows suitably sized for burrowing owl nesting and roosting were observed on the project site. Though much of the project site is unsuitable for burrowing owls due to the tall, dense nature of the wheat field, the abundance of burrows on and adjacent to sparsely vegetated lands on and within the vicinity of the project site provide potential habitat for this species. Therefore, it is possible that burrowing owls use the project site for foraging, nesting, or roosting on occasion, though no signs of burrowing owl were observed. These small raptors are protected under the Migratory Bird Treaty Act, California Fish and Game Code, and the California Endangered Species Act. Project-related grading activities have the potential to bury owls that may retreat to burrows ahead of heavy equipment. Mortality of individual birds would be a violation of state and federal law.

**Mitigation.** Prior to ground disturbance activities, the following measure(s) will be implemented as necessary:

***Mitigation Measure 4.1.5a (Take Avoidance Survey).*** A take avoidance survey for burrowing owls will be conducted by a qualified biologist no less than 14 days prior to the start of construction. This take avoidance survey will be conducted according to methods described in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The survey area will include all potential roosting and nesting habitat on and within 200 meters of project impact areas, where accessible.

***Mitigation Measure 4.1.5b (Avoidance of Active Nests).*** If pre-construction surveys are undertaken during the breeding season (February 1 through August 31) and active nest burrows are located within or near construction zones, a construction-free buffer of 200 meters will be established around all active owl nests. If a smaller buffer is required for the project to move forward, a qualified biologist will determine if a smaller buffer can be implemented that ensures the owls are adequately protected from disturbance. Factors such as existing levels of disturbance, proposed levels of disturbance, and topography or structures that may shield the owls from disturbance will be taken into consideration in evaluating if a smaller buffer is feasible. Any work conducted within 200 meters of an active nest, in accordance with a smaller buffer as determined by a biologist, will be monitored by a biologist until they have observed the owl(s) for at least three days with no signs of disturbance or distress. The buffer areas will be enclosed with temporary fencing or flagging, and construction equipment and workers will not enter the enclosed setback areas. Buffers will remain in place for the duration of the breeding season. If the owls are located such that the project cannot be completed without disturbing them, then the California Department of Fish and Game will be consulted to determine if an incidental take permit is necessary and develop a plan to relocate the owl(s) after the breeding season has ended (i.e. once all young have left the nest).

Implementation of the above measures will minimize potential project impacts to burrowing owl and will ensure compliance with federal and state laws protecting this species.

### 4.1.4 San Joaquin Kit Fox

**Impact:** Habitat for the San Joaquin kit fox is absent to extremely marginal within the project site due to dairy activity, lack of denning habitat, and poor foraging opportunity. No burrows suitable for kit fox denning were observed on or adjacent to the site, and no evidence of San Joaquin kit fox use of the site was found during LOA's field survey. At most, kit fox may, on rare occasions, pass through the site during dispersal movements. Therefore, proposed project activities are unlikely to result in any impacts to San Joaquin kit fox.

**Mitigation:** No mitigation is warranted.

## 4.2 IMPACTS TO NESTING BIRDS AND RAPTORS INCLUDING TRICOLORED BLACKBIRD

**Impact:** The project site provides nesting habitat for a number of resident and migratory bird species including tricolored blackbird. Even the most disturbed areas of the project site could be used by disturbance-tolerant birds. Nearly all native avian species are protected by state and federal laws previously described in Sections 3.5-3.7. Birds nesting within or immediately

adjacent to the project site at the time of project construction have the potential to be injured or killed by project activities. In addition, project activities could disturb birds nesting within or adjacent to work areas such that they would abandon their nests. Project activities that adversely affect the nesting success of birds or result in the mortality of individual birds would violate state and federal laws.

**Mitigation:** The following measures will be implemented prior to the start of construction.

> ***Mitigation Measure 4.2a (Avoidance).*** In order to avoid impacts to native nesting birds, including the tricolored blackbird, the project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.
>
> ***Mitigation Measure 4.2b (Preconstruction Surveys).*** If project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and native bird nests within 15 days prior to the start of these activities. The survey will include the proposed work area(s) for that particular phase of work and surrounding lands within 250 feet, where accessible, for all nesting birds. If no active nests are found within the survey area, no further mitigation is required.
>
> ***Mitigation Measure 4.2c (Establish Buffers).*** Should any active nests be discovered in or near proposed work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.

Implementation of the above measures will minimize potential project impacts to nesting native birds and will ensure compliance with state and federal laws protecting these species.

## 4.3 IMPACTS TO WETLANDS AND OTHER JURISDICTIONAL WATERS

**Impact:** Potential jurisdictional waters and wetlands are absent from the project site, and the project will not impact any such resources.

**Mitigation:** None warranted.

## 5.0 LITERATURE CONSULTED OR CITED


Calflora. 2024. Calflora: An online database of plant identification and distribution [web application]. Calflora, Berkeley, California. Available: http://www.calflora.org .

California Department of Fish and Game. 2012. Staff report on Burrowing Owl Mitigation. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843

California Department of Fish and Game. 2021. California Fish and Game Code: 2021 Edition. Matthew Bender 7 Company. Inc. Colorado Springs, CO. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=178840&inline

California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database. The Resources Agency, Sacramento, CA.

California Native Plant Society. 2024. Inventory of Rare and Endangered Vascular Plants of California. Available: http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi .

California Soil Resource Lab. 2024. SoilWeb [web application]. University of California, Davis and Natural Resources Conservation Service, Davis, California Available: https://casoilresource.lawr.ucdavis.edu/gmap/ .

Cypher, B. L., S. E. Phillips, and P. A. Kelly. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16:25-31. Available: https://www.canids.org/CBC/16/san_joaquin_kit_fox_habitat_suitability.pdf

eBird. 2024. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org

Estep J. A. 1989. Biology, Movements, and Habitat Relationships Of The Swainson's Hawk In The Central Valley Of California, 1986-87. State Of California Department Of Fish And Game Wildlife Management Division Nongame Bird And Mammal Section. Available: https://www.sandiegocounty.gov/content/dam/sdc/pds/ceqa/JVR/AdminRecord/IncorporatedByReference/Appendices/Appendix-D---Biological-Resources-Report/Estep%201989.pdf

Gervais J. A., C. M. Hunter, and R.G. Anthony. 2006. Interactive Effects Of Prey And p,p'-DDE On Burrowing Owl Population Dynamics. Ecological Applications, 16(2), 2006, pp. 666–677. Available: https://www.birdpop.org/docs/pubs/Gervais_et_al_2006_Interactive_Effects_of_Prey_and_DDE_on_BUOW.pdf

Jepson Flora Project. 2024. Jepson eFlora. [web application]. University of California, Berkeley; Berkeley, California. Available: https://ucjeps.berkeley.edu/eflora/ .

Smith D.A, K. Ralls, B.L. Cypher, H.O. Clark, P.A. Kelly, D.F. Williams, and J.E. Maldonado. 2006. Relative Abundance of Endangered San Joaquin Kit Foxes (*Vulpes Macrotis*

*Mutica*) Based on Scat–Detection Dog Surveys. The Southwestern Naturalist 5:210–219. Available: https://carangeland.org/images/Relative_Abundance_of_Endangered_San_Joaquin_Kit_Foxes_Based_on_Scat-Detection.pdf .

US Army Corps of Engineers. 2000. Wetlands Management Handbook. C.B. Schneider and S.W. Sprecher. ERDC/EL SR-00-16. Available: https://www.spl.usace.army.mil/Portals/17/docs/regulatory/Mitigation/UsefulLinks/WetlandsManagementHandbook_Dec2000.pdf .

Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White. Ed. 1988. California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals. Department of Fish and Game. Sacramento, CA. Digitized and updated as life history accounts in the California Wildlife Habitat Relationships System, California Department of Fish and Wildlife, Available at: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range

## APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

## APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

The plant species listed below were observed on the Sozinho #5 Dairy project site during a survey conducted by Live Oak Associates, Inc. on May 17, 2024. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
+/- - Higher/lower end of category
NR - No review
NA - No agreement
NI - No investigation

| | | |
|---|---|---|
| **AMARANTHACEAE – Amaranth Family** | | |
| *Amaranthus blitoides* | Mat amaranth | FACU |
| *Amaranthus palmeri* | Palmer's pigweed | FACU |
| *Amaranthus retroflexus* | Red-root amaranth | FACU |
| **ASTERACEAE – Daisy Family** | | |
| *Erigeron bonariensis* | Flax-leaf fleabane | FACU |
| *Lactuca serriola* | Prickly lettuce | FACU |
| *Centromadia pungens* | Common spikeweed | FAC |
| **BRASSICACEAE – Mustard Family** | | |
| *Lepidium didymum* | Lesser Swinecress | UPL |
| *Sisymbrium irio* | London Rocket | UPL |
| **CHENOPODIACEAE – Goosefoot Family** | | |
| *Bassia hyssopifolia* | Five-Hook Bassia | FACU |
| **FABACEAE – Legume Family** | | |
| *Melilotus indicus* | Annual yellow sweet clover | FACU |
| **MALVACEAE – Mallow Family** | | |
| *Malva parviflora* | Cheeseweed | UPL |
| **POACEAE – Grass Family** | | |
| *Digitaria spp.* | Crabgrass | FACU |
| *Echinochloa colona* | Jungle rice | FAC |
| *Echinochloa crus-galli* | Barnyard grass | FACU |
| *Hordeum jubatum* | Foxtail barley | FAC |
| *Leptochloa fascicularis* | Bearded sprangletop | |
| *Triticum aestivum* | Cultivated wheat | UPL |
| **POLYGONACEAE – Buckwheat Family** | | |
| *Polygonum aviculare* | Prostrate knotweed | FAC |
| **ZYGOPHYLLACEAE – Caltrop Family** | | |
| *Tribulus terrestris* | Puncture vine | UPL |

## APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

## APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

The species listed below are those that may reasonably be expected to use the habitats of the project site routinely from time to time. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed in or adjacent to the project site on May 17, 2024 have been noted with an asterisk.

**CLASS: REPTILIA (Reptiles)**
**ORDER: SQUAMATA (Lizards and Snakes)**
**SUBORDER: SAURIA (Lizards)**
**FAMILY: PHRYNOSOMATIDAE**
Side-blotched Lizard (*Uta stansburiana*)
**SUBORDER: SERPENTES (Snakes)**
**FAMILY: COLUBRIDAE (Colubrids)**
Gopher Snake (*Pituophis melanoleucus*)
Common Kingsnake (*Lampropeltis getulus*)

**CLASS: AVES (Birds)**
**ORDER: ANSERIFORMES (Waterfowl)**
**FAMILY: ANATIDAE (Ducks)**
Mallard (*Anas platyrhynchos*)
**ORDER: CICONIIFORMES (Herons, Storks, Ibises and Relatives)**
**FAMILY: CATHARTIDAE (American Vultures)**
Turkey Vulture (*Cathartes aura*)
**FAMILY: THRESKIORNITHIDAE (Ibises and Spoonbills)**
White-faced Ibis (*Plegadis chihi*)
**ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)**
**FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)**
Red-tailed Hawk (*Buteo jamaicensis*)
*Swainson's Hawk (*Buteo swainsoni*)
**FAMILY: FALCONIDAE (Caracaras and Falcons)**
American Kestrel (*Falco sparverius*)
**ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and relatives)**
**FAMILY: RECURVIROSTRIDAE (Avocets and Stilts)**
*Black-necked stilt (*Himantopus mexicanus*)
**FAMILY: CHARADRIIDAE (Plovers and relatives)**
*Killdeer (*Charadrius vociferus*)
**FAMILY: SCOLOPACIDAE (Sandpipers, Woodcocks, Curlews, and Snipes)**
*Whimbrel (*Numenius phaeopus*)
**ORDER: COLUMBIFORMES (Pigeons and Doves)**
**FAMILY: COLUMBIDAE (Pigeons and Doves)**
*Rock Pigeon (*Columba livia*)
*Eurasian Collared Dove (*Streptopelia decaocto*)
*Mourning Dove (*Zenaida macroura*)

**ORDER: STRIGIFORMES (Owls)**
**FAMILY: TYTONIDAE (Barn Owls)**
Common Barn Owl (*Tyto alba*)
**FAMILY: STRIGIDAE (Typical Owls)**
Burrowing Owl (*Athene cunicularia*)
**ORDER: APODIFORMES (Swifts and Hummingbirds)**
**FAMILY: TROCHILIDAE (Hummingbirds)**
Anna's Hummingbird (*Calypte anna*)
Rufous Hummingbird (*Selasphorus rufus*)
**ORDER: PASSERIFORMES (Perching Birds)**
**FAMILY: TYRANNIDAE (Tyrant Flycatchers)**
*Black Phoebe (*Sayornis nigricans*)
Say's Phoebe (*Sayornis saya*)
Western Kingbird (*Tyrannus verticalis*)
**FAMILY: CORVIDAE (Jays, Magpies, and Crows)**
California Scrub Jay (*Aphelocoma californica*)
*American Crow (*Corvus brachyrhynchos*)
Common Raven (*Corvus corax*)
**FAMILY: ALAUDIDAE (Larks)**
Horned Lark (*Eremophila alpestris*)
**FAMILY: HIRUNDINIDAE (Swallows)**
Cliff Swallow (*Hirundo pyrrhonota*)
Barn Swallow (*Hirundo rustica*)
**FAMILY: TURDIDAE**
American Robin (*Turdus migratorius*)
**FAMILY: MIMIDAE (Mockingbirds and Thrashers)**
Northern Mockingbird (*Mimus polyglottos*)
**FAMILY: STURNIDAE (Starlings)**
*European Starling (*Sturnus vulgaris*)
**FAMILY: MOTACILLIDAE (Wagtails and Pipits)**
American Pipit (*Anthus rubescens*)
**FAMILY: PARULIDAE (Wood Warblers and Relatives)**
Yellow-rumped Warbler (*Dendroica coronata*)
**FAMILY: EMBERIZIDAE (Wood Warblers, Sparrows, Blackbirds, and relatives)**
Dark-eyed Junco (*Junco hyemalis*)
Lincoln's Sparrow (*Melospiza lincolnii*)
Savannah Sparrow (*Passerculus sandwichensis*)
White-crowned Sparrow (*Zonotrichia leucophrys*)
**FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)**
*Red-winged Blackbird (*Agelaius phoeniceus*)
Tricolored Blackbird (*Agelaius tricolor*)
Western Meadowlark (*Sturnella neglecta*)
*Brewer's Blackbird (*Euphagus cyanocephalus*)
Brown-headed Cowbird (*Molothrus ater*)
**FAMILY: FRIGILLIDAE (Finches)**
Lesser Goldfinch (*Carduelis psaltria*)

American Goldfinch (*Spinus tristis*)
House Finch (*Carpodacus mexicanus*)
**FAMILY: PASSERIDAE (Old World Sparrows)**
*House Sparrow (*Passer domesticus*)

**CLASS: MAMMALIA (Mammals)**
**ORDER: RODENTIA (Rodents)**
**FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)**
*California Ground Squirrel (*Otospermophilus beecheyi*)
**FAMILY: GEOMYIDAE (Pocket Gophers)**
*Botta's Pocket Gopher (*Thomomys bottae*)
**FAMILY: MURIDAE (Old World Rats and Mice)**
Western Harvest Mouse (*Reithrodontomys megalotis*)
Deer Mouse (*Peromyscus maniculatus*)
Norway Rat (*Rattus norvegicus*)
House Mouse (*Mus musculus*)
California Vole (*Microtus californicus*)
**ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)**
**FAMILY: LEPORIDAE (Rabbits and Hares)**
Brush Rabbit (*Sylvilagus bachmani*)
Desert Cottontail (*Sylvilagus audubonii*)
**ORDER: CHIROPTERA (Bats)**
**FAMILY: PHYLLOSTOMIDAE (Leaf-nosed Bats)**
Southern Long-nosed Bat (*Leptonycteris curasoae*)
**FAMILY: VESPERTILIONIDAE (Evening Bats)**
Yuma Myotis (*Myotis yumanensis*)
California Myotis (*Myotis californicus)*
Western Pipistrelle (*Pipistrellus hesperus*)
Big Brown Bat (*Eptesicus fuscus*)
**FAMILY: MOLOSSIDAE (Free-tailed Bat)**
Brazilian Free-tailed Bat (*Tadarida brasiliensis*)
**ORDER: CARNIVORA (Carnivores)**
**FAMILY: CANIDAE (Foxes, Wolves, and relatives)**
Coyote (*Canis latrans*)
Domestic Dog (*Canis lupus familiaris*)
**FAMILY: FELIDAE (Felines)**
*Feral Cat (*Felis catus*)
**FAMILY: PROCYONIDAE (Raccoons and relatives)**
Raccoon (*Procyon lotor*)
**FAMILY: MEPHITIDAE (Skunks)**
Striped Skunk (*Mephitis mephitis*)
**ORDER: ARTIODACTYLA (Hoofed Mammals)**
**FAMILY: BOVIDAE (Cloven-hoofed ruminants)**
*Domestic Cattle (*Bos taurus*)

## APPENDIX C: SELECTED SITE PHOTOGRAPHS



**Photo 1: Looking west at the wheat field in different stages of harvest. Proposed location of Biofiltro wastewater processing beds.**



**Photo 2: Example of burrows on edge of wheat field. Looking southwest from eastern edge.**



**Photo 3: Looking southeast from the northwest portion of the wheat field. Large, mature trees can be seen in the background. Proposed location of Biofiltro wastewater processing beds and storage area.**



**Photo 4: Looking northwest at wastewater processing beds, the proposed location for two earthen berms. Wheat field shown on the left and freestall barn with cows on the right.**



**Photo 5: Looking west inside freestall barn where a pipeline will be constructed.**



**Photo 6: Looking west at proposed location of stacking pad and mechanical separator.**



**Photos 7: Example of ground squirrel burrows on the north edge of the proposed stacking pad and mechanical separator location.**



**Photo 8: Looking west at proposed location of rerouted vacuum track.**

# Appendix C

## Cultural Resources Records Search

California Historical Resources Information System



Fresno
Kern
Kings
Madera
Tulare

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

**To:** Tyler Esteves
4Creeks
324 S. Santa Fe, Suite A
Visalia, CA 93292

**Record Search 24-175**

**Date:** April 22, 2024

**Re:** Sozinho Dairy #5 Improvements

**County:** Kings

**Map(s):** Remnoy 7.5'

## CULTURAL RESOURCES RECORDS SEARCH

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

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

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

According to the information in our files, there have been no previous cultural resource studies completed within the project area. There have been no cultural resource studies completed within the one-half mile radius.

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

According to the information in our files, there are no recorded resources within the project area. There is one recorded resource within the one-half mile radius: P-16-000250. A historic era agricultural ditch.

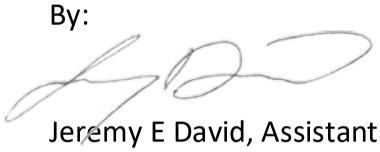
There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, for the California State Historic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

## COMMENTS AND RECOMMENDATIONS

We understand this project proposes to construct BioFiltro wastewater processing beds and necessary infrastructure for wastewater management. Additionally, we understand this project area is an existing dairy and the ground surface has been heavily disturbed. No further cultural resource work is needed within the existing facility at this time. However, we understand the surrounding land is undeveloped agricultural land. Please note that agriculture does not constitute previous development, as it does not destroy cultural resources, but merely moves them around within the plow zone. Therefore, prior to any ground disturbance activities on undeveloped ag land, we recommend a qualified, professional consultant conduct a field survey to determine if cultural resources are present. Further, if any cultural resources are unearthed during any ground disturbance activities, all work must halt in the area of the find and a qualified, professional consultant should be called out to assess the findings and make the appropriate mitigation recommendations. A list of qualified consultants can be found at www.chrisinfo.org.

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

By:



Jeremy E David, Assistant Coordinator **Date**: April 22, 2024

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

# Appendix D

## Sacred Lands File Letter

# NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
*Chumash*

VICE-CHAIRPERSON
Buffy McQuillen
*Yokayo Pomo, Yuki, Nomlaki*

SECRETARY
Sara Dutschke
*Miwok*

PARLIAMENTARIAN
Wayne Nelson
*Luiseño*

COMMISSIONER
Isaac Bojorquez
*Ohlone-Costanoan*

COMMISSIONER
Stanley Rodriguez
*Kumeyaay*

COMMISSIONER
Laurena Bolden
*Serrano*

COMMISSIONER
Reid Milanovich
*Cahuilla*

COMMISSIONER
Vacant

EXECUTIVE SECRETARY
Raymond C. Hitchcock
*Miwok, Nisenan*

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

April 15, 2024

Tyler Esteves
4Creeks Inc.

*Via Email to: tylere@4-creeks.com*

Re: Sozinho Dairy #5 Project, Kings County

Dear Mr. Esteves:

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: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

Attachment

# Appendix E

## Traffic Analysis Letter

Kings County
Association of Governments

339 W. D Street, Suite B
Lemoore, CA 93245
Tel. (559) 852-2654
Fax (559) 924-5632
www.kingscog.org

Member Agencies: Cities of Avenal, Corcoran, Hanford and Lemoore, County of Kings

April 10, 2024

Tyler Esteves
4Creeks, Inc.
324 S. Santa Fe St., Suite A
Visalia, CA 93292

Dear Mr. Esteves:

This memo is regarding your request for a traffic analysis for the Sozinho Dairy #5 proposed improvements project located at 7205 Houston Ave., Hanford, CA that will result in construction, installation, and operation of BioFiltro wastewater treatment beds and the necessary infrastructure for wastewater management. Based on the information below, this project is not expected to degrade the present Level of Service (LOS) on the nearby county roads of regional significance below acceptable levels.

**Sozinho Dairy #5**
**Traffic Analysis**

This project is not expected to increase the number of trips per day. Based on the following average daily traffic (ADT) figures for Houston Ave. and State Route (SR) 43, and the current LOS, it appears that the project would not significantly impact the operational capacity of these roads.

| Roadway | ADT | Peak Hour | LOS |
|---|---|---|---|
| Houston Ave.: | | | |
| East of SR 43<br>West of 6th Ave. | 3,109 | 319 | B |
| SR 43: | | | |
| South of Houston Ave.<br>North of Kansas Ave. | 7300 | 710 | B |

If you have any questions regarding this matter, please call me at (559) 852-2678 or email at Terri.King@co.kings.ca.us.

Sincerely,

KINGS COUNTY ASSOCIATION OF GOVERNMENTS

Terri King

Terri King, Executive Director

# Appendix F

## Waste Management Plan

February 11, 2025

Mr. Lewis Lummen
Central Valley Regional Water Quality Control Board
1685 E. Street, Suite 200
Fresno, CA 93706

**RE:** Sozinho Dairy #5 Waste Management Plan Addendum

Dear Mr. Lummen,

Sozinho Dairy #5 (Facility) submitted a Waste Management Plan (WMP), completed by Matthew C. Sutton, P.E., on June 18, 2010. Recently, the Facility has proposed to revise the existing wastewater flow process with the addition/modification of the following items: two (2) earthen berms in an existing lagoon, two (2) mechanical separators, one (1) tank and concrete pad, one (1) reception pit, five (5) process water processing beds with the following dimensions (1,112' x 336'), one (1) product storage area, three (3) organic matter/manure processing areas, two (2) feed storage areas, nine (9) rows of calf hutches, eleven (11) corral shade structures, one (1) open lot corral, one (1) maternity barn, and one (1) freestall barn. The Facility has hired 4Creeks, Inc. (4Creeks) to amend the previously approved 2010 WMP to analyze the new proposed modifications to the wastewater process system and ensure the facility will still comply with the Reissued General Order No. R5-2013-0122 (General Order).

According to the calculations of the approved WMP completed by Matthew C. Sutton, P.E., in June of 2010, the Facility met the required wastewater storage for the 120-day required storage period (November 1st – February 28). The addition of proposed processing beds will increase the reduction of solids from the wastewater, prior to reaching the storage ponds. Additionally, the processing beds will increase the impervious area within the stormwater tributary area. According to the analysis completed by 4Creeks the proposed modifications will result in a total excess wastewater storage capacity of **7,968,523 gallons**. This analysis is demonstrated in the attached calculations and exhibits.

Based upon the results of the provided analysis, the Facility will meet the storage capacity requirements set forth by the General Order, once the proposed modifications become operational. No additional modifications to the facility will be required.

Operations and Maintenance of the existing wastewater retention ponds shall be conducted in accordance with the previous Waste Management Plan / Operations and Maintenance Plan provided to the Facility.

Respectfully,

Moises Ramirez, PE #88232

LICENSED PROFESSIONAL ENGINEER
MOISES RAMIREZ
C 88232
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

**VISALIA**
324 S Santa Fe Suite A
Visalia, CA 93292
559-802-3052
info@4-creeks.com

**HANFORD**
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**FRESNO**
1444 Fulton St. Suite B11,
Fresno, CA 93721
559-802-3052
info@4-creeks.com

**Attachments**

A. Dairy Facility Wastewater Flow Diagram
B. Storm Water Tributary Area Map
C-2A. Wastewater Retention Pond 2A Detail
C-2B. Wastewater Retention Pond 2B Detail
C-2C. Wastewater Retention Pond 2C Detail

**Appendices:**

A. Wastewater Retention Pond Volume Analysis Summary
B. Normal Precipitation Data
C. FEMA Map
D. Evaporation History 1958 – 2010
E. Waste Management Plan, Sozinho Dairy #5
Completed by Matthew C. Sutton, P.E. Submitted to Regional Water Quality Control Board on June 18, 2010.

## *PROCESS FLOW KEYNOTES*

1. *EXISTING WATER SUPPLY WELL:*
*SUPPLIES ALL MILK BARN PROCESS WATER USE.*

2. *EXISTING MILK BARN PROCESS WATER:*
*SOURCE: WATER SUPPLY WELLS.*
*PLATE COOLER, ABOVE GROUND TANK, BARN FLUSH, SPRINKLER PENS, AND MISC. BARN WASH WATER.*

3. *PROPOSED RECEPTION PIT:*
*SOURCE: EXISTING MILK BARN PROCESS WATER AND FLUSH WATER.*
*PUMPS WASTEWATER OVER PROPOSED MECHANICAL SEPARATORS.*

4. *PROPOSED PRIMARY MECHANICAL SEPARATOR:*
*SOURCE: PROPOSED RECEPTION PIT.*
*WASTEWATER GRAVITY FLOWS INTO RECEPTION TANK OR TO PROPOSED WASTEWATER RETENTION POND 2A AND 2B.*

5. *PROPOSED RECEPTION TANK:*
*SOURCE: PROPOSED PRIMARY MECHANICAL SEPARATOR.*
*GRAVITY FLOWS INTO PROPOSED WASTEWATER RETENTION POND 2B OR POND 2A. SETTLED SOLIDS ARE PUMPED TO PROPOSED SECONDARY MECHANICAL SEPARATOR.*

6. *PROPOSED SECONDARY MECHANICAL SEPARATOR:*
*SOURCE: PROPOSED RECEPTION PIT & PROPOSED RECEPTION TANK.*
*GRAVITY FLOWS TO WASTEWATER RETENTION POND 2A OR POND 2B.*

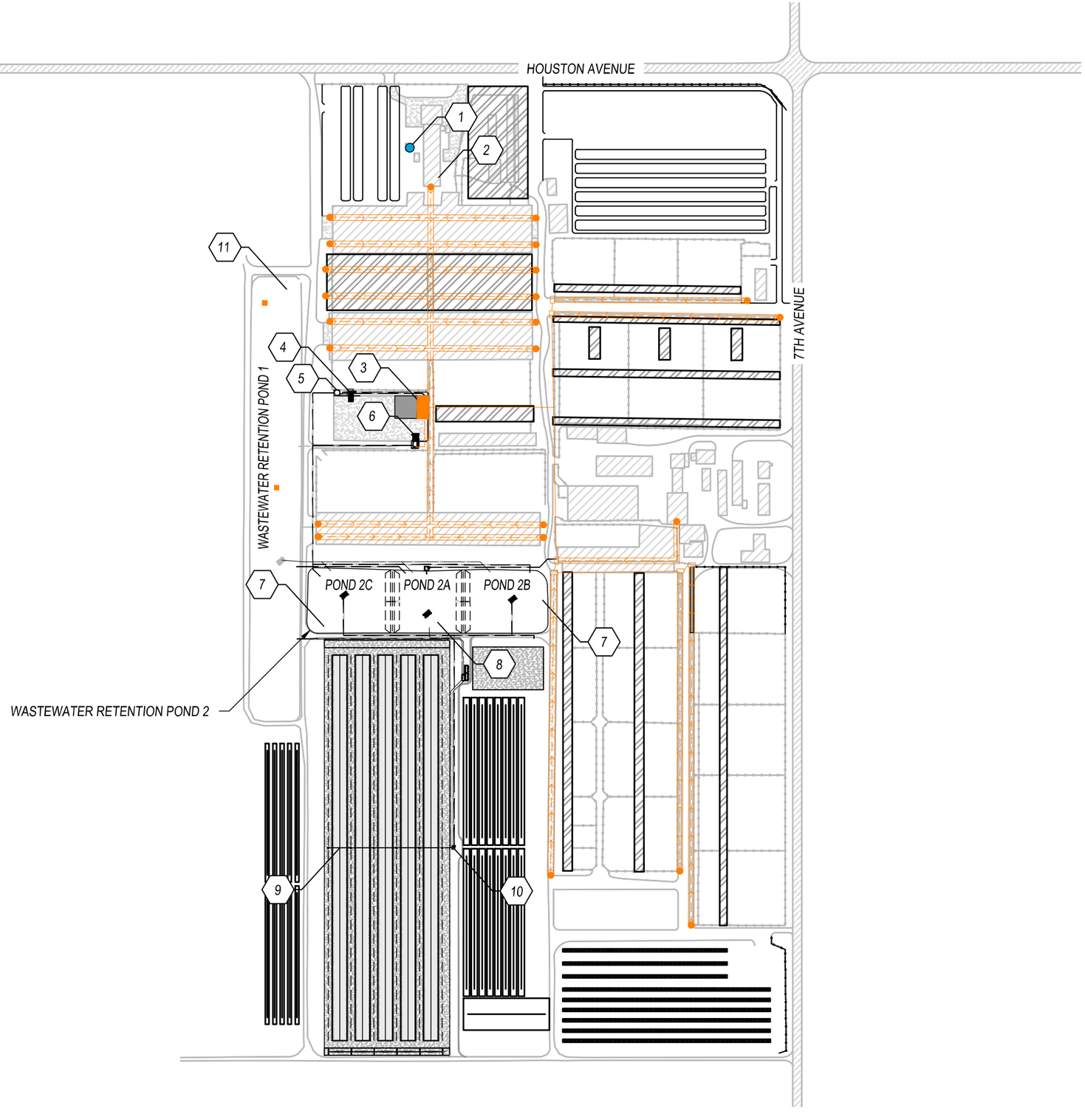
7. *WASTEWATER RETENTION PONDS 2A AND 2B:*
*SOURCE: PROPOSED MECHANICAL SEPARATORS.*
*GRAVITY FLOWS INTO WASTEWATER RETENTION POND 2C.*

8. *WASTEWATER RETENTION POND 2C:*
*SOURCE: WASTEWATER RETENTION POND 2A AND 2B.*
*PROCESS WATER IS EITHER USED TO FLUSH THE FACILITY OR PUMPED TO THE PROCESS BEDS AS NEEDED.*

9. *PROPOSED PROCESS WATER PROCESSING BEDS (TYP. 5):*
*SOURCE: WASTEWATER RETENTION POND 2C.*
*PROCESS WATER RUNS THOUGH THE BIDA SYSTEM WHERE WATER IS THEN CONVEYED TO A PROPOSED LIFT STATION.*

10. *PROPOSED LIFT STATION:*
*SOURCE: PROPOSED PROCESS WATER PROCESSING BEDS.*
*PUMPS WASTEWATER POST PROCESSING BEDS TO WASTEWATER RETENTION POND 1.*

11. *WASTEWATER RETENTION POND 1:*
*SOURCE: PROPOSED LIFT STATION.*
*STORES WASTEWATER LONG TERM. PROCESS WATER IS USED FOR IRRIGATION AND CAN SUPPLY WATER BACK TO PONDS 2A, 2B, AND 2C.*



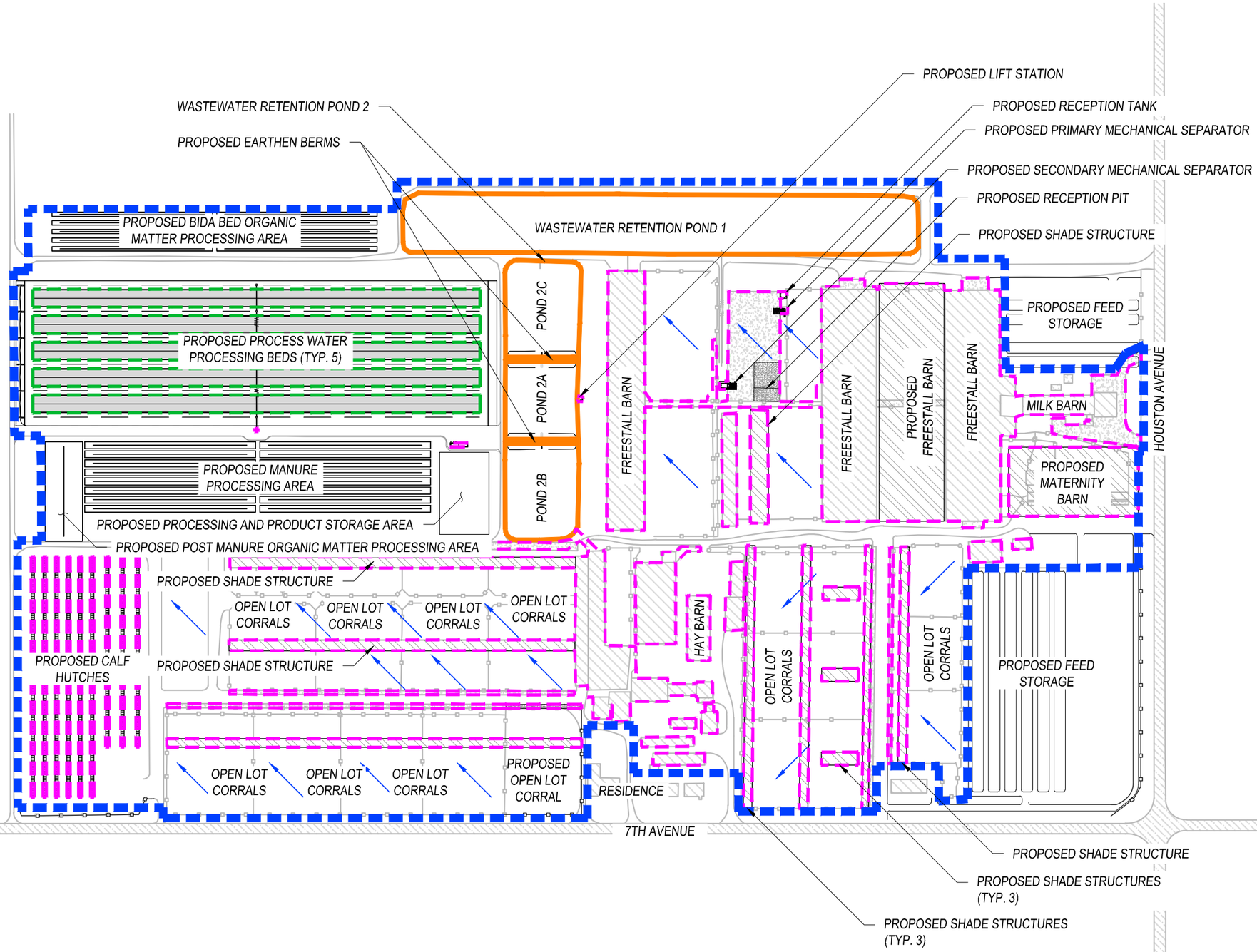

NORTH

JOB NO. 240504 | ATTACHMENT A | 10/14/2024 | SCALE: 1" = 300'

# DAIRY FACILITY WASTEWATER FLOW DIAGRAM

SOZINHO DAIRY #5
KINGS COUNTY, CA


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LEGEND

- IMPERVIOUS AREA BOUNDARY
- TRIBUTARY AREA BOUNDARY
- WASTEWATER POND AREA
- BIDA BED SYSTEM AREA
- DIRECTION OF SLOPE

TOTAL AREA WITHIN MANURE HANDLING LIMITS: 3,280,356 SQ. FT.
TOTAL IMPERVIOUS AREA: 687,974 SQ. FT.
TOTAL POND AREA: 267,293 SQ. FT.
TOTAL BIDA BED SYSTEM AREA: 212,831 SQ. FT.

NORTH
250' 0' 250'

# STORM WATER TRIBUTARY AREA MAP

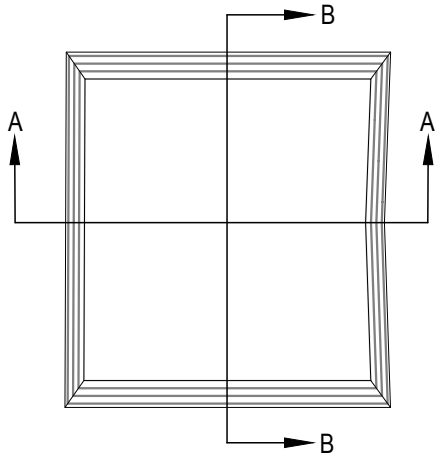
SOZINHO DAIRY #5
KINGS COUNTY, CA

JOB NO. 240504
ATTACHMENT B
10/7/2024
SCALE: SEE SHEET

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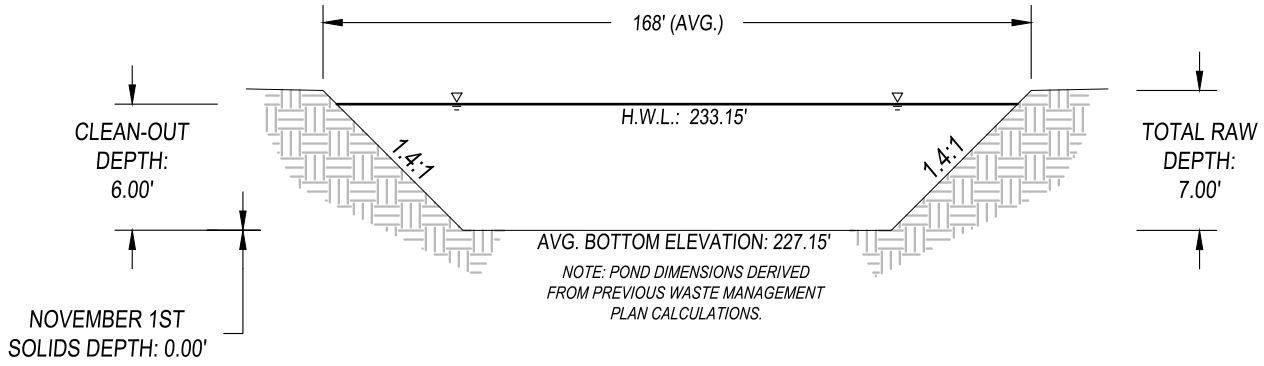
## *WASTEWATER RETENTION POND 2A - EVAPORATION POND*

*TOTAL VOLUME: 1,328,761 GALLONS*
*REDUCTION - 1 FT OF FREEBOARD: 210,123 GALLONS*
*REDUCTION - STORAGE PERIOD POND REDUCTION: 41,936 GALLONS*
***TOTAL RETENTION VOLUME: 1,076,702 GALLONS***

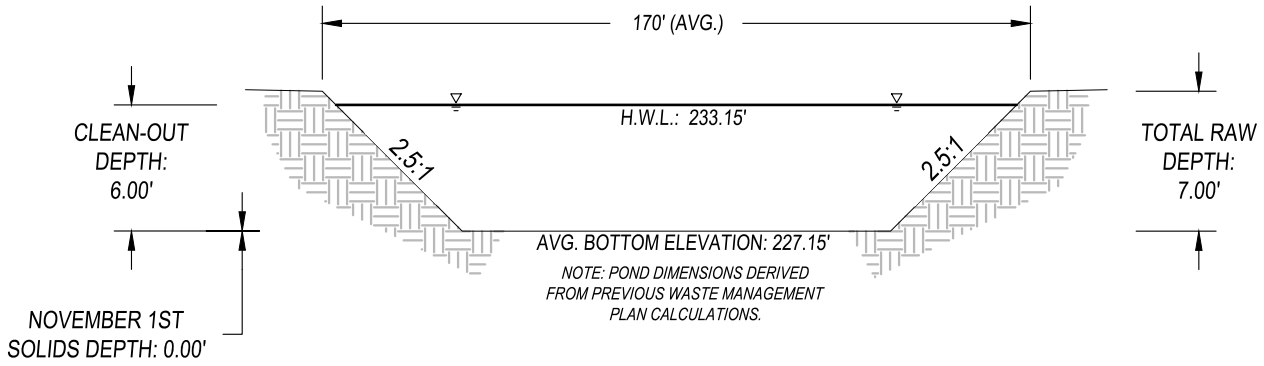



NORTH

## *PLAN VIEW* — *NTS*




## *SECTION A-A* — *NTS*




## *SECTION B-B* — *NTS*

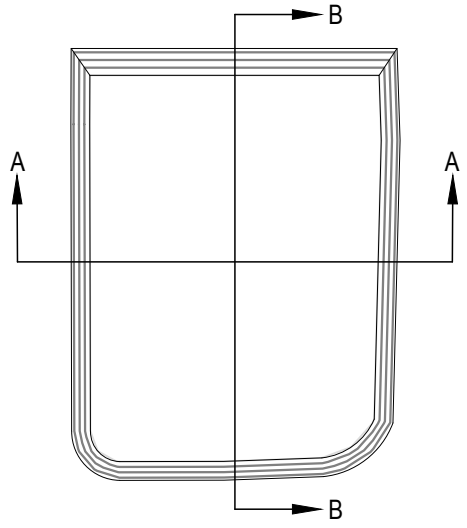
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*WASTEWATER RETENTION POND 2A DETAIL*
*SOZINHO DAIRY #5*
*KINGS COUNTY, CA*

| |
|---|
| PROJECT NO. 240504 |
| ATTACHMENT C-2A |
| 10/7/2024 |
| NTS |

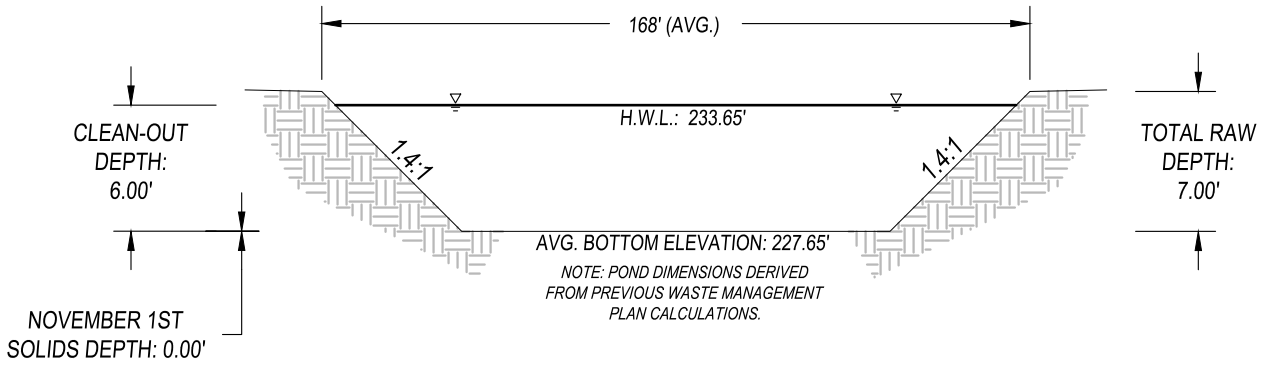
## *WASTEWATER RETENTION POND 2B - EVAPORATION POND*

*TOTAL VOLUME: 1,742,958 GALLONS*
*REDUCTION - 1 FT OF FREEBOARD: 272,436 GALLONS*
*REDUCTION - STORAGE PERIOD POND REDUCTION: 55,845 GALLONS*
***TOTAL RETENTION VOLUME: 1,414,677 GALLONS***

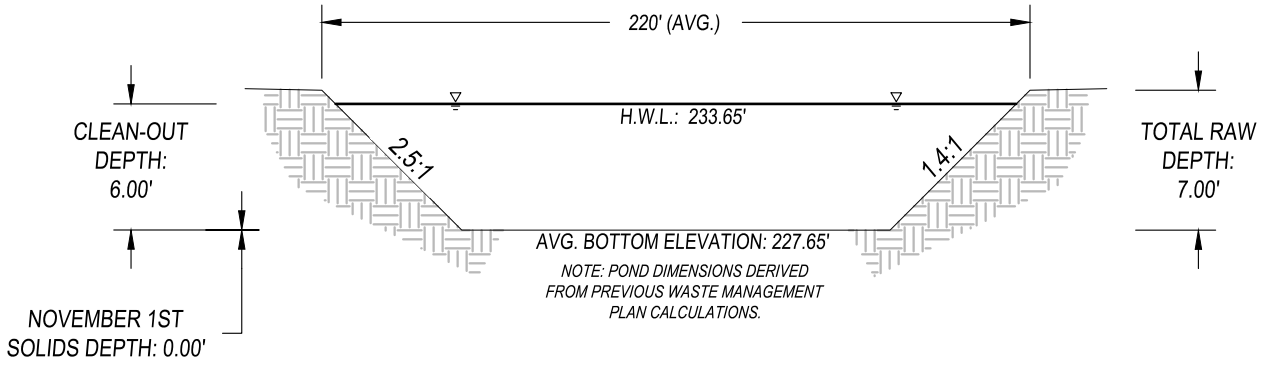



NORTH

## *PLAN VIEW* *NTS*




## *SECTION A-A* *NTS*




## *SECTION B-B* *NTS*

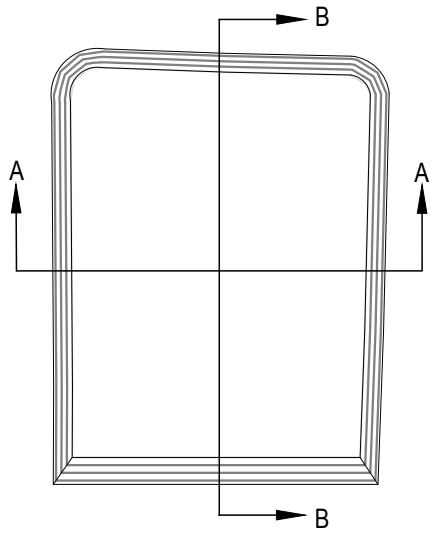
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*WASTEWATER RETENTION POND 2B DETAIL*
*SOZINHO DAIRY #5*
*KINGS COUNTY, CA*

| |
|---|
| PROJECT NO. 240504 |
| ATTACHMENT C-2B |
| 10/7/2024 |
| NTS |

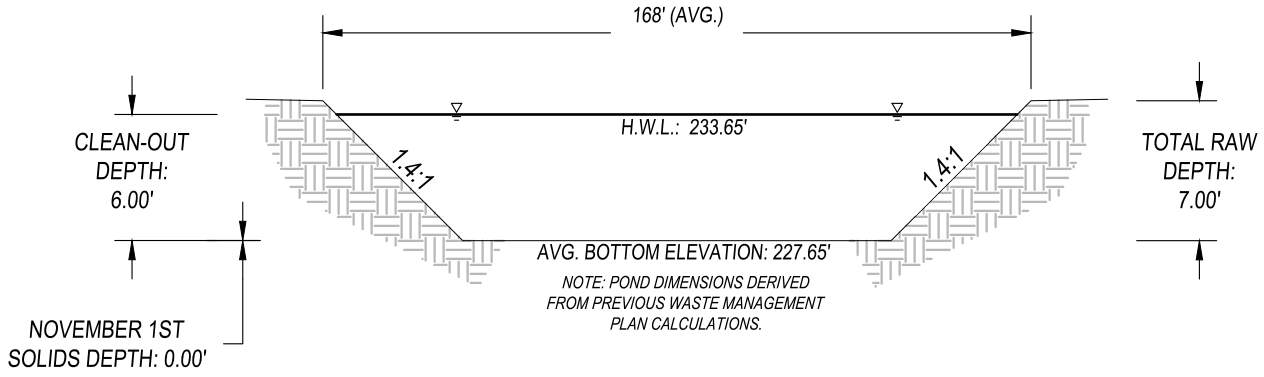
# WASTEWATER RETENTION POND 2C - EVAPORATION POND

*TOTAL VOLUME: 1,742,958 GALLONS*
*REDUCTION - 1 FT OF FREEBOARD: 272,436 GALLONS*
*REDUCTION - STORAGE PERIOD POND REDUCTION: 55,845 GALLONS*
***TOTAL RETENTION VOLUME: 1,414,677 GALLONS***

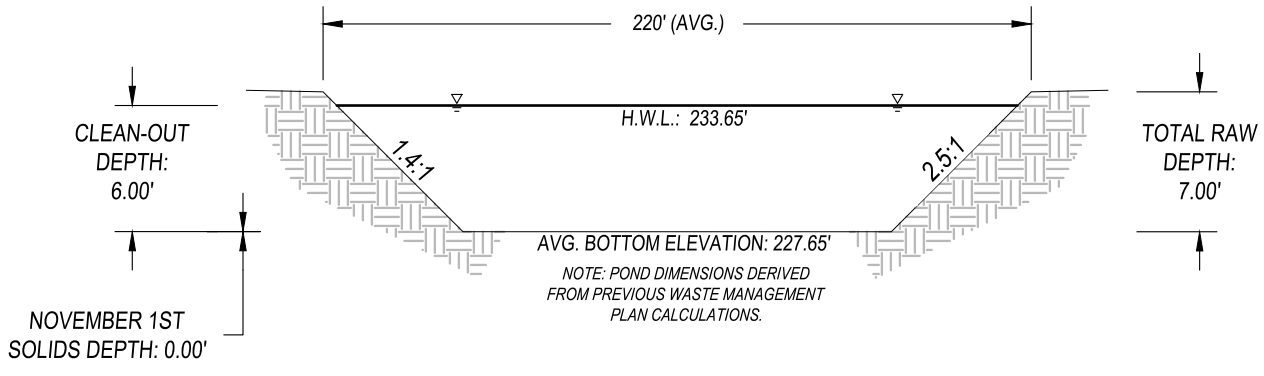



NORTH

## PLAN VIEW — NTS




## SECTION A-A — NTS




## SECTION B-B — NTS

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WASTEWATER RETENTION POND 2C DETAIL
SOZINHO DAIRY #5
KINGS COUNTY, CA

| | |
|---|---|
| PROJECT NO. | 240504 |
| ATTACHMENT | C-2C |
| | 10/7/2024 |
| | NTS |

# APPENDIX A

## WASTEWATER RETENTION POND VOLUME ANALYSIS SUMMARY

| | |
|---|---|
| Calculations Completed By: | AF |
| Calculations Checked By: | MR |
| Date: | 2/7/2025 |

# Wastewater Retention Pond Volume Analysis

## SOZINHO DAIRY #5

## A. POND STORAGE VOLUME

**SUMMARY *(See Appendix B for Calculations)***

| Pond | Pond Type | Depth of Pond November 1st (ft) | Storage Period Pond Volume Reduction ($ft^3$) |
|---|---|---|---|
| **Pond 1:** | Irrigation | 0.00 | 0 |
| **Pond 2A:** | Evaporation | 0.25 | 5,606 |
| **Pond 2B:** | Evaporation | 0.25 | 7,465 |
| **Pond 2C:** | Evaporation | 0.25 | 7,465 |

| Pond | Total Raw Volume (gal) | 1 Foot Freeboard Reduction (gal) | Storage Period Pond Reduction (gal) | Total Retention Volume (gal) |
|---|---|---|---|---|
| **Pond 1:** | 18,844,753 | 1,160,987 | 0 | 17,683,766 |
| **Pond 2A:** | 1,328,761 | 210,123 | 41,936 | 1,076,702 |
| **Pond 2B:** | 1,742,958 | 272,436 | 55,845 | 1,414,677 |
| **Pond 2C:** | 1,742,958 | 272,436 | 55,845 | 1,414,677 |
| | | | **TOTAL:** | **21,589,821** |

## B. PROCESS WASTEWATER VOLUME ANALYSIS

| *Age of Animal & Housing Type* | *# of Animals* | *Waste Produced - Urine & Manure ($ft^3$/day) (ASABE 384.2)* | *Hours/Day on Flush Surface* | *Single Stage Mechanical Separator, BIDA Beds, and Separation Ponds Reduction Factor* | *Total (gal/day)* |
|---|---|---|---|---|---|
| Milking Cows (Freestall) | 1,250 | 2.4 | 18 | 75% | 4,208 |
| Dry Cows (Open Lot) | 195 | 1.3 | 4 | 75% | 79 |
| Heifers: 15-24 mo. (Open Lot) | 316 | 0.78 | 3 | 75% | 58 |
| Heifers: 7-14 mo. (Open Lot) | 477 | 0.78 | 3 | 75% | 87 |
| Heifers: 4-6 mo. (Open Lot) | 207 | 0.3 | 3 | 75% | 15 |
| Calves: up to 3 mo. (Not Flushed) | 0 | 0.3 | 3 | 75% | 0 |
| | | | | **Total :** | **4,446** |

**Milk Barn Wastewater Output (Obtained from 2010 WMP)**

| | | |
|---|---|---|
| Sprinkler Pen/Barn Flush Combo: | 43,100 | gallons/day* |
| **TOTAL:** | **43,100** | **gallons/day** |

**Summary:**

| *Wastewater Source* | *Volume (gal./day)* | *Total Volume Accumulated in 120 day period (gal.)* |
|---|---|---|
| Milk Barn Wastewater Output: | 43,100 | 5,172,000 |
| Animal Output (Urine & Manure): | 4,446 | 533,473 |
| **Total Process Wastewater Volume From Operations:** | **47,546** | **5,705,473** |

# C. PRECIPITATION RUN-OFF VOLUME ANALYSIS

**Rainfall Run-off from Production Area**

| | | |
|---|---|---|
| Total Additional Production Tributary Area | 3,280,356 | $ft^2$ |
| | 75.31 | ***acres*** |

**Run-off Coefficients**

| | |
|---|---|
| Runoff Coefficient for Impervious: | 0.50 |
| Runoff Coefficient for Pervious: | 0.20 |
| 25 Yr. 24 Hr. Storm Runoff Coefficient for Impervious: | 0.97 |
| 25 Yr. 24 Hr. Storm Runoff Coefficient for Pervious: | 0.35 |

**Conversion Factor:** **0.623377**

*(7.48051941 gal/$ft^3$ x 1 ft/12 in)*

**Production Area Subdivision Summary**

| Area Description | Run-off Area ($ft^2$) | Run-off Coefficient | Weighted Run-off Area ($ft^2$) |
|---|---|---|---|
| Wastewater Retention Pond Area | 267,293 | 1.00 | 267,293 |
| BioFiltro Vermifiltration System | 212,831 | 1.00 | 212,831 |
| Total Impervious Area | 687,974 | 0.50 | 343,987 |
| Total Pervious Area | 2,325,089 | 0.20 | 465,018 |
| **Total Production Area** | **3,493,187** | | **1,289,129** |

**25 year 24 hour Rainfall Event**

*Source: NOAA Online Weather Data: NOAA Atlas 2, 1973 for 25 yr / 24 hr*

| Area Description | Rainfall (in.)* | Weighted Run-off Area | Total Volume Accumulated (gal) |
|---|---|---|---|
| Wastewater Retention Pond Area | 2.10 | 267,293 | **349,911** |
| Total BioFiltro System of Tributary Area | 2.10 | 212,831 | **278,615** |
| Total Impervious Part of Tributary Area | 2.10 | 343,987.00 | **450,310** |
| Total Pervious Part of Tributary Area | 2.10 | 465,018 | **608,751** |
| **Total Production Area** | | **1,289,129** | **1,687,587** |

*Per 2010 WMP

**Run-Off to Wastewater Retention Basin**

*Source: California Department of Water Resources (DWR) & California Irrigation Management Information Systems (CIMIS) Online Data from Sampling Stations, Appendix B*

**Rational Method - Equation:**

*Average Rainfall (in)/12 X (Total Production Area ($ft^2$)- Wastewater Pond Area($ft^2$)) X (Weighted Run-off Coefficient) X 7.48051941 ($ft^3$ to gallons) = Normal Rainfall Run-off Volume to Pond (gallons)*

**Normal Precipitation & Run-off**

| Month | Ave. Rainfall (in.) | Days of Retention | Total Volume Accumulated in Each Period (gal.) |
|---|---|---|---|
| November | 0.91 | 30 | 731,288 |
| December | 1.57 | 31 | 1,261,672 |
| January | 1.90 | 31 | 1,526,864 |
| February | 1.76 | 28 | 1,414,358 |
| **Total:** | **6.14** | **120** | **4,934,182** |

**Normal Precipitation & Run-off times a factor of 1.5**

| Month | Ave. Rainfall X 1.5 (in.) | Days of Retention | Total Volume Accumulated in Each Period (gal.) |
|---|---|---|---|
| November | 1.37 | 30 | 1,096,931 |
| December | 2.36 | 31 | 1,892,508 |
| January | 2.85 | 31 | 2,290,296 |
| February | 2.64 | 28 | 2,121,538 |
| **Total:** | **9.21** | **120** | **7,401,273** |

**Evaporation from Wastewater Basin**

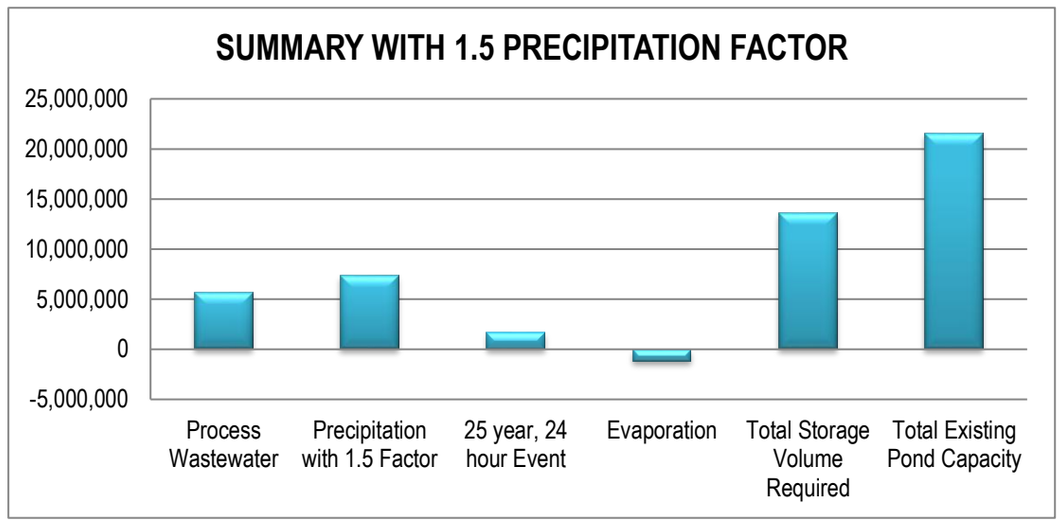
*Source DWR-San Joaquin District Plan Evaporation Monthly Averages for Fresno and Bakersfield from 1958-2010*

| *Month* | *Bakersfield Evaporation Rate (in.)* | *Fresno Evaporation Rate (in.)* | *Average Evaporation Rate (in.)* | *Total Volume Evaporated (gal.)* |
|---|---|---|---|---|
| November | 2.24 | 2.25 | 2.25 | 374,071 |
| December | 1.35 | 1.21 | 1.28 | 213,279 |
| January | 1.44 | 1.26 | 1.35 | 224,943 |
| February | 2.25 | 2.08 | 2.17 | 360,741 |
| **Total:** | **7.28** | **6.80** | **7.04** | **1,173,034** |

# D. SUMMARY OF REQUIRED WASTEWATER RETENTION POND STORAGE VOLUME:

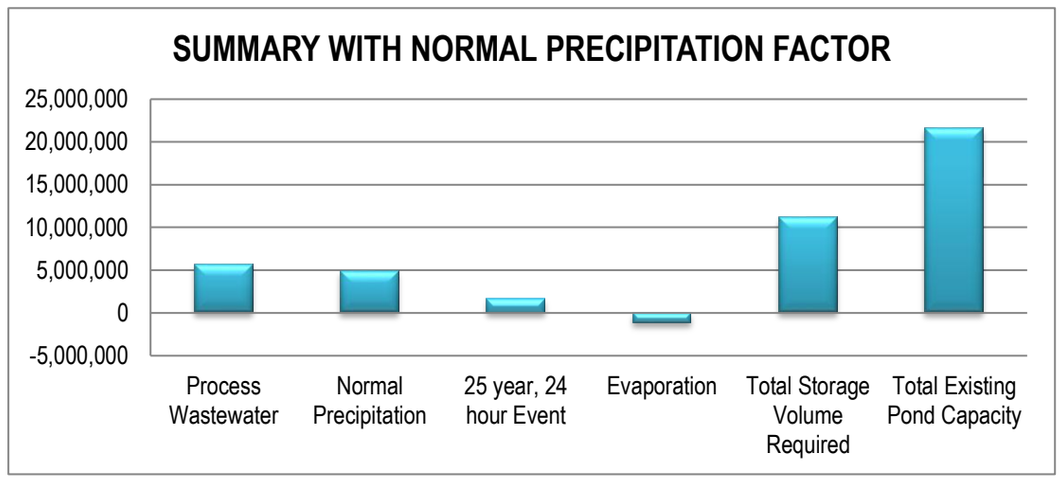
## 1.5 PRECIPITATION FACTOR

| Volume Description | Total Volume in 120 Day Period (gal.) |
|---|---|
| Wastewater from Operations | 5,705,473 |
| Wastewater Accumulated From Normal Precipitation w/ 1.5 Factor | 7,401,273 |
| Wastewater Accumulated From 25 Year, 24 Hour Event | 1,687,587 |
| Less: Evaporation from Wastewater Retention Ponds | (1,173,034) |
| **Net Required Wastewater Retention Pond Storage Volume** | **13,621,299** |
| Less: Net Existing Wastewater Retention Ponds Storage Volume | 21,589,821 |
| **Excess Wastewater Retention Pond Capacity** | **7,968,523** |




## 1.5 PRECIPITATION FACTOR NOT INCLUDED

| Volume Description | Total Volume in 120 Day Period (gal.) |
|---|---|
| Wastewater from Operations | 5,705,473 |
| Wastewater Accumulated From Normal Precipitation w/o 1.5 Factor | 4,934,182 |
| Wastewater Accumulated From 25 Year, 24 Hour Event | 1,687,587 |
| Less: Evaporation from Wastewater Retention Ponds | (1,173,034) |
| **Net Required Wastewater Retention Pond Storage Volume** | **11,154,208** |
| Less: Net Existing Wastewater Retention Ponds Storage Volume | 21,589,821 |
| **Excess Wastewater Retention Pond Capacity** | **10,435,614** |




Total Available Retention Days of Storage (1.5 factor): 190.2

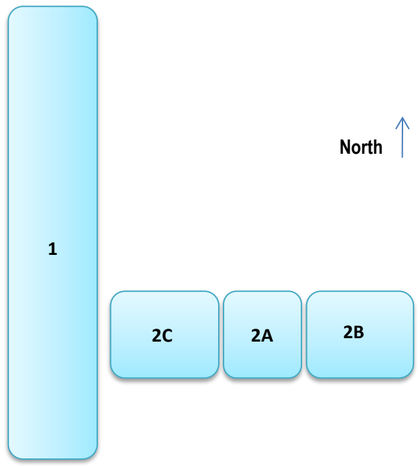
Total Available Retention Days of Storage (Normal): 232.3

Calculations Completed By: AF
Calculations Checked By: MR
Date: 2/7/2025

# Wastewater Retention Pond Field Capacity Analysis

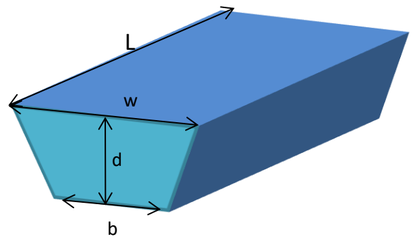
# SOZINHO DAIRY #5

## KEY MAP




Volume Formula

$B_1$= (L)(W)
M= [L-(Sd)][W-(Sd)]
Volume= 1/6d($B_1$+4M+$B_2$)




## SUMMARY

| Pond | Total Raw Volume ($ft^3$) | 1 Foot Freeboard Reduction ($ft^3$) | Storage Period Pond Volume Reduction ($ft^3$) | Total Retention Volume ($ft^3$) |
|---|---|---|---|---|
| **Pond 1:** | 2,519,177 | 155,201 | 0 | **2,363,976** |
| **Pond 2A:** | 177,630 | 28,089 | 5,606 | **143,934** |
| **Pond 2B:** | 233,000 | 36,419 | 7,465 | **189,115** |
| **Pond 2C:** | 233,000 | 36,419 | 7,465 | **189,115** |
| | | | **TOTAL:** | **2,886,139** |

| Pond | Total Volume (gal) | 1 Foot Freeboard Reduction (gal) | Storage Period Pond Reduction (gal) | Total Retention Volume (gal) |
|---|---|---|---|---|
| **Pond 1:** | 18,844,753 | 1,160,987 | 0 | **17,683,766** |
| **Pond 2A:** | 1,328,761 | 210,123 | 41,936 | **1,076,702** |
| **Pond 2B:** | 1,742,958 | 272,436 | 55,845 | **1,414,677** |
| **Pond 2C:** | 1,742,958 | 272,436 | 55,845 | **1,414,677** |
| | | | **TOTAL:** | **21,589,821** |

**Definitions:**

Overflow Pond: Capacity is that volume above the overflow pipe, less the freeboard
Irrigation Pond: Capacity is that volume above the residual solids*, less the freeboard
Evaporation Pond: Capacity is the entire "raw capacity", less the freeboard

** Residual Solids are assumed to be 2 feet deep if the wastewater did not pass through a solids separation system before entering the pond. If there is solids separation before entering the pond, the assumed level of residual solids is reduced by half. If there is secondary separation after the primary separation, the residual solids are reduced again by half.*

## Pond #1 - Evaporation Pond




*Note: Pond depth and side slopes derived from 2010 WMP calculations.*

*Existing Pond Surveyed Dimensions*

| | Total Volume ($ft^3$) | 1 Foot Freeboard Reduction ($ft^3$) | Storage Period Pond Reduction ($ft^3$) |
|---|---|---|---|
| Pond Top Length | 1165.00 | 1165.00 | 1139.80 |
| Pond Top Width | 134.00 | 134.00 | 108.80 |
| Average Depth (d) | 18.00 | 1.00 | 0.00 |
| Side Slope H:V (S) | 0.70 | 0.70 | 0.70 |
| Wastewater Pond Surface Area | 156,110 | 156,110 | 124,010 |
| *Calculations:* | | | |
| $B_1$= | 156,110 | 156,110 | 124,010 |
| $B_2$= | 124,010 | 154,293 | 124,010 |
| M= | 139,901 | 155,201 | 124,010 |
| **Calculated Volume ($ft^3$):** | **2,519,177** | **155,201** | **0** |

## Pond #2A - Irrigation Pond

North

2A

*Note: Pond depth and side slopes derived from 2010 WMP calculations.*

*Existing Pond Surveyed Dimensions*

| | Total Volume ($ft^3$) | 1 Foot Freeboard Reduction ($ft^3$) | Storage Period Pond Reduction ($ft^3$) |
|---|---|---|---|
| Pond Top Length | 170.00 | 170.00 | 151.10 |
| Pond Top Width | 168.00 | 168.00 | 149.10 |
| Average Depth (d) | 7.00 | 1.00 | 0.25 |
| Side Slope H:V (S) | 1.40 | 1.40 | 1.40 |
| Wastewater Pond Surface Area | 28,560 | 28,560 | 22,529 |
| *Calculations:* | | | |
| $B_1$= | 28,560 | 28,560 | 22,529 |
| $B_2$= | 22,319 | 27,621 | 22,319 |
| M= | 25,344 | 28,089 | 22,424 |
| **Calculated Volume ($ft^3$):** | **177,630** | **28,089** | **5,606** |

## Pond #2B - Irrigation Pond

North

2B

*Note: Pond depth and side slopes derived from 2010 WMP calculations.*

*Existing Pond Surveyed Dimensions*

| | Total Volume ($ft^3$) | 1 Foot Freeboard Reduction ($ft^3$) | Storage Period Pond Reduction ($ft^3$) |
|---|---|---|---|
| Pond Top Length | 220.00 | 220.00 | 201.10 |
| Pond Top Width | 168.00 | 168.00 | 149.10 |
| Average Depth (d) | 7.00 | 1.00 | 0.25 |
| Side Slope H:V (S) | 1.40 | 1.40 | 1.40 |
| Wastewater Pond Surface Area | 36,960 | 36,960 | 29,984 |
| *Calculations:* | | | |
| $B_1$= | 36,960 | 36,960 | 29,984 |
| $B_2$= | 29,739 | 35,881 | 29,739 |
| M= | 33,254 | 36,419 | 29,862 |
| **Calculated Volume ($ft^3$):** | **233,000** | **36,419** | **7,465** |

## Pond #2C - Irrigation Pond

North

2C

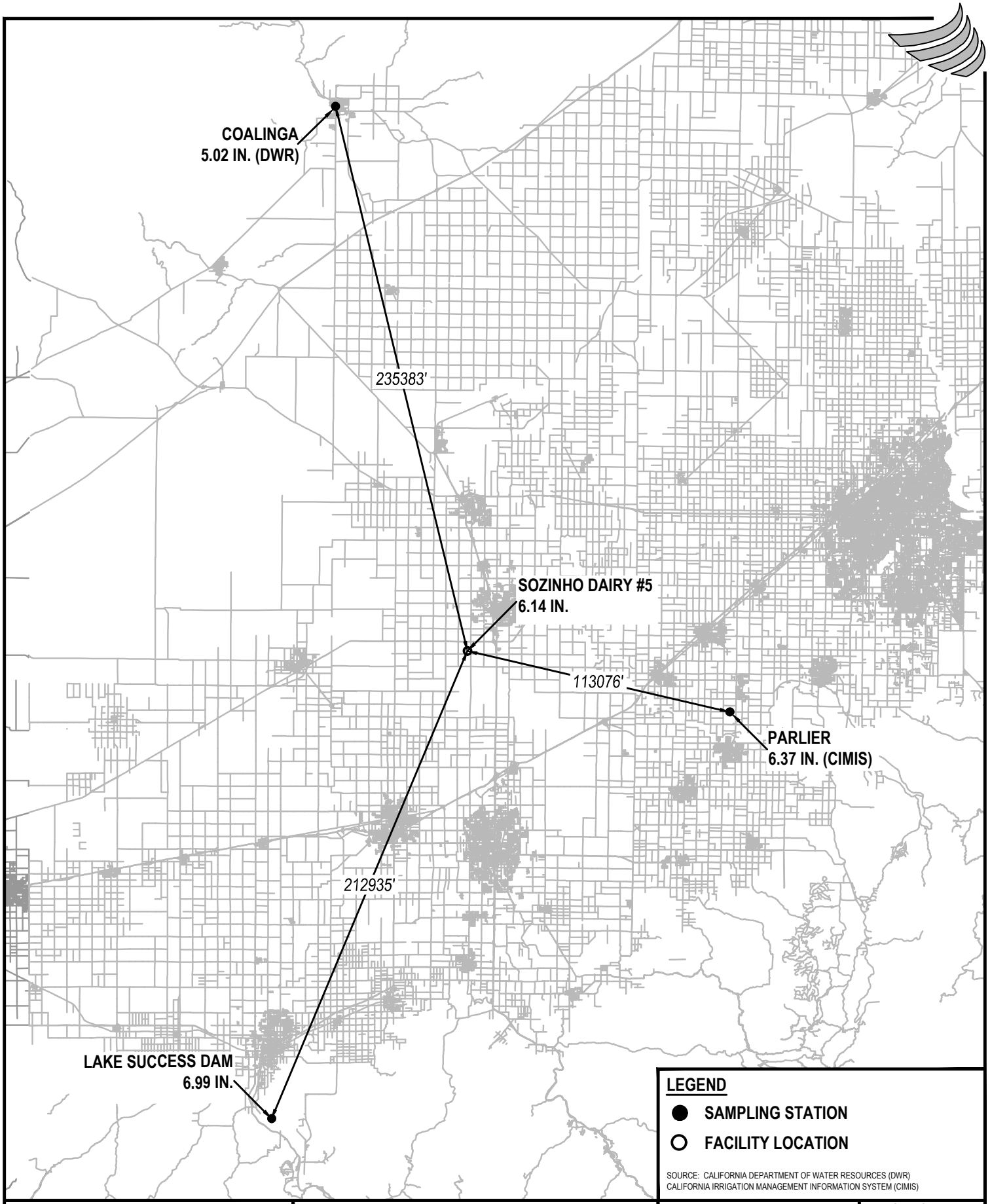
*Note: Pond depth and side slopes derived from 2010 WMP calculations.*

*Existing Pond Surveyed Dimensions*

| | Total Volume ($ft^3$) | 1 Foot Freeboard Reduction ($ft^3$) | Storage Period Pond Reduction ($ft^3$) |
|---|---|---|---|
| Pond Top Length | 220.00 | 220.00 | 201.10 |
| Pond Top Width | 168.00 | 168.00 | 149.10 |
| Average Depth (d) | 7.00 | 1.00 | 0.25 |
| Side Slope H:V (S) | 1.40 | 1.40 | 1.40 |
| Wastewater Pond Surface Area | 36,960 | 36,960 | 29,984 |
| *Calculations:* | | | |
| $B_1$= | 36,960 | 36,960 | 29,984 |
| $B_2$= | 29,739 | 35,881 | 29,739 |
| M= | 33,254 | 36,419 | 29,862 |
| **Calculated Volume ($ft^3$):** | **233,000** | **36,419** | **7,465** |

# APPENDIX B

## NORMAL PRECIPITATION DATA




4CREEKS
324 S. SANTA FE, STE. A
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
www.4-creeks.com

# DWR COLLECTION LOCATIONS

## SOZINHO DAIRY #5
## KINGS COUNTY, CA

NORTH

JOB NO. 240504
APPENDIX B
10/1/2024
1"= 10 MILES

| | |
|---|---|
| Calculations Completed By: | TE |
| Calculations Checked By: | MC |
| Date: | 10/1/2024 |

# SOZINHO DAIRY #5

*Appendix B - Normal Precipitation Analysis Summary*

*Source: Department of Water Resources*
http://cdec.water.ca.gov/selectQuery.html
*Source: CIMIS*
http://wwwcimis.water.ca.gov/cimis/frontMonthlyReport.do

## Average Precipitation at 3 Nearest Precipitation Recording Station *(Inches)*

| | *Parlier* | *Success Dam* | *Coalinga* |
|---|---|---|---|
| ***November*** | 0.92 | 1.16 | 0.66 |
| ***December*** | 1.71 | 1.75 | 1.21 |
| ***January*** | 1.92 | 2.12 | 1.67 |
| ***February*** | 1.81 | 1.96 | 1.48 |
| ***March*** | 1.95 | 2.02 | 1.15 |

## Average Rainfall

**Enter Latitude & Longitude:**

Latitude: 36°17'39.95"N  Longitude: 119°35'7.97"W

**Enter State Plane Coordinates:**

| | | |
|---|---|---|
| x: | 1,947,404 | meters |
| | 6,389,122 | ft |
| y: | 606,805 | meters |
| | 1,990,830 | ft |

*(State Plane Coordinates and Station proximity detailed in CAD Exhibit, See Attachment)*

## Normal Precipitation Summary

*(Average based on proximity to DWR collection station)*

**120 Day Precipitation (November - February)**

| | | |
|---|---|---|
| November: | 0.91 | inches |
| December: | 1.57 | inches |
| January: | 1.90 | inches |
| February: | 1.76 | inches |

## Retention Period Total Precipitation

**November - February: 6.14 in.**

## Normal Precipitation Averages

Source:Department of Water Resources
http://cdec.water.ca.gov/selectQuery.html
Source: NOAA Geodetic to SPC
http://www.ngs.noaa.gov/cgi-bin/spc_getpc.prl

4CREEKS

### CIMIS-Parlier (#039)
### 1983 - 2024

**Latitude:** 36.597444°N 36-35'-51.0"
**Longitude:** 119.504040°W 119-30'-15.0"
**Zone:** 4

State Plane Coordinates:
x: 1,954,890.723 meters
*6,413,683.474* ft
y: 640,392.032 meters
*2,101,023.727* ft

| Date / Time | RAIN INCHES |
|---|---|
| Sep-83 | 1.73 |
| Oct-83 | 0.16 |
| Nov-83 | 3.23 |
| Dec-83 | 2.05 |
| Jan-84 | 0.16 |
| Feb-84 | 1.5 |
| Mar-84 | 0.79 |
| Apr-84 | 0.2 |
| May-84 | 0 |
| Jun-84 | 0.08 |
| Jul-84 | 0.08 |
| Aug-84 | 0.55 |
| Sep-84 | 0 |
| Oct-84 | 0.71 |
| Nov-84 | 3.31 |
| Dec-84 | 2.01 |
| Jan-85 | 0.12 |
| Feb-85 | 1.14 |
| Mar-85 | 3.19 |
| Apr-85 | 0.2 |
| May-85 | 0 |
| Jun-85 | 0.31 |
| Jul-85 | 0.08 |
| Aug-85 | 0.08 |
| Sep-85 | 0.2 |
| Oct-85 | 0.94 |
| Nov-85 | 3.43 |
| Dec-85 | 0.98 |
| Jan-86 | 1.73 |
| Feb-86 | 4.57 |
| Mar-86 | 4.45 |
| Apr-86 | 0.83 |
| May-86 | 0.16 |
| Jun-86 | 0.08 |
| Jul-86 | 0.16 |
| Aug-86 | 0.08 |
| Sep-86 | 0.35 |
| Oct-86 | 0.08 |
| Nov-86 | 0.16 |
| Dec-86 | 1.54 |
| Jan-87 | 2.44 |
| Feb-87 | 2.76 |
| Mar-87 | 2.6 |
| Apr-87 | 0.67 |
| May-87 | 0.87 |
| Jun-87 | 0.12 |
| Jul-87 | 0.31 |
| Aug-87 | 0.08 |
| Sep-87 | 0.08 |
| Oct-87 | 2.48 |
| Nov-87 | 1.73 |
| Dec-87 | 1.69 |
| Jan-88 | 2.36 |
| Feb-88 | 0.83 |
| Mar-88 | 0.35 |
| Apr-88 | 2.64 |
| May-88 | 0.59 |
| Jun-88 | 0.47 |
| Jul-88 | 0.16 |
| Aug-88 | 0.12 |
| Sep-88 | 0.28 |
| Oct-88 | 0.08 |
| Nov-88 | 1.85 |
| Dec-88 | 2.87 |
| Jan-89 | 0.59 |
| Feb-89 | 1.34 |
| Mar-89 | 2.13 |
| Apr-89 | 0.16 |
| May-89 | 0.67 |
| Jun-89 | 0.16 |
| Jul-89 | 0.12 |
| Aug-89 | 0.12 |
| Sep-89 | 0.87 |
| Oct-89 | 0.08 |
| Nov-89 | 0.31 |
| Dec-89 | 0.04 |
| Jan-90 | 3.19 |
| Feb-90 | 1.69 |
| Mar-90 | 0.75 |

**Parlier (#039)**

| | | |
|---|---|---|
| November: | 0.9219 | in. |
| December: | 1.7124 | in. |
| January: | 1.9214 | in. |
| February: | 1.8145 | in. |
| March: | 1.9517 | in. |
| April: | 0.8280 | in. |

**November - February Total**
6.3702 in.

### DWR-Success Dam (SCC)
### 1959 - 2024

**Latitude:** 36.061000°N 36-03'-39.6"
**Longitude:** 118.922000°W 118-55'-19.2"
**Zone:** 4

State Plane Coordinates:
x: 2,007,027.270 meters
*6,584,735.138* ft
y: 580,746.215 meters
*1,905,335.351* ft

| Date / Time | RAIN INCHES |
|---|---|
| Sep-59 | 0 |
| Oct-59 | 0 |
| Nov-59 | 0 |
| Dec-59 | 0 |
| Jan-60 | 0 |
| Feb-60 | 0 |
| Mar-60 | 0 |
| Apr-60 | 0 |
| May-60 | 0 |
| Jun-60 | 0 |
| Jul-60 | 0 |
| Aug-60 | 0 |
| Sep-60 | 0 |
| Oct-60 | 0.44 |
| Nov-60 | 3.3 |
| Dec-60 | 0.55 |
| Jan-61 | 1.02 |
| Feb-61 | 0.19 |
| Mar-61 | 1.12 |
| Apr-61 | 0.33 |
| May-61 | 0.41 |
| Jun-61 | 0 |
| Jul-61 | 0 |
| Aug-61 | 0 |
| Sep-61 | 0 |
| Oct-61 | 0 |
| Nov-61 | 1.52 |
| Dec-61 | 0.74 |
| Jan-62 | 1.83 |
| Feb-62 | 6.86 |
| Mar-62 | 1.46 |
| Apr-62 | 0.01 |
| May-62 | 0.31 |
| Jun-62 | 0 |
| Jul-62 | 0.11 |
| Aug-62 | 0 |
| Sep-62 | 0.07 |
| Oct-62 | 0.29 |
| Nov-62 | 0 |
| Dec-62 | 0 |
| Jan-63 | 0.81 |
| Feb-63 | 2.83 |
| Mar-63 | 2.33 |
| Apr-63 | 2.92 |
| May-63 | 0.23 |
| Jun-63 | 0.39 |
| Jul-63 | 0 |
| Aug-63 | 0.21 |
| Sep-63 | 0.45 |
| Oct-63 | 1.89 |
| Nov-63 | 2.28 |
| Dec-63 | 0.3 |
| Jan-64 | 0.89 |
| Feb-64 | 0.34 |
| Mar-64 | 1.97 |
| Apr-64 | 1.1 |
| May-64 | 0.86 |
| Jun-64 | 0.12 |
| Jul-64 | 0 |
| Aug-64 | 0 |
| Sep-64 | 0.33 |
| Oct-64 | 1.28 |
| Nov-64 | 2.57 |
| Dec-64 | 2.03 |
| Jan-65 | 1.81 |
| Feb-65 | 0.17 |
| Mar-65 | 1.15 |
| Apr-65 | 3.56 |
| May-65 | 0 |
| Jun-65 | 0 |
| Jul-65 | 0.03 |
| Aug-65 | 0.23 |
| Sep-65 | 0.13 |
| Oct-65 | 0 |
| Nov-65 | 1.89 |
| Dec-65 | 2.51 |
| Jan-66 | 0.94 |
| Feb-66 | 0.97 |
| Mar-66 | 0.16 |

**Success Dam (SCC)**

| | | |
|---|---|---|
| November: | 1.1566 | in. |
| December: | 1.7525 | in. |
| January: | 2.1163 | in. |
| February: | 1.9643 | in. |
| March: | 2.0197 | in. |
| April: | 1.1045 | in. |

**November - February Total**
6.9896 in.

### DWR-Coalinga (CLN)
### 1940 - 2024

**Latitude:** 36.1360°N 36-8'-9.6"
**Longitude:** 120.3610°W 120-21'-39.6"
**Zone:** 4

State Plane Coordinates:
x: 1,877,505.172 meters
*6,159,793.871* ft
y: 589,933.250 meters
*1,935,476.542* ft

| Date / Time | RAIN INCHES |
|---|---|
| Oct-40 | 0 |
| Nov-40 | 0 |
| Dec-40 | 3.89 |
| Jan-41 | 1.79 |
| Feb-41 | 4.96 |
| Mar-41 | 2.83 |
| Apr-41 | 1.06 |
| May-41 | 0 |
| Jun-41 | 0 |
| Jul-41 | 0 |
| Aug-41 | 0 |
| Sep-41 | 0 |
| Oct-41 | 0.56 |
| Nov-41 | 0.5 |
| Dec-41 | 2.51 |
| Jan-42 | 1.39 |
| Feb-42 | 0.41 |
| Mar-42 | 0.85 |
| Apr-42 | 1.28 |
| May-42 | 0.13 |
| Jun-42 | 0 |
| Jul-42 | 0 |
| Aug-42 | 0 |
| Sep-42 | 0 |
| Oct-42 | 0.31 |
| Nov-42 | 0.2 |
| Dec-42 | 0.53 |
| Jan-43 | 2.63 |
| Feb-43 | 0.72 |
| Mar-43 | 2.14 |
| Apr-43 | 0.45 |
| May-43 | 0 |
| Jun-43 | 0 |
| Jul-43 | 0 |
| Aug-43 | 0 |
| Sep-43 | 0 |
| Oct-43 | 0.31 |
| Nov-43 | 0.15 |
| Dec-43 | 1.68 |
| Jan-44 | 0.39 |
| Feb-44 | 3.13 |
| Mar-44 | 0.15 |
| Apr-44 | 0.25 |
| May-44 | 0.36 |
| Jun-44 | 0.43 |
| Jul-44 | 0 |
| Aug-44 | 0 |
| Sep-44 | 0 |
| Oct-44 | 0.18 |
| Nov-44 | 0.29 |
| Dec-44 | 0.31 |
| Jan-45 | 0.48 |
| Feb-45 | 1.7 |
| Mar-45 | 1.16 |
| Apr-45 | 0.09 |
| May-45 | 0.85 |
| Jun-45 | 0.01 |
| Jul-45 | 0 |
| Aug-45 | 0.07 |
| Sep-45 | 0 |
| Oct-45 | 0.72 |
| Nov-45 | 0.4 |
| Dec-45 | 1.42 |
| Jan-46 | 0.27 |
| Feb-46 | 0.96 |
| Mar-46 | 1.39 |
| Apr-46 | 0.01 |
| May-46 | 0.17 |
| Jun-46 | 0 |
| Jul-46 | 0.03 |
| Aug-46 | 0 |
| Sep-46 | 0 |
| Oct-46 | 0.27 |
| Nov-46 | 1.33 |
| Dec-46 | 1.3 |
| Jan-47 | 0.24 |
| Feb-47 | 0.41 |
| Mar-47 | 0.52 |

**Coalinga (CLN)**

| | | |
|---|---|---|
| November: | 0.6613 | in. |
| December: | 1.2112 | in. |
| January: | 1.6671 | in. |
| February: | 1.4762 | in. |
| March: | 1.1518 | in. |
| April: | 0.5254 | in. |

**November - February Total**
5.0159 in.

# NOVEMBER

## Calculations of a point on a Plane

**Equation for a Plane**

Ax+By+Cz+D=0

| Point 1 | Parlier(Sta.) |
|---|---|
| x1 | 6413683.474 |
| y1 | 2101023.727 |
| z1(Rain) | 0.921904762 |

| Point 2 | Success(Sta.) |
|---|---|
| x2 | 6584735.138 |
| y2 | 1905335.351 |
| z2(Rain) | 1.1565625 |

| Point 3 | Coalinga(Sta.) |
|---|---|
| x3 | 6159793.871 |
| y3 | 1935476.542 |
| z3(Rain) | 0.661341463 |

| | | | | | |
|---|---|---|---|---|---|
| | | 1 | 2101023.727 | 0.921904762 | |
| A= | | 1 | 1905335.351 | 1.1565625 | A= 89836.13671 |
| | | 1 | 1935476.542 | 0.661341463 | |

| | | | | | |
|---|---|---|---|---|---|
| | 6413683.474 | | 1 | 0.921904762 | |
| B= | 6584735.138 | | 1 | 1.1565625 | B= -15007.37435 |
| | 6159793.871 | | 1 | 0.661341463 | |

| | | | | | |
|---|---|---|---|---|---|
| | 6413683.474 | 2101023.727 | | 1 | |
| C= | 6584735.138 | 1905335.351 | | 1 | C= -78000365464 |
| | 6159793.871 | 1935476.542 | | 1 | |

| | | | | | |
|---|---|---|---|---|---|
| | 6413683.474 | 2101023.727 | 0.921904762 | | |
| -D= | 6584735.138 | 1905335.351 | 1.1565625 | | D= -4.72741E+11 |
| | 6159793.871 | 1935476.542 | 0.661341463 | | |

| | | |
|---|---|---|
| X= | 6389122.096 | |
| Y= | 1990829.921 | |
| Z= | 0.91 | Value of rainfall data on site |

# DECEMBER

## Calculations of a point on a Plane

**Equation for a Plane**

Ax+By+Cz+D=0

| Point 1 | Parlier(Sta.) |
|---|---|
| x1 | 6413683.474 |
| y1 | 2101023.727 |
| z1(Rain) | 1.712380952 |

| Point 2 | Success(Sta.) |
|---|---|
| x2 | 6584735.138 |
| y2 | 1905335.351 |
| z2(Rain) | 1.752461538 |

| Point 3 | Coalinga(Sta.) |
|---|---|
| x3 | 6159793.871 |
| y3 | 1935476.542 |
| z3(Rain) | 1.211234568 |

| | | | | | |
|---|---|---|---|---|---|
| | | 1 | 2101023.727 | 1.712380952 | |
| A= | | 1 | 1905335.351 | 1.752461538 | A= 104703.7503 |
| | | 1 | 1935476.542 | 1.211234568 | |
| | 6413683.474 | | 1 | 1.712380952 | |
| B= | 6584735.138 | | 1 | 1.752461538 | B= 75545.87858 |
| | 6159793.871 | | 1 | 1.211234568 | |
| | 6413683.474 | 2101023.727 | | 1 | |
| C= | 6584735.138 | 1905335.351 | | 1 | C= -78000365464 |
| | 6159793.871 | 1935476.542 | | 1 | |
| | 6413683.474 | 2101023.727 | 1.712380952 | | |
| -D= | 6584735.138 | 1905335.351 | 1.752461538 | | D= -6.96694E+11 |
| | 6159793.871 | 1935476.542 | 1.211234568 | | |

| | | |
|---|---|---|
| X= | 6389122.096 | |
| Y= | 1990829.921 | |
| Z= | 1.57 | Value of rainfall data on site |

# JANUARY

## Calculations of a point on a Plane

**Equation for a Plane**

Ax+By+Cz+D=0

| Point 1 | Parlier(Sta.) |
|---|---|
| x1 | 6413683.474 |
| y1 | 2101023.727 |
| z1(Rain) | 1.921428571 |

| Point 2 | Success(Sta.) |
|---|---|
| x2 | 6584735.138 |
| y2 | 1905335.351 |
| z2(Rain) | 2.11625 |

| Point 3 | Coalinga(Sta.) |
|---|---|
| x3 | 6159793.871 |
| y3 | 1935476.542 |
| z3(Rain) | 1.667125 |

| | | | | | |
|---|---|---|---|---|---|
| | | 1 | 2101023.727 | 1.921428571 | |
| A= | | 1 | 1905335.351 | 2.11625 | A= 82016.39199 |
| | | 1 | 1935476.542 | 1.667125 | |
| | 6413683.474 | | 1 | 1.921428571 | |
| B= | 6584735.138 | | 1 | 2.11625 | B= -5964.086262 |
| | 6159793.871 | | 1 | 1.667125 | |
| | 6413683.474 | 2101023.727 | | 1 | |
| C= | 6584735.138 | 1905335.351 | | 1 | C= -78000365464 |
| | 6159793.871 | 1935476.542 | | 1 | |
| | 6413683.474 | 2101023.727 | | 1.921428571 | |
| -D= | 6584735.138 | 1905335.351 | | 2.11625 | D= -3.63624E+11 |
| | 6159793.871 | 1935476.542 | | 1.667125 | |

X= 6389122.096

Y= 1990829.921

Z= 1.90 Value of rainfall data on site

# FEBRUARY

## Calculations of a point on a Plane

**Equation for a Plane**

Ax+By+Cz+D=0

| Point 1 | Parlier(Sta.) |
|---|---|
| x1 | 6413683.474 |
| y1 | 2101023.727 |
| z1(Rain) | 1.81452381 |

| Point 2 | Success(Sta.) |
|---|---|
| x2 | 6584735.138 |
| y2 | 1905335.351 |
| z2(Rain) | 1.964307692 |

| Point 3 | Coalinga(Sta.) |
|---|---|
| x3 | 6159793.871 |
| y3 | 1935476.542 |
| z3(Rain) | 1.476219512 |

| | | | | | |
|---|---|---|---|---|---|
| | | 1 | 2101023.727 | 1.81452381 | |
| A= | | 1 | 1905335.351 | 1.964307692 | A= 90998.51869 |
| | | 1 | 1935476.542 | 1.476219512 | |
| | 6413683.474 | | 1 | 1.81452381 | |
| B= | 6584735.138 | | 1 | 1.964307692 | B= 19838.94225 |
| | 6159793.871 | | 1 | 1.476219512 | |
| | 6413683.474 | 2101023.727 | | 1 | |
| C= | 6584735.138 | 1905335.351 | | 1 | C= -78000365464 |
| | 6159793.871 | 1935476.542 | | 1 | |
| | 6413683.474 | 2101023.727 | | 1.81452381 | |
| -D= | 6584735.138 | 1905335.351 | | 1.964307692 | D= -4.83784E+11 |
| | 6159793.871 | 1935476.542 | | 1.476219512 | |

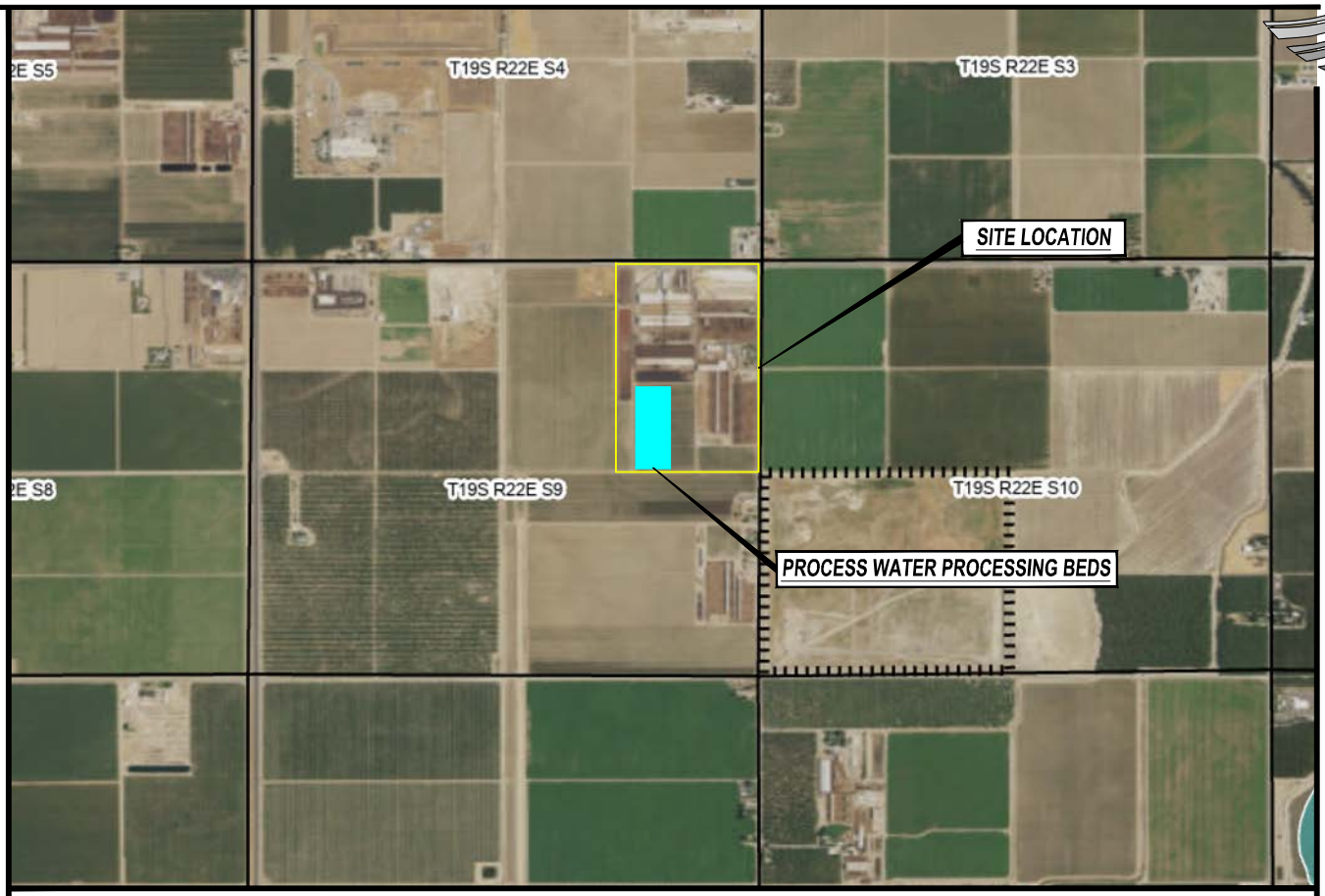
X= 6389122.096

Y= 1990829.921

Z= 1.76 Value of rainfall data on site

# APPENDIX C

## FEMA MAP







NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
PANEL 225 OF 875

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| KINGS COUNTY | 060086 | 0225 |
| CITY OF HANFORD | 060088 | 0225 |
| TULARE COUNTY | 065066 | 0225 |
| UNINCORPORATED AREAS | | |

MAP NUMBER
06031C0225C
EFFECTIVE DATE
June 16, 2009

**FLOOD HAZARD INFORMATION**
SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

*THE PROJECT SITE IS LOCATED IN THE FLOOD INSURANCE RATE MAP 06031C0225C.*

4CREEKS
324 S. SANTA FE, STE. A
VISALIA, CA 93292
(559) 802-3052

# FEMA MAP
## SOZINHO DAIRY #5
## KINGS COUNTY, CA

JOB NO. 240504
APPENDIX C
10/1/2024
NO SCALE

# APPENDIX D

## EVAPORATION HISTORY 1958 – 2010

AVERAGE MONTHLY EVAPORATION FROM CLASS
'A' PAN IN IRRIGATED PASTURE ENVIRONMENTS NEAR
BAKERSFIELD, CALIFORNIA FROM 1958-2010 /1

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | MAR - OCT TOTAL | JAN - DEC TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ****EVAPORATION IN INCHES**** | | | | | | | |
| AVERAGE | 1.44 | 2.25 | 4.13 | 5.95 | 8.35 | 9.58 | 9.94 | 8.85 | 6.62 | 4.47 | 2.24 | 1.35 | 57.89 | 65.17 |
| STD DEV | 0.34 | 0.45 | 0.71 | 0.86 | 0.82 | 0.79 | 0.82 | 0.71 | 0.64 | 0.43 | 0.36 | 0.36 | 0.72 | 0.61 |
| STD ERROR | 0.05 | 0.06 | 0.10 | 0.12 | 0.11 | 0.11 | 0.11 | 0.10 | 0.09 | 0.06 | 0.05 | 0.05 | 0.10 | 0.08 |

AVERAGE MONTHLY EVAPORATION FROM CLASS
'A' PAN IN IRRIGATED PASTURE ENVIRONMENTS AT
CALIFORNIA STATE UNIVERSTIY AT FRESNO
FROM 1968-2010 /1

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | MAR - OCT TOTAL | JAN - DEC TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ****EVAPORATION IN INCHES**** | | | | | | | |
| AVERAGE | 1.26 | 2.08 | 3.94 | 6.03 | 8.75 | 10.43 | 11.02 | 9.67 | 6.99 | 4.42 | 2.25 | 1.21 | 61.26 | 68.07 |
| STD DEV | 0.28 | 0.41 | 0.77 | 0.86 | 1.03 | 0.92 | 0.73 | 0.68 | 0.57 | 0.49 | 0.40 | 0.30 | 0.76 | 0.62 |
| STD ERROR | 0.04 | 0.06 | 0.12 | 0.13 | 0.16 | 0.14 | 0.11 | 0.11 | 0.09 | 0.07 | 0.06 | 0.05 | 0.12 | 0.10 |

1/ Evaporation measurements are taken from evaporation pans located at standardized sites (irrigated pastures) with static water levels maintained in the pans by supply tanks. The sites are visited at least weekly to measure evaporation from a U.S. Weather Bureau Class 'A' Pan. Other agrometeorological equipment, (i.e.raingauge, anemometer, ambient air thermometers) is installed at onsite DWR agroclimatic stations, and this data is collected weekly along with pan evaporation. The evaporation may be adjusted during times of high wind or dry periods, which represent non-standard conditions.

# APPENDIX E

## WASTE MANAGEMENT PLAN 2010

**Waste Management Plan Report**
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

JUL [illegible] 2010

DAIRY FACILITY INFORMATION

**A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY:** Vaca View Dairy

Physical address of dairy:

| 7205 Houston AVE | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

Street and nearest cross street (if no address):

TRS Data and Coordinates:

| 19S | 22E | 9 | Mt. Diablo | 36° 17' 53.57" N | 119° 35' 11.21" W |
|---|---|---|---|---|---|
| Township (T_) | Range (R_) | Section (S_) | Baseline meridian | Latitude (N) | Longitude (W) |

Date facility was originally placed in operation: 01/01/1970

Regional Water Quality Control Board Basin Plan designation: Tulare Basin

County Assessor Parcel Number(s) for dairy facility:

0016-0020-0006-0000 0016-0020-0028-0000 0016-0020-0035-0000

**B. OPERATOR NAME:** Mendes, Joe Telephone no.: (559) 582-4906 (Landline) (Cellular)

| 3790 Lacey BLVD | Hanford | CA | 93230 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

Operator should receive Regional Board correspondence (check): [X] Yes [ ] No

**C. LEGAL OWNER NAME:** Martella, Robin Telephone no.: (559) 752-1019 (Landline) (Cellular)

| 12051 8th AVE | Hanford | CA | 93230 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

Owner should receive Regional Board correspondence (check): [X] Yes [ ] No

**D. CONTACT NAME:** Sutton, Matt Telephone no.: (925) 944-2856 (Landline) (Cellular)

Title: Professional Engineer

| 3451-C Vincent RD | Pleasant Hill | CA | 94523 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

**CONTACT NAME:** Cordeiro, Kristy Rocha Telephone no.: (209) 669-1800 (Landline) (209) 277-5596 (Cellular)

Title: Technical Service Provider

| 3213 Liberty Square PKWY | Turlock | CA | 95382 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

## HERD AND MILKING EQUIPMENT

### A. HERD AND MILKING

The existing milk cow dairy is currently regulated under the General Order.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

1,300 milk and dry cows combined (regulatory review is required for expansions of 15% above baseline values)

1,495 milk and dry cows combined + 15% (pre-expansion limit)

| Type of Animal | Present Count | Maximum Count | Daily Flush Hours | Avg Live Weight (lbs) |
|---|---|---|---|---|
| Milk Cows | 1,250 | 1,300 | 22 | 1,400 |
| Dry Cows | 195 | 195 | 0 | 1,450 |
| Bred Heifers (15-24 mo.) | 80 | 82 | 0 | 900 |
| Heifers (7-14 mo.) | 1,000 | 1,020 | 0 | 750 |
| Calves (4-6 mo.) | 200 | 205 | 0 | |
| Calves (0-3 mo.) | 0 | 0 | 0 | |

Predominant milk cow breed: Holstein

Average milk production: 70 pounds per cow per day

Average number of milk cows per string sent to the milkbarn: 125 milk cows per string

Number of milkings per day: 2.0 milkings per day

Number of times milk tank is emptied/filled each day: 4.0 per day

Number of hours spent milking each day: 20.0 hours per day

### B. MILKBARN EQUIPMENT AND FLOOR WASH

Bulk tank wash and sanitizing: 3.0 run cycles/wash

Bulk tank wash vat volume: 75 gallons/cycle

Bulk tank wash wastewater: 900.0 gallons/day

Pipeline wash and sanitizing: 3.0 run cycles/wash

Pipeline wash vat volume: 200 gallons/cycle

Pipeline wash wastewater: 1,200.0 gallons/day

Reused / recycled water is the source of parlor floor wash water: [X] Yes [ ] No

Milkbarn / parlor floor wash volume: 7,000 gallons/day

Plate coolers type: Well Water Cooled (Water Reused/Recycled)

Plate coolers volume: 25,000 gallons/day

Vacuum pumps / air compressors / chillers type: Well Water Cooled (Water Reused/Recycled)

Vacuum pumps / air compressors / chillers volume: 15,000 gallons/day

Milkbarn and equipment wastewater volume generated daily: 43,100 gallons/day

## C. OTHER WATER USES

Reused/recycled water is the source of herd drinking water: [ ] Yes [X] No

| | Milk Cows | Dry Cows | Bred Heifers (15-24 mo.) | Bred Heifers (7-14 mo.) | Calves (4-6 mo.) | Calves (0-3 mo.) |
|---|---|---|---|---|---|---|
| *Number of cows drinking from reusable water:* | 0 | 0 | 0 | 0 | 0 | 0 |
| | *of 1,250* | *of 195* | *of 80* | *of 1,000* | *of 200* | *of 0* |
| *Gallons per head per day:* | 0 | 0 | 0 | 0 | 0 | 0 |

Total reusable water consumed by herd: 0 gallons/day

Reused/recycled water is the source of sprinkler pen water: [X] Yes [ ] No

Number of sprinklers in the holding pen: 78 sprinklers

Duration of each sprinkler cycle: 2.0 minutes

Number of sprinkler pen runs/milking: 1 cycles/milking

Flow rate for each sprinkler head: 4.0 gallons/minute

Total sprinkler pen wastewater volume: 12,980 gallons/day

Total fresh water used in manure flush lane system(s): 0 gallons/day

## D. MISCELLANEOUS EQUIPMENT

| Description | Source | Throughput (gallons per day) | Discharge Destination |
|---|---|---|---|
| Drop hoses and misc | Fresh Water | 1,000 | Sent to pond |

## E. MILKBARN AND EQUIPMENT SUMMARY

Number of days in storage period: 120 days

Water available for reuse/recycle: 40,000 gallons/day

Recycled water reused: 19,980 gallons/day

Recycled water leaving system: 0 gallons/day

Reusable water balance: 20,020 gallons/day

Volume of milkbarn and equipment wastewater generated for storage period: 5,172,000 gallons/storage period

# MANURE AND BEDDING SOLIDS

## A. IMPORTED AND FACILITY GENERATED BEDDING

| Bedding Type | Imported or Generated (tons) | Density (lbs/cu. ft.) | Applied Separation Efficiency (default) | Solids to Pond (cu. ft./period) |
|---|---|---|---|---|
| Facility generated bedding | 113 | 40.0 | 50% | 2,813 |
| | | | Total: | 2,813 |

## B. SOLIDS SEPARATION PROCESS

Combined manure solids separation efficiency (weight basis): 20 %

Description of all solids separation equipment used in flushed lane manure management systems:

Separator and processing pit

## C. MANURE AND BEDDING SOLIDS SUMMARY

| | cubic feet | | gallons | |
|---|---|---|---|---|
| | day | storage period | day | storage period |
| Manure generated by the herd (pre-separation): | 4,179.14 | 501,496 | 31,262.11 | 3,751,453 |
| Manure generated by the herd sent to pond(s): | 2,503.64 | 300,437 | 18,728.56 | 2,247,427 |
| Manure generated by the herd sent to dry lot(s): | 1,499.20 | 179,904 | 11,214.78 | 1,345,774 |
| Manure solids (herd) removed by separation: | 85.34 | 10,241 | 638.41 | 76,609 |
| Liquid component in separated solids not send to pond(s): | 90.95 | 10,914 | 680.35 | 81,642 |
| Imported and facility generated bedding sent to pond(s): | 23.44 | 2,813 | 175.32 | 21,039 |
| Total manure and bedding sent to pond(s): | 2,527.08 | 303,250 | 18,903.89 | 2,268,466 |
| Residual manure solids and bedding sent to pond(s) w/factor: | 182.40 | 21,888 | 1,364.48 | 163,737 |
| | cubic feet per year | | gallons per year | |
| Residual manure solids and bedding sent to pond(s) w/factor: | | 66,577 | | 498,034 |

# RAINFALL AND RUNOFF

## A. RAINFALL ESTIMATES

Rainfall station nearest the facility: Hanford

25 year/24 hour storm event (default NOAA Atlas 2, 1973): 2.10 inches/storage period

25 year/24 hour storm event (user-override): _____ inches/storage period

Storage period rainfall (default DWR climate data): 5.88 inches/storage period

Storage period rainfall (user-override): _____ inches/storage period

Flood zone: Zone X

## B. IMPERVIOUS AREAS

| Name | Surface Area (sq. ft.) | Quantity | 25yr/24hr Storm Runoff Coefficient | Storage Period Runoff Coefficient | Runoff Destination |
|---|---|---|---|---|---|
| apron | 920 | 4 | 0.97 | 0.50 | Drains into pond(s). |
| apron | 510 | 2 | 0.97 | 0.50 | Drains into pond(s). |
| apron | 350 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| cistern pad | 384 | 1 | 0.97 | 0.50 | yard |
| corral pad | 5,180 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| drain | 70 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| drain | 20 | 1 | 0.97 | 0.50 | Drains into pond(s). |

| | | | | | |
|---|---|---|---|---|---|
| drivelane | 290 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| drivelane | 520 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| exposed concrete | 360 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| exposed concrete | 1,300 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| exposed feedlane | 416 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| extra lane | 1,215 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feed area | 60,982 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 6,960 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 40,400 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 4,290 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 1,640 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 17,986 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 18,170 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| flush apron | 144 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| lane | 900 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| main transfer | 8,040 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| milkbarn area | 4,700 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| milkbarn pad | 646 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| milktruck pad | 1,260 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| old lane | 1,425 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| pad | 1,190 | 1 | 0.97 | 0.50 | yard |
| parking | 1,488 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| reminant concrete | 2,678 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| road | 396 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| separator area | 30,210 | 1 | 0.99 | 0.99 | Drains into pond(s). |
| separator pad | 300 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| silage pad | 14,500 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 2,920 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 3,168 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 4,800 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 1,300 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 3,900 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 624 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 2,448 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 360 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane exposed | 200 | 1 | 0.97 | 0.50 | Drains into pond(s). |

| | | | | | |
|---|---|---|---|---|---|
| washpen | 1,360 | 1 | 0.97 | 0.50 | Drains into pond(s). |

| | | |
|---|---|---|
| Surface area that does not run off into pond(s): | 1,574 | sq. ft. |
| Surface area that runs off into pond(s): | 252,616 | sq. ft. |
| Total surface area: | 254,190 | sq. ft. |
| Runoff from normal storage period rainfall: | 517,236 | gallons/storage period |
| Runoff from normal storage period rainfall with 1.5 factor: | 775,853 | gallons/storage period |
| 25 year/24 hour storm event runoff: | 321,567 | gallons/storage period |
| Total surface area runoff: | 838,803 | gallons/storage period |
| Total surface area runoff with 1.5 factor: | 1,097,421 | gallons/storage period |

**C. ROOF AREAS**

| Name | Surface Area (sq. ft.) | Quantity | Runoff Destination |
|---|---|---|---|
| 1/2 old milkhouse | 648 | 1 | Wastewater pond |
| 1/2 old milkhouse | 648 | 1 | Wastewater pond |
| 1/2 old milkhouse | 648 | 1 | yard |
| commodity barn | 1,170 | 1 | yard |
| commodity barn | 3,848 | 1 | yard |
| fsb's | 32,500 | 4 | Wastewater pond |
| haybarn | 7,950 | 1 | yard |
| milkbarn | 7,728 | 1 | Wastewater pond |
| milkhouse | 2,860 | 1 | yard |
| old equipment shade | 72 | 1 | yard |
| old milkbarn | 1,792 | 1 | Wastewater pond |
| old shade | 1,170 | 1 | Wastewater pond |
| old shade | 1,260 | 1 | Wastewater pond |
| old shade | 1,320 | 1 | yard |
| old shade | 2,640 | 1 | yard |
| old shade | 360 | 1 | yard |
| old shade | 3,120 | 1 | yard |
| old shade | 660 | 1 | yard |
| old washpen | 4,536 | 1 | Wastewater pond |
| shade | 1,280 | 1 | Wastewater pond |
| shade | 1,344 | 1 | Wastewater pond |
| shade | 2,310 | 1 | yard |
| shade | 2,499 | 1 | yard |
| shade | 2,560 | 1 | yard |

| | | | |
|---|---|---|---|
| shade | 3,276 | 1 | yard |
| shade | 2,400 | 1 | corral |
| shade | 52,976 | 1 | Wastewater pond |
| shade | 8,700 | 1 | Wastewater pond |
| shade | 12,800 | 1 | Wastewater pond |
| shade | 6,200 | 1 | Wastewater pond |
| shade | 4,840 | 1 | yard |
| shop | 630 | 1 | Wastewater pond |
| shop | 1,900 | 1 | yard |
| shop attachment | 216 | 1 | yard |

Surface area that does not run off into pond(s): 44,649 sq. ft.

Surface area that runs off into pond(s): 231,712 sq. ft.

Total surface area: 276,361 sq. ft.

Runoff from normal storage period rainfall: 849,330 gallons/storage period

Runoff from normal storage period rainfall with 1.5 factor: 1,273,995 gallons/storage period

25 year/24 hour storm event runoff: 303,332 gallons/storage period

Total surface area runoff: 1,152,662 gallons/storage period

Total surface area runoff with 1.5 factor: 1,577,327 gallons/storage period

**D. EARTHEN AREAS**

| Name | Surface Area (sq. ft.) | Quantity | 25yr/24 Storm Coefficient | Storage Period Coefficient | Runoff Destination |
|---|---|---|---|---|---|
| dairy facility | 1,697,957 | 1 | 0.35 | 0.20 | Drains into pond(s). |

Surface area that does not run off into pond(s): 0 sq. ft.

Surface area that runs off into pond(s): 1,697,957 sq. ft.

Total surface area: 1,697,957 sq. ft.

Runoff from normal storage period rainfall: 1,244,757 gallons/storage period

Runoff from normal storage period rainfall with 1.5 factor: 1,867,135 gallons/storage period

25 year/24 hour storm event runoff: 777,973 gallons/storage period

Total surface area runoff: 2,022,730 gallons/storage period

Total surface area runoff with 1.5 factor: 2,645,108 gallons/storage period

**E. TAILWATER MANAGEMENT**

*No fields with tailwater entered.*

## LIQUID STORAGE

**A. POND OR BASIN DESCRIPTION:** SSB

Pond is rectangular in shape: [X] Yes [ ] No

| Dimensions | | | |
|---|---|---|---|
| Earthen Length (EL): | 630 ft. | Earthen Depth (ED): | 7 ft. |
| Earthen Width (EW): | 168 ft. | Side Slope (S): | 1.4 ft. (h:1v) |
| Free Board (FB): | 1 ft. | Dead Storage Loss (DS): | 0.0 ft. |
| **Calculations** | | | |
| Liquid Length (LL): | 627 ft. | Storage Volume Adjusted for Dead Storage Loss: | 582,308 cu. ft. |
| Liquid Width (LW): | 165 ft. | | |
| Pond Surface Area: | 105,840 sq. ft. | Pond Marker Elevation: | 5.1 ft. |
| Storage Volume: | 582,308 cu. ft. | Evaporation Volume: | 667,762 gals/period |
| | | Adjusted Surface Area: | 102,605 sq. ft. |

**POND OR BASIN DESCRIPTION:** WWS

Pond is rectangular in shape: [X] Yes [ ] No

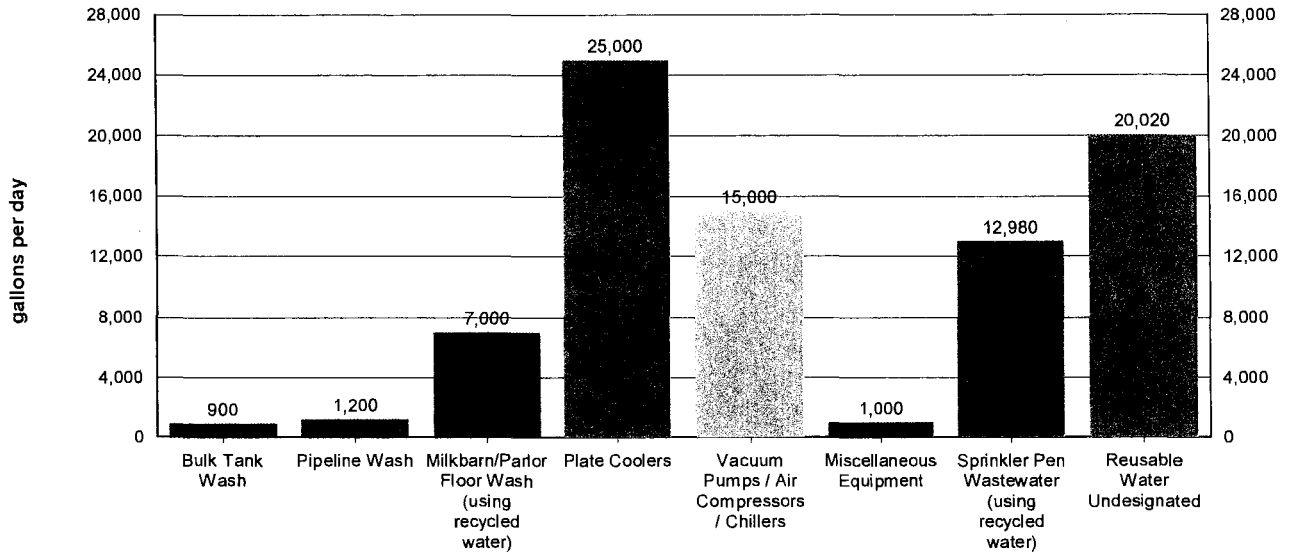
| Dimensions | | | |
|---|---|---|---|
| Earthen Length (EL): | 1,165 ft. | Earthen Depth (ED): | 18 ft. |
| Earthen Width (EW): | 134 ft. | Side Slope (S): | 0.7 ft. (h:1v) |
| Free Board (FB): | 1 ft. | Dead Storage Loss (DS): | 2.0 ft. |
| **Calculations** | | | |
| Liquid Length (LL): | 1,164 ft. | Storage Volume Adjusted for Dead Storage Loss: | 2,112,454 cu. ft. |
| Liquid Width (LW): | 133 ft. | | |
| Pond Surface Area: | 156,110 sq. ft. | Pond Marker Elevation: | 16.1 ft. |
| Storage Volume: | 2,363,976 cu. ft. | Evaporation Volume: | 998,829 gals/period |
| | | Adjusted Surface Area: | 153,476 sq. ft. |

| | |
|---|---|
| Potential storage losses (due to dead storage): | 251,522.0 cubic feet - or - 1,881,515.2 gallons |
| Liquid storage surface area: | 257,907 sq. ft. |
| Rainfall onto retention pond(s): | 960,166 gallons/storage period |
| Rainfall runoff into retention pond(s): | 2,611,322 gallons/storage period |
| Normal rainfall onto retention pond(s) with 1.5 factor: | 1,440,249 gallons/storage period |
| Normal rainfall runoff into retention pond(s) with 1.5 factor: | 3,916,983 gallons/storage period |
| Storage period evaporation (default): | 13.92 inches/storage period |
| Storage period evaporation (user-override): | inches/storage period |

| | | |
|---|---|---|
| Storage period evaporation volume: | 1,666,591 | gallons/storage period |
| Manure and bedding sent to pond(s): | 2,268,466 | gallons/storage period |
| Milkbarn water sent to pond(s): | 5,172,000 | gallons/storage period |
| Fresh flush water for storage period: | 0 | gallons/storage period |

CHARTS

## A. MILKBARN WASTEWATER SENT TO POND(S)

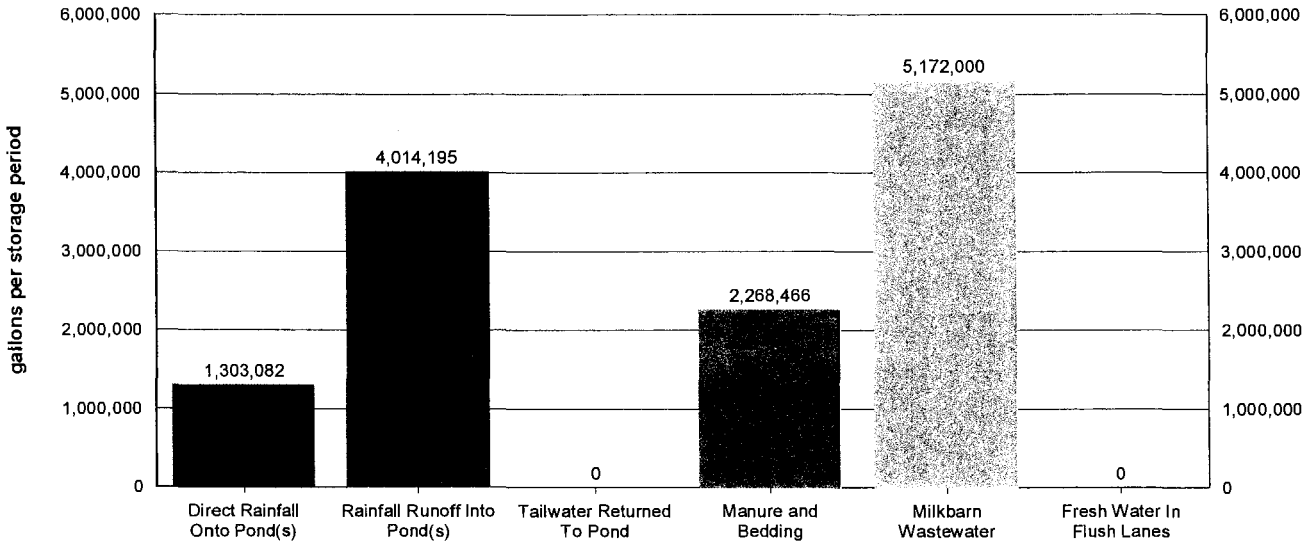



*Values shown in chart are approximate values per day.*

Total milkbarn wastewater generated daily: 43,100 gallons/day

Total milkbarn wastewater generated per period: 5,172,000 gallons/storage period

## B. PROCESS WASTEWATER (NORMAL PRECIPITATION)

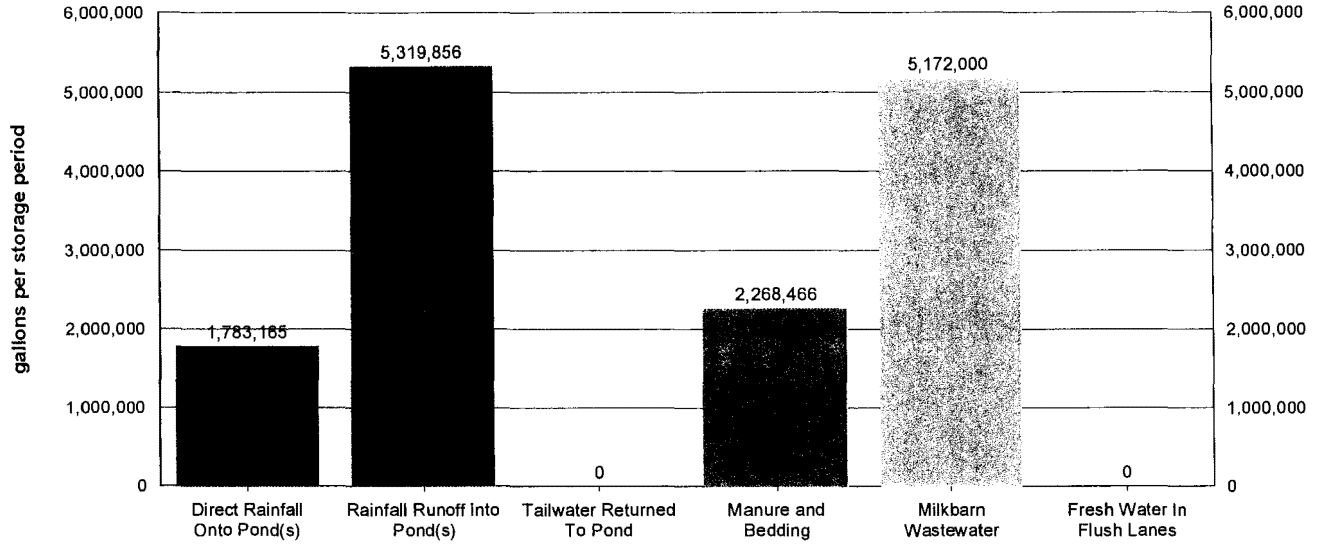



*Values shown in chart are approximate values for storage period.*

| | | |
|---|---|---|
| Storage period: | 120 | days |
| Total process wastewater generated daily: | 106,315 | gallons/day |
| Total process wastewater generated per period: | 12,757,743 | gallons/storage period |
| Total process wastewater removed due to evaporation: | 1,666,591 | gallons/storage period |
| Total storage capacity required: | 11,091,152 | gallons |
| | 1,482,671 | cu. ft. |
| Existing storage capacity (adjusted for dead storage loss): | 20,158,220 | gallons |
| | 2,694,762 | cu. ft. |

***Considering normal precipitation, existing capacity meets estimated storage needs:*** [X] Yes [ ] No

## C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)




*Values shown in chart are approximate values for storage period.*

| | | |
|---|---|---|
| Storage period: | 120 | days |
| Total process wastewater generated daily: | 121,196 | gallons/day |
| Total process wastewater generated per period: | 14,543,487 | gallons/storage period |
| Total process wastewater removed due to evaporation: | 1,666,591 | gallons/storage period |
| Total storage capacity required: | 12,876,896 | gallons |
| | 1,721,391 | cu. ft. |
| Existing storage capacity (adjusted for dead storage loss): | 20,158,220 | gallons |
| | 2,694,762 | cu. ft. |

***Considering factored precipitation, existing capacity meets estimated storage needs:*** [X] Yes [ ] No

## OPERATION AND MAINTENANCE PLAN

The goal of the Operation and Maintenance Plan is to eliminate discharges of waste or storm water to surface waters from the production area and the protection of underlying soils and ground water.

### A. POND MAINTENANCE

i. FREEBOARD MONITORING

1. Freeboard will be monitored monthly from June 1 through September 1 (dry season) and weekly from October 1 through May 31 (wet season). The results will be recorded on a Dairy Production Area Visual Inspection Form.
2. Freeboard will be monitored during and after each significant storm event and the results recorded on a Production Area Significant Storm Event Inspection Form.
3. Ponds will be photographed on the first day of each month. Pond photos will be labeled and maintained with the dairy 's monitoring records.

ii. PREPARATION FOR MAINTAINING WINTER STORAGE CAPACITY

1. The retention pond(s) will begin to be lowered to the minimum operating level on or before a designated date each year.
2. The minimum operating level will include the necessary storage volume as identified in Section II .A in Attachment B of the General Order.

iii. OTHER POND MONITORING

1. At the time of each monitoring for freeboard, the pond(s) will be inspected for evidence of excessive odors, mosquito breeding, algae, or equipment damage; and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Other Pond Monitoring.
2. At the time of each monitoring during and after each significant storm event, the ponds will be inspected for evidence of any discharge and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Production Area Significant Storm Event Inspection Form.

iv. SOLIDS REMOVAL PROCEDURES

1. The average thickness of the solids accumulated on the bottom of the pond(s) will be measured on the designated interval using the owner, operator, and/or designer specified procedure.
2. Once solids/sludge on the bottom of the pond(s) reach the owner, operator, and/or designer specified critical thickness, solids/sludge will be removed so that adequate capacity is maintained.
3. When necessary, solids/sludge will be removed using the owner, operator, and/or designer specified methods for protecting any pond liner.

**OPERATIONS AND MAINTENANCE PLAN FOR POND:** SSB

Dry season freeboard monitoring will occur on the 5th of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 0 feet above the pond invert beginning in May of each year.

Sludge accumulation will be measured monthly.

The following method will be used to measure solids/sludge accumulation:

Storages are visually monitored or professionally measured to evaluate solid accumulation.

When solids/sludge accumulate to a thickness of 2.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Solids are removed using a loader.

**OPERATIONS AND MAINTENANCE PLAN FOR POND:** WWS

Dry season freeboard monitoring will occur on the 5th of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 2 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Storages are visually monitored or professionally measured to evaluate solid accumulation.

When solids/sludge accumulate to a thickness of 6.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Solids are pumped out during irrigations.
Solids are pumped into slurry trucks.

**B. RAINFALL COLLECTION SYSTEM MAINTENANCE**

i. Annually, rainfall collection systems will be assessed to ensure:

1. Conveyances are free of debris and operating within designer/manufacturer specifications.
2. Components are properly fastened according to designer/manufacturer specifications.
3. All downspouts and related infrastructure are connected to conveyances that divert water away from manured areas.
4. Water from the rainfall collection system(s) is diverted to an appropriate destination.

| ***Buildings with rooftop rainfall collection systems*** | Quantity | Surface Area (sq. ft.) |
|---|---|---|
| 1/2 old milkhouse | 1 | 648 |
| 1/2 old milkhouse | 1 | 648 |
| commodity barn | 1 | 3,848 |
| fsb's | 4 | 130,000 |
| milkbarn | 1 | 7,728 |
| old milkbarn | 1 | 1,792 |
| old shade | 1 | 1,170 |
| old shade | 1 | 1,260 |
| old shade | 1 | 360 |
| old shade | 1 | 3,120 |
| old shade | 1 | 660 |
| old washpen | 1 | 4,536 |
| shade | 1 | 1,280 |
| shade | 1 | 1,344 |

| | | |
|---|---|---|
| shade | 1 | 2,310 |
| shade | 1 | 2,499 |
| shade | 1 | 2,560 |
| shade | 1 | 3,276 |
| shade | 1 | 2,400 |
| shade | 1 | 52,976 |
| shade | 1 | 8,700 |
| shade | 1 | 12,800 |
| shade | 1 | 6,200 |
| shade | 1 | 4,840 |
| shop | 1 | 630 |
| ***Buildings without rooftop rainfall collection systems*** | Quantity | Surface Area (sq. ft.) |
| 1/2 old milkhouse | 1 | 648 |
| commodity barn | 1 | 1,170 |
| haybarn | 1 | 7,950 |
| milkhouse | 1 | 2,860 |
| old equipment shade | 1 | 72 |
| old shade | 1 | 1,320 |
| old shade | 1 | 2,640 |
| shop | 1 | 1,900 |
| shop attachment | 1 | 216 |

Assessment for buildings with rooftop rainfall collection systems will occur on or before: 5th of October

Assessment for other rainfall collections systems will occur on or before: 5th of November

Description of how rainfall collection systems will be assessed:

Gutters and downspouts will be cleaned and repaired as needed.
Roofwater that comes in contact with manured areas will be collected and conveyed to the wastewater system.

**C. CORRAL MAINTENANCE**

i. Monthly from June 1st through September 30th (dry season) and weekly from October 1st through May 31st (wet season), the perimeter of the corrals and pens will be assessed to ensure that runon and runoff controls such as berms are functioning correctly, and that all water that contacts waste is collected and diverted into the wastewater retention pond (s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Corrals.

ii. The corrals will be assessed by the designated date to determine:

1. Whether manure needs to be removed from the corrals based on the owner, operator, and/or designer specified conditions.

2. Whether there are depressions within the corrals that should be filled/groomed to prevent ponding.

iii. Removal of manure and/or regrading, when necessary, will be completed on or before the designated month/day of each year.

Day of the month dry season assessment will occur: 5th of each month

Day of the week wet season assessment will occur: Monday

Solid manure removal and regrading assessment will occur on or before: 5th of October

Conditions requiring manure removal and/or regrading:

Solid manure is removed twice a year, in the Spring and Fall, usually after harvest.

Solid manure removal and/or regrading will occur on or before: 5th of November

**D. FEED STORAGE AREA MAINTENANCE**

i. During the dry season and prior to the wet season, the perimeter of storage areas will be assessed to ensure all runon and runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.

ii. During the wet season, feed storage area(s) will be assessed to determine if there are depressions within any feed storage area that should be filled or repaired to prevent ponding.

iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 5th of each month

Day of the week wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 5th of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 5th of November

**E. SOLID MANURE STORAGE AREA MAINTENANCE**

i. During the dry season and prior to the wet season, the perimeter of manure storage areas will be assessed to ensure all runon and runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.

ii. During the wet season, manure storage area(s) will be assessed to determine if there are depressions within any manure storage area that should be filled to prevent ponding.

iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 5th of each month

Day of the month wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 5th of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 5th of November

## F. ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM MAINTENANCE

i. A map will be attached that identifies critical points for monitoring the animal housing and flush water conveyance system to verify that water is being managed as identified in this Waste Management Plan. These points will be maintained at owner, operator, and/or designer specified intervals.

Animal housing area assessment will occur on or before: 5th of October

Animal housing drainage system maintenance will occur on or before: 5th of November

Animal housing area drainage system assessment and maintenance methods:

Debris is removed from flush lanes, drains and corral drains as needed.
Pumps are monitored daily.
Scrape lanes are cleaned as needed.
Corrals are regraded and fill dirt is added as needed to prevent ponding.

## G. MORTALITY MANAGEMENT

i. Dead animals will be stored, removed, and disposed of properly.

Rendering company or landfill name: Baker Commodities, Inc.

Rendering company or landfill telephone number: (559) 237-4310

## H. ANIMALS AND SURFACE WATER MANAGEMENT

i. A system will be in place, monitored, and maintained to prevent animals from entering any surface waters when a stream or other surface water crosses or adjoins the corral(s).

Does a stream or any other surface water cross or adjoin the corrals? [ ] Yes [X] No

## I. MONITORING SALT IN ANIMAL RATIONS

i. The combined quantity of minerals as salt in animal drinking water and feed rations will be reviewed by a qualified nutritionist on a routine basis to verify that minerals are limited to the amount required to maintain animal health and optimum production. As feed rations change, mineral content may change.

Assessment interval: Semiannually

## J. CHEMICAL MANAGEMENT

i. Chemicals and other contaminants handled at the facility will not be disposed of in any manure or process wastewater, storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.

| Chemical Name | Quantity | Units | Frequency | Usage Area | Destination (Used Chemical / Container) | Disposal Company | | Collection Frequency |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Name | Phone | |
| Roundup | 8 | gallons | year | fencelines, ponds, and roadways | triple-rinsed and recycled | | | |
| Goal | 4 | gallons | year | fencelines, ponds, roadways | triple-rinsed and recycled | | | |

REQUIRED ATTACHMENTS

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Waste Management Plan for the reporting schedule of 'July 1, 2010'.

**A. SITE MAP(S)**

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: structures used for animal housing, milk parlor, and other buildings; corrals and ponds; solids separation facilities (settling basins or mechanical separators); other areas where animal wastes are deposited or stored; feed storage areas; drainage flow directions and nearby surface waters; all water supply wells (domestic, irrigation, and barn wells) and groundwater monitoring wells.

Production area map reference number: Figure 2

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: a field identification system (Assessor's Parcel Number; field by name or number; total acreage of each field; crops grown; indication if each field is owned, leased, or used pursuant to a formal agreement); indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.

Application area map reference number: Figure 3

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all cropland (land that is part of the dairy but not used for dairy waste application) including the following in sufficient detail: Assessor's Parcel Number, total acreage, crops grown, and information on who owns or leases the field. The Waste Management Plan shall indicate if such cropland is covered under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R5-2006-0053 for Coalition Group or Order No. R5-2006-0054 for Individual Discharger, or updates thereto).

Non-application area map reference number: none

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all off-property domestic wells within 600 feet of the production area or land application area(s) associated with the dairy and the location of all municipal supply wells within 1,500 feet of the production area or land application area(s) associated with the dairy.

Well area map reference number: Figures 2 and 3

Provide a site map (or maps) of appropriate scale to show property boundaries and a vicinity map, north arrow and the date the map was prepared. The map shall be drawn on a published base map (e.g., a topographic map or aerial photo) using an appropriate scale that shows sufficient details of all facilities.

Vicinity map reference number: Figure 1

**B. PROCESS WASTEWATER MAP(S)**

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: process wastewater conveyance structures, discharge points, and discharge /mixing points with irrigation water supplies; pumping facilities and flow meter locations; upstream diversion structures, drainage ditches and canals, culverts, drainage controls (berms/levees, etc.), and drainage easements; and any additional components of the waste handling and storage system.

Production infrastructure system area map reference number: Figures 2 and 3

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities ; flow meter locations; drainage ditches and canals, culverts, drainage controls (berms, levees, etc.), and drainage easements.

Land application infrastructure system area map reference number: Figure 3

## C. EXCESS PRECIPITATION CONTINGENCY REPORT

*There were no attachment references entered or required for this attachment section.*

## D. OPERATION AND MAINTENANCE PLAN

Attach a map that identifies critical points for monitoring the system to verify that water is being managed as identified in this Waste Management Plan (see Attachment B, Pg B-7 V.F, V.G, and V.H for additional requirements).

Animal housing assessment map reference number: Figure 2

## E. FLOOD PROTECTION / INUNDATION REPORT

Provide a published flood zone map that shows the facility is outside the relevant flood zones.

Flood zone map and/or document reference number: 06019C2100H

## F. BACKFLOW PROTECTION

Attach documentation from a trained professional (i.e. a person certified by the American Backflow Prevention Association, an inspector from a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training), as specified in Required Reports and Notices H.1 of Waste Discharge Requirements General Order No. R5-2007-0035, that there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the Site Map.

Backflow documentation reference number: Backflow form

**Waste Management Plan Report**
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

CERTIFICATION

## A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Vaca View Dairy

Physical address of dairy:

| 7205 Houston AVE | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

Street and nearest cross street (if no address):

## B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

*I have reviewed the portion of the waste management plan that is related to storage capacity facility and design specifications in accordance with Item II, Attachment B of the Waste Discharge Requirements General Order for Existing Milk Cow Dairies - Order No. R5-2007-0035 and certify that this plan was prepared by, or under the responsible charge of, and certified by a civil engineer who is registered pursuant to California law or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work.*

Storage capacity is:

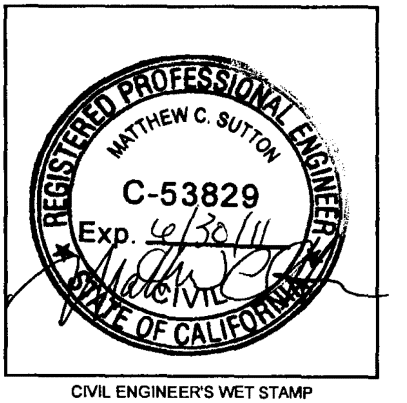
Insufficient

☐ Retrofitting Plan/Schedule/Design Criteria attached in accordance with Attachment B, II.B. 1-5 and Attachment B, II. C.

Sufficient

☒ Certification 1 - Certified in accordance with Attachment B, II. A. 1-8. (no contingency plan)

☐ Certification 2 - Certified in accordance with Attachment B, II. A. 1-8, II. C. (with contingency plan attached)



CIVIL ENGINEER'S WET STAMP

SIGNATURE OF CIVIL ENGINEER

6/21/10
DATE

Matt Sutton
PRINT OR TYPE NAME

3451-C Vincent RD; Pleasant Hill, CA 94523
MAILING ADDRESS

(925) 944-2856
PHONE NUMBER

## C. OWNER AND/OR OPERATOR CERTIFICATION

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| | |
|---|---|
| SIGNATURE OF OWNER | SIGNATURE OF OPERATOR |
| Robin Martella | Joe Mendes |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 5-25-10 | 6-28-10 |
| DATE | DATE |




**LEGEND**

☐ Facility Boundary

THE SOURCE GROUP, INC.
3451-C VINCENT ROAD
PLEASANT HILL, CA 94523

SCALE:
0 4000 8000
APPROXIMATE SCALE IN FEET

VACA VIEW DAIRY
TULARE COUNTY, CA

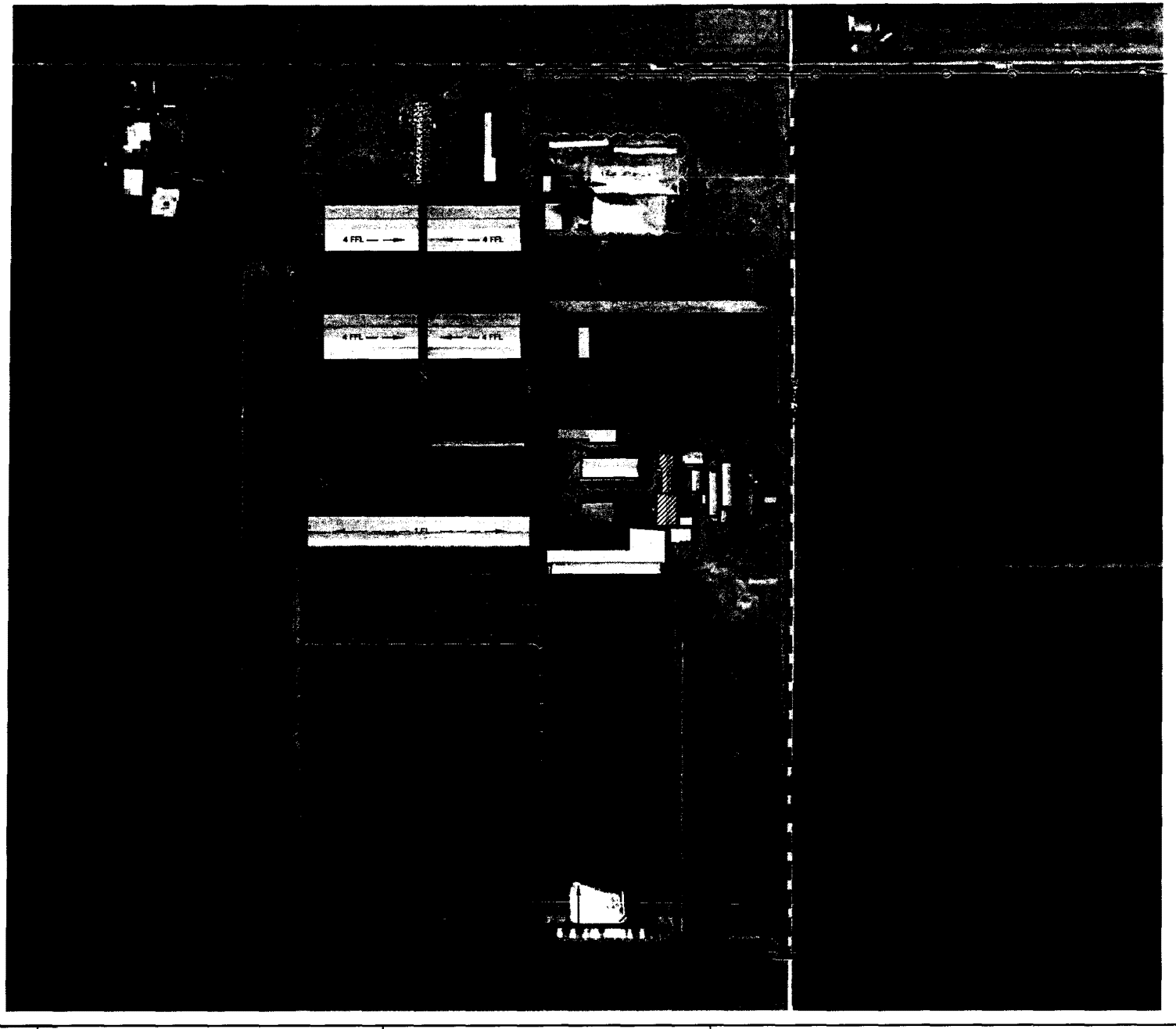
**FIGURE 1**
TOPOGRAPHIC MAP

| PROJECT NO. | DATE: | DRAWN BY: | APP. BY: |
|---|---|---|---|
| 011-WDR-002 - TASK 300 | 6/21/10 | SB | TP |

300-WDR

## LEGEND

- Milk Barn
- Old Milk Barn
- Animal Housing/Shade
- Waste Water Storage
- Corral
- Shop
- Solids Settling Basin
- Commodity/Hay Barn
- Separator Area
- Soild Stacking Area
- Scraped Lane
- Mechanical Separator
- Feed Storage
- Drain
- Pump Point
- Irrigation Well
- Domestic Well
- Stormwater Flow
- Wastewater Pipeline
- Facility Boundary




SGI environmental THE SOURCE GROUP, INC.
3451-C VINCENT ROAD
PLEASANT HILL, CA 94523

SCALE:
0 400 600
APPROXIMATE SCALE IN FEET

VACA VIEW DAIRY
TULARE COUNTY, CA

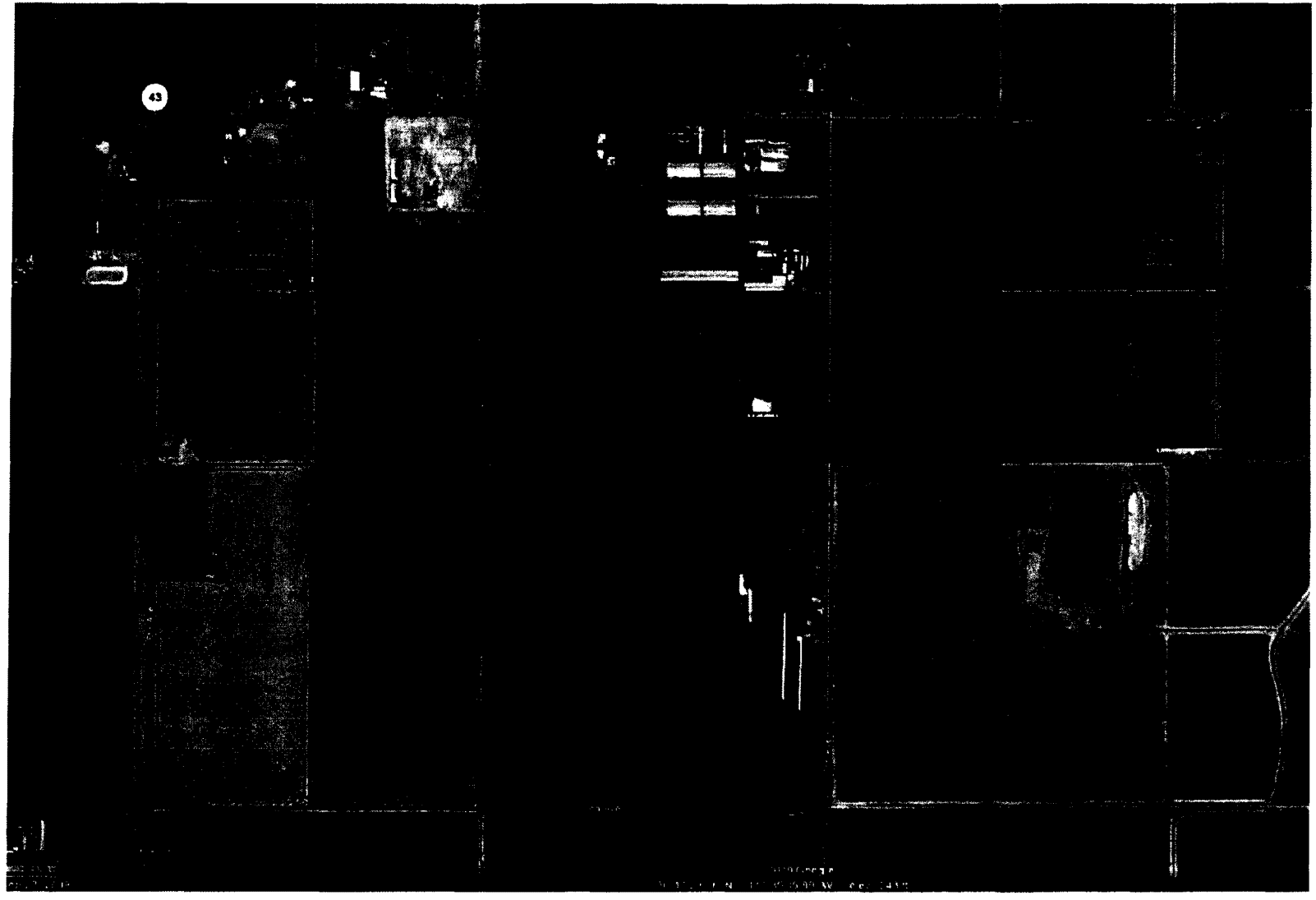
**FIGURE 2**
DAIRY FACILITY

| PROJECT NO. | DATE: | DRAWN BY: | APP. BY: |
|---|---|---|---|
| 011-WDR-002 - TASK 300 | 6/21/10 | SB | TP |

300-WDR

## LEGEND

- Fields
- Tail Water Pond
- Domestic Well
- Irrigation Well
- Stand Pipe
- Tail Water
- Irrigation Pipeline
- Tail Water Pipeline
- Irrigation Flow
- B — Berms
- C — Canal
- SM Solid Manure
- WW Wastewater



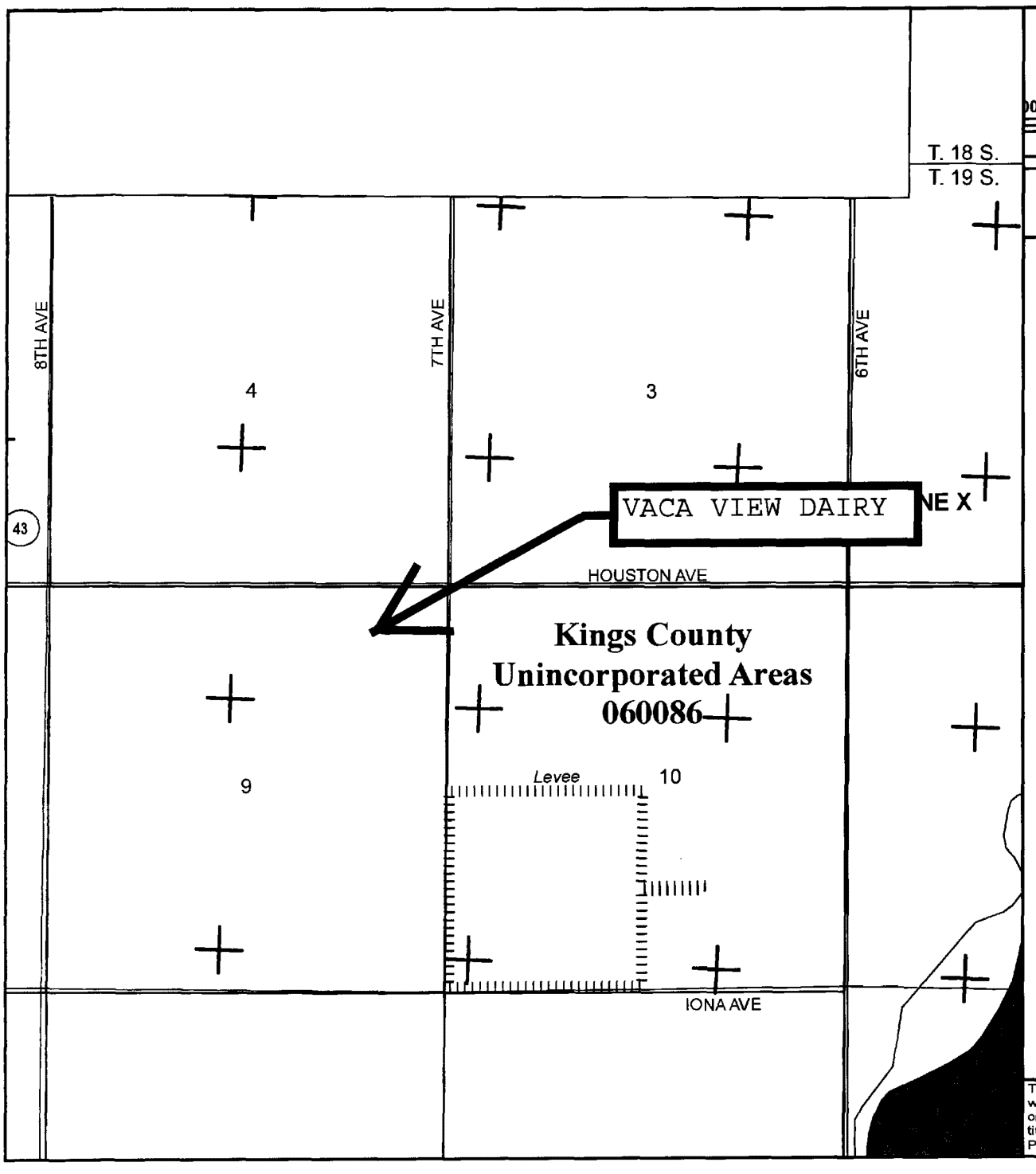

| | | | | | |
|---|---|---|---|---|---|
| SGI environmental THE SOURCE GROUP, INC.<br>3451-C VINCENT ROAD<br>PLEASANT HILL, CA 94523 | SCALE:<br>0 1200 2400<br>APPROXIMATE SCALE IN FEET | VACA VIEW DAIRY<br>TULARE COUNTY, CA | | | **FIGURE 3**<br>DAIRY FIELDS |
| | PROJECT NO.<br>011-WDR-002 - TASK 300 | DATE:<br>6/27/10 | DRAWN BY:<br>SB | APP. BY:<br>TP | 300-WDR |

SGI Ag Services THE SOURCE GROUP, INC.

LAND APPLICATION AREA FIELD INFORMATION ATTACHMENT

**DAIRY NAME: Vaca View Dairy**
**DAIRY ADDRESS: 7205 Houston Ave, Hanford, CA 93230**

| APN | FIELD ID | ACRES | CROPS GROWN | OPERATED BY DAIRY OWNER | LEASED BY DAIRY OPERATOR | LEASED BY OTHER | NUTRIENTS APPLIED |
|---|---|---|---|---|---|---|---|
| 0016-0200-0028-0000 | 1 | 20 | corn/wheat | X | | | wastewater/solid manure |
| 0016-0200-0035-0000 | 2 | 58 | alfalfa | X | | | wastewater/solid manure |
| 0016-0200-0035-0000 | 3 | 10 | corn/wheat | X | | | wastewater/solid manure |
| 0016-0200-0011-0000 | 4 | 80 | strevia | | | X | wastewater/solid manure |
| 0016-0200-0019-0000 | 5 | 38 | tomato | | | X | wastewater/solid manure |
| 0016-0200-0011-0000 | 6 | 58 | tomato | | | X | wastewater/solid manure |
| 0016-0200-0019-0000 | 7 | 37 | tomato | | | X | wastewater/solid manure |
| 0016-0200-0033-0000 | 8 | 19 | tomato | | | X | wastewater/solid manure |
| 0016-0200-0041-0000 | 9 | 47 | corn/wheat | X | | | wastewater/solid manure |
| 0016-0200-0041-0000 | 10 | 49 | corn/wheat | X | | | wastewater/solid manure |
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MAP SCALE 1" = 2000'

0 2000 4000 FEET

0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0225C

# FIRM

## FLOOD INSURANCE RATE MAP

## KINGS COUNTY, CALIFORNIA AND INCORPORATED AREAS

**PANEL 225 OF 875**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| HANFORD, CITY OF | 060088 | 0225 | C |
| KINGS COUNTY | 060086 | 0225 | C |

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP NUMBER**
**06031C0225C**

**EFFECTIVE DATE**
**JUNE 16, 2009**

**Federal Emergency Management Agency**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

This form consists of six parts and can be used to document compliance with the requirements in Waste Discharge Requirements General Order No. R5-2007-0035 for owners/operators of existing milk cow dairies (Dischargers) to:

1. Identify cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map;

2. Propose and schedule corrective action to prevent backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map; and/or

3. Document there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map.

The Discharger must complete this form except for Parts IV and V, which are to be completed by a trained professional[1]. Both the owner and the operator of the dairy must sign the certification statement in Part VI. Additional sheets may be attached as necessary to complete Parts I, II, and III.

A Site Map must be attached to this form that shows all water supply wells, irrigation wells, and surface water bodies in the dairy's Production Area and all Land Application Areas that are under the Discharger's control. The Site Map must also show all wastewater conveyance structures, wastewater discharge points to surface water, and where wastewater is mixed/blended with fresh irrigation water in these areas. Each of these locations must be identified by a name or number and listed in Part II below. Completion of Part II will identify how backflow can or does occur at each location and any current backflow preventive measures.

**PART I: DAIRY FACILITY INFORMATION**

A. Name of Dairy or Business Operating the Dairy: Vaca View Dairy

Physical address of Dairy:

| 7205 Houston Ave | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

B. Operator Name: Joe Mendes Telephone No: 559-582-4906

Operator mailing address:

| 3790 Lacey Blvd | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

C. Owner Name: Robin Martella Telephone No: 559-752-1019

Owner Mailing Address:

| 12051 8th Ave | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

[1] A trained professional could be a person certified by the American Backflow Prevention Association, an inspector for a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training.

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

**PART II: IDENTIFICATION OF EXISTING BACKFLOW CONDITIONS (due by 1 July 2008)**
The attached Site Map identifies all of the locations in the Production Area and all Land Application Areas under the control of the Discharger at the dairy identified in Part I above where there are cross-connections that could, or do, allow the backflow of wastewater into a water supply well, irrigation well, or surface water. For each location shown on the map, the table below describes:

a. How and where wastewater can potentially, or does, backflow to a groundwater supply and/or surface water supply (if there are no current or potential backflow problems, indicate so with "none"), and

b. How backflow of process wastewater into the groundwater or surface water supply is currently prevented (if there is no current prevention method, indicate so with "none").

| Location Where Backflow can Occur | How Backflow Can or Does Occur | Current Backflow Preventive Measure |
|---|---|---|
| Ag 1 | Mixing of freshwater and wastewater in pipeline | none |
| Ag 2 | Mixing of freshwater and wastewater in pipeline | none |
| Ag 3 | Mixing of freshwater and wastewater in pipeline | none |
| Ag 4 | Mixing of freshwater and wastewater in pipeline | none |
| | | |
| | | |
| | | |
| | | |
| | | |

Potential for backflow of wastewater into surface water was not inspected. Self certification form will be completed by producer.

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

**PART III: PROPOSED BACKFLOW CORRECTIVE ACTIONS AND SCHEDULE (due by 1 July 2008)**

For each location identified in Part II above where there is currently no backflow prevention, the table below identifies:

a. The method proposed to be implemented that will prevent backflow, and

b. A schedule to install the preventive measure.

If there are no current or potential backflow problems identified in Part II above, this Part does not need to be completed.

| Location With No Current Backflow Prevention | Proposed Backflow Prevention Method | Schedule to Install Proposed Backflow Prevention Method |
|---|---|---|
| Ag 1 | air gap | July 2009 |
| Ag 2 | air gap | July 2009 |
| Ag 3 | air gap | July 2009 |
| Ag 4 | air gap | July 2009 |
| | | |

**PART IV: DOCUMENTATION OF EXISTING BACKFLOW CONDITIONS AND PROPOSED BACKFLOW PREVENTION METHODS (due by 1 July 2008)**

*As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named above and my personal examination of the wastewater system, the above information in Part II above is true, accurate, and complete and the proposed backflow prevention method in Part III above will be effective to prevent the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.*

CDQAP Backflow Training Course

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

SIGNATURE OF TRAINED PROFESSIONAL — DATE 6/17/10

Kristy Rocha Cordeiro

PRINT OR TYPE NAME

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

**PART V: DOCUMENTATION THAT THERE ARE NO CROSS-CONNENCTIONS THAT WOULD ALLOW THE BACKFLOW OF WASTEWATER INTO A WATER SUPPLY WELL, IRRIGATION WELL, OR SURFACE WATER (due by 1 July 2009)**

*As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named in Part I above and my personal examination of the wastewater system, that the backflow prevention methods proposed in Part III above (if any) have been completed, and/or there are currently no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.*

CDQAP Backflow Training Course

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

Kristy Rocha Cordeiro — 6/28/10

SIGNATURE OF TRAINED PROFESSIONAL — DATE

Kristy Rocha Cordeiro

PRINT OR TYPE NAME

**PART VI: OWNER AND/OR OPERATOR CERTIFICATION**

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| | |
|---|---|
| SIGNATURE OF OWNER | SIGNATURE OF OPERATOR |
| Robin Martella | Joe Mendes |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 6-23-10 | 6-28-10 |
| DATE | DATE |

JUL 0 2 2010

# WASTE MANAGEMENT PLAN

**Vaca View Dairy**
**7205 Houston Ave**
**Hanford, CA 93230**
011-WDR-300

Prepared For:

Joe Mendes
3790 Lacey Blvd
Hanford, CA 93230

Prepared By:

SGI Ag Services THE SOURCE GROUP, INC.

3213 Liberty Square Parkway
Turlock CA 95382

July 1, 2009

**Waste Management Plan Report**
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

DAIRY FACILITY INFORMATION

**A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY:** Vaca View Dairy

Physical address of dairy:

| 7205 Houston AVE | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

Street and nearest cross street (if no address):

TRS Data and Coordinates:

| 19S | 22E | 9 | Mt. Diablo | 36° 17' 53.57" N | 119° 35' 11.21" W |
|---|---|---|---|---|---|
| Township (T_) | Range (R_) | Section (S_) | Baseline meridian | Latitude (N) | Longitude (W) |

Date facility was originally placed in operation: 01/01/1970

Regional Water Quality Control Board Basin Plan designation: Tulare Basin

County Assessor Parcel Number(s) for dairy facility:

0016-0020-0006-0000 0016-0020-0028-0000 0016-0020-0035-0000

**B. OPERATOR NAME:** Mendes, Joe Telephone no.: (559) 582-4906 (Landline) (Cellular)

| 3790 Lacey BLVD | Hanford | CA | 93230 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

Operator should receive Regional Board correspondence (check): [X] Yes [ ] No

**C. LEGAL OWNER NAME:** Martella, Robin Telephone no.: (559) 752-1019 (Landline) (Cellular)

| 12051 8th AVE | Hanford | CA | 93230 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

Owner should receive Regional Board correspondence (check): [X] Yes [ ] No

**D. CONTACT NAME:** Sutton, Matt Telephone no.: (925) 944-2856 (Landline) (Cellular)

Title: Professional Engineer

| 3451-C Vincent RD | Pleasant Hill | CA | 94523 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

**CONTACT NAME:** Cordeiro, Kristy Rocha Telephone no.: (209) 669-1800 (Landline) (209) 277-5596 (Cellular)

Title: Technical Service Provider

| 3213 Liberty Square PKWY | Turlock | CA | 95382 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

## HERD AND MILKING EQUIPMENT

### A. HERD AND MILKING

The existing milk cow dairy is currently regulated under the General Order.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

1,300 milk and dry cows combined (regulatory review is required for expansions of 15% above baseline values)

1,495 milk and dry cows combined + 15% (pre-expansion limit)

| Type of Animal | Present Count | Maximum Count | Daily Flush Hours | Avg Live Weight (lbs) |
|---|---|---|---|---|
| Milk Cows | 1,250 | 1,300 | 22 | 1,400 |
| Dry Cows | 195 | 195 | 0 | 1,450 |
| Bred Heifers (15-24 mo.) | 80 | 82 | 0 | 900 |
| Heifers (7-14 mo.) | 1,000 | 1,020 | 0 | 750 |
| Calves (4-6 mo.) | 200 | 205 | 0 | |
| Calves (0-3 mo.) | 0 | 0 | 0 | |

Predominant milk cow breed: Holstein

Average milk production: 70 pounds per cow per day

Average number of milk cows per string sent to the milkbarn: 125 milk cows per string

Number of milkings per day: 2.0 milkings per day

Number of times milk tank is emptied/filled each day: 4.0 per day

Number of hours spent milking each day: 20.0 hours per day

### B. MILKBARN EQUIPMENT AND FLOOR WASH

Bulk tank wash and sanitizing: 3.0 run cycles/wash

Bulk tank wash vat volume: 75 gallons/cycle

Bulk tank wash wastewater: 900.0 gallons/day

Pipeline wash and sanitizing: 3.0 run cycles/wash

Pipeline wash vat volume: 200 gallons/cycle

Pipeline wash wastewater: 1,200.0 gallons/day

Reused / recycled water is the source of parlor floor wash water: [X] Yes [ ] No

Milkbarn / parlor floor wash volume: 7,000 gallons/day

Plate coolers type: Well Water Cooled (Water Reused/Recycled)

Plate coolers volume: 25,000 gallons/day

Vacuum pumps / air compressors / chillers type: Well Water Cooled (Water Reused/Recycled)

Vacuum pumps / air compressors / chillers volume: 15,000 gallons/day

Milkbarn and equipment wastewater volume generated daily: 43,100 gallons/day

## C. OTHER WATER USES

Reused/recycled water is the source of herd drinking water: [ ] Yes [X] No

| | Milk Cows | Dry Cows | Bred Heifers (15-24 mo.) | Bred Heifers (7-14 mo.) | Calves (4-6 mo.) | Calves (0-3 mo.) |
|---|---|---|---|---|---|---|
| *Number of cows drinking from reusable water:* | 0 | 0 | 0 | 0 | 0 | 0 |
| | *of 1,250* | *of 195* | *of 80* | *of 1,000* | *of 200* | *of 0* |
| *Gallons per head per day:* | 0 | 0 | 0 | 0 | 0 | 0 |

Total reusable water consumed by herd: 0 gallons/day

Reused/recycled water is the source of sprinkler pen water: [X] Yes [ ] No

Number of sprinklers in the holding pen: 78 sprinklers

Duration of each sprinkler cycle: 2.0 minutes

Number of sprinkler pen runs/milking: 1 cycles/milking

Flow rate for each sprinkler head: 4.0 gallons/minute

Total sprinkler pen wastewater volume: 12,980 gallons/day

Total fresh water used in manure flush lane system(s): 0 gallons/day

## D. MISCELLANEOUS EQUIPMENT

| Description | Source | Throughput (gallons per day) | Discharge Destination |
|---|---|---|---|
| Drop hoses and misc | Fresh Water | 1,000 | Sent to pond |

## E. MILKBARN AND EQUIPMENT SUMMARY

Number of days in storage period: 120 days

Water available for reuse/recycle: 40,000 gallons/day

Recycled water reused: 19,980 gallons/day

Recycled water leaving system: 0 gallons/day

Reusable water balance: 20,020 gallons/day

Volume of milkbarn and equipment wastewater generated for storage period: 5,172,000 gallons/storage period

# MANURE AND BEDDING SOLIDS

## A. IMPORTED AND FACILITY GENERATED BEDDING

| Bedding Type | Imported or Generated (tons) | Density (lbs/cu. ft.) | Applied Separation Efficiency (default) | Solids to Pond (cu. ft./period) |
|---|---|---|---|---|
| Facility generated bedding | 113 | 40.0 | 50% | 2,813 |
| | | | Total: | 2,813 |

## B. SOLIDS SEPARATION PROCESS

Combined manure solids separation efficiency (weight basis): 20 %

Description of all solids separation equipment used in flushed lane manure management systems:

Separator and processing pit

## C. MANURE AND BEDDING SOLIDS SUMMARY

| | cubic feet | | gallons | |
|---|---|---|---|---|
| | day | storage period | day | storage period |
| Manure generated by the herd (pre-separation): | 4,179.14 | 501,496 | 31,262.11 | 3,751,453 |
| Manure generated by the herd sent to pond(s): | 2,503.64 | 300,437 | 18,728.56 | 2,247,427 |
| Manure generated by the herd sent to dry lot(s): | 1,499.20 | 179,904 | 11,214.78 | 1,345,774 |
| Manure solids (herd) removed by separation: | 85.34 | 10,241 | 638.41 | 76,609 |
| Liquid component in separated solids not send to pond(s): | 90.95 | 10,914 | 680.35 | 81,642 |
| Imported and facility generated bedding sent to pond(s): | 23.44 | 2,813 | 175.32 | 21,039 |
| Total manure and bedding sent to pond(s): | 2,527.08 | 303,250 | 18,903.89 | 2,268,466 |
| Residual manure solids and bedding sent to pond(s) w/factor: | 182.40 | 21,888 | 1,364.48 | 163,737 |
| | cubic feet per year | | gallons per year | |
| Residual manure solids and bedding sent to pond(s) w/factor: | | 66,577 | | 498,034 |

# RAINFALL AND RUNOFF

## A. RAINFALL ESTIMATES

Rainfall station nearest the facility: Hanford

25 year/24 hour storm event (default NOAA Atlas 2, 1973): 2.10 inches/storage period

25 year/24 hour storm event (user-override): _____ inches/storage period

Storage period rainfall (default DWR climate data): 5.88 inches/storage period

Storage period rainfall (user-override): _____ inches/storage period

Flood zone: Zone X

## B. IMPERVIOUS AREAS

| Name | Surface Area (sq. ft.) | Quantity | 25yr/24hr Storm Runoff Coefficient | Storage Period Runoff Coefficient | Runoff Destination |
|---|---|---|---|---|---|
| apron | 920 | 4 | 0.97 | 0.50 | Drains into pond(s). |
| apron | 510 | 2 | 0.97 | 0.50 | Drains into pond(s). |
| apron | 350 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| cistern pad | 384 | 1 | 0.97 | 0.50 | yard |
| corral pad | 5,180 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| drain | 70 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| drain | 20 | 1 | 0.97 | 0.50 | Drains into pond(s). |

| | | | | | |
|---|---|---|---|---|---|
| drivelane | 290 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| drivelane | 520 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| exposed concrete | 360 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| exposed concrete | 1,300 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| exposed feedlane | 416 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| extra lane | 1,215 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feed area | 60,982 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 6,960 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 40,400 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 4,290 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 1,640 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 17,986 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| feedlane | 18,170 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| flush apron | 144 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| lane | 900 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| main transfer | 8,040 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| milkbarn area | 4,700 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| milkbarn pad | 646 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| milktruck pad | 1,260 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| old lane | 1,425 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| pad | 1,190 | 1 | 0.97 | 0.50 | yard |
| parking | 1,488 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| reminant concrete | 2,678 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| road | 396 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| separator area | 30,210 | 1 | 0.99 | 0.99 | Drains into pond(s). |
| separator pad | 300 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| silage pad | 14,500 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 2,920 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 3,168 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 4,800 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 1,300 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 3,900 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 624 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 2,448 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane | 360 | 1 | 0.97 | 0.50 | Drains into pond(s). |
| transfer lane exposed | 200 | 1 | 0.97 | 0.50 | Drains into pond(s). |

| | | | | | |
|---|---|---|---|---|---|
| washpen | 1,360 | 1 | 0.97 | 0.50 | Drains into pond(s). |

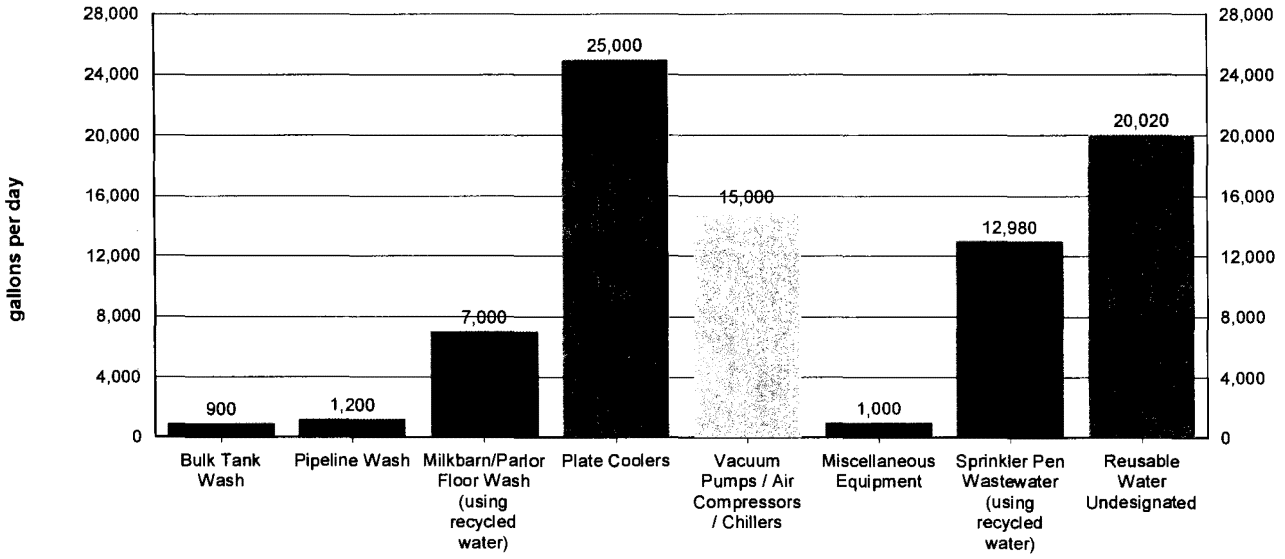
| | |
|---|---|
| Surface area that does not run off into pond(s): | 1,574 sq. ft. |
| Surface area that runs off into pond(s): | 252,616 sq. ft. |
| Total surface area: | 254,190 sq. ft. |
| Runoff from normal storage period rainfall: | 517,236 gallons/storage period |
| Runoff from normal storage period rainfall with 1.5 factor: | 775,853 gallons/storage period |
| 25 year/24 hour storm event runoff: | 321,567 gallons/storage period |
| Total surface area runoff: | 838,803 gallons/storage period |
| Total surface area runoff with 1.5 factor: | 1,097,421 gallons/storage period |

**C. ROOF AREAS**

| Name | Surface Area (sq. ft.) | Quantity | Runoff Destination |
|---|---|---|---|
| 1/2 old milkhouse | 648 | 1 | Wastewater pond |
| 1/2 old milkhouse | 648 | 1 | Wastewater pond |
| 1/2 old milkhouse | 648 | 1 | yard |
| commodity barn | 1,170 | 1 | yard |
| commodity barn | 3,848 | 1 | yard |
| fsb's | 32,500 | 4 | Wastewater pond |
| haybarn | 7,950 | 1 | yard |
| milkbarn | 7,728 | 1 | Wastewater pond |
| milkhouse | 2,860 | 1 | yard |
| old equipment shade | 72 | 1 | yard |
| old milkbarn | 1,792 | 1 | Wastewater pond |
| old shade | 1,170 | 1 | Wastewater pond |
| old shade | 1,260 | 1 | Wastewater pond |
| old shade | 1,320 | 1 | yard |
| old shade | 2,640 | 1 | yard |
| old shade | 360 | 1 | yard |
| old shade | 3,120 | 1 | yard |
| old shade | 660 | 1 | yard |
| old washpen | 4,536 | 1 | Wastewater pond |
| shade | 1,280 | 1 | Wastewater pond |
| shade | 1,344 | 1 | Wastewater pond |
| shade | 2,310 | 1 | yard |
| shade | 2,499 | 1 | yard |
| shade | 2,560 | 1 | yard |

CHARTS

## A. MILKBARN WASTEWATER SENT TO POND(S)

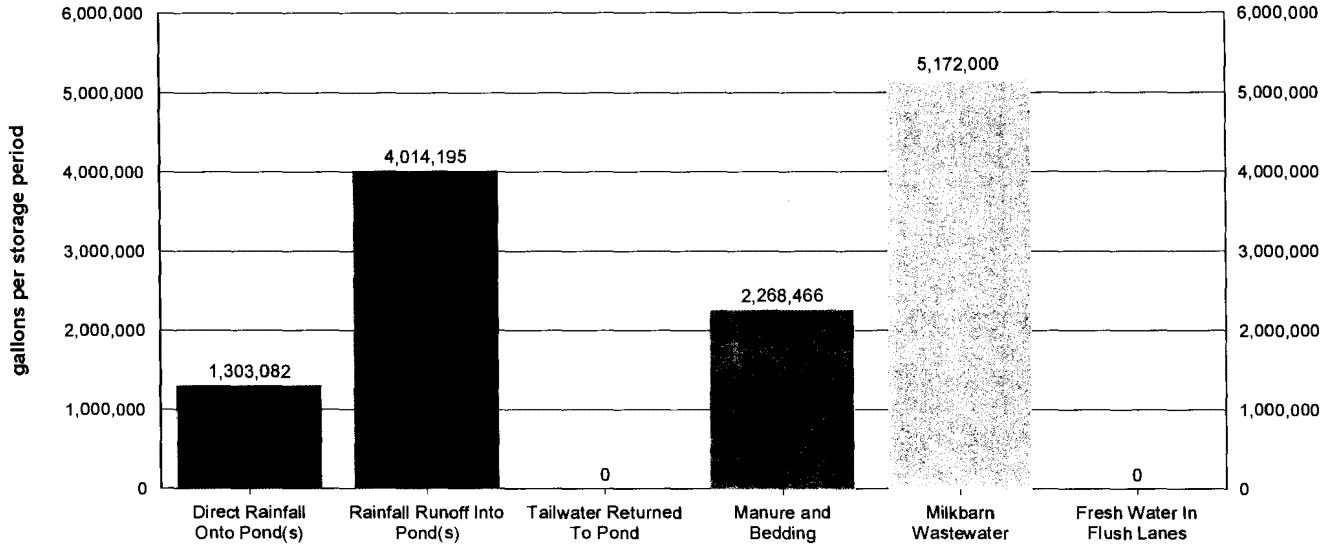



*Values shown in chart are approximate values per day.*

Total milkbarn wastewater generated daily: 43,100 gallons/day

Total milkbarn wastewater generated per period: 5,172,000 gallons/storage period

## B. PROCESS WASTEWATER (NORMAL PRECIPITATION)

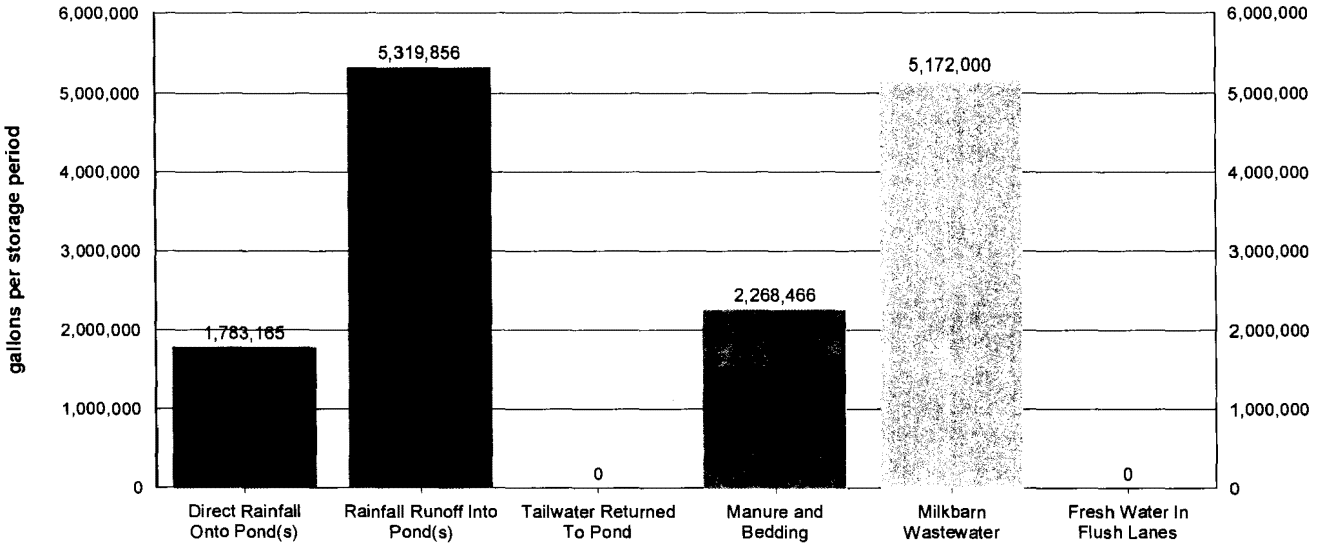



*Values shown in chart are approximate values for storage period.*

| | | |
|---|---|---|
| Storage period: | 120 | days |
| Total process wastewater generated daily: | 106,315 | gallons/day |
| Total process wastewater generated per period: | 12,757,743 | gallons/storage period |
| Total process wastewater removed due to evaporation: | 1,666,591 | gallons/storage period |
| Total storage capacity required: | 11,091,152 | gallons |
| | 1,482,671 | cu. ft. |
| Existing storage capacity (adjusted for dead storage loss): | 20,158,220 | gallons |
| | 2,694,762 | cu. ft. |

***Considering normal precipitation, existing capacity meets estimated storage needs:*** [X] Yes [ ] No

## C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)

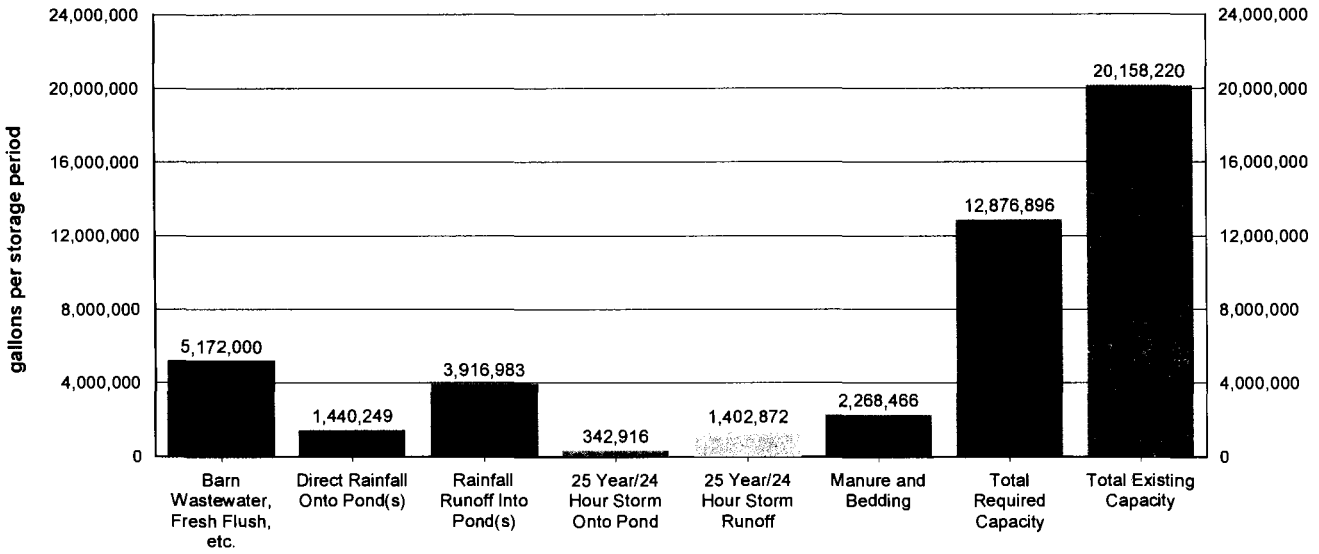



*Values shown in chart are approximate values for storage period.*

| | | |
|---|---|---|
| Storage period: | 120 | days |
| Total process wastewater generated daily: | 121,196 | gallons/day |
| Total process wastewater generated per period: | 14,543,487 | gallons/storage period |
| Total process wastewater removed due to evaporation: | 1,666,591 | gallons/storage period |
| Total storage capacity required: | 12,876,896 | gallons |
| | 1,721,391 | cu. ft. |
| Existing storage capacity (adjusted for dead storage loss): | 20,158,220 | gallons |
| | 2,694,762 | cu. ft. |

***Considering factored precipitation, existing capacity meets estimated storage needs:*** [X] Yes [ ] No

## D. STORAGE VOLUME ASSESSMENT (NORMAL PRECIPITATION WITH 1.5 FACTOR)




*Values shown in chart are approximate values for storage period.*

| | | |
|---|---|---|
| Storage period: | 120 | days |
| Barn wastewater, fresh flush water, and tailwater: | 5,172,000 | gallons/storage period |
| Manure and bedding sent to pond: | 2,268,466 | gallons/storage period |
| Precipitation onto pond: | 1,440,249 | gallons/storage period |
| Precipitation runoff: | 3,916,983 | gallons/storage period |
| 25 year/24 hour storm onto pond: | 342,916 | gallons/storage period |
| 25 year/24 hour storm runoff: | 1,402,872 | gallons/storage period |
| Residual solids after liquids have been removed (liquid equivalent): | 163,737 | gallons/storage period |
| Total process wastewater removed due to evaporation: | 1,666,591 | gallons/storage period |
| Total required capacity: | 12,876,896 | gallons/storage period |
| Total existing capacity: | 20,158,220 | gallons/storage period |
| ***Existing capacity meets estimated storage needs:*** | [X] Yes [ ] No | |

## OPERATION AND MAINTENANCE PLAN

The goal of the Operation and Maintenance Plan is to eliminate discharges of waste or storm water to surface waters from the production area and the protection of underlying soils and ground water.

### A. POND MAINTENANCE

i. FREEBOARD MONITORING

1. Freeboard will be monitored monthly from June 1 through September 1 (dry season) and weekly from October 1 through May 31 (wet season). The results will be recorded on a Dairy Production Area Visual Inspection Form.
2. Freeboard will be monitored during and after each significant storm event and the results recorded on a Production Area Significant Storm Event Inspection Form.
3. Ponds will be photographed on the first day of each month. Pond photos will be labeled and maintained with the dairy 's monitoring records.

ii. PREPARATION FOR MAINTAINING WINTER STORAGE CAPACITY

1. The retention pond(s) will begin to be lowered to the minimum operating level on or before a designated date each year.
2. The minimum operating level will include the necessary storage volume as identified in Section II .A in Attachment B of the General Order.

iii. OTHER POND MONITORING

1. At the time of each monitoring for freeboard, the pond(s) will be inspected for evidence of excessive odors, mosquito breeding, algae, or equipment damage; and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Other Pond Monitoring.
2. At the time of each monitoring during and after each significant storm event, the ponds will be inspected for evidence of any discharge and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Production Area Significant Storm Event Inspection Form.

iv. SOLIDS REMOVAL PROCEDURES

1. The average thickness of the solids accumulated on the bottom of the pond(s) will be measured on the designated interval using the owner, operator, and/or designer specified procedure.
2. Once solids/sludge on the bottom of the pond(s) reach the owner, operator, and/or designer specified critical thickness, solids/sludge will be removed so that adequate capacity is maintained.
3. When necessary, solids/sludge will be removed using the owner, operator, and/or designer specified methods for protecting any pond liner.

**OPERATIONS AND MAINTENANCE PLAN FOR POND:** SSB

Dry season freeboard monitoring will occur on the 5th of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 0 feet above the pond invert beginning in May of each year.

Sludge accumulation will be measured monthly.

The following method will be used to measure solids/sludge accumulation:

Storages are visually monitored or professionally measured to evaluate solid accumulation.

When solids/sludge accumulate to a thickness of 2.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Solids are removed using a loader.

**OPERATIONS AND MAINTENANCE PLAN FOR POND:** WWS

Dry season freeboard monitoring will occur on the 5th of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 2 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Storages are visually monitored or professionally measured to evaluate solid accumulation.

When solids/sludge accumulate to a thickness of 6.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Solids are pumped out during irrigations.
Solids are pumped into slurry trucks.

**B. RAINFALL COLLECTION SYSTEM MAINTENANCE**

i. Annually, rainfall collection systems will be assessed to ensure:

1. Conveyances are free of debris and operating within designer/manufacturer specifications.
2. Components are properly fastened according to designer/manufacturer specifications.
3. All downspouts and related infrastructure are connected to conveyances that divert water away from manured areas.
4. Water from the rainfall collection system(s) is diverted to an appropriate destination.

| ***Buildings with rooftop rainfall collection systems*** | Quantity | Surface Area (sq. ft.) |
|---|---|---|
| 1/2 old milkhouse | 1 | 648 |
| 1/2 old milkhouse | 1 | 648 |
| commodity barn | 1 | 3,848 |
| fsb's | 4 | 130,000 |
| milkbarn | 1 | 7,728 |
| old milkbarn | 1 | 1,792 |
| old shade | 1 | 1,170 |
| old shade | 1 | 1,260 |
| old shade | 1 | 360 |
| old shade | 1 | 3,120 |
| old shade | 1 | 660 |
| old washpen | 1 | 4,536 |
| shade | 1 | 1,280 |
| shade | 1 | 1,344 |

| | | |
|---|---|---|
| shade | 1 | 2,310 |
| shade | 1 | 2,499 |
| shade | 1 | 2,560 |
| shade | 1 | 3,276 |
| shade | 1 | 2,400 |
| shade | 1 | 52,976 |
| shade | 1 | 8,700 |
| shade | 1 | 12,800 |
| shade | 1 | 6,200 |
| shade | 1 | 4,840 |
| shop | 1 | 630 |
| ***Buildings without rooftop rainfall collection systems*** | Quantity | Surface Area (sq. ft.) |
| 1/2 old milkhouse | 1 | 648 |
| commodity barn | 1 | 1,170 |
| haybarn | 1 | 7,950 |
| milkhouse | 1 | 2,860 |
| old equipment shade | 1 | 72 |
| old shade | 1 | 1,320 |
| old shade | 1 | 2,640 |
| shop | 1 | 1,900 |
| shop attachment | 1 | 216 |

Assessment for buildings with rooftop rainfall collection systems will occur on or before: 5th of October

Assessment for other rainfall collections systems will occur on or before: 5th of November

Description of how rainfall collection systems will be assessed:

Gutters and downspouts will be cleaned and repaired as needed.
Roofwater that comes in contact with manured areas will be collected and conveyed to the wastewater system.

**C. CORRAL MAINTENANCE**

i. Monthly from June 1st through September 30th (dry season) and weekly from October 1st through May 31st (wet season), the perimeter of the corrals and pens will be assessed to ensure that runon and runoff controls such as berms are functioning correctly, and that all water that contacts waste is collected and diverted into the wastewater retention pond (s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Corrals.

ii. The corrals will be assessed by the designated date to determine:

1. Whether manure needs to be removed from the corrals based on the owner, operator, and/or designer specified conditions.

2. Whether there are depressions within the corrals that should be filled/groomed to prevent ponding.

iii. Removal of manure and/or regrading, when necessary, will be completed on or before the designated month/day of each year.

Day of the month dry season assessment will occur: 5th of each month

Day of the week wet season assessment will occur: Monday

Solid manure removal and regrading assessment will occur on or before: 5th of October

Conditions requiring manure removal and/or regrading:

Solid manure is removed twice a year, in the Spring and Fall, usually after harvest.

Solid manure removal and/or regrading will occur on or before: 5th of November

**D. FEED STORAGE AREA MAINTENANCE**

i. During the dry season and prior to the wet season, the perimeter of storage areas will be assessed to ensure all runon and runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.

ii. During the wet season, feed storage area(s) will be assessed to determine if there are depressions within any feed storage area that should be filled or repaired to prevent ponding.

iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 5th of each month

Day of the week wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 5th of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 5th of November

**E. SOLID MANURE STORAGE AREA MAINTENANCE**

COPY

SGI Ag Services THE SOURCE GROUP, INC.

# FACILITY ASSESSMENT

## DAIRY FACILITY INFORMATION:

Name of Dairy or Business Operating the Dairy: Vaca View Dairy

Physical Address of Dairy: 7205 Houston Ave, Hanford, CA 93230

Operator Name: Joe Mendes

Operator Mailing Address: 3790 Lacey Blvd, Hanford, CA 93230

Operator Telephone No.: 559-582-4906

Owner Name: Robin Martella

Owner Mailing Address: 12051 8th Ave, Hanford, CA 93230

Owner Telephone No.: 559-752-1019

## Production Area Design & Construction:

Corral and/or Pens:
Are corrals and/or pens designed and constructed to collect and divert all process wastewater to the retention pond?

- ☐ Yes, with no exceptions
- ☒ Yes, with minor exceptions, as stated below along with proposed corrective actions
- ☐ No, as stated below along with proposed corrective actions

Proposed modification or improvements needed:

| Location: | Proposed Modification: | Completed by: |
|---|---|---|
| Front Corral by milkbarn | Collect & convey drain to WWS | July 2011 |
| Back Heifer Corrals by road | Improve Conveyance | July 2011 |
| | | |

Animal Housing Area:

Are all animal housing areas (barn, shed, milk parlor, etc.) designed and constructed to divert all water that has contacted animal wastes to the retention pond?

☒ Yes, with no exceptions

☐ Yes, with minor exceptions, as stated below along with proposed corrective actions

☐ No, as stated below along with proposed corrective actions

Proposed modification or improvements needed:

| Location: | Proposed Modification: | Completed by: |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

## Manure and Feed Storage Areas:

Are all manure and/or feed storage areas designed and constructed to collect and divert runoff and leachate from these areas to the retention pond?

☐ Yes, with no exceptions

☒ Yes, with minor exceptions, as stated below along with proposed corrective actions

☐ No, as stated below along with proposed corrective actions

Proposed modification or improvements needed:

| Location: | Proposed Modification: | Completed by: |
|---|---|---|
| Feed Areas | Improve Conveyance to WWS | July 2011 |
| | | |
| | | |

OWNER AND/OR OPERATOR CERTIFICATION:

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am*

*aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

*I also certify that any and all modifications or improvements needed and stated above will be implemented by July 1, 2011 in order to meet the criteria mandated under Schedule of Tasks J.1 of waste Discharge Requirements General Order No. R5-2007-0035.*

| | |
|---|---|
| SIGNATURE OF OWNER | SIGNATURE OF OPERATOR |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |

i. During the dry season and prior to the wet season, the perimeter of manure storage areas will be assessed to ensure all runon and runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.

ii. During the wet season, manure storage area(s) will be assessed to determine if there are depressions within any manure storage area that should be filled to prevent ponding.

iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 5th of each month

Day of the month wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 5th of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 5th of November

## F. ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM MAINTENANCE

i. A map will be attached that identifies critical points for monitoring the animal housing and flush water conveyance system to verify that water is being managed as identified in this Waste Management Plan. These points will be maintained at owner, operator, and/or designer specified intervals.

Animal housing area assessment will occur on or before: 5th of October

Animal housing drainage system maintenance will occur on or before: 5th of November

Animal housing area drainage system assessment and maintenance methods:

Debris is removed from flush lanes, drains and corral drains as needed.
Pumps are monitored daily.
Scrape lanes are cleaned as needed.
Corrals are regraded and fill dirt is added as needed to prevent ponding.

## G. MORTALITY MANAGEMENT

i. Dead animals will be stored, removed, and disposed of properly.

Rendering company or landfill name: Baker Commodities, Inc.

Rendering company or landfill telephone number: (559) 237-4310

## H. ANIMALS AND SURFACE WATER MANAGEMENT

i. A system will be in place, monitored, and maintained to prevent animals from entering any surface waters when a stream or other surface water crosses or adjoins the corral(s).

Does a stream or any other surface water cross or adjoin the corrals? [ ] Yes [X] No

## I. MONITORING SALT IN ANIMAL RATIONS

i. The combined quantity of minerals as salt in animal drinking water and feed rations will be reviewed by a qualified nutritionist on a routine basis to verify that minerals are limited to the amount required to maintain animal health and optimum production. As feed rations change, mineral content may change.

Assessment interval: Semiannually

## J. CHEMICAL MANAGEMENT

i. Chemicals and other contaminants handled at the facility will not be disposed of in any manure or process wastewater, storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.

| Chemical Name | Quantity | Units | Frequency | Usage Area | Destination (Used Chemical / Container) | Disposal Company | | Collection Frequency |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Name | Phone | |
| Roundup | 8 | gallons | year | fencelines, ponds, and roadways | triple-rinsed and recycled | | | |
| Goal | 4 | gallons | year | fencelines, ponds, roadways | triple-rinsed and recycled | | | |

REQUIRED ATTACHMENTS

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Waste Management Plan for the reporting schedule of 'July 1, 2010'.

**A. SITE MAP(S)**

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: structures used for animal housing, milk parlor, and other buildings; corrals and ponds; solids separation facilities (settling basins or mechanical separators); other areas where animal wastes are deposited or stored; feed storage areas; drainage flow directions and nearby surface waters; all water supply wells (domestic, irrigation, and barn wells) and groundwater monitoring wells.

Production area map reference number: Figure 2

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: a field identification system (Assessor's Parcel Number; field by name or number; total acreage of each field; crops grown; indication if each field is owned, leased, or used pursuant to a formal agreement); indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.

Application area map reference number: Figure 3

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all cropland (land that is part of the dairy but not used for dairy waste application) including the following in sufficient detail: Assessor's Parcel Number, total acreage, crops grown, and information on who owns or leases the field. The Waste Management Plan shall indicate if such cropland is covered under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R5-2006-0053 for Coalition Group or Order No. R5-2006-0054 for Individual Discharger, or updates thereto).

Non-application area map reference number: none

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all off-property domestic wells within 600 feet of the production area or land application area(s) associated with the dairy and the location of all municipal supply wells within 1,500 feet of the production area or land application area(s) associated with the dairy.

Well area map reference number: Figures 2 and 3

Provide a site map (or maps) of appropriate scale to show property boundaries and a vicinity map, north arrow and the date the map was prepared. The map shall be drawn on a published base map (e.g., a topographic map or aerial photo) using an appropriate scale that shows sufficient details of all facilities.

Vicinity map reference number: Figure 1

**B. PROCESS WASTEWATER MAP(S)**

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: process wastewater conveyance structures, discharge points, and discharge /mixing points with irrigation water supplies; pumping facilities and flow meter locations; upstream diversion structures, drainage ditches and canals, culverts, drainage controls (berms/levees, etc.), and drainage easements; and any additional components of the waste handling and storage system.

Production infrastructure system area map reference number: Figures 2 and 3

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities ; flow meter locations; drainage ditches and canals, culverts, drainage controls (berms, levees, etc.), and drainage easements.

Land application infrastructure system area map reference number: Figure 3

**C. EXCESS PRECIPITATION CONTINGENCY REPORT**

*There were no attachment references entered or required for this attachment section.*

**D. OPERATION AND MAINTENANCE PLAN**

Attach a map that identifies critical points for monitoring the system to verify that water is being managed as identified in this Waste Management Plan (see Attachment B, Pg B-7 V.F, V.G, and V.H for additional requirements).

Animal housing assessment map reference number: Figure 2

**E. FLOOD PROTECTION / INUNDATION REPORT**

Provide a published flood zone map that shows the facility is outside the relevant flood zones.

Flood zone map and/or document reference number: 06019C2100H

**F. BACKFLOW PROTECTION**

Attach documentation from a trained professional (i.e. a person certified by the American Backflow Prevention Association, an inspector from a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training), as specified in Required Reports and Notices H.1 of Waste Discharge Requirements General Order No. R5-2007-0035, that there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the Site Map.

Backflow documentation reference number: Backflow form

SGI Ag Services THE SOURCE GROUP, INC.

# FACILITY ASSESSMENT

## DAIRY FACILITY INFORMATION:

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Operator Telephone No.: 559-582-4906

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Are corrals and/or pens designed and constructed to collect and divert all process wastewater to the retention pond?

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☐ Yes, with minor exceptions, as stated below along with proposed corrective actions

☐ No, as stated below along with proposed corrective actions

Proposed modification or improvements needed:

| Location: | Proposed Modification: | Completed by: |
|---|---|---|
| Front Corral by milkbarn | Collect & Convey drain to WWS | July 2011 |
| Back Heifer Corrals by road | Improve Conveyance to WWS | July 2011 |
| | | |

## Animal Housing Area:

Are all animal housing areas (barn, shed, milk parlor, etc.) designed and constructed to divert all water that has contacted animal wastes to the retention pond?

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☐ Yes, with minor exceptions, as stated below along with proposed corrective actions

☐ No, as stated below along with proposed corrective actions

Proposed modification or improvements needed:

| Location: | Proposed Modification: | Completed by: |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

## Manure and Feed Storage Areas:

Are all manure and/or feed storage areas designed and constructed to collect and divert runoff and leachate from these areas to the retention pond?

☐ Yes, with no exceptions

☒ Yes, with minor exceptions, as stated below along with proposed corrective actions

☐ No, as stated below along with proposed corrective actions

Proposed modification or improvements needed:

| Location: | Proposed Modification: | Completed by: |
|---|---|---|
| Feed Areas | Improve conveyance to WWS | July 2011 |
| | | |
| | | |

OWNER AND/OR OPERATOR CERTIFICATION:

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am*

*aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

*I also certify that any and all modifications or improvements needed and stated above will be implemented by July 1, 2011 in order to meet the criteria mandated under Schedule of Tasks J.1 of waste Discharge Requirements General Order No. R5-2007-0035.*

| | |
|---|---|
| SIGNATURE OF OWNER | SIGNATURE OF OPERATOR |
| Robin Martella | Joe Mendes |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |

**Waste Management Plan Report**
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

CERTIFICATION

**A. DAIRY FACILITY INFORMATION**

Name of dairy or business operating the dairy: Vaca View Dairy

Physical address of dairy:

| 7205 Houston AVE | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

Street and nearest cross street (if no address): _____

**B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT**

*I have reviewed the portion of the waste management plan that is related to storage capacity facility and design specifications in accordance with Item II, Attachment B of the Waste Discharge Requirements General Order for Existing Milk Cow Dairies - Order No. R5-2007-0035 and certify that this plan was prepared by, or under the responsible charge of, and certified by a civil engineer who is registered pursuant to California law or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work.*

Storage capacity is:

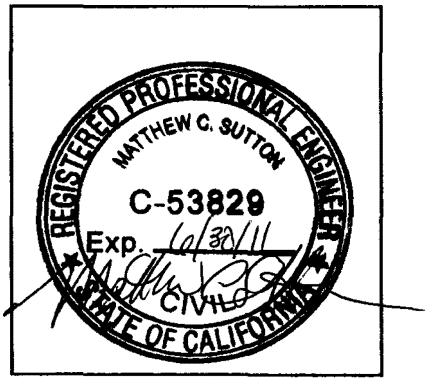
Insufficient

☐ Retrofitting Plan/Schedule/Design Criteria attached in accordance with Attachment B, II.B. 1-5 and Attachment B, II. C.

Sufficient

☒ Certification 1 - Certified in accordance with Attachment B, II. A. 1-8. (no contingency plan)

☐ Certification 2 - Certified in accordance with Attachment B, II. A. 1-8, II. C. (with contingency plan attached)



CIVIL ENGINEER'S WET STAMP

Matthew C Sutton — 6/21/10
SIGNATURE OF CIVIL ENGINEER — DATE

Matt Sutton
PRINT OR TYPE NAME

3451-C Vincent RD; Pleasant Hill, CA 94523
MAILING ADDRESS

(925) 944-2856
PHONE NUMBER

**C. OWNER AND/OR OPERATOR CERTIFICATION**

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| | |
|---|---|
| SIGNATURE OF OWNER | SIGNATURE OF OPERATOR |
| Robin Martella | Joe Mendes |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 6/23/10 | 6-28-10 |
| DATE | DATE |




**LEGEND**

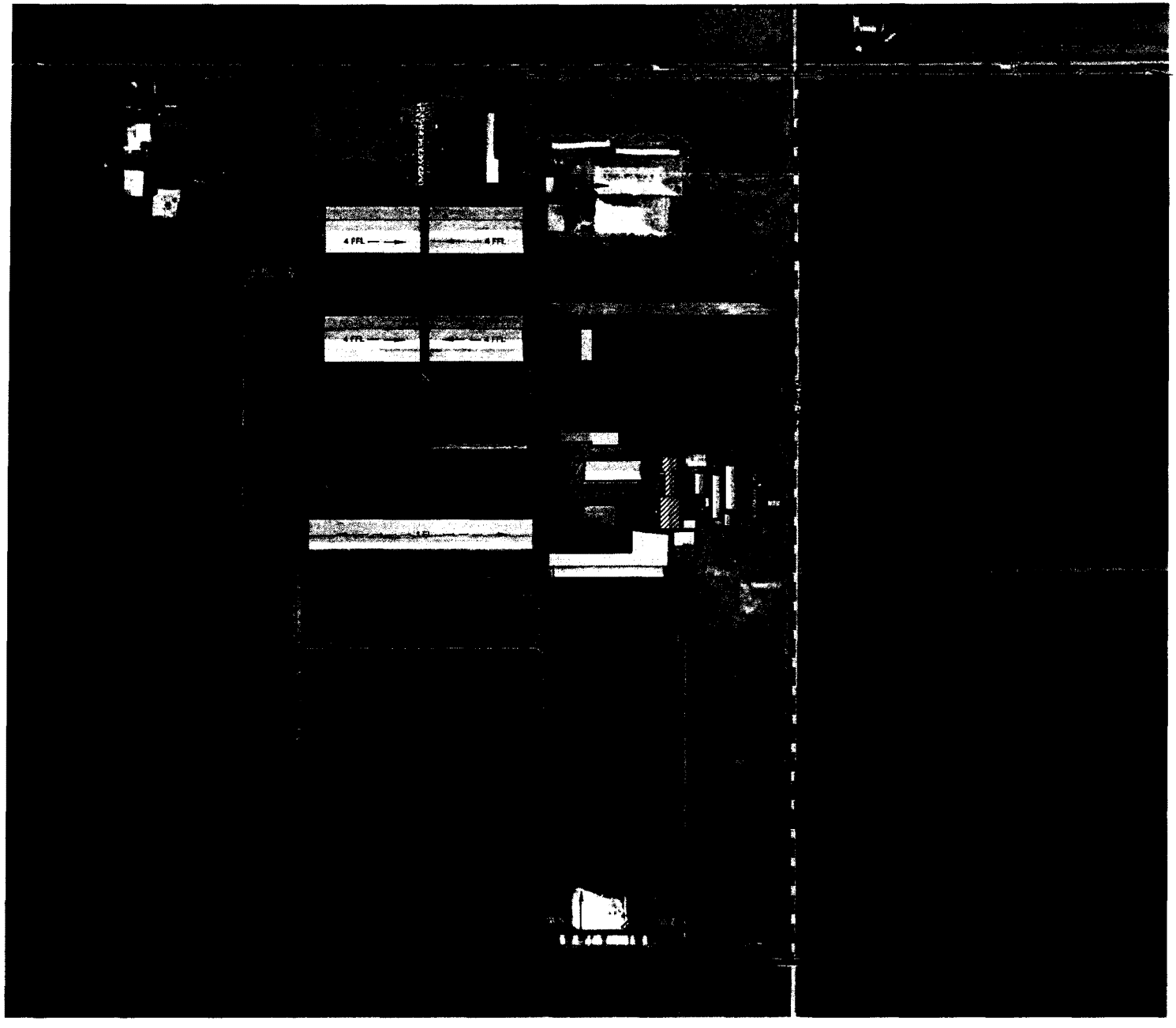
☐ Facility Boundary

| | | | | |
|---|---|---|---|---|
| THE SOURCE GROUP, INC.<br>3451-C VINCENT ROAD<br>PLEASANT HILL, CA 94523 | SCALE:<br>0 4000 8000<br>APPROXIMATE SCALE IN FEET | VACA VIEW DAIRY<br>TULARE COUNTY, CA | | **FIGURE 1**<br>TOPOGRAPHIC MAP |
| | PROJECT NO.<br>011-WDR-002 - TASK 300 | DATE:<br>6/21/10 | DRAWN BY:<br>SB | APP. BY:<br>TP |

300-WDR

## LEGEND

- Milk Barn
- Old Milk Barn
- Animal Housing/Shade
- Waste Water Storage
- Corral
- Shop
- Solids Settling Basin
- Commodity/Hay Barn
- Separator Area
- Solid Stacking Area
- Scraped Lane
- Mechanical Separator
- Feed Storage
- Drain
- Pump Point
- Irrigation Well
- Domestic Well
- Stormwater Flow
- Wastewater Pipeline
- Facility Boundary



N

SGI environmental THE SOURCE GROUP, INC.
3451-C VINCENT ROAD
PLEASANT HILL, CA 94523

SCALE:
0 400 600
APPROXIMATE SCALE IN FEET

VACA VIEW DAIRY
TULARE COUNTY, CA

| PROJECT NO. | DATE: | DRAWN BY: | APP. BY: |
|---|---|---|---|
| 011-WDR-002 - TASK 300 | 6/21/10 | SB | TP |

**FIGURE 2**
DAIRY FACILITY

300-WDR

## LEGEND

- Fields
- Tail Water Pond
- Domestic Well
- Irrigation Well
- Stand Pipe
- Tail Water
- Irrigation Pipeline
- Tail Water Pipeline
- Irrigation Flow
- B — Berms
- C — Canal
- SM — Solid Manure
- WW — Wastewater




| | | | | | |
|---|---|---|---|---|---|
| SGI environmental THE SOURCE GROUP, INC.<br>3451-C VINCENT ROAD<br>PLEASANT HILL, CA 94523 | SCALE:<br>0 1200 2400<br>APPROXIMATE SCALE IN FEET | VACA VIEW DAIRY<br>TULARE COUNTY, CA | | | **FIGURE 3**<br>DAIRY FIELDS |
| | PROJECT NO.<br>011-WDR-002 - TASK 300 | DATE:<br>6/27/10 | DRAWN BY:<br>SB | APP. BY:<br>TP | 300-WDR |

| | | | |
|---|---|---|---|
| shade | 3,276 | 1 | yard |
| shade | 2,400 | 1 | corral |
| shade | 52,976 | 1 | Wastewater pond |
| shade | 8,700 | 1 | Wastewater pond |
| shade | 12,800 | 1 | Wastewater pond |
| shade | 6,200 | 1 | Wastewater pond |
| shade | 4,840 | 1 | yard |
| shop | 630 | 1 | Wastewater pond |
| shop | 1,900 | 1 | yard |
| shop attachment | 216 | 1 | yard |

| | |
|---|---|
| Surface area that does not run off into pond(s): | 44,649 sq. ft. |
| Surface area that runs off into pond(s): | 231,712 sq. ft. |
| Total surface area: | 276,361 sq. ft. |
| Runoff from normal storage period rainfall: | 849,330 gallons/storage period |
| Runoff from normal storage period rainfall with 1.5 factor: | 1,273,995 gallons/storage period |
| 25 year/24 hour storm event runoff: | 303,332 gallons/storage period |
| Total surface area runoff: | 1,152,662 gallons/storage period |
| Total surface area runoff with 1.5 factor: | 1,577,327 gallons/storage period |

**D. EARTHEN AREAS**

| Name | Surface Area (sq. ft.) | Quantity | 25yr/24 Storm Coefficient | Storage Period Coefficient | Runoff Destination |
|---|---|---|---|---|---|
| dairy facility | 1,697,957 | 1 | 0.35 | 0.20 | Drains into pond(s). |

| | |
|---|---|
| Surface area that does not run off into pond(s): | 0 sq. ft. |
| Surface area that runs off into pond(s): | 1,697,957 sq. ft. |
| Total surface area: | 1,697,957 sq. ft. |
| Runoff from normal storage period rainfall: | 1,244,757 gallons/storage period |
| Runoff from normal storage period rainfall with 1.5 factor: | 1,867,135 gallons/storage period |
| 25 year/24 hour storm event runoff: | 777,973 gallons/storage period |
| Total surface area runoff: | 2,022,730 gallons/storage period |
| Total surface area runoff with 1.5 factor: | 2,645,108 gallons/storage period |

**E. TAILWATER MANAGEMENT**

*No fields with tailwater entered.*

## LIQUID STORAGE

**A. POND OR BASIN DESCRIPTION:** SSB

Pond is rectangular in shape: [X] Yes [ ] No

| Dimensions | | | |
|---|---|---|---|
| Earthen Length (EL): | 630 ft. | Earthen Depth (ED): | 7 ft. |
| Earthen Width (EW): | 168 ft. | Side Slope (S): | 1.4 ft. (h:1v) |
| Free Board (FB): | 1 ft. | Dead Storage Loss (DS): | 0.0 ft. |
| **Calculations** | | | |
| Liquid Length (LL): | 627 ft. | Storage Volume Adjusted for Dead Storage Loss: | 582,308 cu. ft. |
| Liquid Width (LW): | 165 ft. | | |
| Pond Surface Area: | 105,840 sq. ft. | Pond Marker Elevation: | 5.1 ft. |
| Storage Volume: | 582,308 cu. ft. | Evaporation Volume: | 667,762 gals/period |
| | | Adjusted Surface Area: | 102,605 sq. ft. |

**POND OR BASIN DESCRIPTION:** WWS

Pond is rectangular in shape: [X] Yes [ ] No

| Dimensions | | | |
|---|---|---|---|
| Earthen Length (EL): | 1,165 ft. | Earthen Depth (ED): | 18 ft. |
| Earthen Width (EW): | 134 ft. | Side Slope (S): | 0.7 ft. (h:1v) |
| Free Board (FB): | 1 ft. | Dead Storage Loss (DS): | 2.0 ft. |
| **Calculations** | | | |
| Liquid Length (LL): | 1,164 ft. | Storage Volume Adjusted for Dead Storage Loss: | 2,112,454 cu. ft. |
| Liquid Width (LW): | 133 ft. | | |
| Pond Surface Area: | 156,110 sq. ft. | Pond Marker Elevation: | 16.1 ft. |
| Storage Volume: | 2,363,976 cu. ft. | Evaporation Volume: | 998,829 gals/period |
| | | Adjusted Surface Area: | 153,476 sq. ft. |

| | | |
|---|---|---|
| Potential storage losses (due to dead storage): | 251,522.0 cubic feet - or - | 1,881,515.2 gallons |
| Liquid storage surface area: | 257,907 sq. ft. | |
| Rainfall onto retention pond(s): | 960,166 gallons/storage period | |
| Rainfall runoff into retention pond(s): | 2,611,322 gallons/storage period | |
| Normal rainfall onto retention pond(s) with 1.5 factor: | 1,440,249 gallons/storage period | |
| Normal rainfall runoff into retention pond(s) with 1.5 factor: | 3,916,983 gallons/storage period | |
| Storage period evaporation (default): | 13.92 inches/storage period | |
| Storage period evaporation (user-override): | inches/storage period | |

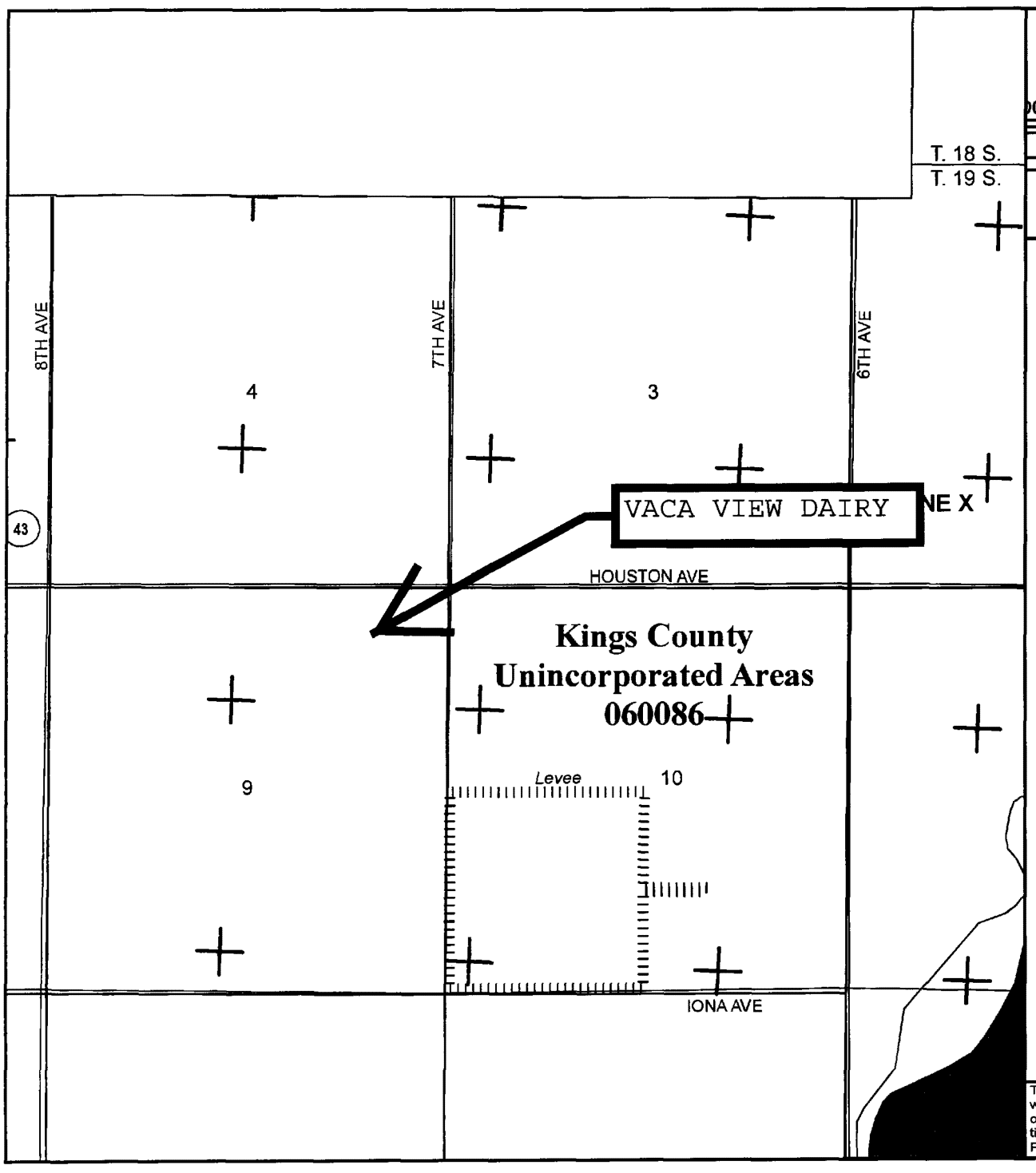
| | | |
|---|---|---|
| Storage period evaporation volume: | 1,666,591 | gallons/storage period |
| Manure and bedding sent to pond(s): | 2,268,466 | gallons/storage period |
| Milkbarn water sent to pond(s): | 5,172,000 | gallons/storage period |
| Fresh flush water for storage period: | 0 | gallons/storage period |

SGI Ag Services **THE SOURCE GROUP, INC.**

LAND APPLICATION AREA FIELD INFORMATION ATTACHMENT

**DAIRY NAME: Vaca View Dairy**
**DAIRY ADDRESS: 7205 Houston Ave, Hanford, CA 93230**

| APN | FIELD ID | ACRES | CROPS GROWN | OPERATED BY DAIRY OWNER | LEASED BY DAIRY OPERATOR | LEASED BY OTHER | NUTRIENTS APPLIED |
|---|---|---|---|---|---|---|---|
| 0016-0200-0028-0000 | 1 | 20 | corn/wheat | X | | | wastewater/solid manure |
| 0016-0200-0035-0000 | 2 | 58 | alfalfa | X | | | wastewater/solid manure |
| 0016-0200-0035-0000 | 3 | 10 | corn/wheat | X | | | wastewater/solid manure |
| 0016-0200-0011-0000 | 4 | 80 | strevia | | | X | wastewater/solid manure |
| 0016-0200-0019-0000 | 5 | 38 | tomato | | | X | wastewater/solid manure |
| 0016-0200-0011-0000 | 6 | 58 | tomato | | | X | wastewater/solid manure |
| 0016-0200-0019-0000 | 7 | 37 | tomato | | | X | wastewater/solid manure |
| 0016-0200-0033-0000 | 8 | 19 | tomato | | | X | wastewater/solid manure |
| 0016-0200-0041-0000 | 9 | 47 | corn/wheat | X | | | wastewater/solid manure |
| 0016-0200-0041-0000 | 10 | 49 | corn/wheat | X | | | wastewater/solid manure |
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MAP SCALE 1" = 2000'

00 0 2000 4000 FEET

0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0225C

# FIRM

## FLOOD INSURANCE RATE MAP

## KINGS COUNTY, CALIFORNIA

AND INCORPORATED AREAS

**PANEL 225 OF 875**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| HANFORD, CITY OF | 060088 | 0225 | C |
| KINGS COUNTY | 060086 | 0225 | C |

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP NUMBER**
**06031C0225C**

**EFFECTIVE DATE**
**JUNE 16, 2009**

**Federal Emergency Management Agency**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

This form consists of six parts and can be used to document compliance with the requirements in Waste Discharge Requirements General Order No. R5-2007-0035 for owners/operators of existing milk cow dairies (Dischargers) to:

1. Identify cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map;

2. Propose and schedule corrective action to prevent backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map; and/or

3. Document there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map.

The Discharger must complete this form except for Parts IV and V, which are to be completed by a trained professional[1]. Both the owner and the operator of the dairy must sign the certification statement in Part VI. Additional sheets may be attached as necessary to complete Parts I, II, and III.

A Site Map must be attached to this form that shows all water supply wells, irrigation wells, and surface water bodies in the dairy's Production Area and all Land Application Areas that are under the Discharger's control. The Site Map must also show all wastewater conveyance structures, wastewater discharge points to surface water, and where wastewater is mixed/blended with fresh irrigation water in these areas. Each of these locations must be identified by a name or number and listed in Part II below. Completion of Part II will identify how backflow can or does occur at each location and any current backflow preventive measures.

**PART I: DAIRY FACILITY INFORMATION**

A. Name of Dairy or Business Operating the Dairy: Vaca View Dairy

Physical address of Dairy:

| 7205 Houston Ave | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

B. Operator Name: Joe Mendes Telephone No: 559-582-4906

Operator mailing address:

| 3790 Lacey Blvd | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

C. Owner Name: Robin Martella Telephone No: 559-752-1019

Owner Mailing Address:

| 12051 8th Ave | Hanford | Kings | 93230 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

[1] A trained professional could be a person certified by the American Backflow Prevention Association, an inspector for a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training.

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

**PART II: IDENTIFICATION OF EXISTING BACKFLOW CONDITIONS (due by 1 July 2008)**
The attached Site Map identifies all of the locations in the Production Area and all Land Application Areas under the control of the Discharger at the dairy identified in Part I above where there are cross-connections that could, or do, allow the backflow of wastewater into a water supply well, irrigation well, or surface water. For each location shown on the map, the table below describes:

a. How and where wastewater can potentially, or does, backflow to a groundwater supply and/or surface water supply (if there are no current or potential backflow problems, indicate so with "none"), and

b. How backflow of process wastewater into the groundwater or surface water supply is currently prevented (if there is no current prevention method, indicate so with "none").

| Location Where Backflow can Occur | How Backflow Can or Does Occur | Current Backflow Preventive Measure |
|---|---|---|
| Ag 1 | Mixing of freshwater and wastewater in pipeline | none |
| Ag 2 | Mixing of freshwater and wastewater in pipeline | none |
| Ag 3 | Mixing of freshwater and wastewater in pipeline | none |
| Ag 4 | Mixing of freshwater and wastewater in pipeline | none |
| | | |
| | | |
| | | |
| | | |
| | | |

Potential for backflow of wastewater into surface water was not inspected. Self certification form will be completed by producer.

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

## PART III: PROPOSED BACKFLOW CORRECTIVE ACTIONS AND SCHEDULE (due by 1 July 2008)

For each location identified in Part II above where there is currently no backflow prevention, the table below identifies:

a. The method proposed to be implemented that will prevent backflow, and

b. A schedule to install the preventive measure.

If there are no current or potential backflow problems identified in Part II above, this Part does not need to be completed.

| Location With No Current Backflow Prevention | Proposed Backflow Prevention Method | Schedule to Install Proposed Backflow Prevention Method |
|---|---|---|
| Ag 1 | air gap | July 2009 |
| Ag 2 | air gap | July 2009 |
| Ag 3 | air gap | July 2009 |
| Ag 4 | air gap | July 2009 |
| | | |

## PART IV: DOCUMENTATION OF EXISTING BACKFLOW CONDITIONS AND PROPOSED BACKFLOW PREVENTION METHODS (due by 1 July 2008)

*As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named above and my personal examination of the wastewater system, the above information in Part II above is true, accurate, and complete and the proposed backflow prevention method in Part III above will be effective to prevent the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.*

CDQAP Backflow Training Course

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

SIGNATURE OF TRAINED PROFESSIONAL — DATE 6/17/10

Kristy Rocha Cordeiro

PRINT OR TYPE NAME

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

**PART V: DOCUMENTATION THAT THERE ARE NO CROSS-CONNENCTIONS THAT WOULD ALLOW THE BACKFLOW OF WASTEWATER INTO A WATER SUPPLY WELL, IRRIGATION WELL, OR SURFACE WATER (due by 1 July 2009)**

*As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named in Part I above and my personal examination of the wastewater system, that the backflow prevention methods proposed in Part III above (if any) have been completed, and/or there are currently no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.*

CDQAP Backflow Training Course

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

SIGNATURE OF TRAINED PROFESSIONAL — DATE: 6/28/10

Kristy Rocha Cordeiro

PRINT OR TYPE NAME

**PART VI: OWNER AND/OR OPERATOR CERTIFICATION**

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| | |
|---|---|
| SIGNATURE OF OWNER | SIGNATURE OF OPERATOR |
| Robin Martella | Joe Mendes |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| DATE 6/23/10 | DATE 6-28-10 |

# Appendix G

## Geotechnical Engineering Report

# GEOTECHNICAL ENGINEERING INVESTIGATION REPORT
# PROPOSED BIDA SYSTEM – SOZINHO NO. 5 DAIRY
# 12252 7TH AVENUE
# HANFORD, CALIFORNIA 93230

BSK PROJECT G24000678

PREPARED FOR:

4-CREEKS, INC.
324 S. SANTA FE STREET, SUITE A
VISALIA, CALIFORNIA 93292

JUNE 21, 2024

**GEOTECHNICAL ENGINEERING INVESTIGATION REPORT**
**PROPOSED BIDA SYSTEM – SOZINHO NO. 5 DAIRY**
**12252 7TH AVENUE**
**HANFORD, CALIFORNIA 93230**

Prepared for:

4-Creeks, Inc.
324 S. Santa Fe Street, Suite A
Visalia, California 93292

BSK Project: G24000678

June 21, 2024

Prepared by:

Adrian Sizemore, EIT
Staff Professional II




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# 1 INTRODUCTION

## 1.1 General

This report presents the results of our geotechnical engineering investigation for the proposed BIDA water treatment system to be constructed at Sozinho No. 5 Dairy in Hanford, California as shown on the Site Vicinity Map, Figure 1. The geotechnical engineering investigation was conducted in general accordance with the scope of services outlined in BSK Proposal G24000678, dated April 5, 2024. The proposed improvements and exploratory borings and tests are shown on Figure 2, Boring Location Map.

In the event that significant changes occur in the design or location of the proposed improvements, the conclusions and recommendations presented in this report will not be considered valid unless the changes are reviewed by BSK, and the conclusions and recommendations are modified or verified in writing as necessary.

## 1.2 Project Description

BSK understands that the project consists of the completion of a geotechnical analysis for the proposed BIDA water treatment system at Sozinho No. 5 Dairy, located at 12252 7$^{th}$ Avenue, in Hanford, California. The proposed system consists of two (2) 60 foot by 1000-foot beds. The beds are anticipated to be raised lengthwise in the center with a three percent (3%) cross slope to the edge on either side. The BIDA beds are anticipated to be constructed entirely above ground, and the anticipated maximum height of the beds is approximately one (1) foot above ground surface. Concrete drainage channels and barrier curbs will also be constructed lengthwise along the outside edges of the beds. The base of the beds will contain layers of materials consisting of a liner, plastic pallets, and shade mesh. The beds will be constructed side by side lengthwise with 20 feet of separation.

Other improvements are anticipated to include underground utilities and other miscellaneous structures supported on mat footings. Maximum loading on structures is anticipated to be less than 1,000 psf.

If the project description differs significantly from that anticipated above, we should be notified so that we can review our scope of work for applicability.

## 1.3 Purpose and Scope of Services

The purpose of the geotechnical investigation is to assess soil conditions at the project site and provide geotechnical engineering recommendations for use by the project designers. The scope of the investigation included a field exploration, laboratory testing, engineering analysis, and preparation of this report.

# 2 FIELD INVESTIGATION AND LABORATORY TESTING

## 2.1 General

The field exploration, conducted on May 31, 2024, consisted of a site reconnaissance and drilling three (3) exploratory test borings. The borings were drilled to depths of approximately 21.5 feet below ground surface (bgs) within the proposed improvement locations. The test borings were drilled with a truck-mounted drill rig, equipped with 8-inch augers. The approximate boring locations are presented on Figure 2. Details of the field exploration and the boring logs are provided in Appendix A.

## 2.2 Laboratory Testing

Laboratory testing of selected soil samples were performed to evaluate certain physical, chemical, and engineering characteristics and properties. The testing program included: in-situ moisture and density, gradation, direct shear, collapse potential, and corrosion potential. The in-situ moisture and dry density test results are presented on the boring logs in Appendix A. Descriptions of the laboratory test methods, and test results are provided in Appendix B.

# 3 SITE CONDITIONS

## 3.1 Site Description

The proposed improvements will be situated within the Sozinho No. 5 Dairy facility, which generally contains agricultural fields, access roads, lagoons, and other dairy improvements including shade structures. The existing corrals contain manure at the surface and miscellaneous improvements such as fences and feed troughs. The area containing the proposed BIDA beds included an agricultural field and was bound to the north by the existing Sozinho No. 5 Dairy facility with Houston Avenue and agricultural fields beyond, to the east by the existing Sozinho No. 5 Dairy facility with 7th Avenue and agricultural fields beyond, to south and west by unpaved access roads with agricultural fields beyond. The depths of the existing lagoons were not provided. The site also contained pumps and other dairy infrastructure.

## 3.2 Subsurface Conditions

The near surface soil consisted of silty sand and clayey sand underlain by layers of silty sand, clay with varying sand content, and poorly graded sand with silt to the maximum depth explored (21.5 feet bgs). The boring logs in Appendix A provide a more detailed description of the soils encountered in each boring, including the applicable Unified Soil Classification System symbols. The approximate locations of the soil borings are shown on the Boring Location Map (Figure 2).

## 3.3 Groundwater

Groundwater was not encountered at the completion of our field exploration, March 20, 2024. The California Department of Water Resources indicates the depth to regional groundwater at the project

site is greater than 50 feet bgs. However, fluctuations in the groundwater level or the presence of perched groundwater may occur due to variations in rainfall, irrigation, seasonal factors, pumping from wells, and other factors that were not evident at the time of our investigation.

# 4 CONCLUSIONS AND RECOMMENDATIONS

## 4.1 General

Based upon the data collected during this investigation and from a geotechnical engineering standpoint, it is our opinion that there are no soil conditions that would preclude the construction of the proposed improvements, provided the recommendations presented in this report are incorporated into the project design and construction. The planned improvements may be supported on shallow isolated/continuous reinforced concrete spread footings, thickened mat foundations, and/or pole footings provided the structural engineer evaluate if the structure can tolerate the estimated settlement shown in Section 4.6.

## 4.2 Soil Corrosivity

One (1) surface soil sample obtained from the site was tested to provide a preliminary screening of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts. The test results are presented in Appendix B. The soil was evaluated for minimum resistivity and pH (CT 643), soluble sulfate (CT 417), and chlorides (CT 422).

The water-soluble sulfate is considered Exposure Category S0 per Table 19.3.1.1 of ACI 318-19. The water-soluble chloride content severity class depends on the ability to protect the soils from moisture. The chloride content with moisture would be considered Exposure Category C0 per Table 19.3.1.1 of ACI 318-19. Type I/Type II cement is recommended for use in the formulation of concrete. Other recommendations for concrete by exposure type should reference Table 19.3.2.1 in ACI 318-19.

The site soils minimum resistivity is high and is considered potentially mildly corrosive to buried metal. Buried reinforcing steel protection be provided with the minimum concrete cover required by the American Concrete Institute (ACI) Building Code for Structural Concrete, ACI 318, Chapter 7.7 and 20.5.1. Buried metal conduits, ferrous metal pipes, and exposed steel must have protective coatings in accordance with the manufacturer's specifications. Based on the anticipated groundwater, and exposure category, there are no restrictions for cement type and maximum water-cement ratio. If detailed recommendations for corrosion protection are desired, a corrosion specialist should be consulted.

## 4.3 Seismic Design Criteria

There are no known active fault zones within the vicinity of the project site. In accordance with Section 1613.2.2 of the 2022 California Building Code (CBC) and Table 20.3-1 of ASCE 7-16, the site can be classified as Site Class D (stiff soil profile).

Use of the 2022 California Building Code (CBC) seismic design criteria is considered appropriate and the following parameters are considered applicable for the structural design of foundations.

**Table 1: 2022 California Building Code (CBC) Seismic Design Parameters**

| Seismic Design Parameter | 2022 CBC Value | | Reference |
|---|---|---|---|
| MCE Mapped Spectral Acceleration (g) | $S_S$ = 0.705 | $S_1$ = 0.259 | USGS Mapped Value |
| Amplification Factors (Site Class D) | $F_a$ = 1.236 | $F_v$ = null[1](2.082)[2] | ASCE Table 11.4 |
| Site Adjusted MCE Spectral Acceleration (g) | $S_{MS}$ = 0.872 | $S_{M1}$ = null[1](0.539)[2] | ASCE Equations 11.4.1-2 |
| Design Spectral Acceleration (g) | $S_{DS}$ = 0.581 | $S_{D1}$ = null[1] (0.359)[2] | ASCE Equations 11.4.1-4 |
| Geometric Mean PGA (g) | $PGA_M$ = 0.397 | | Section 11.8.3, ASCE 7-16 |
| Site Short Period – $T_s$ (seconds) | $T_s$ = 0.619 | | $T_s = S_{D1}/ S_{DS}$ |
| Site Long Period – $T_L$ (seconds) | $T_L$ = 12 | | USGS Mapped Value |

Notes: [1] Requires site-specific ground motion procedure or exception as per ASCE 7-16 Section 11.4.8.

[2] Values from ASCE 7-16 supplement shall only be used to calculate $T_s$. Values provided based on use of exception, as provided in Section 11.4.8.2 to Site-Specific Ground Motion Procedures and assumes the value of the seismic response coefficient $C_s$ is determined by Eq. 12.8-2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either Eq. 12.8-3 for $T_L \geq T > 1.5T_s$ or Eq. 12.8-4 for $T > T_L$. The 1.5 increase has not been applied to the values presented.

As shown above, the short period design spectral response acceleration coefficient, $S_{DS}$, is greater than 0.5, therefore the Site lies in Seismic Design Category D as specified in Section 1613.2.5 of the 2022 CBC. The long period design spectral response acceleration coefficient, $S_{D1}$, is greater than 0.2, therefore the Site lies in Seismic Design Category D as specified in Section 1613.2.5 of the 2022 CBC. In accordance with the 2022 CBC, each structure shall be assigned to the more severe seismic design category in accordance with Table 1613.2.5(1) or 1613.2.5(2), irrespective of the fundamental period of vibration of the structure.

## 4.4 Slope Stability

Based upon the provided plan sheet dated March 28, 2024, the maximum height and gradient of the slopes of the proposed BIDA beds were assumed to be two (2) feet and three percent (3%), respectively.

Due to the relatively flat slope of the beds, general slope stability analysis was performed using Janbu indicated slopes have a factor of safety greater than 1.5. Based upon the provided plan sheet dated February 27, 2024, the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that there are no soil conditions that would preclude the construction of the proposed beds provided that the recommendations presented in the references report are incorporated into the project design and construction. The proposed beds may be designed/constructed with a maximum height of 2 feet above ground surface with slopes of 3 percent.

### 4.5 Site Preparation and Earthwork Construction

The following procedures must be implemented during site preparation for the proposed improvements. It should be noted that references to maximum dry density, optimum moisture content, and relative compaction are based on ASTM D1557 (latest test revision) laboratory test procedures.

1. Prior to any site grading, all miscellaneous surface obstructions must be removed from the improvement area. Near surface soils containing vegetation, roots, organics, compost, or other objectionable material must be stripped to a depth of at least 3-inches to expose a clean soil surface. Surface strippings must not be incorporated into engineered fill unless the organic content is less than 3 percent by weight (ASTM D2974).
2. Existing utilities or irrigation pipes must be removed to a point at least 5-feet horizontally outside the proposed improvement area. Resultant cavities must be backfilled with engineered fill. Abandoned pipelines to remain that are less than 2 inches in diameter must be capped at the cutoff point, while pipelines greater than 2 inches in diameter must be filled with a 1-sack sand-cement slurry.
3. Soil disturbed as a result of undocumented fill, debris, and abandoned underground structures must be excavated to expose undisturbed native soil.
4. Following the required stripping, and/or removal of underground structures, the exposed soil surface in proposed at-grade improvement areas including foundations or lightly loaded concrete structures must be over-excavated uniformly to a depth of 24 inches below existing site grade or 12 inches below the bottom of the proposed foundation, whichever is deeper. The over-excavation must extend at least 5 feet laterally beyond the outside edge of the proposed foundation or areas to receive fill, whichever distance is greater. The exposed subgrade must be proof-rolled under the observation of a BSK field representative to detect soft or pliant areas. Soft or pliant areas must be over-excavated to firm native soil. The exposed surface must be scarified at minimum of 8 inches, uniformly moisture conditioned to within 2 percent of optimum moisture, and compacted to 90 percent relative compaction.
5. Engineered fill in areas of at-grade structures must consist of non-expansive soil (EI < 20), moisture conditioned to at or above optimum moisture, and compacted to 90 percent relative compaction. Excavated soils, free of deleterious substances (organic matter, demolition debris,

tree roots, etc.), meeting requirements for engineering fill below, and with less than 3 percent organic content by weight, may be reused as engineered fill for the backfill.

6. Engineered fill must be placed in uniform layers not exceeding 8-inches in loose thickness, moisture-conditioned and compacted as recommended above. Acceptance of engineered fill placement must be based on both moisture content at time of compaction and relative compaction.

7. Imported fill materials must be free of deleterious substances and have less than 3 percent organic content by weight. The project specifications must require the contractor to contact BSK for review of the proposed import fill materials for conformance with these recommendations at least two weeks prior to importing to the site, whether from on-site or off-site borrow areas. Imported fill soils must be non-hazardous and be derived from a single, consistent soil type source conforming to the following criteria:

| | |
|---|---|
| Maximum Particle Size: | 3-inches |
| Percent Passing #4 Sieve: | 65 – 100 |
| Percent Passing #200 Sieve: | 20 – 45 |
| Plasticity Index: | less than 12 |
| Expansion Index: | < 20 |
| | |
| Low Corrosion Potential: | |
| Soluble Sulfates: | < 1,500 mg/kg |
| Soluble Chlorides: | < 300 mg/kg |
| Soil Resistivity: | > 2,000 ohm-cm |

Grading operations must be scheduled as to avoid working during periods of inclement weather. Should these operations be performed during or shortly following periods of inclement weather, unstable soil conditions may result in the soils exhibiting a "pumping" condition. This condition is caused by excess moisture, in combination with compaction, resulting in saturation and near zero air voids in the soils. If this condition occurs, the affected soils must be over-excavated to the depth at which stable soils are encountered and replaced with suitable soils compacted as engineered fill. Alternatively, the Contractor may proceed with grading operations after utilizing a method to stabilize the soil subgrade, which must be subject to review by BSK prior to implementation.

### 4.6 Shallow, Mat, and Pole-Type Foundations

Provided the recommendations contained in this report are implemented during design and construction, it is our opinion that the proposed structures can be supported on shallow, mat, or pole-type foundations. A structural engineer must evaluate reinforcement and embedment depth based on the requirements for the structural loadings.

### *4.6.1 Shallow Foundations*

The proposed at-grade structures may be supported on reinforced concrete spread footings bearing on engineered fill. Footing design must follow the criteria listed below:

The allowable bearing pressure applies to the dead load plus live load (DL + LL) condition. Footing design must follow the criteria listed in Table 2.

**Table 2: Allowable Bearing Pressure**

| Footing Embedment[(1)] (inches) | Minimum Footing Width (inches) | | Allowable Bearing Capacity[(2)] (psf) | |
|---|---|---|---|---|
| | Continuous Footing | Isolated Spread Footing | Continuous Footing | Isolated Spread Footing |
| 12 | 12 | 24 | 1,100 | 3,000 |

Note: (1) – Measure with respect to the lowest adjacent subgrade surface.
(2) – The bearing pressure can be increased one-third for transient loading such as wind or seismic.

The estimated total and differential settlement for the recommended spread footings is shown below:

**Table 3: Anticipated Post-Construction Settlement**

| Footing Type | Post-Construction Settlement (inches) | Differential Settlement (inches) | Angular Distortion |
|---|---|---|---|
| Continuous | 1.0 | -- | 0.005 |
| Isolated | 1.0 | 0.5 | -- |

Isolated footing differential settlement is based on adjacent similarly loaded footings spaced at 30-feet. The settlement values given above are applicable to the maximum loading conditions. For loads, other than the design maximum loads, the settlements can be decreased proportionally.

### *4.6.2 Mat Foundations*

The proposed miscellaneous structures may be supported on a thickened mat/slab foundation. The foundation may be designed for a maximum allowable bearing pressure of 600 psf (DL + LL), which may be increased by 1/3 for transient loading, such as wind or seismic. Estimated total settlement for mat/slabs is approximately 1.0 inch. Differential settlement across mat/slab foundations is anticipated to be on the order of about half of the total settlement over the length of the mat foundation. The weight of the concrete should be included in evaluating the contact pressure at the base of mat/slab

foundations. The weight of embedded concrete can be reduced by the unit weight of soil times the depth of embedded concrete.

Mat foundations must be a minimum of 4-inches thick and must be supported on a compacted subgrade prepared in accordance with the "Site Preparation and Earthwork Construction" section of this report. In order to regulate cracking of the slabs, construction joints and/or saw-cut control joints must be provided in each direction at a maximum spacing of 10 feet on centers along with steel reinforcement as recommended by the project's Structural Engineer. Control joints must have a minimum depth of one-quarter of the slab thickness. It is recommended that steel reinforcement used in concrete slabs-on-grade consist of steel rebar. Structural concrete slabs-on-grade may be designed using an unadjusted long-term Modulus of Subgrade Reaction (Ks) of 150 pounds per cubic inch (pci) constructed on a properly compacted subgrade or engineered fill. This value is based on the correlations to soil strength using one foot by one-foot plate-load tests and should therefore be scaled (adjusted) to the actual slab width. The adjusted Ks value can be obtained by multiplying the value provided above by $[(B+B_1)/(2B)]^2$, where B is the slab width in feet and $B_1$ is 1 foot (width of a one foot by one foot plate-load test apparatus).

### *4.6.3 Pole Type Foundations*

Structures such as stadium lighting, signs, etc. may be supported on pole type foundations. This type of foundation must be designed in accordance with Section 1807.3 of the 2022 CBC. However, it is recommended that an allowable lateral soil bearing pressure of 220 psf per foot of embedment be used to develop parameters $S_1$ and $S_3$ rather than one of the values given in Table 1806.2. This value includes a factor of safety of 2 and may be increased as indicated by 1806.3 and the footnotes to Table 1806.2. Unless the area surrounding the pole, foundation is paved or covered with concrete flatwork, the upper 24 inches of soil should be ignored when calculating the minimum depth of embedment.

The following table provides expressions for the allowable and ultimate axial capacity using friction to resist axial loads. The skin friction within the upper two feet of embedded length must be ignored in unpaved areas. The total settlement of pier foundations designed in accordance with these recommendations should not exceed one-half inch.

| Table 4: Friction Resistance for Vertical Loads | |
|---|---|
| **Allowable (lbs)** | **Ultimate (lbs)** |
| $50\ DL^2$ | $125\ DL^2$ |

Note (1) – D is pile diameter (feet), and L is the total embedment length (feet).

Prior to placing concrete, loose or disturbed soils must be removed from the bottom of the drilled pier excavations using a flat bottom clean-out bucket or other pre-approved method. A representative of BSK must observe the drilling and clean-out associated with the construction of pier foundations in

order to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

Pier deflection may govern the design lateral resistance. If provided with pier geometry, lateral load, and loading eccentricity, the estimated pier head deflection can be provided.

### 4.7 Lateral Earth Pressures and Frictional Resistance

Lateral loads applied against foundations may be resisted by a combination of passive resistance against the vertical faces of the foundations and friction between the foundation bottom and the supporting subgrade. An unfactored coefficient of friction of 0.36 may be used between soil subgrade and precast foundation bottoms, or 0.73 between soil subgrade and cast-in-place foundation bottom. The unfactored passive pressure is presented in Table 5. The coefficient of friction and passive earth pressure values given above represent ultimate soil strength values. BSK recommends that a safety factor consistent with the design conditions be included in their usage. For resistance against lateral sliding that is countered solely by the passive earth pressure against footings or friction along the bottom of footings, a minimum safety factor of 1.5 is recommended. For stability against lateral sliding that is resisted by combined passive pressure and frictional resistance, a minimum safety factor of 2.0 is recommended. For lateral resistance against seismic loading conditions, a minimum safety factor of 1.2 is recommended. We based these lateral resistance values on the assumption that the concrete for the foundations is either placed directly against undisturbed soils or that the voids created from the use of forms are backfilled with engineered fill or other approved materials, such as lean concrete. Passive resistance in the upper foot of soil cover below finished grades should be neglected unless the ground surface is confined by concrete slabs, pavements, or other such positive protection.

The following earth pressure parameters may be used for designing earth-retaining structures and foundations.

**Table 5: Lateral Earth Pressures**

| Lateral Pressure Conditions | Equivalent Fluid Pressure (pcf) |
|---|---|
| Active Pressure | 35 |
| At-Rest Pressure | 55 |
| Passive Pressure | 435 |

Parameters are shown in the above table for drained conditions of select engineered fill or prepared native soil. In addition, the drained condition assumes that positive drainage will be provided away from the structure improvements and that water does not accumulate around the structure and cause a build-up of hydrostatic pressure.

## 4.8 Excavation Stability

Soils encountered within the upper 10 feet are generally Type C soil in accordance with OSHA (Occupational Safety and Health Administration). The slopes surrounding or along temporary excavations must be no steeper than 2.5H:1V to a maximum depth of 10 feet. As stated above, relatively cohesionless soils were encountered within the test borings, as such, it may be necessary to lay back slopes flatter to facilitate construction. Temporary excavations for the project construction must be left open for as short a time as possible, must be protected from water runoff, and must be scheduled as to avoid working during periods of inclement weather (e.g., rain). No equipment should be operated within 8 feet of the top of the slope. Slope height, slope inclination, and excavation depths (including utility trench excavations) must in no case exceed those specified in local, state, or federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations 29 CFR Part 1926, or successor regulations). These excavation recommendations are based on soil characteristics derived from the borings. Variations in soil conditions will likely be encountered during excavation. At the time of construction, BSK must be afforded the opportunity to observe and document sloping and shoring conditions, and the opportunity to provide review of actual field conditions to account for condition variations not otherwise anticipated in the preparation of these recommendations.

## 4.9 Utility Trench Excavation and Backfill

Pipes and conduits must be bedded and shaded in accordance with the requirements of the pipe manufacturer. Where no specific requirements exist, we recommend a minimum of 6-inches of sand bedding material for pipe installations 12 to 24-inches in diameter. For pipe diameters smaller than 12-inches, the bedding thickness may be reduced to 4-inches. For HDPE pipe installations/construction, sand bedding is not required, and the on-site soil can be used as backfill. The bedding material and envelope (up to 6-inches above the pipe) must consist of sand (Sand Equivalent greater than 30), be placed in loose lifts not exceeding 8-inches in thickness, compacted to at least 90 percent of the maximum dry density, and moisture conditioned to within 2 percent of optimum moisture content. Water jetting to attain compaction must not be allowed.

Adequate excavation width must be provided to permit uniform compaction on both sides of utility lines installed within the trench. The trench backfill material may consist of engineered fill. Trench backfill outside the containment area must be placed in loose lifts not to exceed 8-inches in loose thickness, compacted to 90 percent of the maximum dry density, and moisture conditioned to 2 percent above optimum moisture content. Conduits extending through or below footings must be “sleeved” as determined by the Project Structural Engineer

## 4.10 Surface Drainage Control

Final grading around site improvements must provide for positive and enduring drainage. Ponding of water must not be allowed on or near the proposed structures. Saturation of the soils immediately

adjacent to or below structures must not be allowed. Although landscaping is not anticipated, irrigation water must be applied in amounts not exceeding those required to offset evaporation, sustain plant life, and maintain a relatively uniform moisture profile around and below site improvements. Fill elevations are anticipated to be less than 3 feet above natural grade to achieve positive site drainage.

## 5 PLANS AND SPECIFICATIONS REVIEW

BSK recommends that it be retained to review the draft plans and specifications for the project, with regard to foundations and earthwork, prior to there being finalized and issued for construction bidding.

## 6 CONSTRUCTION TESTING AND OBSERVATIONS

Geotechnical testing and observation during construction is a vital extension of this geotechnical investigation. BSK recommends that it be retained for those services. Field review during site preparation and grading allows for evaluation of the exposed soil conditions and confirmation or revision of the assumptions and extrapolations made in formulating the design parameters and recommendations. BSK's observations must be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. BSK must also be called to the site to observe foundation excavations, prior to placement of reinforcing steel or concrete, in order to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report. BSK must also be called to the site to observe placement of foundation and slab concrete.

If a firm other than BSK is retained for these services during construction, that firm must notify the owner, project designers, governmental building officials, and BSK that the firm has assumed the responsibility for all phases (i.e., both design and construction) of the project within the purview of the geotechnical engineer. Notification must indicate that the firm has reviewed this report and any subsequent addenda, and that it either agrees with BSK's conclusions and recommendations or that it will provide independent recommendations.

## 7 LIMITATIONS

The analyses and recommendations submitted in this report are based upon the data obtained from the test borings performed at the locations shown on Figure 2. The report does not reflect variations, which may occur between or beyond the borings. The nature and extent of such variations may not become evident until additional exploration and testing is performed, or construction is initiated. If variations then appear, a re-evaluation of the recommendations of this report will be necessary after performing on-site observations during the excavation period and noting the characteristics of the variations.

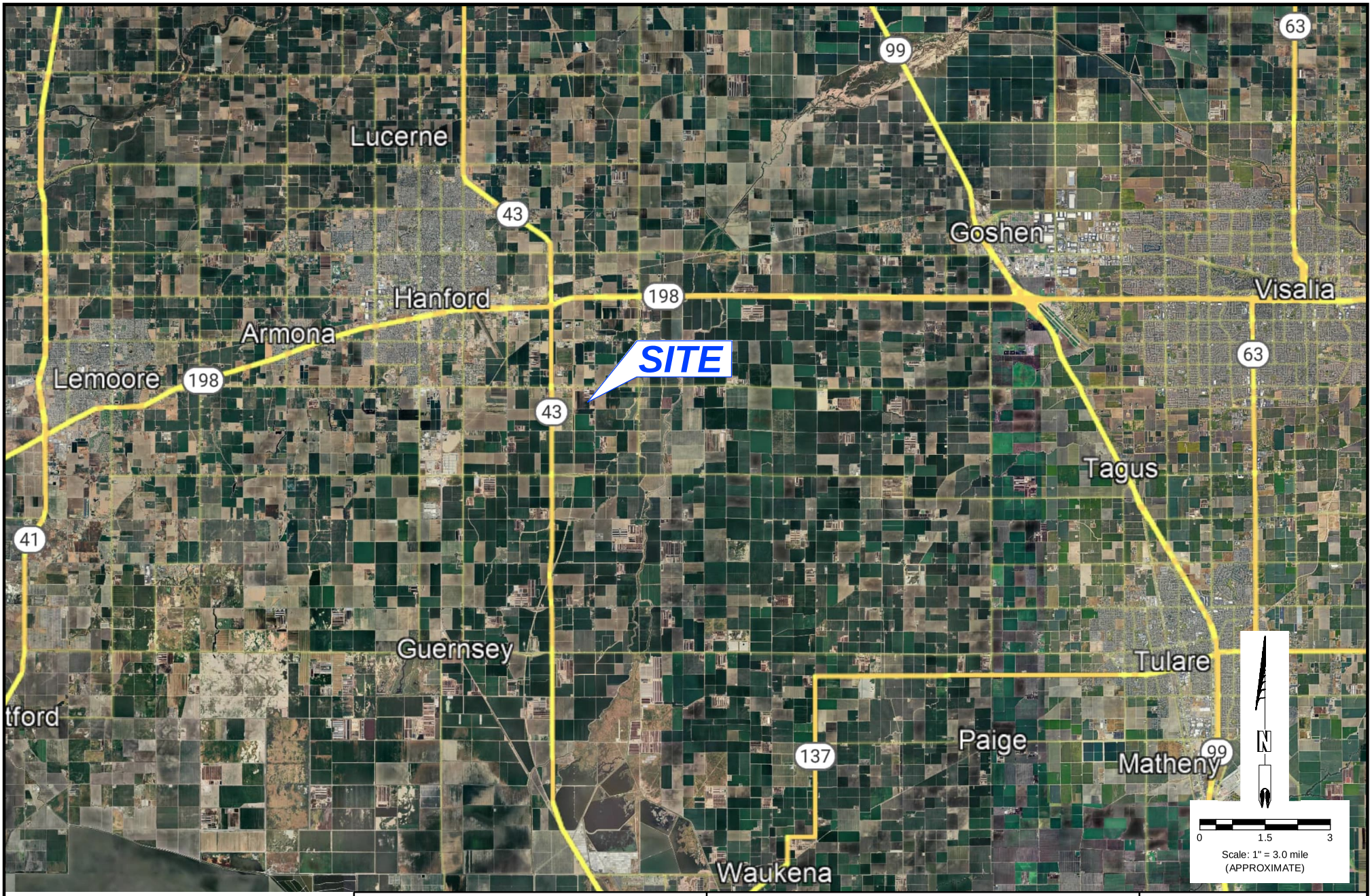
The validity of the recommendations contained in this report is also dependent upon an adequate testing and observation program during the construction phase. BSK assumes no responsibility for

construction compliance with the design concepts or recommendations unless it has been retained to perform the testing and observation services during construction as described above.

The findings of this report are valid as of the present. However, changes in the conditions of the site can occur with the passage of time, whether caused by natural processes or the work of man, on this property or adjacent property. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation, governmental policy, or the broadening of knowledge.

BSK has prepared this report for the exclusive use of the Client and members of the project design team. The report has been prepared in accordance with generally accepted geotechnical engineering practices, which existed in Kings County at the time the report was written. No other warranties, either express or implied, are made as to the professional advice provided under the terms of BSK's agreement with Client and included in this report.

# FIGURES




C:\Users\tgonzalez\BSK Associates\BSK Documents - GEO\G24000678-Sozinho #5 Dairy - BIDA System\Graphics\G24000678.dwg User:tgonzalez Plotted:Jun 06, 2024 - 2:30pm Last Save:May 28, 2024 - 1:48pm

REFERENCE IMAGE: Google Earth

BSK ASSOCIATES
691 N. Laverne Avenue #101
Fresno, California 93727
Tel. (559) 497-2880

# SITE VICINITY MAP

Sozinho #5 Dairy - BIDA System
12252 7th Avenue
Hanford, California

FIGURE 1

JOB NO. G24-000-678
DATE June 6, 2024
DR. BY TG
CH. BY NP
SCALE AS SHOWN
SHEET NO. 1
OF 1 SHEETS

C:\Users\tgonzalez\BSK Associates\BSK Documents - GEO\G24000678-Sozinho #5 Dairy - BIDA System\Graphics\G24000678.dwg User:tgonzalez Plotted:Jun 06, 2024 - 2:29pm Last Save:May 28, 2024 - 1:48pm




LEGEND:

B-3 APPROXIMATE BORING LOCATIONS

REFERENCE IMAGE: Google Earth

BSK ASSOCIATES
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Fresno, California 93727
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# BORING LOCATION MAP

Sozinho #5 Dairy - BIDA System
12252 7th Avenue
Hanford, California

FIGURE 2

JOB NO. G24-000-678
DATE June 6, 2024
DR. BY TG
CH. BY NP
SCALE AS SHOWN
SHEET NO. 1
OF 1 SHEETS

# APPENDIX A

# FIELD EXPLORATION

**APPENDIX A**
**Field Exploration**

The field exploration, conducted on May 31, 2024, consisted of a site reconnaissance and drilling three (3) exploratory test borings. The borings were drilled to depths of approximately 21.5 feet below ground surface (bgs) within the proposed improvement locations. The test borings were drilled with a truck-mounted drill rig, equipped with 8-inch augers. The approximate boring locations are presented on Figure 2.

The soil materials encountered in the test borings were visually classified in the field, and logs were recorded during the excavation and sampling operations. Visual classification of the materials encountered in the test borings were made in general accordance with the Unified Soil Classification System (ASTM D2487). A soil classification chart is presented herein. Boring logs are presented herein and should be consulted for more details concerning subsurface conditions.

Subsurface samples were obtained at the various depths shown on the boring logs by driving samplers which consisted of a 2.5-inch inside diameter (I.D.) lined with stainless sleeves and 1.4-inch I.D. Standard Penetration Test (SPT) sampler. The samplers were driven 18 inches using a 140-pound, automatic hammer dropping 30 inches. The number of blows required to drive the last 12 inches was recorded as the blow count (blows/foot) on the log of borings. The relatively undisturbed soil core samples were capped at both ends to preserve the samples at their natural moisture content. Disturbed soil samples were obtained using the Split-Spoon Sampler (marked X in logs) and were placed and sealed in polyethylene bags. At the completion of the field exploration, the test borings were backfilled with the soil cuttings, as set forth in BSK's proposal.

It should be noted that the use of terms such as "soft", "medium stiff", "very stiff," or "hard" to describe the consistency of a soil is based on sampler blow count and is not necessarily reflective of the in-place density or unit weight of the soils being sampled. The relationship between sampler blow count and consistency is provided in Figure A-2.

| MAJOR DIVISIONS | | | | TYPICAL NAMES |
|---|---|---|---|---|
| COARSE GRAINED SOILS More than Half > #200 sieve | GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE | CLEAN GRAVELS WITH LITTLE OR NO FINES | GW | WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES |
| | | | GP | POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES |
| | | GRAVELS WITH OVER 15% FINES | GM | SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES |
| | | | GC | CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES |
| | SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE | CLEAN SANDS WITH LITTLE OR NO FINES | SW | WELL GRADED SANDS, GRAVELLY SANDS |
| | | | SP | POORLY GRADED SANDS, GRAVELLY SANDS |
| | | SANDS WITH OVER 15% FINES | SM | SILTY SANDS, POOORLY GRADED SAND-SILT MIXTURES |
| | | | SC | CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES |
| FINE GRAINED SOILS More than Half < #200 sieve | SILTS AND CLAYS LIQUID LIMIT LESS THAN 50 | | ML | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY |
| | | | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS |
| | | | OL | ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY |
| | SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 | | MH | INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS |
| | | | CH | INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS |
| | | | OH | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS |
| HIGHLY ORGANIC SOILS | | | Pt | PEAT AND OTHER HIGHLY ORGANIC SOILS |

| | | | |
|---|---|---|---|
| ■ | Modified California (2.5" ID) | RV | R-Value |
| ⊠ | Standard Penetration Test (SPT) | SA | Sieve Analysis |
| ☒ | Split Spoon | SW | Swell Test |
| ◪ | Pushed Shelby Tube | TC | Cyclic Triaxial |
| ▯ | Auger Cuttings | TX | Unconsolidated Undrained Triaxial |
| ✋ | Grab Sample | TV | Torvane Shear |
| ⊘ | Sample Attempt with No Recovery | UC | Unconfined Compression |
| CA | Chemical Analysis | (1.2) | (Shear Strength, ksf) |
| CN | Consolidation | WA | Wash Analysis |
| CP | Compaction | (20) | (with % Passing No. 200 Sieve) |
| DS | Direct Shear | ▽ | Water Level at Time of Drilling |
| PM | Permeability | ▼ | Water Level after Drilling(with date measured) |
| PP | Pocket Penetrometer | | |



BSK®

SOIL DESCRIPTION KEY

**FIGURE**

A-1

# SOIL DESCRIPTION KEY

## MOISTURE CONTENT

| DESCRIPTION | ABBR | FIELD TEST |
|---|---|---|
| Dry | D | Absence of moisture, dusty, dry to the touch |
| Moist | M | Damp but no visible water |
| Wet | W | Visible free water, usually soil is below water table |

## CEMENTATION

| DESCRIPTION | FIELD TEST |
|---|---|
| Weakly | Crumbles or breaks with handling or slight finger pressure |
| Moderately | Crumbles or breaks with considerable finger pressure |
| Strongly | Will not crumble or break with finger pressure |

## STRUCTURE

| DESCRIPTION | CRITERIA |
|---|---|
| Stratified | Alternating layers of varying material or color with layers at least 1/4 in. thick, note thickness |
| Laminated | Alternating layers of varying material or color with the layer less than 1/4 in. thick, note thickness |
| Fissured | Breaks along definite planes of fracture with little resistance to fracturing |
| Slickensided | Fracture planes appear polished or glossy, sometimes striated |
| Blocky | Cohesive soil that can be broken down into small angular lumps which resist further breakdown |
| Lensed | Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness |
| Homogeneous | Same color and appearance throughout |

## PLASTICITY

| DESCRIPTION | ABBR | FIELD TEST |
|---|---|---|
| Non-plastic | NP | A 1/8-in. (3 mm) thread cannot be rolled at any water content. |
| Low (L) | LP | The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit. |
| Medium (M) | MP | The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit |
| High (H) | HP | It takes considerable time rolling and kneeding to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit |

## CONSISTENCY - FINE-GRAINED SOIL

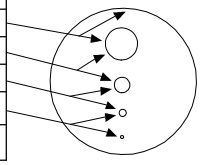
| CONSISTENCY | ABBR | FIELD TEST |
|---|---|---|
| Very Soft | VS | Thumb will penetrate soil more than 1 in. (25 mm) |
| Soft | S | Thumb will penetrate soil about 1 in. (25 mm) |
| Firm | F | Thumb will indent soil about 1/4 in. (6 mm) |
| Hard | H | Thumb wil not indent soil but readily indented with thumbnail |
| Very Hard | VH | Thumbnail will not indent soil |

## GRAIN SIZE

| DESCRIPTION | | SIEVE SIZE | GRAIN SIZE | APPROXIMATE SIZE |
|---|---|---|---|---|
| Boulders | | >12" | >12" | Larger than basketball-sized |
| Cobbles | | 3 - 12' | 3 - 12" | Fist-sized to basketball-sized |
| Gravel | coarse | 3/4 -3" | 3/4 -3" | Thumb-sized to fist-sized |
| | fine | #4 - 3/4" | 0.19 - 0.75" | Pea-sized to thumb-sized |
| Sand | coarse | #10 - #4 | 0.079 - 0.19" | Rock salt-sized to pea-sized |
| | medium | #40 - #10 | 0.017 - 0.079" | Sugar-sized to rock salt-sized |
| | fine | #200 - #10 | 0.0029 - 0.017" | Flour-sized to sugar-sized |
| Fines | | Passing #200 | <0.0029 | Flour-sized and smaller |

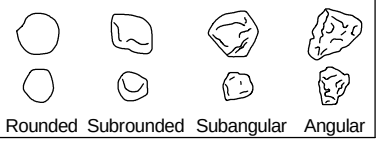
## REACTION WITH HCL

| DESCRIPTION | FIELD TEST |
|---|---|
| None | No visible reaction |
| Weak | Some reaction, with bubbles forming slowly |
| Strong | Violent reaction, with bubbles forming immediately |



## ANGULARITY

| DESCRIPTION | ABBR | CRITERIA |
|---|---|---|
| Angular | A | Particles have sharp edges and relatively plane sides with unpolished surfaces |
| Subangular | SA | Particles are similar to angular description but have rounded edges |
| Subrounded | SR | Particles have nearly plane sides but have well-rounded corners and edges |
| Rounded | R | Particles have smoothly curved sides and no edges |




## APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

| APPARENT DENSITY | ABBR | SPT (# blows/ft) | MODIFIED CA SAMPLER (# blows/ft) | CALIFORNIA SAMPLER (# blows/ft) | RELATIVE DENSITY (%) | FIELD TEST |
|---|---|---|---|---|---|---|
| Very Loose | VL | <4 | <4 | <5 | 0 - 15 | Easily penetrated with 1/2-inch reinforcing rod by hand |
| Loose | L | 4 - 10 | 5 - 12 | 5 - 15 | 15 - 35 | Difficult to penetrate with 1/2-inch reinforcing rod pushed by hand |
| Medium Dense | MD | 10 - 30 | 12- 35 | 15 - 40 | 35 - 65 | Easily penetrated a foot with 1/2-inch reinforcing rod driven with 5-lb. hammer |
| Dense | D | 30 - 50 | 35 - 60 | 40 - 70 | 65 - 85 | Difficult to penetrate a foot with 1/2-inch reinforcing rod driven with 5-lb. hammer |
| Very Dense | VD | >50 | >60 | >70 | 85 - 100 | Penetrated only a few inches with 1/2-inch reinforcing rod driven with 5-lb. hammer |

# APPENDIX B

# LABORATORY TESTING

BSK Associates
691 N. Laverne Avenue, #101
Fresno, CA 93727
Telephone: 559-497-2880

**Project:** Sozinho #5 Dairy-BIDA System



**Location:** 12252 7th Avenue, Hanford, CA

**Project No.:** G24000678

**Logged By:** A. Bravo

**Checked By:** N. Popenoe

# Boring: **B- 1**

| Depth (Feet) | Samples | Bulk Samples | Penetration Blows / Foot | In-Situ Dry Density (pcf) | In-Situ Moisture Content (%) | % Passing No. 200 Sieve | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1–10 | | | | | | | | SM | **Silty SAND (SM)** - yellowish brown, moist, fine to coarse grained sand | |
| 3 | | | 16 | 102.9 | 9.6 | 45 | | | ... medium dense | |
| 6 | | | 11 | | | | | | ... loose | |
| 10–11 | | | 17 | 118.5 | 12.4 | | | CL | **Sandy CLAY (CL)** - hard, grayish brown, moist, fine to coarse grained sand | Pocket Penetrometer = 4.25 |
| 16 | | | 11 | | | | | | | |
| 21 | | | 15 | 91.7 | 30.4 | | | | ... olive gray | Pocket Penetrometer = 3.25, very stiff |
| 22–24 | | | | | | | | | Boring terminated at approximately 21.5 feet bgs.<br>No groundwater encountered.<br>Boring backfilled with soil cuttings. | |

**Drilling Contractor:** Baja Exploration
**Drilling Method:** Hollow Stem Auger
**Drilling Equipment:** CME75
**Date Started:** 5/31/24
**Date Completed:** 5/31/24

**Surface Elevation:**
**Sample Method:** 2.5" Modified Cal & 1.5" I.D. SPT Split Spoon
**Groundwater Depth:** Not Encountered
**Completion Depth:** 21.5 Feet
**Borehole Diameter:** 8"

* See key sheet for symbols and abbreviations used above.

GEO BORING LOGS.GPJ BSK.GDT 6/21/24

BSK Associates
691 N. Laverne Avenue, #101
Fresno, CA 93727
Telephone: 559-497-2880

**Project:** Sozinho #5 Dairy-BIDA System



**Location:** 12252 7th Avenue, Hanford, CA

**Project No.:** G24000678

**Logged By:** A. Bravo

**Checked By:** N. Popenoe

# Boring: **B- 2**

| Depth (Feet) | Samples | Bulk Samples | Penetration Blows / Foot | In-Situ Dry Density (pcf) | In-Situ Moisture Content (%) | % Passing No. 200 Sieve | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1–2 | | | | | | | | SP | **Poorly Graded SAND (SP)** - medium dense, olive, moist, fine to coarse grained sand, trace clay | |
| 3 | | | 18 | 102.9 | 5.7 | 2 | | | | |
| 4–5 | | | | | | | | | | |
| 6 | | | 14 | 88.3 | 4.7 | | | | ... olive gray, no trace clay | |
| 7–9 | | | | | | | | | | |
| 10 | | | | | | | | SP-SM | **Poorly Graded SAND with Silt (SP-SM)** - medium dense, light brown, dry, fine to coarse grained sand, subrounded | |
| 11 | | | 14 | 86.0 | 1.6 | | | | | |
| 12–14 | | | | | | | | | | |
| 15 | | | | | | | | CL | **Sandy CLAY (CL)** - very stiff, brown, moist, fine to coarse grained sand | |
| 16 | | | 24 | 121.8 | 8.8 | | | | | Pocket Penetrometer = 3.00 |
| 17–19 | | | | | | | | | | |
| 20 | | | | | | | | SP-SM | **Poorly Graded SAND with Silt (SP-SM)** - medium dense, brown, moist, fine to coarse grained sand, subrounded | |
| 21 | | | 21 | | | | | | | |
| 22–24 | | | | | | | | | Boring terminated at approximately 21.5 feet bgs.<br>No groundwater encountered.<br>Boring backfilled with soil cuttings. | |

**Drilling Contractor:** Baja Exploration
**Drilling Method:** Hollow Stem Auger
**Drilling Equipment:** CME75
**Date Started:** 5/31/24
**Date Completed:** 5/31/24

**Surface Elevation:**
**Sample Method:** 2.5" Modified Cal & 1.5" I.D. SPT Split Spoon
**Groundwater Depth:** Not Encountered
**Completion Depth:** 21.5 Feet
**Borehole Diameter:** 8"

* See key sheet for symbols and abbreviations used above.

GEO BORING LOGS.GPJ BSK.GDT 6/21/24

BSK Associates
691 N. Laverne Avenue, #101
Fresno, CA 93727
Telephone: 559-497-2880

**Project:** Sozinho #5 Dairy-BIDA System



**Location:** 12252 7th Avenue, Hanford, CA

**Project No.:** G24000678

**Logged By:** A. Bravo

**Checked By:** N. Popenoe

# Boring: **B- 3**

| Depth (Feet) | Samples | Bulk Samples | Penetration Blows / Foot | In-Situ Dry Density (pcf) | In-Situ Moisture Content (%) | % Passing No. 200 Sieve | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1–5 | | | 15 | 104.7 | 8.0 | 28 | | SC | **Clayey SAND (SC)** - yellowish brown, moist, fine to coarse grained sand, trace silt<br>... medium dense | |
| 5–10 | | | 11 | 101.1 | 5.8 | | | SM | **Silty SAND (SM)** - loose, olive brown, moist, fine to coarse grained sand, trace clay | |
| 10–15 | | | 13 | 115.4 | 11.0 | | | CL | **CLAY (CL)** - very stiff, brown, moist, trace silt | Pocket Penetrometer = 2.00 |
| 15–20 | | | 12 | | | | | SM | **Silty SAND (SM)** - medium dense, light brownish, moist, fine to coarse grained sand | |
| 20–21 | | | 33 | 96.4 | 25.4 | | | CL | **CLAY (CL)** - hard, grayish brown, moist, fine grained sand | Pocket Penetrometer = 4.50 |
| 22–24 | | | | | | | | | Boring terminated at approximately 21.5 feet bgs.<br>No groundwater encountered.<br>Boring backfilled with soil cuttings. | |

**Drilling Contractor:** Baja Exploration
**Drilling Method:** Hollow Stem Auger
**Drilling Equipment:** CME75
**Date Started:** 5/31/24
**Date Completed:** 5/31/24

**Surface Elevation:**
**Sample Method:** 2.5" Modified Cal & 1.5" I.D. SPT Split Spoon
**Groundwater Depth:** Not Encountered
**Completion Depth:** 21.5 Feet
**Borehole Diameter:** 8"

* See key sheet for symbols and abbreviations used above.

GEO BORING LOGS.GPJ BSK.GDT 6/21/24

**APPENDIX B**
**Laboratory Testing**

The results of laboratory testing performed in conjunction with this project are contained in this Appendix. The following laboratory tests were performed on soil samples in general conformance with applicable standards.

**In-Situ Moisture and Density**

The field moisture content and in-place dry density determinations were performed on relatively undisturbed samples obtained from the test borings. The field moisture content, as a percentage of dry weight of the soils, was determined by weighing the samples before and after oven drying in accordance with ASTM D2216 test procedures. Dry densities, in pounds per cubic foot, were also determined for undisturbed core samples in accordance with ASTM D2937 test procedures. Test results are presented on the boring logs in Appendix A.

**Gradation**

Three (3) #200 Wash Tests were performed on selected soil samples obtained at the time of drilling in the area of planned construction. The tests were performed to determine the amount of fine material present in the subsurface material. The tests were performed in general accordance with ASTM Test Method D1140. The test results are presented in the boring logs in Appendix A.

**Direct Shear Test**

One (1) direct shear test was performed on test specimens trimmed from a selected soil sample. The three-point shear test was performed in general accordance with ASTM D3080, Direct Shear Test for Soils under Consolidated Drained Conditions. The test specimens, each 2.42 inches in diameter and 1 inch in height, were subjected to shear along a plane at mid-height after allowing for pore pressure dissipation. The results of the test are presented in Figure B-1.

**Collapse Potential Test**

Two (2) Collapse Potential tests were performed on relatively undisturbed soil samples to evaluate collapse potential characteristics. The tests were performed in general accordance with ASTM D5333. The samples were initially loaded under as-received moisture content to a selected stress level, loaded to a maximum load of 2000 psf, and then saturated. The test results are presented on Figures B-2 and B-3.

**Soil Corrosivity**

The results of chemical analyses performed on one (1) bulk soil sample using California Test Method 643 (for pH and minimum resistivity) and California Test Methods 417 and 422 (for soluble sulfate and chlorides, respectively), are presented below.

**SUMMARY OF CHEMICAL TEST RESULTS**

| Sample Location | pH | Sulfate (mg/kg) | Chloride (mg/kg) | Minimum Resistivity (ohms-cm) |
|---|---|---|---|---|
| B-3 at 0-5´ | 7.7 | 22 | 32 | 24,640 |

# Direct Shear Test

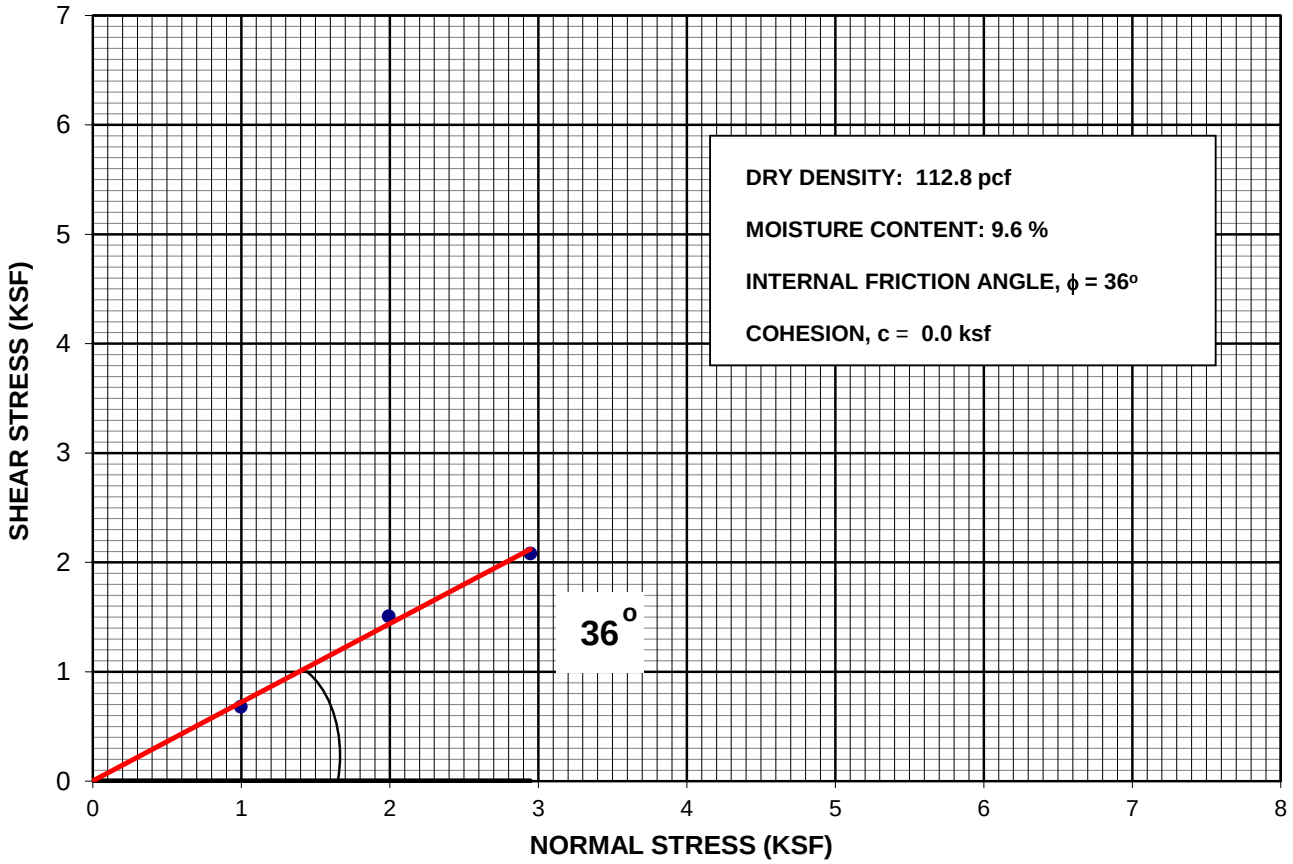
**ASTM D-3080**

**FIGURE B-1**

691 N Laverne Ave,
Suite 101
Fresno, CA 93727
Ph: (559) 497-2880

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Sozinho No. 5 Dairy BIDA System | **Sampled By:** | A. Bravo | **Sample Date:** | 5/31/2024 |
| | | **Tested By:** | D. Messfin | **Test Date:** | 6/10/2024 |
| **Project Number:** | G24000678 | **Lab Tracking ID:** | N/A | **Report Date:** | 6/10/2024 |
| **Sample Location:** | B-1 @ 3' | **Sample Description:** | Silty Sand (SM) - medium dense, yellowish brown, moist, fine to coarse grained sand | | |

## SHEAR STRENGTH DIAGRAM

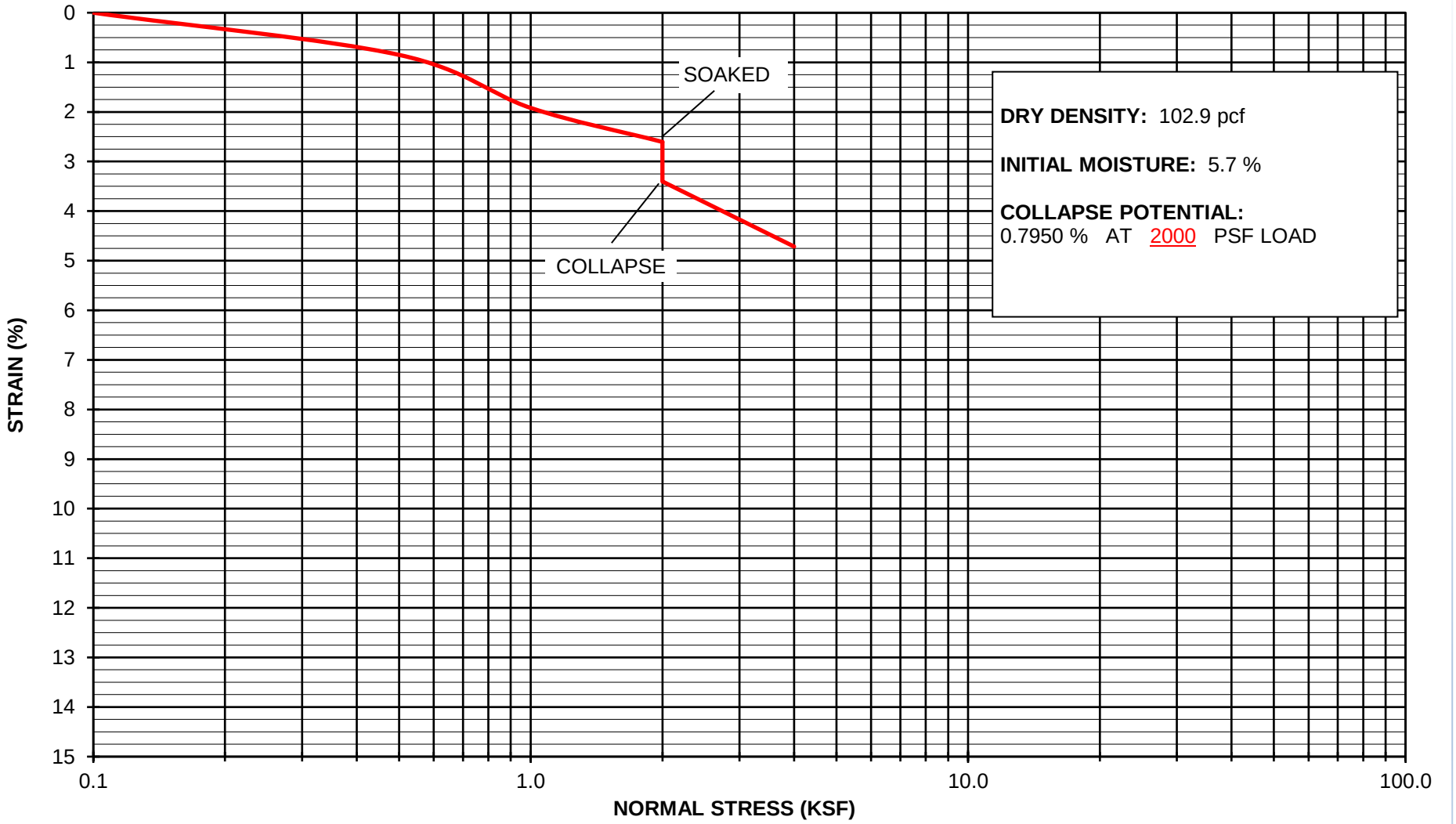


BSK ASSOCIATES
691 N. Laverne, Suite 101
Fresno, CA 93727
Ph: (559) 497-2880

# COLLAPSE POTENTIAL
# ASTM D-5333

**FIGURE B-2**

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Sozinho No. 5 - BIDA System | **Sampled By:** | A.Bravo | **Sample Date:** | 5/31/24 |
| | | **Tested By:** | D.Messfin | **Test Date:** | 6/11/24 |
| **Project Number:** | G24000678 | **Lab Tracking ID:** | N/A | **Report Date:** | 6/13/24 |
| **Sample Location:** | B - 2 @ 3' | **Sample Description:** | Poorly Graded Sand (SP) - medium dense, olive, moist, fine to coarse grained sand, trace clay | | |

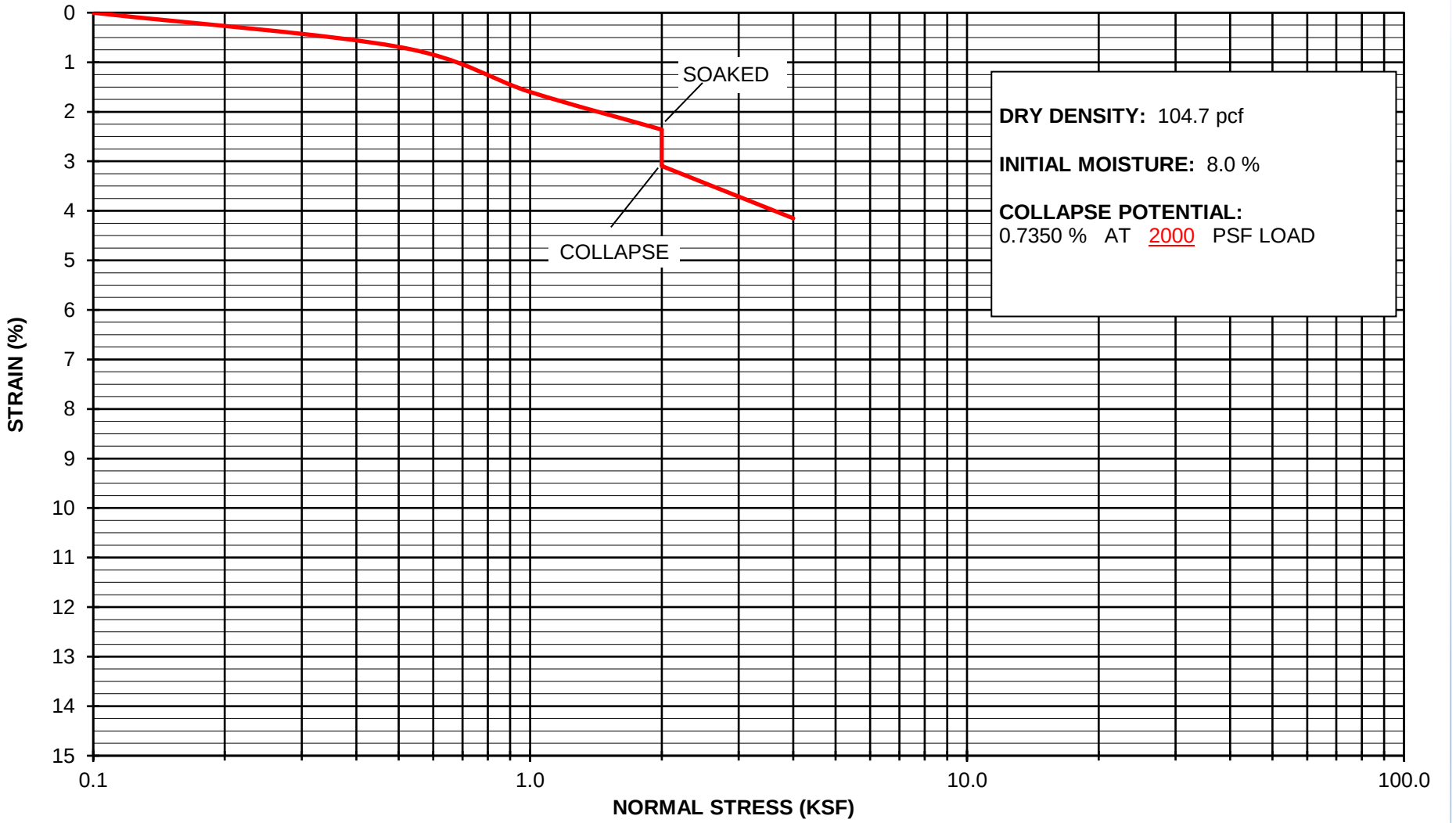


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# COLLAPSE POTENTIAL
# ASTM D-5333

**FIGURE B-3**

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | Sozinho No. 5 Dairy - BIDA System | **Sampled By:** | A.Bravo | **Sample Date:** | 5/31/24 |
| | | **Tested By:** | D.Messfin | **Test Date:** | 6/10/24 |
| **Project Number:** | G24000678 | **Lab Tracking ID:** | N/A | **Report Date:** | 6/12/24 |
| **Sample Location:** | B - 3 @ 3' | **Sample Description:** | Silty Sand (SM) - medium dense, yellowish brown, moist, fine to coarse grained sand, trace silt | | |



# Appendix H

# Fugitive Dust Emissions Control Plan



4CREEKS

# DCP

## Dust Control Plan

Sozinho Dairy #5 – BioFiltro Project

# San Joaquin Valley Air Pollution Control District
# Regulation VIII – Fugitive PM10 Prohibitions

## Construction Notification

Pursuant to section 6.4 of **District Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities***, the owner or operator of a construction project of at least 1.0 acre in size shall provide written notification to the District at least 48 hours prior to his/her intent to commence any earthmoving activities. Use the first two pages of this form to submit a written Construction Notification. There are no fees for filing a construction notification.

Larger construction projects, as outlined below, may be required to submit a full Dust Control Plan. If a Dust Control Plan is required the owner/operator does not need to submit a separate construction notification.

## Dust Control Plan

Pursuant to section 6.3 of **Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities***, the owner or operator shall submit a Dust Control Plan to the District for a construction project that will involve any of the following:

- Residential developments that will include ten acres or more of disturbed surface area, or
- Non-residential developments that will include five acres or more of disturbed surface area, or
- Will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days of the project.

A Dust Control Plan identifies the fugitive dust sources at the construction site and describes all of the dust control measures to be implemented before, during, and after any dust generating activity for the duration of the project. The District will review and approve, conditionally approve, or disapprove the Dust Control Plan within 30 days of submittal. **Construction activities shall not commence until the Dust Control Plan has been approved or conditionally approved by the District.** A copy of the approved Dust Control Plan must be retained at the project site and made available upon request by a District inspector.

At least one key individual representing the owner or operator, or any person who prepares a Dust Control Plan must complete a Dust Control Training Course presented by the District. Please contact the District to find out when courses are being offered.

Pursuant to **District Rule 3135 – *Dust Control Plan Fee***, payment must accompany each Dust Control Plan submitted to the District. A separate fee is charged for any major modification made to an approved plan, such as modifying the size and scope of the project or making significant changes to the types of control or preventative measures. No fees are charged for administrative changes to an approved plan.

Regardless of whether a Construction Notification or Dust Control Plan is required, the owner or operator of any construction project shall comply with all other applicable requirements of Regulation VIII, and other District Rules.

Construction Notifications and Dust Control Plans should be submitted to the District's Compliance Division at:

| *San Joaquin, Stanislaus, Merced Counties* | *Madera, Fresno, Kings Counties* | *Tulare, Kern Counties* |
|---|---|---|
| **Northern Region Office**<br>4800 Enterprise Way<br>Modesto, CA 95356<br>(209)557-6400 Fax: (209)557-6475 | **Central Region Office**<br>1990 East Gettysburg Avenue<br>Fresno, CA 93726<br>(559)230-5950 Fax: (559) 230-6062 | **Southern Region Office**<br>34946 Flyover Court<br>Bakersfield, CA 93308<br>(661) 392-5500 Fax: (661) 392-5585 |

# Section 1 – General Information – Page 1

| | |
|---|---|
| ☐ **Construction Notification** (Complete section 1)<br>☒ **Dust Control Plan** (Complete sections 1-7) | Date Received:<br>*(For District Use)* |

## 1-A Project Name and Location

Project Name: Sozinho Dairy #5

Project Address: 12252 7th Avenue

Major X-Streets: Houston Avenue & 7th Avenue

City: Hanford County: 93230

GPS Coordinate(s): 36°17'46.14"N & 119°35'03.99"W

Expected Construction Start Date: August 1, 2024 End Date: February 28, 2025

## 1-B Project Details

This project is: ☐ Residential ☒ Non-Residential (commercial, industrial, institutional, public, etc.)

Total project site area: 15.24 Acres

Total disturbed surface area: 15.24 Acres

Total disturbed areas that will be left inactive for more than seven days: 0.00 Acres

Maximum daily volume of earthmoving: 3,500 Cubic Yards

Average daily volume of earthmoving: 2,500 Cubic Yards

## 1-C Provide a brief description of the project's operations.

Project will include excavation, grading, concrete work, pipelaying, and all necessary subtrades for the construction of a manure separator.

## 1-D Indirect Source Review (ISR) (Rule 9510)

Final Land Use Approval: ☐ Discretionary ☐ Ministerial

☐ Approval is Pending ☐ Approval was granted on: _____

Air Impact Assessment (AIA) application submitted? ☐ No ☐ Yes Date: _____

ISR Project ID: _____ Type of space: _____ Project square ft: _____

☒ Exempt from ISR. Explain: Wastewater processing upgrades.

☐ I would like additional information about opportunities to reduce water usage on the project site.

# Section 1 – General Information – Page 2

**Project Name:** Sozinho Dairy #5

## 1-E Contacts

| | | | | | |
|---|---|---|---|---|---|
| Property Owner: | Joe Sozinho | | | | |
| Address: | 12252 7th Avenue | | | | |
| City: | Hanford | State: | CA | Zip: | 93230 |
| Phone: | 559-381-3920 | Fax: | | | |
| Mobile: | | Email: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Developer: | BioFiltro, Inc. | | | | |
| Address: | 1949 5th Street, Suite 101 | | | | |
| City: | Davis | State: | CA | Zip: | 95616 |
| Contact Person: | Rafael Concha | | | | |
| Phone: | 530-746-1770 | Fax: | | | |
| Mobile: | | Email: | rconcha@biofiltro.com | | |

| | | | | | |
|---|---|---|---|---|---|
| General Contractor: | 4CG Construction | | | | |
| Address: | 324 S. Santa Fe St. Suite B | | | | |
| City: | Visalia | State: | CA | Zip: | 93292 |
| Contact Person: | Alec Grassel | | | | |
| Phone: | 559-372-0215 | Fax: | | | |
| Mobile: | 559-786-3694 | Email: | alecg@4cgconstruction.com | | |

| | | | | | |
|---|---|---|---|---|---|
| Other Contact: | Tyler Esteves, EIT | | | | |
| Company: | 4Creeks, Inc. | | | | |
| Address: | 324 S. Santa Fe St. Suite B | | | | |
| City: | Visalia | State: | CA | Zip: | 93292 |
| Phone: | 509-802-3052 | Fax: | | | |
| Mobile: | 559-805-3306 | Email: | | | |

**STOP HERE FOR CONSTRUCTION NOTIFICATION ONLY**

# Section 2 – Dust Control Plan Implementation – Page 1

**Project Name:** Sozinho Dairy #5

## 2-A This Dust Control Plan was prepared by:

Name: Josh Thomas Title: Environmental QSD/QSP

Company Name: 4Creeks Engineering

Address: 324 S. Santa Fe St. Suite A

City: Visalia State: CA Zip: 93292

Phone: 559-802-3052 Fax:

Mobile: 661-343-3611 Email: josht@4-creeks.com

Date training completed: May 7, 2024 ☒ Copy of course certificate attached.

## 2-B Contractors

Provide the names, addresses, and phone numbers of the contractors involved in dust generating activities **or** performing dust control as part of this project (Rule 8021 Sec. 6.3.6.1). A supplemental list may be attached.

1. 4CG Construction, 324 S. Santa Fe St. Suite B, Visalia, CA 93292
   Alec Grassel, 559-786-3694, alec@4cgconstruction.com
2.
3.
4.

## 2-C Who will have the primary responsibility for implementing this Dust Control Plan?

(Rule 8021 Sec 6.3.6.1)

☐ Property Owner ☐ Developer ☒ General / Prime Contractor

☐ Sub-Contractor(s) ☐ Other:

Primary Project Contact: Alec Grassel

Title: Construction Manager

Company Name: 4CG Construction

Address: 324 S. Santa Fe St. Suite B

City: Visalia State: CA Zip: 93292

On-Site Phone: 559-372-0215 Fax:

Mobile: 559-786-3694 Email: alecg@4cgconstruction.com

Date training completed: ☐ Attach a copy of the course certificate

# San Joaquin Valley
# Air Pollution Control District
# Compliance Division

Presents this
Certificate of Completion
to

## Josh Thomas

On May 7, 2024, at Fresno, California for

Regulation VIII — Dust Control Training

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Signature

5/7/2024
Date

# Section 2 – Dust Control Plan Implementation – Page 2

**Project Name:** Sozinho Dairy #5

## 2-D Dust Generating Activity Dates

The expected start and completion dates of **dust generating activities and soil disturbance activities** to be performed on site. For phased projects, it may be necessary to report expected start and completion dates separately. (Rule 8021 Sec. 6.3.6.4)

| | | | |
|---|---|---|---|
| Expected start date: | August 1, 2024 | Completion Date: | February 28, 2025 |
| Phase Project Start – A: | | Completion – A: | |
| Phase Project Start – B: | | Completion – B: | |
| Phase Project Start – C: | | Completion – C: | |

## 2-E Other Locations

Identify whether any other locations should be included with this plan that are involved with this project. An example may include listing any site where bulk materials will be imported from or exported to. This does not need to include quarries or retailers of building materials. (Rule 8021 Sec. 6.3.2)

☒ No other locations are included with this project.

**Location 1:**

☐ No Dust Control Plan Required ☐ Included with this plan ☐ Included with another plan

**Location 2:**

☐ No Dust Control Plan Required ☐ Included with this plan ☐ Included with another plan

**Location 3:**

☐ No Dust Control Plan Required ☐ Included with this plan ☐ Included with another plan

# Section 3 – Fugitive PM10 Sources – Page 1

**Project Name:** Sozinho Dairy #5

## 3-A Sources of Fugitive Dust

This section describes the minimum requirements for limiting visible dust emissions from activities that cause fugitive dust emissions. (Rule 8021 Sec. 6.3.6.5) **Check at least one box under each category**.

**Structural Demolition.** (Rule 8021 Sec. 5.1, 6.3.3, & 6.3.6.5)

- ☒ No demolitions are planned for this project.
- ☐ Asbestos NESHAP notification and fees will be submitted to the District. (Rule 3050 and Rule 4002)
  Water will be applied to the following areas for the duration of the demolition activities:
  - Building exterior surfaces;
  - Unpaved surface areas where equipment will operate;
  - Razed building materials; and
  - Water or dust suppressants will be applied to unpaved surface areas within 100 feet of structure during demolition.

**Pre-Activity** (Rule 8021 Sec. 5.2)

- ☐ Not applicable for this project (Please explain why in Section 3-C).
- ☒ The site will be pre-watered and work will be phased to reduce the amount of disturbed surface area at any one time (Complete Section 4-A).

**Active Operations** (Rule 8021 Sec. 5.2)

- ☒ Water will be applied to dry areas during leveling, grading, trenching, and earthmoving activities (Complete Section 4-A).
- ☐ Wind barriers will be constructed and maintained, and water or dust suppressants will be applied to the disturbed surface areas (Complete Sections 4-A or 4-B, and 4-C).

**Inactive Operations, Including After Work Hours, Weekends, and Holidays** (Rule 8021 Sec. 5.2)

- ☒ Not applicable for this project (Please explain why in Section 3-C).
- ☐ Water or dust suppressants will be applied on disturbed surface areas to form a visible crust, and vehicle access will be restricted to maintain the visible crust. (Complete Section 4-A or 4-B, and 4-C)

**Temporary stabilization of areas that remain unused for seven or more days** (Rule 8021 Sec. 5.2)

- ☒ Not applicable for this project (Please explain why in Section 3-C)
- ☐ Vehicular access will be restricted and water or dust suppressants will be applied and maintained at all un-vegetated areas (Complete Section 4-A or 4-B, and 4-C).
- ☐ Vegetation will be established on all previously disturbed areas (Complete Section 4-C).
- ☐ Gravel will be applied and maintained at all previously disturbed areas (Complete Section 4-C).
- ☐ Previously disturbed areas will be paved (Complete Section 4-C).

**Unpaved Access and Haul Roads, Traffic and Equipment Storage Areas** (Rule 8021 Sec. 5.2 and 5.3)

- ☐ Not applicable for this project (Please explain why in Section 3-C)
- ☒ Apply water or dust suppressants to unpaved haul and access roads (Complete Section 4-A or 4-B)
- ☐ Post speed limit signs of not more than 15 miles per hour at each entrance, and again every 500 feet. (Complete Section 4-C)
- ☐ Water or dust suppressants will be applied to vehicle traffic and equipment storage areas (Complete Section 4-A or 4-B).

**Wind Events** (Rule 8021 Sec. 5.4)

- ☒ Water application equipment will apply water to control fugitive dust during wind events, unless unsafe to do so. Outdoor construction activities that disturb the soil will cease whenever visible dust emissions cannot be effectively controlled.

# Section 3 – Fugitive PM10 Sources – Page 2

**Project Name:** Sozinho Dairy #5

## 3-B Bulk Materials (Rule 8021 Sec. 6.3.6.6 and Rule 8031)

**Outdoor Handling of Bulk Materials** (Rule 8031 Sec. 5.0 A)

- ☐ No bulk materials will be handled during this project.
- ☒ Water or dust suppressants will be applied when handling bulk materials.
- ☐ Wind barriers with less than 50 percent porosity will be installed and maintained, and water or dust suppressants will be applied.

**Outdoor Storage of Bulk Materials** (Rule 8031 Sec. 5.0 B)

- ☐ No bulk materials will be stored during this project.
- ☒ Water or dust suppressants will be applied to storage piles.
- ☐ Storage piles will be covered with tarps, plastic, or other suitable material and anchored in such a manner that prevents the cover from being removed by wind action.
- ☐ Wind barriers with less than 50 percent porosity will be installed and maintained around the storage piles, and water or dust suppressants will be applied.
- ☐ A three-sided structure (< 50% porosity) will be used that is at least as high as the storage piles.

**On-Site Transporting of Bulk Materials** (Rule 8031 Sec. 5.0 C)

- ☐ No bulk materials will be transported on the project site.
- ☐ Vehicle speed will be limited on the work site.
- ☒ All haul trucks will be loaded such that the freeboard is not less than six inches when transported across any paved public access road.
- ☒ A sufficient amount of water will be applied to the top of the load to limit visible dust emissions.
- ☐ Haul trucks will be covered with a tarp or other suitable cover.

**Off-Site Transporting of Bulk Materials** (Rule 8031 Sec. 5.0 D)

- ☒ No bulk materials will be transported to or from the project site.
- ☐ Measures in section 5-B will be implemented to prevent haul trucks from becoming a source of visible emissions or carryout onto public roads. (complete Section 5-B)

**Outdoor Transport using a Chute or Conveyor** (Rule 8031 Sec. 5.0 E)

- ☒ No chutes or conveyors will be used.
- ☐ Chute or conveyor will be fully enclosed.
- ☐ Water spray equipment will be used to sufficiently wet the materials.
- ☐ Transported materials will be washed or screened to remove fines (PM10 or smaller).

## 3-C Comments

The Dairy is currently implementing its own set of Dust Control regulations, watering the site as needed, and is active 7 days a week.

# Section 4 – Dust Control Methods – Page 1

**Project Name:** Sozinho Dairy #5

## 4-A Water Application

Complete this section if water application will be used as a control method for limiting visible dust emissions and stabilizing surface areas. Check and answer everything that applies to this project.
(Rule 8021 Sec. 6.3.6.6)

**Water Application Equipment:**

☐ Sprinklers: Describe the activities that will utilize sprinklers:

Minimum treated area: _____ ☐ Square Feet ☐ Acres

Maximum treated area: _____ ☐ Square Feet ☐ Acres

Minimum water flow rate: _____ Gallons/minute Duration: _____

☒ Water Truck, ☐ Water Trailer, ☐ Water Wagon, ☐ Other: _____

Describe the activities that will utilize this equipment:

Grading and excavation

Number of application equipment available: 1

Application equipment capacity: 2,500

Application frequency (on a typical dry day): Minimum 2 times a day

Application rate: ☒ 650 gallons per acre ☐ _____ gallons per acre (Greater than 650)

Hours of operation: 6AM to 4PM ☐ Daily ☒ Mon-Fri ☐ Other: _____

Water application equipment is available to operate after normal working hours, on weekends, and holidays.

After-hours contact: Alec Grassel Phone No.: 559-786-3694

After-hours contact: Rafael Concha Phone No.: 530-746-1770

**Water Supply:** *Include the relative locations of these sources on the plot plan in Section 6.*

☐ Fire hydrants Number of hydrants available On-Site: _____ Off-Site: _____

☐ Storage tanks Number and capacity: _____

☒ Wells Number and flow rate: 7

☐ Canal, River, Pond, Lake, etc. Describe: _____

☐ Other: _____

Approval granted by the owner or public agency to use their water source for this project.

Owner or Agency: Owner

Contact: Joe Sozinho Phone No.: 559-381-3920

# Section 4 – Dust Control Methods – Page 2

**Project Name:** Sozinho Dairy #5

## 4-B Dust Suppressant Products

**Complete this section if a dust suppressant product will be used**. These materials include, but are not limited to: hygroscopic suppressants (road salts), adhesives, petroleum emulsions, polymer emulsions, and bituminous materials (road oils). (Rule 8021 Sec. 6.3.6.6)

**Copy this page if more than one dust suppressant product will be used.**

☒ **Not Applicable.** No dust suppressant products will be used. **Skip to 4-C.**

Application Area: _____

Product Name: _____

Contractor's Name: _____ Phone No: _____

Application Rate: _____ Gallons of undiluted material per ☐ mile or ☐ acre treated.

Application Frequency: _____ Applications per ☐ week, ☐ month, ☐ year

Application Equipment: _____

Number of Application Equipment Available: _____

Application Equipment Capacity: _____

Attach each of the following information that fully describes this product. Use the checklist below to make sure all information is submitted with this plan.

- ☐ Product Specifications (MSDS, Product Safety Data Sheet, etc.)
- ☐ Manufacturer's Usage Instructions (method, frequency, and intensity of application)
- ☐ Environmental impacts and approvals or certifications related to the appropriate and safe use for ground application.

# Section 4 – Dust Control Methods – Page 3

**Project Name:** Sozinho Dairy #5

## 4-C Other Dust Control Methods

Check below the other types of dust control methods that will be employed at the construction site.
(Rule 8021 Sec. 5.2)

☒ Restricting unauthorized vehicle access:

☐ Fences ☐ Gates ☐ Posts ☐ Berms ☐ Concrete Barriers ☐ Signs

☒ Other: "Authorized Vehicles Only" sign to be placed at main entrance

☐ Wind barriers Describe: _____

☐ Posted speed limit signs that meet State and Federal Department of Transportation standards.
(Rule 8021 Sec. 5.3)

☐ Posted at 15 miles per hour ☐ Posted at _____ miles per hour (less than 15 MPH)

☐ Re-establish vegetation for temporarily stabilizing previously disturbed surfaces.

Explain: _____

☐ Apply and maintain gravel:

☐ On haul roads ☐ On access roads ☐ At equipment storage yards

☐ At vehicle traffic areas ☐ For temporarily stabilizing previously disturbed areas.

Explain: _____

☐ Apply pavement:

Explain: _____

☒ Other: See attached

## 4-D Contingencies

Contingencies to be implemented should the listed control measures fail to meet the stability and visible emission requirements. Examples include, but are not limited to: replacement equipment, additional equipment, increased water application, additional water resources, adding chemical/organic dust suppressants, restricting access, and additional staffing. Attach any additional information if needed.
(Rule 4102 and Rule 8021 Sec. 5.2)

See attached

## 4-E Record Keeping (Rule 8011 Sec. 6.2)

**Records and any other supporting documents for demonstrating compliance must be maintained, but only for those days when a control measure is implemented.** The District has developed record keeping forms that may be used for complying with this requirement. Check one or both below:

☒ Records will be maintained using the forms developed by the District.

☐ Records will be maintained using documents or forms developed by the owner or operator.

Explain and include copies: _____

## 4-C Other Dust Control Methods

The project site is set back on the dairy (private property), so there are existing measures to restrict access. Also, the site will be graded and excavated in phases as construction occurs to avoid having disturbed soil left exposed.

## 4-D Contingencies

Contractor will provide additional water trucks at their corporation yard, in case of breakdwon of primary water truck. If additional water trucks are unavailable at that time, then General Contractor will rent an additional water truck from a local equipment rental company. Additionally, if omissions from the construction site cannot be controlled by the Contractor all work on-site will cease until the Contractor is able to implement additional mitigation measures.

# Section 5 – Carryout and Trackout – Page 1

**Project Name:** Sozinho Dairy #5

## 5-A Treatments for Preventing Trackout

Select the control devices that will be used for preventing trackout from occurring onto paved public roads. Trackout is any material that adheres to vehicle tires and is deposited onto a paved public road or the paved shoulder of a paved public road. Check one or a combination that will apply to this project.

☐ **Grizzly:** Rails, pipes, or grates used to dislodge debris off of vehicles before exiting the site. Extends from the intersection with the paved public road surface for the full width of the unpaved exit surface for a distance of at least 25 feet. (Rule 8041 Sec. 5.9.1)

Width: _____ Feet Length: _____ Feet

☒ **Gravel Pad:** A layer of washed gravel at least one (1) inch or larger in diameter, three (3) inches deep, and extends from the intersection with the public paved road surface for the full width of the unpaved exit surface for a distance of at least 50 feet. (Rule 8041 Sec. 5.9.2)

Width: **20** Feet Length: **50** Feet Depth: **3** Inches

Gravel Size: **1** Inches Clean-up Frequency: **as needed**

☐ **Paved Surface:** Extends from the intersection with the paved public road surface for the full width of the unpaved access road for at least 100 feet to allow mud and dirt to drop off of vehicles before exiting the site. (Rule 8041 Sec. 5.9.3)

Width: _____ Feet Length: _____ Feet

Mud and dirt deposits accumulating on paved interior roads used for trackout control will be removed with sufficient frequency, but not less frequently than once per workday. Cleanup will commence within ½ hour of generating any carryout and trackout onto public roads. (Rule 8041 Sec. 5.8.2 and 5.9.3)

Clean-up Frequency: _____

☐ **Wheel Washer:** Uses water to dislodge debris from tires and vehicle undercarriage. (Rule 8011 Sec. 3.73)

Describe: _____

☐ **Other:** (Rule 8041 Sec. 5.8.1.2) _____

## 5-B Treatments for Preventing Carryout

Report the required treatments that will be used for preventing carryout from occurring on paved public roads. Carryout occurs when materials from emptied or loaded haul trucks, vehicles, or trailers falls onto a paved public road or paved shoulder of a paved public road. (Rule 8031 Sec 5.0)

☒ No haul trucks will be routinely entering or leaving the project site.

☐ Spillage or loss of bulk materials from holes or other openings in the cargo compartment's floor, sides, and tailgates will be prevented when material is transported onto any paved public access road.

**Emptied Haul Trucks:**

- ☐ Interior cargo compartments will be cleaned before leaving the project site.
- ☐ Cargo compartment will be covered with a tarp or suitable cover before leaving the project site.

**Loaded Haul Trucks:**

- ☐ Haul trucks will be loaded such that the freeboard is not less than six inches with water applied to the top of the load before leaving the project site.
- ☐ Cargo compartment and load will be covered with a tarp or suitable cover before leaving the project site.

☐ **Other:** _____

# Section 5 – Carryout and Trackout – Page 2

**Project Name:** Sozinho Dairy #5

## 5-C Cleaning up Carryout and Trackout

Check and report below the methods and frequency for cleaning up carryout and trackout from the surface and paved shoulders of paved public roads.

**The use of blower devices, or dry rotary brushers or brooms, for removal of carryout and trackout from paved public roads is prohibited.** (Rule 8041 Sec. 5.0)

Projects subject to a dust control plan are required to prevent and mitigate carryout and trackout beyond the minimum cleanup requirements. (Rule 8041 Sec. 5.3)

**Cleanup Frequency:**

☒ In the event the control device becomes insufficient to prevent carryout and trackout, removal of any carryout and trackout must be accomplished within one-half hour of the generation of such carryout and trackout. (Rule 8041 Sec. 5.8.2.)

**Cleanup Method:** Check the method below that will be used for cleaning carryout and trackout.

☒ Manually sweeping and picking up. (Rule 8041 Sec. 5.7.1)

☐ Mechanical sweeping with a rotary brush or broom accompanied or preceded by water. (Rule 8041 Sec. 5.7.2)

Describe the types of equipment that will used: _____

☐ Operating a PM10-efficient street sweeper. (Rule 8041 Sec. 5.7.3)

Make and Model: _____

☒ Flushing with water: allowed if: (Rule 8041 Sec. 5.7.4)

- No curbs or gutters are present.
- Using water will not result as a source of trackout and carryout.
- Using water will not result in adverse impacts on storm water drainage systems.
- Using water will not violate any National Pollutant Discharge Elimination System permit program.

## 5-D Record keeping for Cleanup of Carryout and Trackout (Rule 8011 Sec. 6.2)

**Records and any other supporting documents for demonstrating compliance must be maintained.** The District has developed a record keeping form specific for cleaning carryout and trackout from paved public roads and may be used for complying with this requirement. Check one or both below:

☒ Records will be maintained using the form developed by the District.

☐ Records will be maintained using documents or forms developed by the owner or operator.

Explain and include copies: _____

# Section 6 – Plot Plan

**Project Name:** Sozinho Dairy #5

## 6-A Plot Plan

A plot plan identifies the type and location of each project. Attach appropriately sized maps with the project boundaries outlined or use the space in section 6-B to draw a plot plan. Attached maps may include tract maps, site maps, and topographic maps. Use the checklist below to make sure all areas have been identified on the plot plan. (Rule 8021 Sec. 6.3.6.2 & 6.3.6.5)

**Identify the relative locations of actual and potential sources of fugitive dust emissions.**

- ☒ Bulk material handling and storage areas.
- ☒ Paved and unpaved access roads, haul roads, traffic areas, and equipment storage yards.
- ☒ Exit points where carryout and trackout onto paved public roads may occur.
- ☒ Water supply locations if water application will be used for controlling visible dust emissions.

**Identify the relative locations of sensitive receptors within ¼ mile of the project.** (Rule 4102 Sec. 4.1)

- ☐ No sensitive receptors within ¼ mile of the project.
- ☒ Residential areas, schools, day care, churches, hospitals, nursing facilities, commercial, retail, etc.
- ☒ Freeways, roads, or traffic areas that may be affected by the dust generating activities.
- ☐ Other: _____

## 6-B Draw Plot Plan (if one is not attached)

May use the back of this form
Include a North Arrow

☒ Plot plan is attached (Skip to Section 7).

# Section 7 – Certification

**Project Name:** Sozinho Dairy #5

## 7-A Certification

The owner, principle operator, or the individual implementing must certify the plan. (Rule 8021 Sec 6.3). For Title V sources, the responsible official must provide the certification. (Rule 2520 Sec. 3.28 and 10.0).

I certify that all information contained herein and information submitted in the attachments to this documents are true and correct.

| | |
|---|---|
| **Alec Grassel** | **Project Manager** |
| Print Name | Title |
| Digitally signed by Alec Grassel DN: C=US, E=alecg@4cgconstruction.com, O=4Creeks, OU=Build, CN=Alec Grassel Date: 2024.06.13 16:03:35-07'00' | |
| Signature | Date |

| | | |
|---|---|---|
| **559-372-0215** | | **559-786-3694** |
| Phone Number | Fax Number | Cell Number |

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

# *Regulation VIII Record Keeping Forms*

This matrix lists the suggested forms that may be used for Regulation VIII record keeping. The left column lists potentially applicable rules. The next column lists major industry groups affected by the various rules of Regulation VIII. The letters A, B, C, and D refer to the record keeping forms developed by the SJVUAPCD.

| | | Activity at site and corresponding record keeping forms | | | | | |
|---|---|---|---|---|---|---|---|
| Regulation VIII Rule Number | Type of Business or Commercial Activity | Bulk Materials | Unpaved Roads | Equip. & Vehicle Storage | Open Areas | Earth Moving | Trackout and Carryout |
| 8021<br>8031<br>8041<br>8051<br>8061<br>8071 | Construction | **A C** | **A C D** | **A C D** | **A C** | **A** | **B** |
| 8021<br>8031<br>8041<br>8051<br>8061<br>8071 | Oilfields | **A C** | **A C D** | **A C D** | **A C** | **A** | **B** |
| 8081 | Off-field Agricultural Operations | **A C** | **A C D** | **A C D** | | | |
| 8031<br>8041<br>8551<br>8061 | Agricultural Product Processing | **A C** | **A C D** | **A C D** | | | **B** |
| 8031<br>8041<br>8071 | Bulk Materials | **A C** | **A C D** | **A C D** | | | **B** |
| 8041<br>8061<br>8071 | Equipment and Vehicle Storage | **A C** | **A C D** | **A C D** | **A C** | | **B** |
| 8041<br>8051<br>8071 | Truck Stops | **A C** | **A C D** | **A C D** | **A C** | | **B** |

**Form A =** Area Water Application
**Form B =** Sweeping/cleanup
**Form C =** Permanent control measure such as paving, gravel, a grizzly, chemical/organic dust suppressants
**Form D =** Water Application onto Unpaved Roads and Traffic Areas

(Rev. 06.01.09)

**Northern Region**
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 ♦ FAX (209) 557-6475

**Central Region (Main Office)**
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 ♦ FAX (559) 230-6062

**Southern Region**
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 ♦ FAX (661) 392-5585

www.valleyair.org

## Regulation VIII Record Keeping Form

Month:

**FORM A –** Area Water Application

Project Location: 12252 7th Avenue City: Hanford Size: 15.24 (Miles/ Acres)

Owner: Joe Sozinho Address: 12252 7th Avenue City: Hanford Zip: 93230

Contact Person: Alec Grassel Title: Construction Manager Phone: 559-786-3694

## *Watering Schedule*

Use this form to document daily water applications at a single site by recording total gallons per day and number of applications per day at a single area. Use additional forms, as necessary, for areas with different treatment schedules.

**Area treated:** _____

| Week | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

**Area treated:** _____

| Week | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

***Retain for one year after project ends. Title V sources are required to retain for five years after project ends.***

## Regulation VIII Record Keeping Form

Month:

**FORM B –** For Cleanup of Trackout and Carryout

Project Location: 12252 7th Avenue City: Hanford Size: 15.24 (Miles/ Acres)

Owner: Joe Sozinho Address: 12252 7th Avenue City: Hanford Zip: 93230

Contact Person: Alec Grassel Title: Construction Manager Phone: 559-786-3694

## Sweeping / Cleanup Schedule

Use this form to document the cleanup schedule by entering the time of day cleanup is done.
**Mornings =am; Afternoon = pm.** Write "end of day" if cleanup is done at the end of the workday. In urban areas, preventing or cleaning-up trackout at construction sites is required immediately if it extends 50 feet or more. Record keeping is required for construction sites subject to Rule 8021, sites that store bulk materials subject to Rule 8031 and vehicle/equipment storage areas subject to Rule 8071.

| Week | | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|---|---|
| 1 | am | | | | | | | |
| | pm | | | | | | | |
| 2 | | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | am | | | | | | | |
| | pm | | | | | | | |
| 3 | | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | am | | | | | | | |
| | pm | | | | | | | |
| 4 | | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | am | | | | | | | |
| | pm | | | | | | | |
| 5 | | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | am | | | | | | | |
| | pm | | | | | | | |

***Retain for one year after project ends. Title V sources are required to retain for five years after project ends.***

## Regulation VIII Record Keeping Form

Month:

**FORM C:** For Permanent / Long Term Dust Controls

Project Location: 12252 7th Avenuee City: Hanford Size: 15.24 (Miles/ Acres)

Owner: Joe Sozinho Address: 12252 7th Avenue City: Hanford Zip: 93230

Contact Person: Alec Grassel Title: Construction Manager Phone: 559-786-3694

### *Permanent Activities*

Describe the types of permanent dust controls implemented, the date, the activity, such as applying an organic dust suppressant, gravel, paving or a trackout control device. Add comments such as the amount used, where used, brand name.

| Date | Dust Control Activity Performed (Gravel, paving) | Comments: Type of material, application rate. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Comments:

***Retain for one year after project ends. Title V sources are required to retain for five years after project ends. Attach product information, maps and other specifications as appropriate unless already addressed in an approved or verified Fugitive PM10 Management Plan.***

**Regulation VIII Record Keeping Form**

Month:

## **FORM D:** Water Application onto Unpaved Roads & Equipment Areas

Project Location: 12252 7th Avenue Hanford, CA 93230 Size: 15.24 Miles or Acres (circle one)

Owner: Joe Sozinho Address: 12252 7th Avenue City: Hanford Zip: 93230

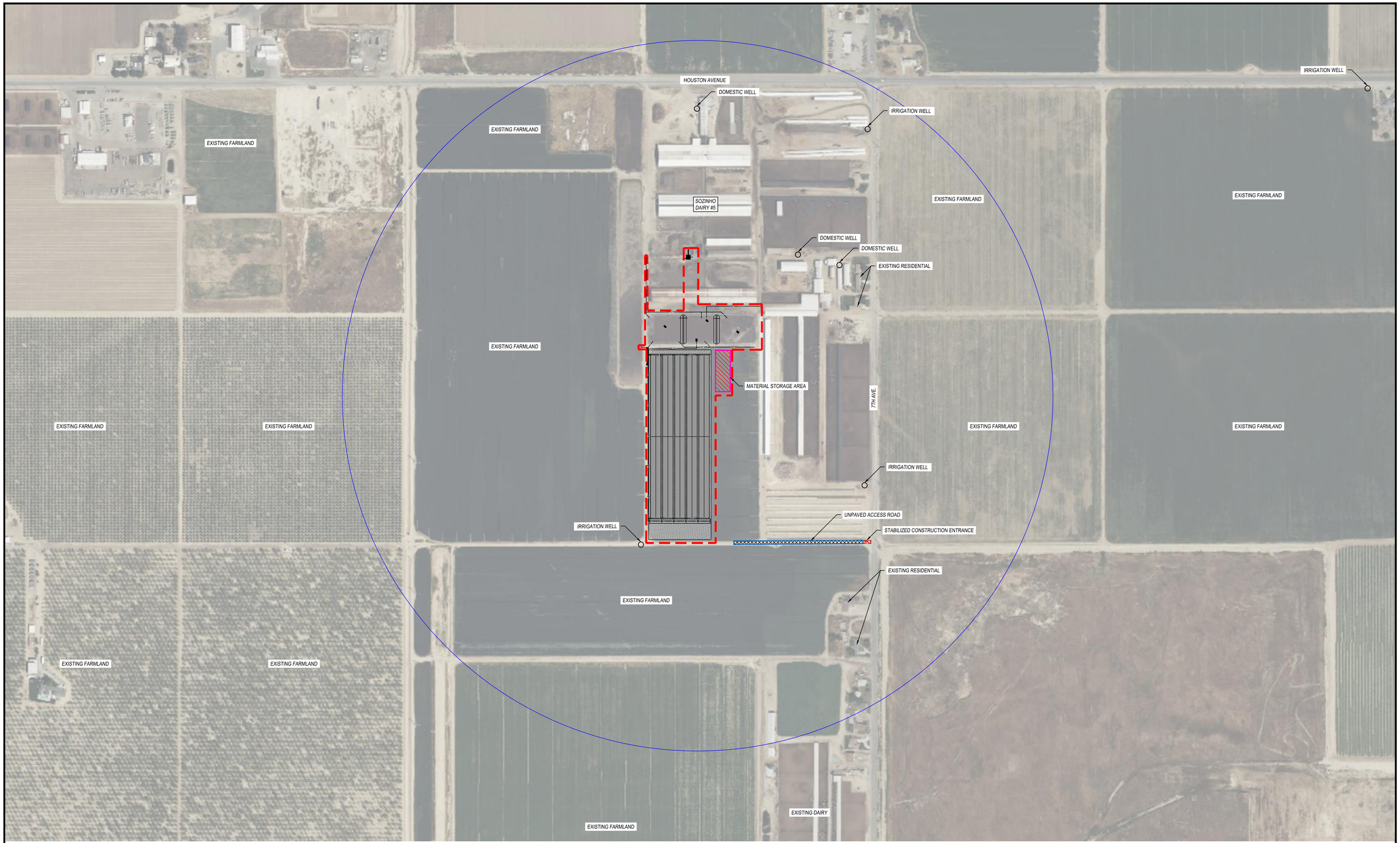
Contact Person: Alec Grassel Title: Construction Manager Phone: 559-786-3694

Use this form to document daily water applications at the same or different areas. Use additional forms, as necessary.

| Date | Time | Area Treated | Distance, Area, or Gallons Applied |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Comments:

***Retain for one year after project ends. Title V sources are required to retain for five years after project ends. Attach product information, maps and other specifications as appropriate unless already addressed in an approved or verified Fugitive PM10 Management Plan.***




## LEGEND

**CONSTRUCTION BMPS:**

BMPs SHOWN ON MAP

- LIMITS OF SURFACE DISTURBANCE = 15.24 ACRES
- ¼ MILE RADIUS
- WATER SOURCE
- ACCESS/HAUL ROAD
- MATERIAL STORAGE AREA
- STABILIZED CONSTRUCTION ENTRANCE

BMPs NOT SHOWN ON MAP

VEHICLE AND EQUIPMENT FUELING (NS-9)
VEHICLE AND EQUIPMENT MAINTENANCE (NS-10)
CONCRETE FINISHING (NS-13)
SPILL PREVENTION AND CONTROL (WM-4)

811 Know what's **below.** **Call** before you dig.

NORTH

| REVISIONS | DATE | BY | DESCRIPTION |
|---|---|---|---|
| | | | |

PREPARED BY:
4CREEKS
324 S. SANTA FE., STE. A
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3275
www.4-creeks.com

CHK BY: TE
DRW BY: AF

IMPROVEMENT PLANS FOR:
SOZINHO DAIRY #5
12252 7th Avenue
HANFORD, CA 93230

# BIOFILTRO WASTEWATER PROCESSING DUST CONTROL PLAN

| | |
|---|---|
| PLOT DATE: | Jun 11, 2024 |
| JOB NO.: | 240504 |
| FILE NAME: | 240504 - DCP EXHIBIT |
| SCALE: | 1" = 250' |
| SHEET NO.: | 1 OF 1 |

# Appendix I

## Occurrence Report

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Query Criteria:** Quad IS (Laton (3611946) OR Burris Park (3611945) OR Traver (3611944) OR Hanford (3611936) OR Remnoy (3611935) OR Goshen (3611934) OR Guernsey (3611926) OR Waukena (3611925) OR Paige (3611924))

**Map Index Number:** 44980
**EO Index:** 44980
**Key Quad:** Burris Park (3611945)
**Element Code:** AAAAA01181
**Occurrence Number:** 431
**Occurrence Last Updated:** 2009-06-18

**Scientific Name:** *Ambystoma californiense pop. 1*
**Common Name:** California tiger salamander - central California DPS

**Listing Status:** **Federal:** Threatened
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** CDFW_WL-Watch List
IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G2G3T3
**State:** S3

**General Habitat:**

LIVES IN VACANT OR MAMMAL-OCCUPIED BURROWS THROUGHOUT MOST OF THE YEAR; IN GRASSLAND, SAVANNA, OR OPEN WOODLAND HABITATS.

**Micro Habitat:**

NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS, AND VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING.

**Last Date Observed:** 1999-03-01
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1999-03-01
**Occurrence Rank:** Fair
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

WEST SIDE OF CROSS CREEK, 1.3 MILES SOUTH OF SETTLERS DITCH, NW OF VSALIA.

**Detailed Location:**

**Ecological:**

1999: NON-NTIVE ANNUAL GRASSLAND W/VERNAL POOLS; GRASSLAND TO S & E, FARMLAND TO N & W. SCAPHIOPUS HAMMONDI, BRANCHINETA LYNCHI, LEPIDURUS PACKARDI, & ATHENE CUNICULARIA FOUND IN VICINITY. 2007 AERIAL PHOTO SHOWS AREAS TO S & E ARE NOW AG.

**Threats:**

POSSIBLE THREAT OF DEVELOPMENT ON SURROUNDING FARMLAND.

**General:**

SEVERAL EGG MASSES OBSERVED ON 1 MAR 1999.

**PLSS:** T18S, R23E, Sec. 08, W (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4028791 E274936
**Latitude/Longitude:** 36.37793 / -119.50895
**Elevation (feet):** 260

**County Summary:**

Kings

**Quad Summary:**

Burris Park (3611945)

**Sources:**

HAL99F0009 HALSTEAD, J.A. & P.S. HALSTEAD - FIELD SURVEY FORM FOR AMBYSTOMA (TIGRINUM) CALIFORNIENSE 1999-03-01

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 46426 | **EO Index:** | 46426 |
| **Key Quad:** | Burris Park (3611945) | **Element Code:** | AAAAA01181 |
| **Occurrence Number:** | 503 | **Occurrence Last Updated:** | 2017-11-15 |

**Scientific Name:** *Ambystoma californiense pop. 1*

**Common Name:** California tiger salamander - central California DPS

**Listing Status:** **Federal:** Threatened

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** CDFW_WL-Watch List
IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G2G3T3

**State:** S3

**General Habitat:**

LIVES IN VACANT OR MAMMAL-OCCUPIED BURROWS THROUGHOUT MOST OF THE YEAR; IN GRASSLAND, SAVANNA, OR OPEN WOODLAND HABITATS.

**Micro Habitat:**

NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS, AND VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | XXXX-XX-XX | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | XXXX-XX-XX | **Occurrence Rank:** | None |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Extirpated | | |

**Location:**

LOCATION GIVEN ONLY AS KINGS RIVER BELOW KINGSBURG IN KINGS COUNTY.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**

FOUND SOMETIME BEFORE 1925. JENNINGS CONSIDERS THIS SITE EXTIRPATED.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R22E, Sec. 11 (M) | **Accuracy:** | 1 mile | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4039456 E271818 | **Latitude/Longitude:** | 36.47325 / -119.54682 | **Elevation (feet):** | 275 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Burris Park (3611945) |

**Sources:**

| | |
|---|---|
| JEN01U0001 | JENNINGS, M. (RANA RESOURCES) - LOCALITY RECORDS FOR AMBYSTOMA CALIFORNIENSE IN CALIFORNIA, 1992, JENNINGS & HAYES SPECIAL CONCERN HERP DATABASE WITH LOCATIONS MARKED AS PRESENT OR EXTIRPATED 2001-11-07 |
| JEN94U0001 | JENNINGS, M. & M. HAYES - TABLE OF DATA FOR TIGER SALAMANDER USED IN THE REPORT "REPTILE AND AMPHIBIAN SPECIES OF SPECIAL CONCERN IN CALIFORNIA" 1994-XX-XX |
| STO25A0001 | STORER, T. (MUSEUM OF VERTEBRATE ZOOLOGY) - A SYNOPSIS OF THE AMPHIBIA OF CALIFORNIA. UNIVERSITY OF CALIFORNIA PUBLICATIONS IN ZOOLOGY 27: 1-342. 1925-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 44979
**EO Index:** 44979
**Key Quad:** Burris Park (3611945)
**Element Code:** AAABF02020
**Occurrence Number:** 195
**Occurrence Last Updated:** 2017-10-06

**Scientific Name:** *Spea hammondii*
**Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

**Last Date Observed:** 2017-03-01
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-03-01
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

WEST SIDE OF CROSS CREEK, ABOUT 1 MILE SOUTH OF SETTLERS DITCH, NW OF VISALIA.

**Detailed Location:**

2016: DETECTED IN POOL 25 AT (36.38055, -119.50874). MAPPED TO INCLUDE GIVEN DETECTION LOCATIONS.

**Ecological:**

NON-NATIVE ANNUAL GRASSLAND W/ VERNAL POOLS (MAINLY ALKALINE POOLS); GRASSLAND TO THE S & E, FARMLAND TO THE N & W. AREA IS GRAZED. AMBYSTOMA CALIFORNIENSE, BRANCHINETA LYNCHI, LEPIDURUS PACKARDI, & ATHENE CUNICULARIA FOUND IN THE VICINITY.

**Threats:**

POSSIBLE THREAT OF DEVELOPMENT ON SURROUNDING FARMLAND (1999).

**General:**

MANY TADPOLES OBSERVED IN 3 SEPARATE POOLS ON 1 MAR 1999. PAIR IN AMPLEXUS OBSERVED ON 6 MAR 2016. TADPOLES FOUND IN 10 POOLS THROUGHOUT PROPERTY IN 2017; 1 MAPPED HERE.

**PLSS:** T18S, R23E, Sec. 8, W (M)
**Accuracy:** specific area
**Area (acres):** 37
**UTM:** Zone-11 N4029177 E274977
**Latitude/Longitude:** 36.38141 / -119.50862
**Elevation (feet):** 263

**County Summary:**

Kings

**Quad Summary:**

Burris Park (3611945)

**Sources:**

| | |
|---|---|
| HAL99F0008 | HALSTEAD, J. & P. HALSTEAD - FIELD SURVEY FORM FOR SPEA HAMMONDII 1999-03-01 |
| HEL16F0006 | HELM, B. - FIELD SURVEY FORM FOR SPEA HAMMONDII 2016-03-06 |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR17F0006 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR SPEA HAMMONDII 2017-03-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 55262 | **EO Index:** | 55262 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | AAABF02020 |
| **Occurrence Number:** | 288 | **Occurrence Last Updated:** | 2020-02-20 |

**Scientific Name:** *Spea hammondii* **Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened **Rare Plant Rank:**

**State:** None **Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3

**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2004-04-22 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2004-04-22 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT-JACUZZI PROPERTY | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

0.3 MILE NNW OF THE INTERSECTION OF ROAD J32 AND ROAD J19, ESE OF GOSHEN.

**Detailed Location:**

**Ecological:**

HABITAT CONSISTS OF VERNAL POOLS, WITH TYPICAL VERNAL POOL PLANTS, SURROUNDED BY NON-NATIVE ANNUAL GRASSLAND DOMINATED BY TARWEED, WILD RYE, RIP-GUT BROME, FIDDLENECK, AND STINGING NETTLE. OVERALL TOPOGRAPHY FLAT.

**Threats:**

THREATENED BY FUTURE DEVELOPMENT.

**General:**

12 JUVENILES OBSERVED ON 19 APR 2004. ADULT SPADEFOOT REMAINS FOUND AT NEARBY BURROWING OWL BURROWS BETWEEN 19 AND 22 APR 2004.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R24E, Sec. 20, SW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4025020 E285001 | **Latitude/Longitude:** | 36.34626 / -119.39580 | **Elevation (feet):** | 290 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| CLA04F0003 | CLARK, H. (H.T. HARVEY AND ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2004-04-19 |
| CLA08A0001 | CLARK, H, - NATURAL HISTORY NOTES: SPEA HAMMONDII (WESTERN SPADEFOOT). PREDATION AND USE AS BURROW DECORATIONS. HERPETOLOGICAL REVIEW 39(1):80-81. 2008-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 86230 | **EO Index:** | 87272 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | AAABF02020 |
| **Occurrence Number:** | 428 | **Occurrence Last Updated:** | 2012-06-29 |

**Scientific Name:** *Spea hammondii* **Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4

**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2011-05-16 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2011-05-16 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

JUST EAST OF HWY 99 ON THE NORTH SIDE OF CROSS CREEK, ABOUT 3 MILES SSE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO APPENDIX H AERIAL MAP (GEOREFERENCED). VERNAL POOLS 1, 3, 4, 10, AND 11. 1,090 ACRE SITE ALONG CROSS CREEK DRAINAGE EXTENDING NE OF HWY 99 FOR ABOUT 3 MILES.

**Ecological:**

HABITAT DESCRIBED AS NON-NATIVE GRASSLANDS USED FOR GRAZING. THE 1,090 ACRE SITE WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. LEPIDURUS PACKARDI ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

19 TOTAL INDIVIDUAL TADPOLES WERE CAPTURED FROM 17 VERNAL POOLS ON SITE DURING DIP-NET SURVEYS.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R23E, Sec. 35, NW (M) | **Accuracy:** | non-specific area | **Area (acres):** | 83 |
| **UTM:** | Zone-11 N4032576 E279833 | **Latitude/Longitude:** | 36.41315 / -119.45547 | **Elevation (feet):** | 275 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HAL11F0018 | HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2011-04-27 |
| HAL11R0001 | HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86232
**EO Index:** 87274
**Key Quad:** Traver (3611944)
**Element Code:** AAABF02020
**Occurrence Number:** 429
**Occurrence Last Updated:** 2012-06-29

**Scientific Name:** *Spea hammondii*
**Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

**Last Date Observed:** 2011-05-16
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-05-16
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

JUST EAST OF HWY 99 ON EITHER SIDE OF CROSS CREEK, ABOUT 3.7 MILES SSE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO APPENDIX H AERIAL MAP (GEOREFERENCED). VERNAL POOLS 6, 7, AND 8. 1,090 ACRE SITE ALONG CROSS CREEK DRAINAGE EXTENDING NE OF HWY 99 FOR ABOUT 3 MILES.

**Ecological:**

HABITAT DESCRIBED AS NON-NATIVE GRASSLANDS USED FOR GRAZING. THE 1,090 ACRE SITE WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. LEPIDURUS PACKARDI ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

19 TOTAL INDIVIDUAL TADPOLES WERE CAPTURED FROM 17 VERNAL POOLS ON SITE DURING DIP-NET SURVEYS.

**PLSS:** T17S, R23E, Sec. 35, SW (M)
**Accuracy:** non-specific area
**Area (acres):** 31
**UTM:** Zone-11 N4031856 E279790
**Latitude/Longitude:** 36.40665 / -119.45575
**Elevation (feet):** 275

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HAL11F0018 HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2011-04-27

HAL11R0001 HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86233
**EO Index:** 87275
**Key Quad:** Traver (3611944)
**Element Code:** AAABF02020
**Occurrence Number:** 430
**Occurrence Last Updated:** 2012-07-02

**Scientific Name:** *Spea hammondii*
**Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

**Last Date Observed:** 2011-05-24
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-05-24
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

JUST EAST OF HWY 99 ON THE SOUTH SIDE OF CROSS CREEK, ABOUT 4 MILES SSE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO APPENDIX H AERIAL MAP (GEOREFERENCED). VERNAL POOL #51. 1,090 ACRE SITE ALONG CROSS CREEK DRAINAGE EXTENDING NE OF HWY 99 FOR ABOUT 3 MILES.

**Ecological:**

HABITAT DESCRIBED AS NON-NATIVE GRASSLANDS USED FOR GRAZING. THE 1,090 ACRE SITE WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. LEPIDURUS PACKARDI ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

19 TOTAL INDIVIDUAL TADPOLES WERE CAPTURED FROM 17 VERNAL POOLS ON SITE DURING DIP-NET SURVEYS.

**PLSS:** T17S, R23E, Sec. 35, S (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4031646 E280508
**Latitude/Longitude:** 36.40493 / -119.44769
**Elevation (feet):** 275

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HAL11F0018 HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2011-04-27

HAL11R0001 HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86234
**EO Index:** 87276
**Key Quad:** Traver (3611944)
**Element Code:** AAABF02020
**Occurrence Number:** 431
**Occurrence Last Updated:** 2012-07-09

**Scientific Name:** *Spea hammondii*
**Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

**Last Date Observed:** 2011-05-16
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-05-16
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ABOUT 1 MILE EAST OF HWY 99 ON THE NORTH SIDE OF CROSS CREEK, AND ABOUT 3.75 MILES SE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO APPENDIX H AERIAL MAP (GEOREFERENCED). VERNAL POOLS 22 AND 23. 1,090 ACRE SITE ALONG CROSS CREEK DRAINAGE EXTENDING NE OF HWY 99 FOR ABOUT 3 MILES.

**Ecological:**

HABITAT DESCRIBED AS NON-NATIVE GRASSLANDS USED FOR GRAZING. THE 1,090 ACRE SITE WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. LEPIDURUS PACKARDI ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

19 TOTAL INDIVIDUAL TADPOLES WERE CAPTURED FROM 17 VERNAL POOLS ON SITE DURING DIP-NET SURVEYS.

**PLSS:** T17S, R23E, Sec. 35, NE (M)
**Accuracy:** non-specific area
**Area (acres):** 24
**UTM:** Zone-11 N4032513 E281022
**Latitude/Longitude:** 36.41285 / -119.44221
**Elevation (feet):** 275

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HAL11F0018 HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2011-04-27

HAL11R0001 HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86235
**EO Index:** 87277
**Key Quad:** Traver (3611944)
**Element Code:** AAABF02020
**Occurrence Number:** 432
**Occurrence Last Updated:** 2012-06-29

**Scientific Name:** *Spea hammondii*
**Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

**Last Date Observed:** 2011-05-16
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-05-16
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ABOUT 1 MILE EAST OF HWY 99 ON THE SOUTH SIDE OF CROSS CREEK, AND ABOUT 4 MILES SE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO APPENDIX H AERIAL MAP (GEOREFERENCED). VERNAL POOL #34. 1,090 ACRE SITE ALONG CROSS CREEK DRAINAGE EXTENDING NE OF HWY 99 FOR ABOUT 3 MILES.

**Ecological:**

HABITAT DESCRIBED AS NON-NATIVE GRASSLANDS USED FOR GRAZING. THE 1,090 ACRE SITE WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. LEPIDURUS PACKARDI ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

19 TOTAL INDIVIDUAL TADPOLES WERE CAPTURED FROM 17 VERNAL POOLS ON SITE DURING DIP-NET SURVEYS.

**PLSS:** T17S, R23E, Sec. 36, NW (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4032017 E281465
**Latitude/Longitude:** 36.40849 / -119.43713
**Elevation (feet):** 275

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HAL11F0018 HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2011-04-27

HAL11R0001 HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86236
**EO Index:** 87278
**Key Quad:** Traver (3611944)
**Element Code:** AAABF02020
**Occurrence Number:** 433
**Occurrence Last Updated:** 2012-06-29

**Scientific Name:** *Spea hammondii*
**Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

**Last Date Observed:** 2011-05-24
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-05-24
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ABOUT 2.25 MILES UPSTREAM (NE) OF HWY 99 ON THE SOUTH SIDE OF CROSS CREEK, AND ABOUT 4.4 MILES SE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO APPENDIX H AERIAL MAP (GEOREFERENCED). VERNAL POOL #41. 1,090 ACRE SITE ALONG CROSS CREEK DRAINAGE EXTENDING NE OF HWY 99 FOR ABOUT 3 MILES.

**Ecological:**

NON-NATIVE GRASSLANDS USED FOR GRAZING. THE 1,090 ACRE SITE WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. LEPIDURUS PACKARDI ALSO FOUND ON SITE & BUTEO SWAINSONI NEARBY.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

19 TOTAL INDIVIDUAL TADPOLES WERE CAPTURED FROM 17 VERNAL POOLS ON SITE DURING DIP-NET SURVEYS.

**PLSS:** T17S, R24E, Sec. 30, SW (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4033309 E282985
**Latitude/Longitude:** 36.42047 / -119.42055
**Elevation (feet):** 280

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HAL11F0018 | HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2011-04-27 |
| HAL11R0001 | HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86237
**EO Index:** 87279
**Key Quad:** Traver (3611944)
**Element Code:** AAABF02020
**Occurrence Number:** 434
**Occurrence Last Updated:** 2012-06-29

**Scientific Name:** *Spea hammondii*
**Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

**Last Date Observed:** 2011-05-24
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-05-24
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ABOUT 3 MILES UPSTREAM (NE) OF HWY 99 ALONG CROSS CREEK, AND ABOUT 4.6 MILES ESE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO APPENDIX H AERIAL MAP (GEOREFERENCED). VERNAL POOLS 48 & 55. 1,090 ACRE SITE ALONG CROSS CREEK DRAINAGE EXTENDING NE OF HWY 99 FOR ABOUT 3 MILES.

**Ecological:**

NON-NATIVE GRASSLANDS USED FOR GRAZING. THE 1,090 ACRE SITE WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. LEPIDURUS PACKARDI ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

19 TOTAL INDIVIDUAL TADPOLES WERE CAPTURED FROM 17 VERNAL POOLS ON SITE DURING DIP-NET SURVEYS.

**PLSS:** T17S, R24E, Sec. 30, NE (M)
**Accuracy:** non-specific area
**Area (acres):** 37
**UTM:** Zone-11 N4034140 E283825
**Latitude/Longitude:** 36.42814 / -119.41143
**Elevation (feet):** 280

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HAL11F0018 HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2011-04-27

HAL11R0001 HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 86238 | **EO Index:** | 87280 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | AAABF02020 |
| **Occurrence Number:** | 435 | **Occurrence Last Updated:** | 2019-03-18 |

**Scientific Name:** *Spea hammondii* **Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened **Rare Plant Rank:**

**State:** None **Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3

**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2018-04-09 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2018-04-09 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

ABOUT 4 MILES UPSTREAM (NE) OF HWY 99 ALONG CROSS CREEK (COTTONWOOD CREEK), AND ABOUT 5.2 MILES ESE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO APPENDIX H AERIAL MAP (GEOREFERENCED). REFERENCE VERNAL POOLS A & F ON ADJACENT LAND NEXT TO 1,090 ACRE SITE ALONG CROSS CREEK DRAINAGE EXTENDING NE OF HWY 99 FOR ABOUT 3 MILES.

**Ecological:**

NON-NATIVE GRASSLANDS USED FOR GRAZING. THIS SITE ALSO APPEARS TO HAVE BEEN DISKED (JUN 2011 AERIAL). LEPIDURUS PACKARDI ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

19 TOTAL INDIVIDUAL TADPOLES WERE CAPTURED FROM 17 VERNAL POOLS BETWEEN THIS REFERENCE SITE AND THE NEIGHBORING 1090 ACRE SITE IN 2011. 14 JUVENILES OBSERVED ON 15 APR 2017. EGGS AND LARVAE OBSERVED IN 4 POOLS ON 27 MAR & 9 APR 2018.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R24E, Sec. 20, SW (M) | **Accuracy:** | non-specific area | **Area (acres):** | 92 |
| **UTM:** | Zone-11 N4034751 E284751 | **Latitude/Longitude:** | 36.43386 / -119.40128 | **Elevation (feet):** | 285 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| ALV17D0001 | ALVAREZ, J. (THE WILDLIFE PROJECT) - EXCEL TABLE OF SPECIAL STATUS SPECIES, 2014-2017 [SC-000040] 2017-01-20 |
| HAL11F0018 | HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2011-04-27 |
| HAL11R0001 | HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX |
| OBR18F0008 | O'BRIEN, S. (HELM BIOLOGICAL CONSULTING) - FIELD SURVEY FORM FOR SPEA HAMMONDII 2018-04-09 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** A6746
**EO Index:** 108515
**Key Quad:** Traver (3611944)
**Element Code:** AAABF02020
**Occurrence Number:** 472
**Occurrence Last Updated:** 2019-03-14

**Scientific Name:** *Spea hammondii*
**Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

**Last Date Observed:** 2017-03-01
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-03-01
**Occurrence Rank:** Excellent
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

VICINITY OF CROSS CREEK ABOUT 1.6 MI NW OF HWY 99 AT AVE 328 & 1.2-1.5 MI SSE OF AVE 352 AT RD 44, NW OF VISALIA.

**Detailed Location:**

MAPPED TO PROVIDED MAP.

**Ecological:**

CROSS CREEK PROPERTIES BEING EVALUATED AS POTENTIAL MITIGATION LANDS FOR THE HIGH SPEED RAIL AUTHORITY (2017).

**Threats:**

**General:**

16 LARVAE DETECTED ON 30 JAN 2017. LARVAE DETECTED IN 10 POOLS THROUGHOUT PROPERTY DURING 2017 SURVEYS; 3 MAPPED HERE.

**PLSS:** T17S, R23E, Sec. 34, S (M)
**Accuracy:** specific area
**Area (acres):** 23
**UTM:** Zone-11 N4031241 E278955
**Latitude/Longitude:** 36.40092 / -119.46489
**Elevation (feet):** 271

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

ALV17D0001 ALVAREZ, J. (THE WILDLIFE PROJECT) - EXCEL TABLE OF SPECIAL STATUS SPECIES, 2014-2017 [SC-000040] 2017-01-20

HEL17R0001 HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX

OBR17F0006 O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR SPEA HAMMONDII 2017-03-01

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | A6747 | **EO Index:** | 108517 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | AAABF02020 |
| **Occurrence Number:** | 473 | **Occurrence Last Updated:** | 2017-10-12 |

**Scientific Name:** *Spea hammondii* **Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened **Rare Plant Rank:**

**State:** None **Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3

**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Excellent |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

NW SIDE OF CROSS CREEK, ABOUT 1.6 MILES NW OF HWY 99 AT AVE 328 & 1.9 MI SSE OF AVE 352 AT RD 44, NW OF VISALIA.

**Detailed Location:**

MAPPED TO PROVIDED MAP.

**Ecological:**

CROSS CREEK PROPERTIES BEING EVALUATED AS POTENTIAL MITIGATION LANDS FOR THE HIGH SPEED RAIL AUTHORITY (2017).

**Threats:**

**General:**

LARVAE DETECTED IN 10 POOLS THROUGHOUT PROPERTY DURING 2017 SURVEYS; 2 MAPPED HERE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 3, SW (M) | **Accuracy:** | specific area | **Area (acres):** | 10 |
| **UTM:** | Zone-11 N4030271 E278276 | **Latitude/Longitude:** | 36.39203 / -119.47218 | **Elevation (feet):** | 268 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR17F0006 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR SPEA HAMMONDII 2017-03-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | A6749 | **EO Index:** | 108518 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | AAABF02020 |
| **Occurrence Number:** | 474 | **Occurrence Last Updated:** | 2017-10-12 |

**Scientific Name:** *Spea hammondii* **Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened **Rare Plant Rank:**

**State:** None **Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3

**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Excellent |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

FROM 2.0-2.4 MI NW OF HWY 99 AT AVE 328, 1.3-1.4 MI SSW OF AVE 352 AT RD 44, NW OF VISALIA.

**Detailed Location:**

MAPPED TO PROVIDED MAP.

**Ecological:**

CROSS CREEK PROPERTIES BEING EVALUATED AS POTENTIAL MITIGATION LANDS FOR THE HIGH SPEED RAIL AUTHORITY (2017).

**Threats:**

**General:**

LARVAE DETECTED IN 10 POOLS THROUGHOUT PROPERTY DURING 2017 SURVEYS; 2 MAPPED HERE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 4, NE (M) | **Accuracy:** | specific area | **Area (acres):** | 10 |
| **UTM:** | Zone-11 N4030926 E277801 | **Latitude/Longitude:** | 36.39782 / -119.47766 | **Elevation (feet):** | 269 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings, Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR17F0006 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR SPEA HAMMONDII 2017-03-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | A6750 | **EO Index:** | 108519 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | AAABF02020 |
| **Occurrence Number:** | 475 | **Occurrence Last Updated:** | 2019-02-21 |

**Scientific Name:** *Spea hammondii* **Common Name:** western spadefoot

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S3S4

**General Habitat:**

OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

**Micro Habitat:**

VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Excellent |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

JUST N OF CROSS CREEK, FROM 2.5-2.6 MI NW OF HWY 99 AT AVE 328, 1.7 MI SW OF AVE 352 AT RD 44, NW OF VISALIA.

**Detailed Location:**

MAPPED TO PROVIDED MAP AND COORDINATES.

**Ecological:**

ANNUAL GRASSLANDS WITH VERNAL POOLS. CROSS CREEK PROPERTIES BEING EVALUATED AS POTENTIAL MITIGATION LANDS FOR THE HIGH SPEED RAIL AUTHORITY (2017).

**Threats:**

**General:**

APPROXIMATELY 81 LARVAE DETECTED ON 30 JAN 2017. LARVAE DETECTED IN 10 POOLS THROUGHOUT PROPERTY DURING 2017 SURVEYS; 2 MAPPED HERE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 4, NW (M) | **Accuracy:** | specific area | **Area (acres):** | 10 |
| **UTM:** | Zone-11 N4030870 E276767 | **Latitude/Longitude:** | 36.39708 / -119.48916 | **Elevation (feet):** | 268 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Traver (3611944) |

**Sources:**

| | |
|---|---|
| ALV17D0001 | ALVAREZ, J. (THE WILDLIFE PROJECT) - EXCEL TABLE OF SPECIAL STATUS SPECIES, 2014-2017 [SC-000040] 2017-01-20 |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR17F0006 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR SPEA HAMMONDII 2017-03-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 22682 | **EO Index:** | 8315 |
| **Key Quad:** | Waukena (3611925) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 439 | **Occurrence Last Updated:** | 2012-10-24 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 1994-06-13 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 1994-06-13 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

CAMERON CREEK, E OF ROAD 20, ABOUT 1 MILE WSW OF WAUKENA.

**Detailed Location:**

DFG SWHA #TU004. 1991 NEST TREE WAS ON THE NORTH BANK OF THE CREEK NEAR AN IRRIGATION STORAGE RESERVOIR.

**Ecological:**

1991 NEST TREE WAS A LARGE EUCALYPTUS. SURROUNDING LAND USES INCLUDED ROW CROPS AND DAIRIES.

**Threats:**

**General:**

A PAIR OF BIRDS NESTED AT THIS SITE IN 1991. 2 ADULTS OBS, 2 YOUNG FLEDGED FROM THIS SITE 13 JUN 1994.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T21S, R23E, Sec. 06, NE (M) | **Accuracy:** | 1/10 mile | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4001801 E272656 | **Latitude/Longitude:** | 36.13430 / -119.52650 | **Elevation (feet):** | 220 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Waukena (3611925) |

**Sources:**

| | |
|---|---|
| DFG94U0003 | DFG - NONGAME BIRDS & MAMMALS - TABLE OF SWAINSON'S HAWK NEST RECORDS THROUGH 1994. 1994-XX-XX |
| HAN91F0001 | HANSEN, R. & G. PRESLEY - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 1991-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 22037
**EO Index:** 8313
**Key Quad:** Paige (3611924)
**Element Code:** ABNKC19070
**Occurrence Number:** 440
**Occurrence Last Updated:** 1999-12-01

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 1990-XX-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1990-XX-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

EAST SIDE OF HWY 137, 0.6 MILE NORTH OF PAIGE ROAD, 3 MILES NE OF WAUKENA.

**Detailed Location:**

NEST TREE IS LOCATED JUST NORTH OF THE DRIVEWAY TO THE SOUSA DAIRY. SWHA'S OBSERVED (INCLUDING ONE DEAD ADULT) SOUTH OF THIS NEST SITE IN 1999, BUT NO NESTING WAS OBSERVED.

**Ecological:**

NEST TREE IS ONE OF TWO EUCALYPTUS TREES JUST EAST OF THE ROADWAY; SURROUNDING HABITAT CONSISTS ALMOST ENTIRELY OF ROW CROPS AND DAIRIES.

**Threats:**

**General:**

BIRDS NESTED HERE ANNUALLY FROM 1982-1990; NESTING SUCCESS UNKNOWN.

**PLSS:** T20S, R23E, Sec. 16, NW (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4007834 E275868
**Latitude/Longitude:** 36.18939 / -119.49256
**Elevation (feet):** 240

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Paige (3611924) |

**Sources:**

HAN90F0001 HANSEN, R. & G. PRESLEY - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 1990-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 42284
**EO Index:** 42284
**Key Quad:** Paige (3611924)
**Element Code:** ABNKC19070
**Occurrence Number:** 792
**Occurrence Last Updated:** 2000-01-27

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 1994-06-27
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1994-06-27
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

0.5 MILE WEST OF COUNTY ROAD 60 (BUENA VISTA AVENUE) AND SOUTH OF PAIGE ROAD, 5 MILES SW OF TULARE.

**Detailed Location:**

NEST TREE IS LOCATED BEHIND SOME RANCH BUILDINGS.

**Ecological:**

NEST TREE IS A LARGE EUCALYPTUS.

**Threats:**

**General:**

DFG SWHA #TU006. 2 ADULTS OBSERVED AT THE NEST ON 27 JUN 1994.

**PLSS:** T20S, R23E, Sec. 23, NE (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4006394 E279878
**Latitude/Longitude:** 36.17734 / -119.44760
**Elevation (feet):** 245

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Paige (3611924) |

**Sources:**

DFG94U0003 DFG - NONGAME BIRDS & MAMMALS - TABLE OF SWAINSON'S HAWK NEST RECORDS THROUGH 1994. 1994-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 42285
**EO Index:** 42285
**Key Quad:** Paige (3611924)
**Element Code:** ABNKC19070
**Occurrence Number:** 793
**Occurrence Last Updated:** 2013-09-13

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2008-05-21
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2008-05-21
**Occurrence Rank:** Fair
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

E SIDE OF HWY 137, ABOUT 0.2 MI S OF AVE 204, 1.5 MI NE OF WAUKENA, 4.4 MI WSW OF PAIGE.

**Detailed Location:**

DFG SWHA #TU008. SITE IS LOCATED AT THE ENTRANCE TO THE MACHADO DAIRY. SOUTHERNMOST OF THE 3 EUCALYPTUS TREES WAS THE NEST TREE IN 1994. SECOND TREE NORTH OF THE ENTRANCE WAS THE NEST TREE IN 2000 AND 2008.

**Ecological:**

NEST TREE WAS A EUCALYPTUS SURROUNDED BY DAIRIES AND AGRICULTURE.

**Threats:**

**General:**

2 ADULTS & 2 JUVENILES 14 JUL 1994. 2 AD, NO NEST OBS, 1999. 1 AD IN NEST 21 APR; 1 SOARING, 1 FEEDING YOUNG/EATING IN NEST 22 MAY; 1 YOUNG IN NEST, 1 AD NEARBY 20 JUN 2000. PAIR OBS, NESTING UNCONFIRMED 2003. INCUBATION ON 21 MAY 2008.

**PLSS:** T20S, R23E, Sec. 28, SW (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4004168 E275769
**Latitude/Longitude:** 36.15634 / -119.49261
**Elevation (feet):** 230

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Paige (3611924) |

**Sources:**

| | |
|---|---|
| BRO00F0013 | BROWN, N. - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 2000-05-22 |
| BRO03U0002 | BROWN, N. - COMPILATION OF 2003 NESTING OF BUTEO SWAINSONI 2003-07-XX |
| BRO99F0009 | BROWN, N. - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 1999-04-18 |
| CON08F0010 | CONNOLLY, L. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-05-21 |
| DFG94U0003 | DFG - NONGAME BIRDS & MAMMALS - TABLE OF SWAINSON'S HAWK NEST RECORDS THROUGH 1994. 1994-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 42287
**EO Index:** 42287
**Key Quad:** Paige (3611924)
**Element Code:** ABNKC19070
**Occurrence Number:** 795
**Occurrence Last Updated:** 2000-01-27

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 1994-06-13
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1994-06-13
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ALONG BATES SLOUGH, 0.3 MILE NORTH OF ROAD 184 (OCTOL AVENUE), 7 MILES SW OF TULARE.

**Detailed Location:**

**Ecological:**

NEST TREE IS A MEDIUM-SIZED VALLEY OAK.

**Threats:**

**General:**

DFG SWHA #TU007. 2 ADULTS AND 1 JUVENILE OBSERVED AT THE NEST ON 13 JUN 1994.

**PLSS:** T21S, R23E, Sec. 02, SW (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4000821 E278598
**Latitude/Longitude:** 36.12685 / -119.46025
**Elevation (feet):** 230

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Paige (3611924) |

**Sources:**

DFG94U0003 DFG - NONGAME BIRDS & MAMMALS - TABLE OF SWAINSON'S HAWK NEST RECORDS THROUGH 1994. 1994-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 43329 | **EO Index:** | 43329 |
| **Key Quad:** | Guernsey (3611926) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 827 | **Occurrence Last Updated:** | 2013-09-13 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2010-06-04 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2010-06-04 | **Occurrence Rank:** | Fair |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

WEST SIDE OF 10 1/2 AVE, UP TO 0.4 MI N OF NEVADA AVE, ABOUT 3 MI N OF HELM CORNER, 7.5 MI W OF WAUKENA.

**Detailed Location:**

MAPPED TO DESCRIPTION & COORDINATES GIVEN FOR 2000 NEST SITE, ALONG 10 1/2 AVE ABOUT 0.4 MI N OF NEVADA AVE; & 2010 NEST SITE NEAR THE INTERSECTION OF 10 1/2 AVE & NEVADA AVE. 2002-03 NEST IN VICINITY OF 2010 SITE.

**Ecological:**

NEST TREE WAS A EUCALYPTUS IN 2000 AND 2010. 2002-2003 NEST IN EUCALYPTUS IN FARMYARD. AREA SURROUNDED BY ROW CROP AGRICULTURE, INCLUDING SEVERAL ALFALFA FIELDS.

**Threats:**

**General:**

2 ADULTS OBSERVED AT SITE FOR 2 WEEKS IN JUL 2000 AT VARIOUS TIMES OF DAY; SENTINEL BEHAVIOR SUGGESTED, NESTING PRESUMED BUT NO NEST FOUND. ACTIVE NEST, 2002-2003. 1 ADULT BRINGING PREY TO NEST & ANOTHER SOARING NEARBY 4 JUN 2010.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T20S, R21E, Sec. 36, SW (M) | **Accuracy:** | specific area | **Area (acres):** | 10 |
| **UTM:** | Zone-11 N4003083 E261907 | **Latitude/Longitude:** | 36.14327 / -119.64623 | **Elevation (feet):** | 200 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Guernsey (3611926) |

**Sources:**

| | |
|---|---|
| BRO00F0014 | BROWN, N. - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 2000-07-09 |
| BRO03U0002 | BROWN, N. - COMPILATION OF 2003 NESTING OF BUTEO SWAINSONI 2003-07-XX |
| BRO03U0004 | BROWN, N. - CORRESPONDENCE REGARDING SWAINSON'S HAWK NEST SITES, 2002-2003. 2003-06-09 |
| SEA10F0008 | SEAY, J. (H.T. HARVEY AND ASSOCIATES) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2010-06-04 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 43330
**EO Index:** 43330
**Key Quad:** Remnoy (3611935)
**Element Code:** ABNKC19070
**Occurrence Number:** 828
**Occurrence Last Updated:** 2000-07-28

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2000-07-10
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2000-07-10
**Occurrence Rank:** Poor
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

SOUTH SIDE OF HOUSTON AVENUE AT THE INTERSECTION OF CROSS CREEK, 1.2 MILES EAST OF 6TH AVENUE, 4 MILES SE OF HAMBLIN.

**Detailed Location:**

**Ecological:**

NEST TREE IS SUSPECTED TO BE AN OAK.

**Threats:**

**General:**

THE PAIR (INCLUDING 1 LIGHT-PHASE ADULT) WAS OBSERVED AT THIS SITE IN MAY-JUN 2000. ON 17 JUL 2000, 2 FLEDGLINGS WERE OBSERVED ON THE WIRE ABOVE THE CREEK.

**PLSS:** T19S, R22E, Sec. 12 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4019951 E271441
**Latitude/Longitude:** 36.29749 / -119.54528
**Elevation (feet):** 245

**County Summary:**

Kings

**Quad Summary:**

Remnoy (3611935)

**Sources:**

BRO00F0011 BROWN, N. - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 2000-07-17

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 43441 | **EO Index:** | 43441 |
| **Key Quad:** | Waukena (3611925) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 831 | **Occurrence Last Updated:** | 2012-10-24 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 1999-04-20 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 1999-04-20 | **Occurrence Rank:** | Fair |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

NORTH SIDE OF HIGHWAY 137, 0.25 MI NE OF RD 24, SW OF WAUKENA.

**Detailed Location:**

NEST TREE WAS ON THE WEST SIDE OF A SMALL HOUSE, NORTH OF A LITTLE CURVE ON HWY 137, 0.25 MILE WEST OF THE WAUKENA CITY LIMITS SIGN.

**Ecological:**

NEST TREE IS THE SECOND LARGER TREE (WEST OF THE SMALL HOUSE); AGRICULTURE TO THE NORTH AND ORCHARD TO THE SOUTH.

**Threats:**

**General:**

1 BIRD OBSERVED ON 18 APR 1999 & 2 BIRDS (1 DARK) OBSERVED ON 20 APR 1999 - ONE ON NEST AND ONE PERCHED IN A SNAG SOUTH OF THE HOUSE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T21S, R23E, Sec. 05, NW (M) | **Accuracy:** | 1/10 mile | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4001819 E273655 | **Latitude/Longitude:** | 36.13470 / -119.51541 | **Elevation (feet):** | 220 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Waukena (3611925) |

**Sources:**

BRO99F0008 BROWN, N. - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 1999-04-20

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 51633 | **EO Index:** | 51633 |
| **Key Quad:** | Waukena (3611925) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 1210 | **Occurrence Last Updated:** | 2013-09-13 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2003-05-20 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2003-05-20 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

SOUTHEAST SIDE OF CROSS CREEK, ON THE W SIDE OF THE HWY 43 CROSSING, BETWEEN LANSING & NEVADA AVES, 14 MI W OF TULARE.

**Detailed Location:**

NEST IS LOCATED ON THE SE SIDE OF THE NEST TREE, WHICH IS VISIBLE FROM HWY 43.

**Ecological:**

NEST TREE IS A LONE COTTONWOOD ON THE SE SIDE OF CROSS CREEK; ALFALFA FIELD FOUND TO THE NORTH OF THE NEST TREE.

**Threats:**

**General:**

ADULTS OBSERVED GOING IN AND OUT OF NEST DURING LATE SPRING-EARLY SUMMER 2002. DARK-MORPH ADULT AGAIN OBSERVED NESTING ON 9 MAY 2003.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T20S, R22E, Sec. 20 (M) | **Accuracy:** | 1/5 mile | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4006114 E265360 | **Latitude/Longitude:** | 36.17140 / -119.60880 | **Elevation (feet):** | 210 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Waukena (3611925) |

**Sources:**

| | |
|---|---|
| BRO02U0001 | BROWN, N. - MEMO DESCRIBING BURROWING OWL BURROW LOCATIONS AND ONE SWAINSON'S HAWK NEST SITE OBSERVED DURING 2000-2002 2002-XX-XX |
| BRO03U0001 | BROWN, N. - EMAIL REGARDING 2003 NESTING OF BUTEO SWAINSONI, INCLUDING AN ATTACHED MAP 2003-XX-XX |
| BRO03U0002 | BROWN, N. - COMPILATION OF 2003 NESTING OF BUTEO SWAINSONI 2003-07-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 69651 | **EO Index:** | 70431 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 1691 | **Occurrence Last Updated:** | 2013-09-11 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2012-08-07 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2012-08-07 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | CALTRANS | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

S SIDE OF HWY 198, 0.3 MI E OF RD 52, 2.4 MI SW OF GOSHEN.

**Detailed Location:**

NEST TREE WAS LOCATED WITHIN THE CALTRANS RIGHT-OF-WAY FOR STATE ROUTE 198. MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST TREE WAS A BLACK WALNUT; SURROUNDED BY AGRICULTURAL FIELDS PLANTED WITH ALFALFA, BARLEY, AND WALNUT TREES. 2012 SURVEYOR NOTED DISTURBANCE FROM FARMING ACTIVITIES AND DANGER OF TRAFFIC.

**Threats:**

POTENTIAL FOR VEHICLE COLLISIONS.

**General:**

2 JUVENILES ON/NEAR NEST TREE, 2 ADULTS SOARING OVERHEAD OBSERVED 13 JUL 2007. 2 ADULTS OBS IN NEST TREE 18 MAR, 2 CHICKS IN NEST 11 JUN, 2 FLEDGLINGS NEAR NEST TREE 15 JUL 2008. INCUBATION OBS 30 APR, 1 BEGGING JUV AT NEST SITE 7 AUG 2012.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 35, NW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4023038 E279914 | **Latitude/Longitude:** | 36.32726 / -119.45187 | **Elevation (feet):** | 260 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| DAN12F0034 | DANIELS, B. (BONTERRA CONSULTING) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-04-30 |
| NUN07F0001 | NUNES, T. & R. KLEINFELTER (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 2007-07-13 |
| NUN08F0003 | NUNES, T. & H. BAKER (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-03-18 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86224
**EO Index:** 87266
**Key Quad:** Traver (3611944)
**Element Code:** ABNKC19070
**Occurrence Number:** 1782
**Occurrence Last Updated:** 2012-06-28

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2011-04-22
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-04-22
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

SOUTH SIDE OF SAINT JOHNS RIVER ABOUT 1 MILE DOWNSTREAM (WEST) OF ROAD 80 (ALTA AVE), ABOUT 4.9 MILES SE OF TRAVER.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES AND ISOLATED TREE VISIBLE IN AERIAL.

**Ecological:**

SURROUNDING LAND IS PRIMARILY AGRICULTURE FIELDS.

**Threats:**

**General:**

1 ADULT OBSERVED IN ADJACENT SEC 25 NEAR THE CONFLUENCE OF CROSS CREEK & ST. JOHNS RIVER IN 2008, BUT NESTING NOT DETERMINED. 2 ADULTS OBSERVED AT A NEST HERE ON 22 APR 2011.

**PLSS:** T17S, R24E, Sec. 31, NW (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4032672 E283495
**Latitude/Longitude:** 36.41485 / -119.41469
**Elevation (feet):** 285

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HAL08F0002 HALSTEAD, P. & J. HALSTEAD (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-07-16

HAL11F0003 HALSTEAD, J. ET AL. (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2011-04-22

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86225
**EO Index:** 87267
**Key Quad:** Traver (3611944)
**Element Code:** ABNKC19070
**Occurrence Number:** 1783
**Occurrence Last Updated:** 2012-06-28

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2008-07-16
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2008-07-16
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

JUST SOUTH OF COTTONWOOD CREEK, ABOUT 0.5 MILE UPSTREAM (EAST) OF ROAD 80 (ALTA AVE), ABOUT 5.9 MILES ESE OF TRAVER.

**Detailed Location:**

MAPPED WITH RESPECT TO PROVIDED MAPS AND ISOLATED TREE VISIBLE IN AERIALS.

**Ecological:**

NON-NATIVE GRASSLAND ALONG COTTONWOOD CREEK WITH MOST SURROUNDING LANDS USED FOR AGRICULTURE. NO OTHER TREES FOR NESTING WITHIN A 1/2 MILE.

**Threats:**

**General:**

A PAIR OF SWAINSON'S HAWKS WAS OBSERVED IN A WILLOW TREE ON 16 JUL 2008.

**PLSS:** T17S, R24E, Sec. 21, SW (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4034838 E286289
**Latitude/Longitude:** 36.43498 / -119.38415
**Elevation (feet):** 290

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HAL08F0002 HALSTEAD, P. & J. HALSTEAD (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-07-16

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 86226 | **EO Index:** | 87268 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 1784 | **Occurrence Last Updated:** | 2019-09-09 |

**Scientific Name:** *Buteo swainsoni* **Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None **Rare Plant Rank:**

**State:** Threatened **Other Lists:** BLM_S-Sensitive, IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-06-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-06-01 | **Occurrence Rank:** | Fair |
| **Owner/Manager:** | CALTRANS ROW | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

VICINITY OF HWY 99 AT CROSS CREEK, ABOUT 3.8 MILES SSE OF TRAVER.

**Detailed Location:**

MIDDLE POLYGON INCLUDES 2008 DETECTION MAPPED TO PROVIDED AERIAL MAP, AND COORDINATES GIVEN FOR 2017 DETECTIONS. 2012 DETECTIONS MAPPED TO NORTH AND SOUTH POLYGONS, PER PROVIDED COORDINATES.

**Ecological:**

ADULT "SITTING IN CROW NEST" MAR 2008; MAY HAVE BEEN REPAIRING NEST OR REUSING NEST MATERIAL FOR NEW NEST NEARBY. 2012 NESTS IN EUCALYPTI MEDIAN JUST N & S OF CREEK. NON-NATIVE GRASSLAND ALONG CREEK USED FOR GRAZING, THEN AGRICULTURE.

**Threats:**

POTENTIAL FOR COLLISION WITH FAST-MOVING VEHICLES ON EIHER SIDE OF NEST.

**General:**

UNCONFIRMED NEST SITE IN 2008. N NEST FLEDGED 1 YOUNG IN 2012; S NEST PRODUCED 2 YOUNG; 1ST DIED WITHIN 2 WEEKS OF HATCHING, 2ND HIT BY VEHICLE WHILE BRANCHING/FLEDGING. 2 ACTIVE NESTS REPORTED IN 2017.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R23E, Sec. 35, SE (M) | **Accuracy:** | non-specific area | **Area (acres):** | 41 |
| **UTM:** | Zone-11 N4031657 E279699 | **Latitude/Longitude:** | 36.40485 / -119.45672 | **Elevation (feet):** | 277 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HAL08F0003 | HALSTEAD, J. ET AL. (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-03-XX |
| OLE17F0010 | O'LEARY, R. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-05-10 |
| TEN17F0018 | TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-06-01 |
| WAL12F0005 | WALBRIDGE, C. (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-05-15 |
| WAL12F0006 | WALBRIDGE, C. (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-05-15 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 86229 | **EO Index:** | 87271 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 1786 | **Occurrence Last Updated:** | 2013-08-30 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 1993-XX-XX | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 1999-04-20 | **Occurrence Rank:** | Fair |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

NW OF ROAD 48 AT HWY 198 (E LACEY BLVD), ABOUT 9.4 MILES W OF VISALIA CITY HALL.

**Detailed Location:**

TERRITORY TU002 FROM CDFW DATABASE. MAPPED TO LIKELY HABITAT IN AERIALS PER GIVEN LOCS "SE1/4 S27 T18S R23E; JUST W OF ROAD 48 ON THE N SIDE OF STATE HWY 198" ('91-92) & "SE1/4 SW1/4 S27 T18S R23E; 0.4 MI E COUNTYLINE, NORTH 198" (1992-94).

**Ecological:**

NEST 60-70 FEET HIGH IN EUCALYPTUS TREE (1991 & 1992). DFG SWHA TERRITORY #TU002 IN LARGE EUCALYPTUS (1992-1994). SURROUNDING LAND USED FOR AGRICULTURE.

**Threats:**

**General:**

1 PAIR MATING IN PECAN TREE ON S EDGE OF HWY 198 ON 20 APR 1991, & 1 ADULT ON NEST 19 MAY 1991. 1 BROODING ADULT ON THE NEST WITH ITS MATE PERCHED NEARBY ON 20 JUN 1992. NESTING IN 1992-93. NEST OCCUPIED BY RED-TAILED HAWKS IN 1994 & 1999.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 27, SW (M) | **Accuracy:** | 1/5 mile | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4023389 E278501 | **Latitude/Longitude:** | 36.33010 / -119.46770 | **Elevation (feet):** | 270 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| BRO99U0004 | BROWN, N. - 1999 SWAINSON'S HAWK SURVEY SUMMARY AND TABLE. 1999-11-09 |
| DFG94U0003 | DFG - NONGAME BIRDS & MAMMALS - TABLE OF SWAINSON'S HAWK NEST RECORDS THROUGH 1994. 1994-XX-XX |
| HAN92R0001 | HANSEN, R. B. - BIOLOGICAL ASSESSMENT OF NATURAL HABITAT AREAS & SENSITIVE SPECIES STATUS ON THE SITE OF A PROPOSED REGIONAL FLYING SITE... (HARRELL RANCH) IN TULARE COUNTY, CA. 1992-07-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86995
**EO Index:** 87964
**Key Quad:** Remnoy (3611935)
**Element Code:** ABNKC19070
**Occurrence Number:** 1788
**Occurrence Last Updated:** 2012-10-22

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2008-07-15
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2008-07-15
**Occurrence Rank:** Fair
**Owner/Manager:** CALTRANS
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

S SIDE OF HWY 198, 0.6 MI W OF 2ND AVE, ABOUT 3 MI ESE OF REMNOY.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST TREE WAS A LONE EUCALYPTUS TREE (40" DBH). SURROUNDING LAND USE FOR DAIRY, SILAGE FIELDS, AND RURAL RESIDENTIAL. AN OLD LOPSIDED NEST WAS ON THE N SIDE OF THE NEST TREE (2008).

**Threats:**

**General:**

NEST BUILDING OBSERVED 18 MAR; 1 ADULT PERCHED & ANOTHER COLLECTING NESTING MATERIAL AND ADDING TO NEST 17 APR; 1 CHICK OBSERVED IN NEST 26 JUN; 1 FLEDGLING OBSERVED ON THE NEST 15 JUL 2008.

**PLSS:** T18S, R23E, Sec. 32, NW (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4023246 E275246
**Latitude/Longitude:** 36.32806 / -119.50390
**Elevation (feet):** 260

**County Summary:**

Kings

**Quad Summary:**

Remnoy (3611935)

**Sources:**

CON08F0002 CONNOLLY, L. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-04-17

NUN08F0004 NUNES, T. & R. KLEINFELTER (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-04-16

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 86998 | **EO Index:** | 87965 |
| **Key Quad:** | Guernsey (3611926) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 1789 | **Occurrence Last Updated:** | 2012-10-22 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2012-08-03 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2012-08-11 | **Occurrence Rank:** | Excellent |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

JUST SW OF KANSAS AVE AT S 11TH AVE, 0.9 MI WSW OF GUERNSEY, 9.5 MI ENE OF STRATFORD.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST IN A RED WILLOW AMONG NARROW STAND OF WILLOWS AT NE EDGE OF A 124-ACRE PERCOLATION BASIN SURROUNDED BY ALKALINE GRASSLAND. CATTLE GRAZING AROUND BASIN; ALFALFA, WHEAT AND OTHER SILAGE CROPS FARMED NEARBY.

**Threats:**

**General:**

SITE VISITED ONCE PER WEEK 15 MAR-11 AUG 2012: COURTSHIP FLIGHTS OBSERVED 6 APR; NEST BUILDING THROUGH 27 APR; INCUBATION 5 MAY; BROODING 1 JUN; 2 DOWNY CHICKS IN NEST 16 JUN; 1 CHICK OBS 22 JUN; 1 NESTLING FLEDGED 14 JUL; LAST OBS 3 AUG.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T20S, R21E, Sec. 11, NE (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4010528 E261173 | **Latitude/Longitude:** | 36.21013 / -119.65664 | **Elevation (feet):** | 220 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Guernsey (3611926) |

**Sources:**

DAV12F0001 DAVIS, J. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-08-03

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86999
**EO Index:** 87966
**Key Quad:** Goshen (3611934)
**Element Code:** ABNKC19070
**Occurrence Number:** 1790
**Occurrence Last Updated:** 2012-10-22

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2008-07-15
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2008-07-15
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

E SIDE OF 1 1/2 AVE, ABOUT 0.25 MI N OF HWY 198 (E LACEY BLVD), 3.8 MI WSW OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST TREE WAS A VALLEY OAK (33" DBH) WITHIN A DIRT PULLOUT WHERE FARM EQUIPMENT WAS OFTEN STORED. SURROUNDING LAND USE INCLUDED CORN FIELDS AND ORCHARDS.

**Threats:**

**General:**

NEST BUILDING OBSERVED 27 MAR; 2 CHICKS IN NEST 11 JUN; 2 FLEDGLINGS NEAR NEST 15 JUL 2008.

**PLSS:** T18S, R23E, Sec. 28, SE (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4023600 E277052
**Latitude/Longitude:** 36.33166 / -119.48389
**Elevation (feet):** 250

**County Summary:**

Kings

**Quad Summary:**

Goshen (3611934)

**Sources:**

NUN08F0005 NUNES, T. & K. GOSHGARIAN - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-03-27

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 87000
**EO Index:** 87967
**Key Quad:** Remnoy (3611935)
**Element Code:** ABNKC19070
**Occurrence Number:** 1791
**Occurrence Last Updated:** 2012-10-22

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2009-07-16
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2009-07-16
**Occurrence Rank:** Good
**Owner/Manager:** CALTRANS
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

S SIDE OF HWY 198 (LACEY BLVD) JUST W OF CROSS CREEK, ABOUT 1.4 MI ESE OF REMNOY.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST TREE WAS A EUCALYPTUS SURROUNDED BY DAIRY FACILITIES AND CORN FIELDS.

**Threats:**

**General:**

1 ADULT AND 1 JUVENILE OBSERVED IN THE NEST TREE 16 JUL 2009.

**PLSS:** T18S, R22E, Sec. 36, NE (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4023325 E272593
**Latitude/Longitude:** 36.32814 / -119.53344
**Elevation (feet):** 250

**County Summary:**

Kings

**Quad Summary:**

Remnoy (3611935)

**Sources:**

NUN09F0011 NUNES, T. (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2009-07-16

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 87002 | **EO Index:** | 87968 |
| **Key Quad:** | Remnoy (3611935) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 1792 | **Occurrence Last Updated:** | 2012-10-22 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2009-06-29 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2009-06-29 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

ABOUT 0.6 MI SSE OF HWY 198 (LACEY BLVD) AT 6TH AVE, 1.5 MI SSW OF REMNOY, AND 5.3 MI E OF FORT ROOSEVELT.

**Detailed Location:**

USING AIR PHOTOS, MAPPED TO LOCATION DESCRIPTION: "APPROXIMATELY 0.5 MI S OF STATE ROUTE 198 ON 6TH AVENUE...ROW OF COTTOWNWOODS LOCATED BETWEEN THE 2Y'S RANCH AND THE LAKESIDE DITCH."

**Ecological:**

NEST WAS WITHIN A COTTONWOOD JUST N OF A TURKEY RANCH SURROUNDED BY CORN AND PISTACHIO FIELDS.

**Threats:**

**General:**

MATING ADULTS OBSERVED 25 MAR; NEST BUILDING 1 APR; 2 CHICKS IN NEST 27 MAY; 2 FLEDGLINGS IN AND ADJACENT TO NEST TREE 29 JUN 2009.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R22E, Sec. 35, SW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4022434 E269968 | **Latitude/Longitude:** | 36.31950 / -119.56240 | **Elevation (feet):** | 250 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Remnoy (3611935) |

**Sources:**

NUN09F0010 NUNES, T. & K. GOSHGARIAN (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2009-03-25

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 87003
**EO Index:** 87969
**Key Quad:** Goshen (3611934)
**Element Code:** ABNKC19070
**Occurrence Number:** 1793
**Occurrence Last Updated:** 2012-10-22

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2012-07-12
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2012-07-12
**Occurrence Rank:** Fair
**Owner/Manager:** CALTRANS
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

S SIDE OF HWY 198 (LACEY BLVD), ABOUT 0.3 MI E OF RD 56, 2 MI SW OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST WAS WITHIN A CALIFORNIA BLACK WALNUT ALONG HWY 198 AND SURROUNDED BY AGRICULTURAL OPERATIONS.

**Threats:**

**General:**

1 DOWNY CHICK WAS OBSERVED IN NEST AND 1 ADULT WAS PERCHED IN ADJACENT TREE.

**PLSS:** T18S, R23E, Sec. 35, NE (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4023014 E280680
**Latitude/Longitude:** 36.32722 / -119.44334
**Elevation (feet):** 280

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

NUN12F0006 NUNES, T. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-07-12

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 87007 | **EO Index:** | 87972 |
| **Key Quad:** | Guernsey (3611926) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 1796 | **Occurrence Last Updated:** | 2012-10-23 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2007-05-10 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2007-05-10 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

JUST SE OF KENT AVE AT 12TH AVE, ABOUT 2 MI WNW OF GUERNSEY, 8 MI SE OF LEMOORE PO.

**Detailed Location:**

MAPPED TO THE TREE IN AIR PHOTOS NEAR PROVIDED COORDINATES.

**Ecological:**

NEST WAS IN A EUCALYPTUS TREE SURROUNDED BY ROW CROP AGRICULTURE, INCLUDING SEVERAL ALFALFA FIELDS.

**Threats:**

**General:**

PAIR OBSERVED COPULATING AND BUILDING NEST ON 25 APR; AN ADULT OBSERVED INCUBATING ON 10 MAY 2007.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T20S, R21E, Sec. 02, NW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4012284 E259795 | **Latitude/Longitude:** | 36.22560 / -119.67250 | **Elevation (feet):** | 220 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Guernsey (3611926) |

**Sources:**

SEA07F0003 SEAY, J. (H.T. HARVEY AND ASSOCIATES) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2007-04-25

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 87019
**EO Index:** 87984
**Key Quad:** Waukena (3611925)
**Element Code:** ABNKC19070
**Occurrence Number:** 1798
**Occurrence Last Updated:** 2012-10-24

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2008-05-21
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2008-05-21
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

N SIDE OF HWY 137, 0.5 MI NE OF RD 20, 0.8 MI SW OF WAUKENA.

**Detailed Location:**

NEST TREE IS ABOUT THIRD TREE IN FROM THE E EDGE OF AN L-SHAPED ROW OF EUCALYPTUS TREES ALONG A CANAL ON A RESIDENTIAL SITE. MAPPED TO PROVIDED DESCRIPTION AND MAPS.

**Ecological:**

NEST TREE WAS A EUCALYPTUS TREE SURROUNDED BY ALFALFA AND OTHER SILAGE, SMALL ORCHARD, RURAL RESIDENTIAL. CANALS AND CAMERON CREEK ALSO NEARBY.

**Threats:**

**General:**

1 ADULT SITTING LOW ON NEST, ASSUMED IN INCUBATION STAGE ON 21 MAY 2008; OTHER ADULT NOT SEEN.

**PLSS:** T21S, R23E, Sec. 06, NE (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4001430 E273144
**Latitude/Longitude:** 36.13107 / -119.52097
**Elevation (feet):** 220

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Waukena (3611925) |

**Sources:**

CON08F0011 CONNOLLY, L. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2008-05-21

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 90287
**EO Index:** 91320
**Key Quad:** Traver (3611944)
**Element Code:** ABNKC19070
**Occurrence Number:** 2510
**Occurrence Last Updated:** 2013-09-12

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2012-08-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2012-08-XX
**Occurrence Rank:** Fair
**Owner/Manager:** CALTRANS
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

STATE ROUTE 99 MEDIAN, ABOUT 1.5 MILES NW OF THE CROSS CREEK CROSSING AND 2.3 MILES SE OF THE TRAVER POST OFFICE.

**Detailed Location:**

MAPPED TO GIVEN COORDINATES.

**Ecological:**

NEST IN TRIMMED EUCALYPTUS IN MEDIAN, FOUND DURING ROAD CONSTRUCTION. SURROUNDING LAND USE WAS AGRICULTURAL, INCLUDING DAIRY IMMEDIATELY TO WEST.

**Threats:**

POTENTIAL FOR COLLISION WITH FAST-MOVING VEHICLES ON EITHER SIDE OF NEST.

**General:**

NESTING PAIR WITH 1 CHICK OBSERVED IN 2012; CHICK SUCCESSFULLY FLEDGED IN AUGUST.

**PLSS:** T17S, R23E, Sec. 27, NW (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4033778 E278635
**Latitude/Longitude:** 36.42370 / -119.46917
**Elevation (feet):** 270

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

WAL12F0004 WALBRIDGE, C. (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-05-15

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 90293
**EO Index:** 91328
**Key Quad:** Goshen (3611934)
**Element Code:** ABNKC19070
**Occurrence Number:** 2511
**Occurrence Last Updated:** 2013-09-12

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2012-04-16
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2012-04-16
**Occurrence Rank:** Excellent
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

WEST SIDE OF COUNTY ROAD 60, ABOUT 0.25 MILE SSW OF ITS JUNCTION WITH AVE 290 AND 2.9 MILES SW OF GOSHEN.

**Detailed Location:**

MAPPED TO GIVEN COORDINATES, ABOUT 275 FEET WEST OF ROAD 60.

**Ecological:**

NEST 20' UP IN A WALNUT TREE WITHIN A WALNUT ORCHARD. SURROUNDING AREA PLANTED IN ORCHARDS AND CROPS, PRIMARILY ALFALFA AND CORN, WITH CATTLE YARD TO NORTH. 2012 SURVEYOR NOTED DISTURBANCE FROM FARMING ACTIVITIES.

**Threats:**

**General:**

PAIR OBSERVED NEST-BUILDING ON 16 APR 2012; AT LEAST 2 YOUNG WERE FLEDGED BY LATER, UNSPECIFIED DATE.

**PLSS:** T19S, R23E, Sec. 02, NE (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4021367 E280902
**Latitude/Longitude:** 36.31243 / -119.44040
**Elevation (feet):** 275

**County Summary:**

Tulare

**Quad Summary:**

Goshen (3611934)

**Sources:**

DAN12F0029 DANIELS, B. (BONTERRA CONSULTING) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-04-06

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 90294 | **EO Index:** | 91329 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2512 | **Occurrence Last Updated:** | 2013-10-03 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2012-05-31 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2012-08-XX | **Occurrence Rank:** | Excellent |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

WEST SIDE OF COUNTY ROAD 68 (=J25) ABOUT 0.7 MILE N OF THE AVENUE 280 INTERSECTION AND 3 MILES SOUTH OF GOSHEN.

**Detailed Location:**

MAPPED TO GIVEN COORDINATES. NEST TREE ABOUT 100 FEET WEST OF ROAD 68, OPPOSITE THE "VISALIA WATER CONSERVATION PLANT."

**Ecological:**

NEST 30' UP IN ISOLATED VALLEY OAK IN ALFALFA FIELD SURROUNDED BY MIX OF WALNUT ORCHARDS AND ROW CROPS DOMINATED BY ALFALFA. 2012 SURVEYOR NOTED DISTURBANCE FROM FARM ACTIVITIES.

**Threats:**

**General:**

PAIR OBSERVED NEST-BUILDING ON 5 APR 2012; FEEDING UNKNOWN NUMBER OF CHICKS ON 31 MAY; BRANCH HOLDING NEST BROKE (POSSIBLY DURING STORM ON 4-5 JUN), NEST FAILED; TERRITORY UNOCCUPIED IN EARLY AUG.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T19S, R23E, Sec. 01, NE (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4020771 E282552 | **Latitude/Longitude:** | 36.30744 / -119.42187 | **Elevation (feet):** | 280 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

DAN12F0027 DANIELS, B. (BONTERRA CONSULTING) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-04-05

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 90295 | **EO Index:** | 91330 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2513 | **Occurrence Last Updated:** | 2013-10-03 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:**
**Federal:** None
**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:**
**Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2012-08-07 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2012-08-07 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

EAST SIDE OF COUNTY ROAD 68 (=J25), ABOUT 0.1 MILE NNE OF THE AVENUE 280 INTERSECTION AND 3.5 MILES SOUTH OF GOSHEN.

**Detailed Location:**

MAPPED TO GIVEN COORDINATES. NEST TREE ABOUT 250 FEET EAST OF ROAD 68, NORTH OF A SMALL ABANDONED SCHOOL HOUSE (PACKWOOD SCHOOL).

**Ecological:**

NEST 20' UP IN WALNUT TREE IN WALNUT ORCHARD. SURROUNDING AREA PLANTED IN ROW CROPS DOMINATED BY ALFALFA AND CORN. SURVEYOR NOTED DISTURBANCE FROM FARMING ACTIVITIES.

**Threats:**

**General:**

PAIR OBSERVED NEST-BUILDING ON 17 APR 2012; 2 CHICKS IN NEST ON 19 JUN; 1 JUVENILE OBSERVED AT NEST SITE ON 7 AUG, INDICATING THAT AT LEAST 1 YOUNG SUCCESSFULLY FLEDGED.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T19S, R24E, Sec. 06, SW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4019890 E282662 | **Latitude/Longitude:** | 36.29953 / -119.42041 | **Elevation (feet):** | 280 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

DAN12F0031 DANIELS, B. (BONTERRA CONSULTING) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-04-17

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 90296 | **EO Index:** | 91334 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2514 | **Occurrence Last Updated:** | 2013-09-12 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2012-04-06 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2012-04-06 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

WEST SIDE OF ROAD 76 (=ELKHORN ST), ABOUT 0.1 MILE NORTH OF THE AVENUE 272 INTERSECTION AND 4.5 MILES SSE OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST 60' UP IN 1 OF 3 CYPRESSES IN YARD OF PRIVATE RESIDENCE. SURROUNDING LAND USES WERE MAINLY WALNUT ORCHARDS AND ROW CROPS DOMINATED BY CORN, WITH A FEW OTHER RESIDENCES ON THE STREET.

**Threats:**

**General:**

PAIR OBSERVED NEST-BUILDING ON 6 APR 2012; THE NEST WAS SUCCESSFUL AND AT LEAST ONE YOUNG WAS FLEDGED ON UNSPECIFIED DATE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T19S, R24E, Sec. 07, SE (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4018251 E284148 | **Latitude/Longitude:** | 36.28510 / -119.40341 | **Elevation (feet):** | 280 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

DAN12F0028 DANIELS, B. (BONTERRA CONSULTING) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-04-06

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 90297
**EO Index:** 91335
**Key Quad:** Goshen (3611934)
**Element Code:** ABNKC19070
**Occurrence Number:** 2515
**Occurrence Last Updated:** 2013-09-12

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2012-06-19
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2012-08-07
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

SOUTH SIDE OF AVE 280 (=HOUSTON/W CALDWELL AVE) ALMOST 0.5 MILE EAST OF RD 44 (1ST AVE) AND 4.5 MILES SW OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES. NEST TREE LOCATED OPPOSITE DIKED HOLDING PONDS ON THE NORTH SIDE OF THE ROAD.

**Ecological:**

NEST 50' UP IN PINE AMONG ROW OF PINES AT A PRIVATE RESIDENCE. SURROUNDING LAND USES WERE CATTLE YARDS AND ROW CROPS, WITH ALFALFA FIELDS NEARBY. SURVEYOR NOTED DISTURBANCE FROM FARMING ACTIVITIES AND TRAFFIC.

**Threats:**

**General:**

PAIR OBSERVED NEST-BUILDING ON 16 APR 2012; ADULT SEEN ON NEST ON 1 & 19 JUN; NEST INTACT BUT NO SWAINSON'S HAWKS PRESENT ON SUCCESSIVE VISITS 5, 6, & 7 AUG, NEST SUCCESS UNCERTAIN.

**PLSS:** T19S, R23E, Sec. 10, N (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4019786 E278561
**Latitude/Longitude:** 36.29766 / -119.46601
**Elevation (feet):** 260

**County Summary:**

Tulare

**Quad Summary:**

Goshen (3611934)

**Sources:**

DAN12F0030 DANIELS, B. (BONTERRA CONSULTING) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-04-16

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 90303 | **EO Index:** | 91345 |
| **Key Quad:** | Remnoy (3611935) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2517 | **Occurrence Last Updated:** | 2016-12-07 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2016-06-08 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2016-06-08 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

SOUTH SIDE OF E LACEY BLVD, ABOUT 0.25 MILE NE OF THE HWY 43 (=8TH AVE) OVERPASS OVER HWY 198, EAST OF HANFORD.

**Detailed Location:**

MAPPED TO COORDINATES GIVEN ON FIELD SURVEY FORMS.

**Ecological:**

2012: NEST 50' UP IN ROADSIDE EUCALYPTUS, WITH CONSTRUCTION & STORAGE YARD IMMEDIATELY SOUTH AND ROW CROPS NORTH OF LACEY BLVD (CORN IN 2012). 2016: EUCALYPTUS ON SOUTH SIDE OF ROAD, APPEARS TO BE SAME LOCATION AS 2012.

**Threats:**

VEHICLE COLLISIONS FROM TRAFFIC ALONG ROADWAY (2012, 2016). AGRICULTURE (2016).

**General:**

INCUBATION OBSERVED ON 17 APR 2012; 1 CHICK SEEN IN THE NEST ON 31 MAY; ADULT FEMALE FOUND DEAD ON ROAD OPPOSITE THE NEST ON 11 JUN (LIKELY TRAFFIC COLLISION), CHICK IN NEST WAS DEAD. 1 ADULT OBSERVED SITTING ON NEST ON 8 JUN 2016.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R22E, Sec. 33, NW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4023451 E266798 | **Latitude/Longitude:** | 36.32790 / -119.59799 | **Elevation (feet):** | 248 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Remnoy (3611935) |

**Sources:**

CHE16F0007 CHEN, S. ET AL. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2016-06-08

DAN12F0032 DANIELS, B. (BONTERRA CONSULTING) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-04-17

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 90305 | **EO Index:** | 91347 |
| **Key Quad:** | Remnoy (3611935) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2518 | **Occurrence Last Updated:** | 2013-10-04 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2012-08-08 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2012-08-08 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

NORTH SIDE OF GRANGEVILLE BLVD, FROM 7TH AVE INTERSECTION TO ABOUT 0.3 MILE EAST, 2.6 MILES EAST OF HANFORD.

**Detailed Location:**

2 NEST SITES, MAPPED TO GIVEN COORDINATES. WEST SITE, 200' EAST OF 7TH AVE, WAS FIRST NEST ATTEMPT; EAST SITE, ABOUT 1700' EAST OF 7TH AVE, WAS SECOND, SUCCESSFUL ATTEMPT.

**Ecological:**

FIRST NEST IN SMALL, RELATIVELY YOUNG WALNUT ORCHARD. SECOND NEST 50' UP IN EUCALYPTUS ON BACKSIDE OF PRIVATE RESIDENCE. SURROUNDED BY ORCHARDS AND ROW CROPS OF CORN AND ALFALFA. DISTURBANCE FROM FARMING ACTIVITIES AND TRAFFIC.

**Threats:**

POTENTIAL FOR VEHICLE COLLISIONS ALONG BUSY LOCAL ROAD.

**General:**

NEST-BUILDING OBSERVED AT 1ST NEST SITE ON 1 MAR 2012; 1ST NEST STILL ACTIVE IN EARLY APR, LATER ABANDONED. THREE YOUNG FLEDGED FROM 2ND NEST, FAMILY GROUP OF 2 ADULTS AND 3 JUVENILES OBSERVED FORAGING ABOUT 0.25 MI E OF NEST ON 8 AUG 2012.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R22E, Sec. 22, SW (M) | **Accuracy:** | specific area | **Area (acres):** | 10 |
| **UTM:** | Zone-11 N4025161 E268733 | **Latitude/Longitude:** | 36.34376 / -119.57695 | **Elevation (feet):** | 255 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Remnoy (3611935) |

**Sources:**

DAN12F0033 DANIELS, B. (BONTERRA CONSULTING) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2012-05-01

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 90314
**EO Index:** 91359
**Key Quad:** Paige (3611924)
**Element Code:** ABNKC19070
**Occurrence Number:** 2520
**Occurrence Last Updated:** 2013-09-13

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2003-05-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2003-05-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

EAST SIDE OF ROAD 48, ABOUT 0.3 MILE NORTH OF AVENUE 248 AND 7.3 MILES WNW OF TULARE PO.

**Detailed Location:**

MAPPED TO GIVEN ADDRESS: 25076 ROAD 48.

**Ecological:**

NEST TREE ADJACENT TO "HOUSE WITH EUCALYPTUS."

**Threats:**

**General:**

NEST WITH PAIR OBSERVED IN MAY 2003; 1 ADULT SEEN CARRYING TWIG(S) TO NEST. UNKNOWN IF EGGS OR YOUNG WERE PRODUCED.

**PLSS:** T19S, R23E, Sec. 27, SE (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4013940 E278461
**Latitude/Longitude:** 36.24498 / -119.46546
**Elevation (feet):** 255

**County Summary:**

Tulare

**Quad Summary:**

Paige (3611924)

**Sources:**

BRO03U0002 BROWN, N. - COMPILATION OF 2003 NESTING OF BUTEO SWAINSONI 2003-07-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** A2886
**EO Index:** 104507
**Key Quad:** Waukena (3611925)
**Element Code:** ABNKC19070
**Occurrence Number:** 2701
**Occurrence Last Updated:** 2016-12-07

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2016-06-07
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2016-06-07
**Occurrence Rank:** Good
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

NORTH SIDE OF JERSEY AVE, ABOUT 0.4 MILES E OF HWY 43 AND 6.0 MILES SSE OF HANFORD.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST EXPOSED AT TOP OF ROADSIDE EUCALYPTUS.

**Threats:**

AGRICULTURE.

**General:**

1 ADULT OBSERVED SITTING LOW IN NEST ON 7 JUN 2016.

**PLSS:** T19S, R22E, Sec. 28, SW (M)
**Accuracy:** 80 meters
**Area (acres):** 5
**UTM:** Zone-11 N4013741 E266890
**Latitude/Longitude:** 36.24046 / -119.59407
**Elevation (feet):** 231

**County Summary:**

Kings

**Quad Summary:**

Waukena (3611925)

**Sources:**

CHE16F0008 CHEN, S. ET AL. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2016-06-07

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** A2899
**Key Quad:** Remnoy (3611935)
**Occurrence Number:** 2703

**EO Index:** 104518
**Element Code:** ABNKC19070
**Occurrence Last Updated:** 2016-12-07

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2016-06-06
**Last Survey Date:** 2016-06-06
**Owner/Manager:** PVT
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Good
**Trend:** Unknown

**Location:**

WEST SIDE OF 7TH AVE ABOUT 0.4 MI N OF THE IONA AVE INTERSECTION & 1.1 MI SE OF HWY 43 AT HOUSTON AVE, SE OF HANFORD.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST IN ASH TREE ADJACENT TO ALFALFA FIELDS.

**Threats:**

AGRICULTURE.

**General:**

1 ADULT OBSERVED DELIVERING FOOD TO UNSEEN NEST IN TREE ON 6 JUN 2016; A SECOND INDIVIDUAL NEARBY WAS LIKELY ITS MATE.

**PLSS:** T19S, R22E, Sec. 9, SE (M)
**UTM:** Zone-11 N4019230 E267964

**Accuracy:** 80 meters
**Latitude/Longitude:** 36.29016 / -119.58376

**Area (acres):** 5
**Elevation (feet):** 243

| County Summary: | Quad Summary: |
|---|---|
| Kings | Remnoy (3611935) |

**Sources:**

CHE16F0010 CHEN, S. ET AL. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2016-06-06

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** A2917
**EO Index:** 104537
**Key Quad:** Waukena (3611925)
**Element Code:** ABNKC19070
**Occurrence Number:** 2707
**Occurrence Last Updated:** 2016-12-07

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2016-03-24
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2016-03-24
**Occurrence Rank:** Good
**Owner/Manager:** PVT-CHEVRON
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

S SIDE OF NEVADA AVE ABOUT 0.25 MI ESE OF THE HWY 43 INTERSECTION & 1.5 MI NW OF 5 1/2 AVE AT NEWARK AVE, N OF CORCORAN.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST TREE WAS EUCALYPTUS. ADJACENT LAND USE WAS SOLAR POWER FACILITY.

**Threats:**

SOLAR DEVELOPMENT.

**General:**

PAIR OBSERVED BUILDING NEST IN EUCALYPTUS ON 24 MAR 2016.

**PLSS:** T21S, R22E, Sec. 3, N (M)
**Accuracy:** 80 meters
**Area (acres):** 5
**UTM:** Zone-11 N4002180 E267753
**Latitude/Longitude:** 36.13655 / -119.58106
**Elevation (feet):** 213

**County Summary:**

Kings

**Quad Summary:**

Waukena (3611925)

**Sources:**

CHE16F0015 CHEN, S. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2016-03-24

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | A8178 | **EO Index:** | 109959 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2733 | **Occurrence Last Updated:** | 2018-02-06 |

**Scientific Name:** *Buteo swainsoni* **Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None **Rare Plant Rank:**

**State:** Threatened **Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-05-30 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-05-30 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

ABOUT 0.2 MILES SW OF N PLAZA DR (J1) AT W NICHOLAS AVE & 1.4 MILES SE OF HWY 99 AT W GOSHEN AVE, SE OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES. NEST N15.

**Ecological:**

STICK NEST IN OAK TREE ADJACENT TO AGRICULTURAL FIELDS AND COMMERCIAL AREA. VISIBLE DISTURBANCES FROM AGRICULTURE, HEAVY TRUCKING, AND URBAN USE.

**Threats:**

**General:**

STICK NEST PRESENT PRIOR TO 2017 SEASON. NESTING PAIR MONITORED IN 2017; A PROBABLE CHICK OBSERVED ON APR 20, BUT NEST SEEMED TO BE EMPTY ON 19 & 30 MAY; NO HAWKS OBSERVED IN SUBSEQUENT SURVEYS.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R24E, Sec. 29, NW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 5 |
| **UTM:** | Zone-11 N4023722 E284884 | **Latitude/Longitude:** | 36.33454 / -119.39675 | **Elevation (feet):** | 289 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

HIN17F0003 HINDERER, R. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-04-05

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | B0744 | **EO Index:** | 112614 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2751 | **Occurrence Last Updated:** | 2018-09-20 |

**Scientific Name:** *Buteo swainsoni* **Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None **Rare Plant Rank:**

**State:** Threatened **Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-05-23 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-05-23 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT, UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

SOUTH SIDE OF SIERRA BLVD (SR 198), ABOUT 250 FT W OF THE RD 52 INTERSECTION & 1.0 MILES E OF 1ST AVE, SW OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST IN MOSTLY-DEAD WALNUT ADJACENT TO SR 198. SURROUNDING LAND USE WAS AGRICULTURAL. SURVEYOR NOTED NOISE DISTURBANCE FROM HIGHWAY.

**Threats:**

**General:**

1 DARK MORPH OBSERVED SITTING IN NEST ON 23 MAY 2017.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 34, NE (M) | **Accuracy:** | 80 meters | **Area (acres):** | 5 |
| **UTM:** | Zone-11 N4023067 E279343 | **Latitude/Longitude:** | 36.32739 / -119.45825 | **Elevation (feet):** | 273 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| SIN17F0003 | SINGLE, A. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-05-23 |
| TEN17D0001 | TENNANT, E. - EXCEL FILE OF COMPILED SWHA DETECTIONS IN 2017 2017-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | B3288 | **EO Index:** | 115203 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2765 | **Occurrence Last Updated:** | 2019-07-12 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:**
**Federal:** None
**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:**
**Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-04-05 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-04-05 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT-WESTERVELT ECOLOGICAL SVCS | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

ALONG COTTONWOOD CREEK, ABOUT 0.8 MI SW OF ROAD 80 AT AVENUE 360 & 4.9 MI ESE OF TRAVER.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

LIGHTLY GRAZED, OPEN RANGELAND WITH ADJACENT LANDS IN ALFALFA AND ORCHARDS.

**Threats:**

**General:**

PAIR OBSERVED PERCHING, FORAGING, AND COPULATING IN/NEAR 2 TREES WITH STICK NESTS ON 5 APR 2017.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R24E, Sec. 20, SW (M) | **Accuracy:** | 1/5 mile | **Area (acres):** | 70 |
| **UTM:** | Zone-11 N4034687 E284668 | **Latitude/Longitude:** | 36.43327 / -119.40219 | **Elevation (feet):** | 285 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

PRE17F0008 PRESTON, R. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-04-05

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B3332
**Key Quad:** Goshen (3611934)
**Occurrence Number:** 2769

**EO Index:** 115248
**Element Code:** ABNKC19070
**Occurrence Last Updated:** 2019-07-01

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2016-04-22
**Last Survey Date:** 2016-04-22
**Owner/Manager:** PVT
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

W SIDE OF 1ST AVE, ABOUT 450' S OF THE HANFORD ARMONA RD INTERSECTION & 4.0 MI SW OF I-99 AT CA-198, W OF VISALIA.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST IN EUCALYPTUS TREE BEHIND RURAL RESIDENCE.

**Threats:**

**General:**

NESTING PAIR OBSERVED ON 22 APR 2016. OBSERVED DURING STATEWIDE SURVEY EFFORT.

**PLSS:** T19S, R23E, Sec. 4, NE (M)
**UTM:** Zone-11 N4021411 E277709

**Accuracy:** 80 meters
**Latitude/Longitude:** 36.3121 / -119.47596

**Area (acres):** 5
**Elevation (feet):** 268

**County Summary:**

Kings, Tulare

**Quad Summary:**

Goshen (3611934)

**Sources:**

TEN16D0001 TENNANT, E. - EXCEL FILE OF COMPILED SWHA DETECTIONS IN 2016 2016-XX-XX

TEN16F0017 TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2016-04-22

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B3333
**EO Index:** 115249
**Key Quad:** Paige (3611924)
**Element Code:** ABNKC19070
**Occurrence Number:** 2770
**Occurrence Last Updated:** 2019-07-01

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2016-04-22
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2016-04-22
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

S SIDE OF W TULARE AVE, ABOUT 0.1 MI W OF THE RD 84 INTERSECTION & 0.7 MI NW OF GEMINI ST AT W OWENS AVE IN TULARE.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

LONE OAK TREE IN WHEAT FIELD.

**Threats:**

**General:**

NESTING PAIR OBSERVED ON 22 APR 2016. OBSERVED DURING STATEWIDE SURVEY EFFORT.

**PLSS:** T20S, R24E, Sec. 8, NE (M)
**Accuracy:** 80 meters
**Area (acres):** 5
**UTM:** Zone-11 N4009877 E285483
**Latitude/Longitude:** 36.20997 / -119.38628
**Elevation (feet):** 276

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Paige (3611924) |

**Sources:**

TEN16D0001 TENNANT, E. - EXCEL FILE OF COMPILED SWHA DETECTIONS IN 2016 2016-XX-XX
TEN16F0018 TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2016-04-22

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B3352
**EO Index:** 115268
**Key Quad:** Paige (3611924)
**Element Code:** ABNKC19070
**Occurrence Number:** 2781
**Occurrence Last Updated:** 2019-07-11

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2016-03-22
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2016-03-22
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ALONG TULARE AVE (AVE 232) ABOUT 0.5 MI E OF THE RD 48 INTERSECTION & 5.2 MI WNW OF CA-137 AT S WEST ST IN TULARE.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST IN LARGE TREE IN AGRICULTURAL AREA.

**Threats:**

**General:**

PAIR REPORTEDLY OBSERVED BUILDING NEST ON 22 MAR 2016; 1 ADULT WAS SITTING ON NEST, OTHER WAS CARRYING NEST MATERIAL TO TREE.

**PLSS:** T20S, R23E, Sec. 3, SE (M)
**Accuracy:** 80 meters
**Area (acres):** 5
**UTM:** Zone-11 N4010098 E279051
**Latitude/Longitude:** 36.21051 / -119.45783
**Elevation (feet):** 254

**County Summary:**

Tulare

**Quad Summary:**

Paige (3611924)

**Sources:**

TEN16D0001 TENNANT, E. - EXCEL FILE OF COMPILED SWHA DETECTIONS IN 2016 2016-XX-XX

TEN16F0028 TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2016-03-22

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | B3381 | **EO Index:** | 115297 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2786 | **Occurrence Last Updated:** | 2019-07-11 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2016-06-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2016-06-01 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

SOUTH SIDE OF CA-198 (=AVE 296) ABOUT 0.2 MI E OF THE ROAD 44 INTERSECTION & 3 MI SW OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST IN OAK TREE IN RANDOM BLOCK SURVEYED IN 2016 STATEWIDE SURVEY.

**Threats:**

**General:**

NESTING PAIR OBSERVED ON 1 JUN 2016.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 34, NW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 5 |
| **UTM:** | Zone-11 N4023109 E278096 | **Latitude/Longitude:** | 36.32748 / -119.47214 | **Elevation (feet):** | 269 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| TEN16D0001 | TENNANT, E. - EXCEL FILE OF COMPILED SWHA DETECTIONS IN 2016 2016-XX-XX |
| TEN16F0038 | TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2016-06-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B3405
**EO Index:** 115320
**Key Quad:** Traver (3611944)
**Element Code:** ABNKC19070
**Occurrence Number:** 2794
**Occurrence Last Updated:** 2019-07-09

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2017-06-14
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-06-14
**Occurrence Rank:** Fair
**Owner/Manager:** CALTRANS
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ALONG CA-99, ABOUT 0.9 MI NE OF ROAD 36 AT AVE 352 & 1.0 TO 1.3 MI SE OF THE MERRITT DR INTERSECTION IN TRAVER.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NESTS IN EUCALYPTI IN WINDBREAK IN MEDIAN OF CA-99. SURROUNDING LAND USES INCLUDED INDUSTRY AND AGRICULTURE.

**Threats:**

ROAD CONSTRUCTION.

**General:**

3 ACTIVE NESTS OBSERVED IN 2017; NEST SUCCESS UNKNOWN.

**PLSS:** T17S, R23E, Sec. 21, NE (M)
**Accuracy:** specific area
**Area (acres):** 14
**UTM:** Zone-11 N4035434 E277798
**Latitude/Longitude:** 36.43842 / -119.47898
**Elevation (feet):** 283

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

OLE17F0011 O'LEARY, R. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-05-10
TEN17F0020 TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-06-14
TEN17F0021 TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-06-14

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | B3406 | **EO Index:** | 115321 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2795 | **Occurrence Last Updated:** | 2019-07-09 |

**Scientific Name:** *Buteo swainsoni* **Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None **Rare Plant Rank:**

**State:** Threatened **Other Lists:** BLM_S-Sensitive, IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-07-06 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-07-06 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | CITY OF VISALIA | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

E SIDE OF S PLAZA DR JUST N OF THE ENTRANCE TO VALLEY OAKS GOLF COURSE & 0.7 MI SSE OF THE CA-198 INTERCHANGE, VISALIA.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST IN EUCALYPTUS TREE AT EDGE OF GOLF COURSE, ADJACENT TO AGRICULTURAL FIELD, SURROUNDED BY ANNUAL GRASSLAND, AGRICULTURE, AND AIRPORT.

**Threats:**

CONVERSION TO ORCHARD.

**General:**

ACTIVE NEST MONITORED IN 2017 FLEDGED AT LEAST 1 YOUNG.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R24E, Sec. 32, SE (M) | **Accuracy:** | 80 meters | **Area (acres):** | 5 |
| **UTM:** | Zone-11 N4021831 E285743 | **Latitude/Longitude:** | 36.3177 / -119.38666 | **Elevation (feet):** | 295 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| SEA17F0001 | SEAY, J. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-05-25 |
| SEA17F0004 | SEAY, J. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-05-25 |
| TEN17F0022 | TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-07-03 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B3413
**EO Index:** 115328
**Key Quad:** Guernsey (3611926)
**Element Code:** ABNKC19070
**Occurrence Number:** 2800
**Occurrence Last Updated:** 2019-07-09

**Scientific Name:** *Buteo swainsoni*
**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5
**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

**Last Date Observed:** 2017-07-12
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-07-12
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

N SIDE OF KENT AVE ABOUT 0.25 MI W OF THE 15TH AVE INTERSECTION & 5.7 MI SE OF LEMOORE.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES. SE OF TACHI YOKUTS SANTA ROSA RANCHERIA.

**Ecological:**

NEST IN COTTONWOOD AT EASTERN EDGE OF RARE, HIGH-QUALITY SALTGRASS PRAIRIE ALONG CAIN SLOUGH.

**Threats:**

**General:**

2 ADULTS REPORTEDLY OBSERVED PERCHED NEAR NEST ON 12 JUL 2017; PRESUMED TO BE A BREEDING PAIR.

**PLSS:** T19S, R21E, Sec. 31, SE (M)
**Accuracy:** 80 meters
**Area (acres):** 5
**UTM:** Zone-11 N4012452 E254524
**Latitude/Longitude:** 36.2258 / -119.73114
**Elevation (feet):** 220

**County Summary:**

Kings

**Quad Summary:**

Guernsey (3611926)

**Sources:**

TEN17F0030 TENNANT, E. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-07-12

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | B3887 | **EO Index:** | 116801 |
| **Key Quad:** | Waukena (3611925) | **Element Code:** | ABNKC19070 |
| **Occurrence Number:** | 2805 | **Occurrence Last Updated:** | 2019-09-30 |

**Scientific Name:** *Buteo swainsoni*

**Common Name:** Swainson's hawk

**Listing Status:** **Federal:** None

**State:** Threatened

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
IUCN_LC-Least Concern

**CNDDB Element Ranks:** **Global:** G5

**State:** S4

**General Habitat:**

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, AND AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

**Micro Habitat:**

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-05-17 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-05-17 | **Occurrence Rank:** | Fair |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

W SIDE OF CA-33 (8TH AVE) ABOUT 0.4 MI S OF THE JERSEY AVE INTERSECTION & 2.6 MI NE OF GUERNSEY.

**Detailed Location:**

MAPPED TO PROVIDED COORDINATES.

**Ecological:**

NEST IN VALLEY OAK TREE WITHIN CORN FIELD, SURROUNDED BY AGRICULTURE AND ADJACENT TO ROAD RIGHT-OF-WAY.

**Threats:**

AGRICULTURE OPERATIONS. POSSIBLE DEVELOPMENT/CONSTRUCTION (MAR 2017 DETECTION DURING PRE-CONSTRUCTION SURVEYS).

**General:**

PAIR OBSERVED COPULATING ON NEST ON 16 MAR 2017. 1 ADULT OBSERVED SITTING ON NEST ON 17 MAY 2017.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T19S, R22E, Sec. 32, NE (M) | **Accuracy:** | 80 meters | **Area (acres):** | 5 |
| **UTM:** | Zone-11 N4013068 E266209 | **Latitude/Longitude:** | 36.23424 / -119.60144 | **Elevation (feet):** | 229 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Waukena (3611925) |

**Sources:**

| | |
|---|---|
| OLE17F0008 | O'LEARY, R. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-05-17 |
| RIT17F0001 | RITT, S. - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2017-03-16 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 40396
**Key Quad:** Traver (3611944)
**Occurrence Number:** 310
**EO Index:** 35403
**Element Code:** ABNSB10010
**Occurrence Last Updated:** 1998-12-16

**Scientific Name:** *Athene cunicularia*
**Common Name:** burrowing owl

**Listing Status:** **Federal:** None
**State:** None
**CNDDB Element Ranks:** **Global:** G4
**State:** S2
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 1998-04-10
**Last Survey Date:** 1998-04-10
**Owner/Manager:** PVT
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Fair
**Trend:** Unknown

**Location:**

SOUTH OF CROSS CREEK, 0.75 MILE NE OF HWY 99, 4.5 MILES SE OF TRAVER.

**Detailed Location:**

**Ecological:**

HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND WITH VERNAL POOLS. LEPIDURUS PACKARDI ALSO OCCURS IN THE VICINITY. AGRICULTURE TO SOUTH AND EAST.

**Threats:**

THREATENED BY AGRICULTURAL CONVERSION.

**General:**

UNKNOWN NUMBER OF OWLS OBSERVED ON 10 APRIL 1998.

**PLSS:** T17S, R23E, Sec. 36, SE (M)
**Accuracy:** non-specific area
**Area (acres):** 254
**UTM:** Zone-11 N4031485 E281502
**Latitude/Longitude:** 36.40371 / -119.43657
**Elevation (feet):** 280

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

HAL98F0001 HALSTEAD, J.A. & P.S. HALSTEAD (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 1998-04-10

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 44977
**EO Index:** 44977
**Key Quad:** Traver (3611944)
**Element Code:** ABNSB10010
**Occurrence Number:** 396
**Occurrence Last Updated:** 2017-06-13

**Scientific Name:** *Athene cunicularia*
**Common Name:** burrowing owl

**Listing Status:** **Federal:** None
**State:** None
**CNDDB Element Ranks:** **Global:** G4
**State:** S2

**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**
SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2017-03-01
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-03-01
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
BETWEEN CROSS CREEK AND SETTLERS DITCH, 12 MILES NW OF VISALIA.

**Detailed Location:**
MAPPED TO PROVIDED COORDINATES.

**Ecological:**
2000: NON-NATIVE ANNUAL GRASSLAND WITH VERNAL POOLS; SURROUNDED BY GRASSLAND TO NORTH & EAST, FARMLAND TO SOUTH & WEST. 2016: SURROUNDING LANDS USED FOR AGRICULTURE & GRAZING; OVERWINTERING HABITAT FOR THE OWLS; POTENTIAL MITIGATION BANK.

**Threats:**
POSSIBLE THREAT OF DEVELOPMENT ON SURROUNDING FARMLAND (2000).

**General:**
2 ADULTS OBSERVED AT THE BURROW SITE DURING FEB 2000. 2 OWLS AT SEPARATE BURROWS OBSERVED ON 6 MAR 2016. 6 OCCUPIED BURROWS OBSERVED DURING BRANCHIOPOD SURVEYS DEC 2016-MAR 2017.

**PLSS:** T18S, R23E, Sec. 4, NW (M)
**Accuracy:** specific area
**Area (acres):** 34
**UTM:** Zone-11 N4030812 E276921
**Latitude/Longitude:** 36.39659 / -119.48743
**Elevation (feet):** 268

**County Summary:**
Kings

**Quad Summary:**
Traver (3611944)

**Sources:**

| | |
|---|---|
| HAL00F0003 | HALSTEAD, J.A. & P.S. HALSTEAD - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 2000-03-11 |
| HEL16F0007 | HELM, B. - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2016-03-06 |
| HEL16F0008 | HELM, B. - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2016-03-06 |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 44978
**EO Index:** 44978
**Key Quad:** Burris Park (3611945)
**Element Code:** ABNSB10010
**Occurrence Number:** 397
**Occurrence Last Updated:** 2017-05-30

**Scientific Name:** *Athene cunicularia*
**Common Name:** burrowing owl

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:**

**CNDDB Element Ranks:** **Global:** G4
**State:** S2
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2017-03-01
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-03-01
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

WEST SIDE OF CROSS CREEK, 1 MILE SOUTH OF SETTLERS DITCH, NW OF VISALIA.

**Detailed Location:**

MAPPED TO PROVIDED LOCATIONS.

**Ecological:**

1999: NON-NATIVE ANNUAL GRASSLAND WITH VERNAL POOLS; SURROUNDED BY GRASSLAND TO THE SOUTH & EAST, FARMLAND TO THE NORTH & WEST. 2016: LAND USED FOR AGRICULTURE & GRAZING; WETLANDS ARE MAINLY ALKALI VERNAL POOLS; POTENTIAL MITIGATION BANK.

**Threats:**

POSSIBLE THREAT OF DEVELOPMENT ON SURROUNDING FARMLAND (1999).

**General:**

4 ADULTS OBSERVED AT THE BURROW SITE ON 1 MAR 1999. 1 ADULT OBSERVED AT BURROW ON 6 MAR 2016. 4 OCCUPIED BURROWS OBSERVED DURING BRANCHIOPOD SURVEYS DEC 2016-MAR 2017.

**PLSS:** T18S, R23E, Sec. 8, W (M)
**Accuracy:** specific area
**Area (acres):** 21
**UTM:** Zone-11 N4029212 E274900
**Latitude/Longitude:** 36.38171 / -119.50948
**Elevation (feet):** 263

| County Summary: | Quad Summary: |
|---|---|
| Kings | Burris Park (3611945) |

**Sources:**

| | |
|---|---|
| HAL99F0007 | HALSTEAD, J.A. & P.S. HALSTEAD - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 1999-03-01 |
| HEL16F0009 | HELM, B. - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2016-03-06 |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 72215
**EO Index:** 73157
**Key Quad:** Waukena (3611925)
**Element Code:** ABNSB10010
**Occurrence Number:** 1207
**Occurrence Last Updated:** 2008-09-09

**Scientific Name:** *Athene cunicularia*
**Common Name:** burrowing owl

**Listing Status:** **Federal:** None
**State:** None
**CNDDB Element Ranks:** **Global:** G4
**State:** S2

**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**
SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2000-03-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2000-03-XX
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
0.7 MILE WNW OF JUNCTION OF ROAD 28 & AVENUE 208, 2.2 MILES NNW OF WAUKENA, ABOUT 10 WSW OF TULARE.

**Detailed Location:**

**Ecological:**
HABITAT IS A PASTURE WITH NON-NATIVE GRASSES. AGRICULTURE LAND TO THE NORTH, EAST AND SOUTH. NATIVE GRASSLAND TO THE WEST IN KINGS COUNTY.

**Threats:**

**General:**
BURROW SITE. 16 ADULTS OBSERVED IN MARCH 2000.

**PLSS:** T20S, R23E, Sec. 19 (M)
**Accuracy:** non-specific area
**Area (acres):** 84
**UTM:** Zone-11 N4005630 E272894
**Latitude/Longitude:** 36.16884 / -119.52496
**Elevation (feet):** 230

**County Summary:**
Kings, Tulare

**Quad Summary:**
Waukena (3611925)

**Sources:**
HAL00F0029 HALSTEAD, J. & P. HALSTEAD (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2000-03-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** A0200
**EO Index:** 101762
**Key Quad:** Waukena (3611925)
**Element Code:** ABNSB10010
**Occurrence Number:** 1957
**Occurrence Last Updated:** 2016-05-31

**Scientific Name:** *Athene cunicularia*
**Common Name:** burrowing owl

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:**

**CNDDB Element Ranks:** **Global:** G4
**State:** S2
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**
SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2016-01-08
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2016-01-08
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
EAST SIDE OF CA-43 ABOUT 0.2 MI SE OF ITS INTERSECTION WITH NEVADA AVE, NW OF CORCORAN.

**Detailed Location:**
MAPPED TO PROVIDED COORDINATES.

**Ecological:**
ANNUAL GRASSLAND WITH MANY SMALL BURROWS.

**Threats:**
AGRICULTURE, SOLAR DEVELOPMENT.

**General:**
1 ADULT OBSERVED STANDING AT BURROW ON 8 JAN 2016.

**PLSS:** T21S, R22E, Sec. 3, NW (M)
**Accuracy:** 80 meters
**Area (acres):** 5
**UTM:** Zone-11 N4002052 E267637
**Latitude/Longitude:** 36.13537 / -119.58231
**Elevation (feet):** 212

**County Summary:**
Kings

**Quad Summary:**
Waukena (3611925)

**Sources:**
CUM16F0002 CUMMINGS, C. - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2016-01-08

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | A4870 | **EO Index:** | 106568 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ABNSB10010 |
| **Occurrence Number:** | 2004 | **Occurrence Last Updated:** | 2017-05-30 |

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:** **Federal:** None

**State:** None

**CNDDB Element Ranks:** **Global:** G4

**State:** S2

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

ABOUT 0.9 MILES WNW OF HWY 99 AT CROSS CREEK AND 2.0 MILES SE OF AVE 352 AT RD 36, NW OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED MAP.

**Ecological:**

VERNAL POOL LANDSCAPE; POTENTIAL MITIGATION BANK.

**Threats:**

**General:**

OCCUPIED BURROW OBSERVED DURING BRANCHIOPOD SURVEYS DEC 2016-MAR 2017.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R23E, Sec. 34, SW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 5 |
| **UTM:** | Zone-11 N4031771 E278206 | **Latitude/Longitude:** | 36.40552 / -119.47338 | **Elevation (feet):** | 270 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

HEL17R0001 HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** A4872
**Key Quad:** Traver (3611944)
**Occurrence Number:** 2005

**EO Index:** 106570
**Element Code:** ABNSB10010
**Occurrence Last Updated:** 2017-05-30

**Scientific Name:** *Athene cunicularia*
**Common Name:** burrowing owl

**Listing Status:** **Federal:** None
**State:** None

**CNDDB Element Ranks:** **Global:** G4
**State:** S2

**Rare Plant Rank:**

**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2017-03-01
**Last Survey Date:** 2017-03-01
**Owner/Manager:** PVT
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

ABOUT 0.4 MILES WNW OF HWY 99 AT CROSS CREEK AND 2.3 MILES SE OF AVE 352 AT RD 36, NW OF GOSHEN.

**Detailed Location:**

MAPPED TO PROVIDED MAP.

**Ecological:**

VERNAL POOL LANDSCAPE; POTENTIAL MITIGATION BANK.

**Threats:**

**General:**

OCCUPIED BURROW OBSERVED DURING BRANCHIOPOD SURVEYS DEC 2016-MAR 2017.

**PLSS:** T17S, R23E, Sec. 34, SE (M)
**UTM:** Zone-11 N4031716 E278986

**Accuracy:** 80 meters
**Latitude/Longitude:** 36.40521 / -119.46468

**Area (acres):** 5
**Elevation (feet):** 273

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HEL17R0001 HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86216
**EO Index:** 87281
**Key Quad:** Traver (3611944)
**Element Code:** ABPBR01030
**Occurrence Number:** 106
**Occurrence Last Updated:** 2012-06-29

**Scientific Name:** *Lanius ludovicianus*
**Common Name:** loggerhead shrike

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:**
**Other Lists:** CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G4
**State:** S4

**General Habitat:**

BROKEN WOODLANDS, SAVANNAH, PINYON-JUNIPER, JOSHUA TREE, AND RIPARIAN WOODLANDS, DESERT OASES, SCRUB AND WASHES.

**Micro Habitat:**

PREFERS OPEN COUNTRY FOR HUNTING, WITH PERCHES FOR SCANNING, AND FAIRLY DENSE SHRUBS AND BRUSH FOR NESTING.

**Last Date Observed:** 1992-06-29
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1992-06-29
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

WEST SIDE OF ROAD 80 (ALTA AVE) ALONG COTTONWOOD CREEK ABOUT 0.5 MILE SOUTH OF AVENUE 360, ABOUT 5 MILES ESE OF TRAVER.

**Detailed Location:**

MAPPED GENERALLY TO PROJECT SITE.

**Ecological:**

1 OR MORE LOGGERHEAD SHRIKE NEST WAS FOUND IN GOODDING'S WILLOWS ON THE SITE. IN 1994 AND 2010 AERIALS, TREES ARE ONLY FOUND ALONG THE CREEK RUNNING THROUGH THE SITE. SITE USED FOR GRAZING.

**Threats:**

**General:**

AT LEAST ONE NEST WAS FOUND ON THE SITE BETWEEN 21 MAR AND 29 JUN 1992. 6 OTHER BIRD SPECIES NESTED IN WILLOWS, AND LEPIDURUS PACKARDI, BRANCHINECTA LYNCHI, AND SPEA HAMMONDII ARE KNOWN FROM SITE.

**PLSS:** T17S, R24E, Sec. 20, SW (M)
**Accuracy:** non-specific area
**Area (acres):** 132
**UTM:** Zone-11 N4034765 E285094
**Latitude/Longitude:** 36.43406 / -119.39746
**Elevation (feet):** 285

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HAN92R0001 HANSEN, R. B. - BIOLOGICAL ASSESSMENT OF NATURAL HABITAT AREAS & SENSITIVE SPECIES STATUS ON THE SITE OF A PROPOSED REGIONAL FLYING SITE... (HARRELL RANCH) IN TULARE COUNTY, CA. 1992-07-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 97565
**Key Quad:** Paige (3611924)
**Occurrence Number:** 677
**EO Index:** 98887
**Element Code:** ABPBXB0020
**Occurrence Last Updated:** 2015-11-13

**Scientific Name:** *Agelaius tricolor*
**Common Name:** tricolored blackbird

**Listing Status:** **Federal:** None
**State:** Threatened
**CNDDB Element Ranks:** **Global:** G1G2
**State:** S2
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_EN-Endangered
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**

HIGHLY COLONIAL SPECIES, MOST NUMEROUS IN CENTRAL VALLEY AND VICINITY. LARGELY ENDEMIC TO CALIFORNIA.

**Micro Habitat:**

REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, AND FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

**Last Date Observed:** 2000-04-21
**Last Survey Date:** 2014-04-18
**Owner/Manager:** PVT
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

N SIDE OF AVE 192, JUST NW OF JUNCTION W/ ROAD 36 AND 0.3 MI NE OF JUNCTION W/ ROAD 32, 4.5 MI NE OF CORCORAN PO.

**Detailed Location:**

2000 LOCATION DESCRIBED AS "0.25 MI NW OF JUNCTION OF RD 36/AVE 192, 6 MI NE OF CORCORAN." COLONY DATA STORED IN UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAME "ROAD 36 AT AVENUE 192."

**Ecological:**

1:2 M/F RATIO. 5-10 ACRES OCCUPIED BY NESTS, 175+ NOT OCCUPIED. TOTAL LOSS OF NESTING SITE DUE TO MOWING IN 2000. SILAGE FIELD HAD BEEN CHOPPED IN 2014.

**Threats:**

**General:**

ABOUT 4,000 BIRDS OBSERVED NESTING ON 21 APR 2000; 1-2 DAY OLD HATCHLINGS OBSERVED, BIRDS HAD BEGUN DISPERSING DUE TO MOWING OF SITE. 0 BIRDS OBSERVED ON 18 APR 2014.

**PLSS:** T20S, R23E, Sec. 32, SE (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4002350 E275480
**Latitude/Longitude:** 36.13990 / -119.49530
**Elevation (feet):** 230

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Paige (3611924) |

**Sources:**

| | |
|---|---|
| DEH00F0001 | DEHAVEN, R. (U.S. FISH AND WILDLIFE SERVICE-SACRAMENTO) - FIELD SURVEY FORM FOR AGELAIUS TRICOLOR 2000-04-21 |
| DFG04U0002 | CALIFORNIA DEPARTMENT OF FISH & GAME - TRICOLORED BLACKBIRD BREEDING OBSERVATIONS 1980-2000, BIOS DS20. 2004-XX-XX |
| TRI14D0001 | TRICOLORED BLACKBIRD PORTAL - ICE (UNIVERSITY OF CALIFORNIA, DAVIS) - 1907-2014 TRICOLORED BLACKBIRD RECORDS FROM UC DAVIS TRICOLORED BLACKBIRD PORTAL, INFORMATION CENTER FOR THE ENVIRONMENT (ICE) 2014-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 97566
**Key Quad:** Waukena (3611925)
**Occurrence Number:** 678
**EO Index:** 98888
**Element Code:** ABPBXB0020
**Occurrence Last Updated:** 2015-11-13

**Scientific Name:** *Agelaius tricolor*
**Common Name:** tricolored blackbird

**Listing Status:** **Federal:** None
**State:** Threatened
**CNDDB Element Ranks:** **Global:** G1G2
**State:** S2
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_EN-Endangered
USFWS_BCC-Birds of Conservation Concern

**General Habitat:**

HIGHLY COLONIAL SPECIES, MOST NUMEROUS IN CENTRAL VALLEY AND VICINITY. LARGELY ENDEMIC TO CALIFORNIA.

**Micro Habitat:**

REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, AND FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

**Last Date Observed:** 2000-04-21
**Last Survey Date:** 2014-04-21
**Owner/Manager:** PVT
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

ABOUT 0.25 MI E OF KANSAS AVE & 5TH AVE INTERSECTION, 0.75 MI W OF KANSAS AVE & 4TH AVE INTXN, 7.7 MI N OF CORCORAN PO.

**Detailed Location:**

2000 COLONY LOCATION DESCRIBED AS "0.25 MI E OF JUNCTION OF KANSAS AVE AND 5TH AVE, 10 MI N OF CORCORAN." COLONY DATA STORED IN UC DAVIS TRICOLORED BLACKBIRD PORTAL; SITE NAME "KANSAS AVENUE."

**Ecological:**

WHEAT IN 2000; 1:3 M/F RATIO. DRY IN 2014.

**Threats:**

**General:**

ABOUT 6,000 BIRDS OBSERVED ON 21 APR 2000; 3,000 NESTING & 3,000 MILLING AND SITTING ABOUT IN THE VICINITY FROM MAINLY RECENTLY CUT FIELDS AND SOME DAIRIES. 0 OBSERVED ON 21 APR 2014.

**PLSS:** T20S, R22E, Sec. 12, NW (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4010371 E271440
**Latitude/Longitude:** 36.21120 / -119.54250
**Elevation (feet):** 235

**County Summary:**

Kings

**Quad Summary:**

Waukena (3611925)

**Sources:**

| | |
|---|---|
| DEH00F0002 | DEHAVEN, R. - FIELD SURVEY FORM FOR AGELAIUS TRICOLOR 2000-04-21 |
| DFG04U0002 | CALIFORNIA DEPARTMENT OF FISH & GAME - TRICOLORED BLACKBIRD BREEDING OBSERVATIONS 1980-2000, BIOS DS20. 2004-XX-XX |
| TRI14D0001 | TRICOLORED BLACKBIRD PORTAL - ICE (UNIVERSITY OF CALIFORNIA, DAVIS) - 1907-2014 TRICOLORED BLACKBIRD RECORDS FROM UC DAVIS TRICOLORED BLACKBIRD PORTAL, INFORMATION CENTER FOR THE ENVIRONMENT (ICE) 2014-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 68494
**Key Quad:** Hanford (3611936)
**Occurrence Number:** 37
**EO Index:** 68794
**Element Code:** AMACC05032
**Occurrence Last Updated:** 2007-06-27

**Scientific Name:** *Lasiurus cinereus*
**Common Name:** hoary bat

**Listing Status:** **Federal:** None
**State:** None
**CNDDB Element Ranks:** **Global:** G3G4
**State:** S4
**Rare Plant Rank:**
**Other Lists:** IUCN_LC-Least Concern

**General Habitat:**

PREFERS OPEN HABITATS OR HABITAT MOSAICS, WITH ACCESS TO TREES FOR COVER AND OPEN AREAS OR HABITAT EDGES FOR FEEDING.

**Micro Habitat:**

ROOSTS IN DENSE FOLIAGE OF MEDIUM TO LARGE TREES. FEEDS PRIMARILY ON MOTHS. REQUIRES WATER.

**Last Date Observed:** 1991-04-22
**Last Survey Date:** 1991-04-22
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

HANFORD.

**Detailed Location:**

MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY MANIS WITH UNCERTAINTY OF 30 M.

**Ecological:**

**Threats:**

**General:**

3 FEMALE SPECIMENS (MVZ #182406-182408) COLLECTED BY WILLIAM E. RAINEY ON 26 DEC 1990 AND 2 APR 1991.

**PLSS:** T18S, R21E, Sec. 25 (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4024174 E262491
**Latitude/Longitude:** 36.33335 / -119.64614
**Elevation (feet):**

**County Summary:**

Kings

**Quad Summary:**

Hanford (3611936)

**Sources:**

MAN04S0029 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF LASIURUS CINEREUS SPECIMENS FOR CALIFORNIA FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, MSB, LSU, KU, LACM, UWBM, FMNH AND TTU. 2004-12-10

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 66331
**Key Quad:** Traver (3611944)
**Occurrence Number:** 91
**EO Index:** 66424
**Element Code:** AMACD02011
**Occurrence Last Updated:** 2006-09-26

**Scientific Name:** *Eumops perotis californicus*
**Common Name:** western mastiff bat

**Listing Status:** **Federal:** None
**State:** None
**CNDDB Element Ranks:** **Global:** G4G5T4
**State:** S3S4
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern

**General Habitat:**

MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER AND DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.

**Micro Habitat:**

ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

**Last Date Observed:** 1899-03-01
**Last Survey Date:** 1899-03-01
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

TRAVER.

**Detailed Location:**

EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF TRAVER.

**Ecological:**

**Threats:**

**General:**

1 FEMALE SPECIMEN COLLECTED BY C.H.B. WRIGHT ON 1 MAR 1899, CAS #17445.

**PLSS:** T17S, R23E, Sec. 16 (M)
**Accuracy:** 3/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4037179 E277297
**Latitude/Longitude:** 36.45403 / -119.48506
**Elevation (feet):**

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

| | |
|---|---|
| COC60A0001 | COCKRUM, E.L. (UNIVERSITY OF ARIZONA) - DISTRIBUTION, HABITAT AND HABITS OF THE MASTIFF BAT, EUMOPS PEROTIS, IN NORTH AMERICA. 1960: JOURNAL OF THE ARIZONA ACADEMY OF SCIENCE, 1:79-84 1960-01-01 |
| MAN04S0027 | MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF EUMOPS PEROTIS CALIFORNICUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, TTU, ROM, LACM, KU, MSU AND FMNH. 2004-12-10 |
| PIE98R0001 | PIERSON, E. & W. RAINEY - DISTRIBUTION, HABITAT ASSOCIATIONS, STATUS AND SURVEY METHODOLOGIES FOR THREE MOLOSSID BAT SPECIES AND THE VESPERTILIONID. FINAL REPORT CAL FISH & GAME WILDLIFE MANAGEMENT DIVISION 1998-04-06 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 14799
**EO Index:** 14608
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAFD03152
**Occurrence Number:** 20
**Occurrence Last Updated:** 1989-08-10

**Scientific Name:** *Dipodomys nitratoides nitratoides*
**Common Name:** Tipton kangaroo rat

**Listing Status:** **Federal:** Endangered
**State:** Endangered
**Rare Plant Rank:**
**Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3T1T2
**State:** S2

**General Habitat:**

SALTBRUSH SCRUB AND SINK SCRUB COMMUNITIES IN THE TULARE LAKE BASIN OF THE SOUTHERN SAN JOAQUIN VALLEY.

**Micro Habitat:**

NEEDS SOFT FRIABLE SOILS WHICH ESCAPE SEASONAL FLOODING. DIGS BURROWS IN ELEVATED SOIL MOUNDS AT BASES OF SHRUBS.

**Last Date Observed:** 1985-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1985-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ALL OF SECS 7 & 8 & HALF OF SECS 17 & 18, T20S, R21E. APPROX 5 MI ENE STRATFORD.

**Detailed Location:**

APPROXIMATELY 25 BURROWS PER HA OBSERVED.

**Ecological:**

HABITAT IS APPROXIMATELY 615 HA OF IODINE BUSH AND ATRIPLEX SPINIFERA SHRUB HABITATS, AND SOME GRASSLAND HABITAT. AREA INCLUDES A PERCOLATION BASIN AND SOME PREVIOUSLY CULTIVATED LAND.

**Threats:**

**General:**

SITE #2 (WILLIAMS 1985).

**PLSS:** T20S, R21E, Sec. 07 (M)
**Accuracy:** specific area
**Area (acres):** 1,865
**UTM:** Zone-11 N4009578 E254866
**Latitude/Longitude:** 36.20000 / -119.72644
**Elevation (feet):** 215

| County Summary: | Quad Summary: |
|---|---|
| Kings | Guernsey (3611926) |

**Sources:**

WIL85R0001 WILLIAMS, D.F. - A REVIEW OF THE POPULATIONS STATUS OF THE TIPTON KANGAROO RAT, DIPODOMYS NITRATOIDES - FINAL REPORT USFWS ORDER NO. 10181-4861 (TS), 84 SE-0020-4 1985-12-11

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 14894
**EO Index:** 14607
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAFD03152
**Occurrence Number:** 21
**Occurrence Last Updated:** 1998-09-15

**Scientific Name:** *Dipodomys nitratoides nitratoides*
**Common Name:** Tipton kangaroo rat

**Listing Status:** **Federal:** Endangered
**State:** Endangered
**Rare Plant Rank:**
**Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3T1T2
**State:** S2

**General Habitat:**
SALTBRUSH SCRUB AND SINK SCRUB COMMUNITIES IN THE TULARE LAKE BASIN OF THE SOUTHERN SAN JOAQUIN VALLEY.

**Micro Habitat:**
NEEDS SOFT FRIABLE SOILS WHICH ESCAPE SEASONAL FLOODING. DIGS BURROWS IN ELEVATED SOIL MOUNDS AT BASES OF SHRUBS.

**Last Date Observed:** 1985-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1985-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
APPROX 8 MILES ENE OF STRATFORD.

**Detailed Location:**
ALL OF SECS 10 & 11 & PORTIONS OF SECS 12,14 & 15.

**Ecological:**
HABITAT IS APPROXIMATELY 400 HA OF IODINE BUSH SHRUB AND SHRUB-MARSH ECOTONE. AREA INCLUDES PERCOLATION BASINS.

**Threats:**
AREA IS HEAVILY GRAZED BY DAIRY CATTLE. HOMES NEARBY.

**General:**
SITE #3 (WILLIAMS 1985). APPROXIMATELY 20 BURROWS PER HA OBSERVED.

**PLSS:** T20S, R21E, Sec. 11 (M)
**Accuracy:** non-specific area
**Area (acres):** 1,758
**UTM:** Zone-11 N4009643 E259811
**Latitude/Longitude:** 36.20183 / -119.67151
**Elevation (feet):** 215

| County Summary: | Quad Summary: |
|---|---|
| Kings | Guernsey (3611926) |

**Sources:**

WIL85R0001 WILLIAMS, D.F. - A REVIEW OF THE POPULATIONS STATUS OF THE TIPTON KANGAROO RAT, DIPODOMYS NITRATOIDES - FINAL REPORT USFWS ORDER NO. 10181-4861 (TS), 84 SE-0020-4 1985-12-11

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 55307
**EO Index:** 55307
**Key Quad:** Traver (3611944)
**Element Code:** AMAJA03041
**Occurrence Number:** 150
**Occurrence Last Updated:** 2004-05-03

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 2003-08-08
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2003-08-08
**Occurrence Rank:** Fair
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

NORTHEAST OF GOSHEN, 600 FT SW OF THE INTERSECTION OF J19 (AKA ROAD 80) & J34 (AKA AVE 328).

**Detailed Location:**

UTM COORDINATES AND MAP DO NOT INDICATE THE SAME LOCATION. USED THE MAP TO PLOT THE SIGHTING. ALSO LOCATION CONFIRMED BY E-MAIL.

**Ecological:**

IRRIGATED ALFALFA, BURROWING OWLS WERE IN THE AREA.

**Threats:**

DOGS & COYOTES.

**General:**

2003: 08/08/2003 ONE ADULT SIGHTED FORAGING IN FRESHLY CUT ALFALFA FIELD AT 22:30, ABOUT 600 FEET SW OF THE INTERSECTION.

**PLSS:** T18S, R24E, Sec. 08, SE (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4029131 E285037
**Latitude/Longitude:** 36.38330 / -119.39653
**Elevation (feet):** 300

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| VIS03F0001 | VISGER, G. (VISGER AND ASSOCIATES, INC.) - FIELD SURVEY FORM FOR VULPES MACROTIS MUTICA 2003-08-08 |
| VIS04U0001 | VISGER, G. (VISGER AND ASSOCIATES, INC.) - E-MAIL TO C. REINER REGARDING VULPES MACROTIS MUTICA 2004-04-30 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 55674 | **EO Index:** | 55674 |
| **Key Quad:** | Guernsey (3611926) | **Element Code:** | AMAJA03041 |
| **Occurrence Number:** | 191 | **Occurrence Last Updated:** | 2004-05-27 |

**Scientific Name:** *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered **Rare Plant Rank:**

**State:** Threatened **Other Lists:**

**CNDDB Element Ranks:** **Global:** G4T2

**State:** S3

**General Habitat:**

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 1989-06-23 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 1989-06-23 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

6.5 MI SSE OF LEMORE, NE CORNER OF KANSAS AVE & 16TH AVE, WEST OF JACOBS SLOUGH.

**Detailed Location:**

**Ecological:**

HIGHLY DISTURBED ANNUAL GRASSLAND. DIPODOMYS NITRATOIDES REPORTED IN THE AREA, SURROUNDING LAND USE IS AGRICULTURE AND "NATURAL" LAND.

**Threats:**

DRAINAGE DITCHES; POSSIBLE FUTURE CULTIVATION OR TURKEY RANCH.

**General:**

6/23/1989: ONE FOX SIGHTED OF UNKNOWN AGE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T20S, R21E, Sec. 06, SW (M) | **Accuracy:** | non-specific area | **Area (acres):** | 41 |
| **UTM:** | Zone-11 N4011059 E253496 | **Latitude/Longitude:** | 36.21299 / -119.74212 | **Elevation (feet):** | 200 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Guernsey (3611926) |

**Sources:**

| | |
|---|---|
| WIL89F0012 | WILLIAMS, D. (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - FIELD SURVEY FORM FOR VULPES MACROTIS MUTICA 1989-06-23 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 66338
**EO Index:** 66435
**Key Quad:** Hanford (3611936)
**Element Code:** AMAJA03041
**Occurrence Number:** 214
**Occurrence Last Updated:** 2012-11-30

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 2000-08-15
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2000-08-15
**Occurrence Rank:** Fair
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

VICINITY OF SAND SLOUGH, S OF HOUSTON AVE JUST WEST OF 11TH AVENUE, ABOUT 2.3 MI SSW OF HANFORD PO.

**Detailed Location:**

MAPPED TO PROVIDED TRS FOR 2000: NW1/4 OF NE1/4 SEC 11.

**Ecological:**

OBSERVED IN A WALNUT ORCHARD IN 2000. SOUTH SIDE OF HOUSTON STILL APPEARS TO BE AN ORCHARD IN 2010 AERIALS. SAND SLOUGH (SLIGHTLY DISCONTINUOUS NORTH & SOUTH OF ROAD) MAY PROVIDE SOME NATURAL COVER/HABITAT.

**Threats:**

**General:**

1 ADULT WAS OBSERVED IN A WALNUT ORCHARD ON 15 AUG 2000.

**PLSS:** T19S, R21E, Sec. 11, NE (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4020033 E261033
**Latitude/Longitude:** 36.29570 / -119.66111
**Elevation (feet):** 235

| County Summary: | Quad Summary: |
|---|---|
| Kings | Hanford (3611936) |

**Sources:**

GRA00F0013 GRAY, G. & P. STURM - FIELD SURVEY FORM FOR VULPES MACROTIS MUTICA 2000-08-15

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67129
**EO Index:** 67279
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAJA03041
**Occurrence Number:** 454
**Occurrence Last Updated:** 2006-12-20

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1988-05-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1988-05-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ABOUT 1.4 MI ENE OF 17TH AVE & KANSAS AVE, W OF JACOBS SLOUGH.

**Detailed Location:**

**Ecological:**

VALLEY SINK SCRUB.

**Threats:**

**General:**

KIT FOX OR DEN OBSERVED IN MAY 1988.

**PLSS:** T20S, R21E, Sec. 06, NW (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4011899 E253775
**Latitude/Longitude:** 36.22063 / -119.73929
**Elevation (feet):** 220

**County Summary:**

Kings

**Quad Summary:**

Guernsey (3611926)

**Sources:**

CEC88M0001 CALIFORNIA ENERGY COMMISSION - SOUTHERN SAN JOAQUIN VALLEY HABITAT PRESERVATION PROGRAM SENSITIVE SPECIES SIGHTINGS: PHASE III SURVEY. 1988-05-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67130
**EO Index:** 67280
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAJA03041
**Occurrence Number:** 455
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1988-05-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1988-05-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
NW OF PERCOLATION BASINS, 0.9 MI NE OF INTERSECTION OF 16TH & LAUREL AVE.

**Detailed Location:**

**Ecological:**
VALLEY SINK SCRUB.

**Threats:**

**General:**
SIGHTING IN VICINITY SOMETIME FROM 1972 THROUGH JUL 1975. KIT FOX OR SCAT OBSERVED IN MAY 1988.

**PLSS:** T20S, R21E, Sec. 07 (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4009271 E254288
**Latitude/Longitude:** 36.19709 / -119.73276
**Elevation (feet):** 220

| County Summary: | Quad Summary: |
|---|---|
| Kings | Guernsey (3611926) |

**Sources:**

| | |
|---|---|
| CEC88M0001 | CALIFORNIA ENERGY COMMISSION - SOUTHERN SAN JOAQUIN VALLEY HABITAT PRESERVATION PROGRAM SENSITIVE SPECIES SIGHTINGS: PHASE III SURVEY. 1988-05-XX |
| MOR75M0001 | MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67131
**EO Index:** 67281
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAJA03041
**Occurrence Number:** 456
**Occurrence Last Updated:** 2006-12-20

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1988-05-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1988-05-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
W OF PERCOLATION BASINS, ABOUT 1.5 MI NE OF INTERSECTION OF LAKEVIEW & 16TH AVE.

**Detailed Location:**

**Ecological:**
VALLEY SINK SCRUB.

**Threats:**

**General:**
KIT FOX OR SCAT OBSERVED IN MAY 1988.

**PLSS:** T20S, R21E, Sec. 17, SW (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4007913 E255287
**Latitude/Longitude:** 36.18511 / -119.72124
**Elevation (feet):** 210

**County Summary:**
Kings

**Quad Summary:**
Guernsey (3611926)

**Sources:**
CEC88M0001 CALIFORNIA ENERGY COMMISSION - SOUTHERN SAN JOAQUIN VALLEY HABITAT PRESERVATION PROGRAM SENSITIVE SPECIES SIGHTINGS: PHASE III SURVEY. 1988-05-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67378
**EO Index:** 67546
**Key Quad:** Traver (3611944)
**Element Code:** AMAJA03041
**Occurrence Number:** 619
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1971-XX-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1971-XX-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 4.7 MI NNE OF GOSHEN, JUST N OF ST. JOHNS RIVER.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
KIT FOX OBSERVATION(S) IN 1971. SIGHTING, ROAD KILL OR DEN PRIOR TO 1972.

**PLSS:** T17S, R24E, Sec. 29 (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4032754 E285070
**Latitude/Longitude:** 36.41594 / -119.39717
**Elevation (feet):** 290

**County Summary:**
Tulare

**Quad Summary:**
Traver (3611944)

**Sources:**

MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

SWI73R0001 SWICK, C.D. - DETERMINATION OF SAN JOAQUIN KIT FOX RANGE IN CCA, SJQ, ALA & TUL COUNTIES, CDFG 1973-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67379
**Key Quad:** Goshen (3611934)
**Occurrence Number:** 620
**EO Index:** 67547
**Element Code:** AMAJA03041
**Occurrence Last Updated:** 2006-12-13

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1973-XX-XX
**Last Survey Date:** 1973-XX-XX
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**
INTERSECTION OF HWY 198 AND TULARE/KINGS COUNTY LINE.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
KIT FOX OBSERVATION(S) IN 1973.

**PLSS:** T18S, R23E, Sec. 27 (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4023230 E277822
**Latitude/Longitude:** 36.32851 / -119.47521
**Elevation (feet):** 270

| County Summary: | Quad Summary: |
|---|---|
| Kings, Tulare | Goshen (3611934) |

**Sources:**

SWI73R0001 SWICK, C.D. - DETERMINATION OF SAN JOAQUIN KIT FOX RANGE IN CCA, SJQ, ALA & TUL COUNTIES, CDFG 1973-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67392
**EO Index:** 67562
**Key Quad:** Taylor Weir (3611914)
**Element Code:** AMAJA03041
**Occurrence Number:** 630
**Occurrence Last Updated:** 2007-01-23

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 6.4 MI SSW OF TULARE, SE OF INTERSECTION OF OCTOL AVE (AVE 184) AND ELK BAYOU AVE (ROAD 80).

**Detailed Location:**

**Ecological:**

**Threats:**
TRAFFIC.

**General:**
ROAD KILL OBSERVED IN 1973. ROAD KILL SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T21S, R24E, Sec. 09 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N3999907 E285305
**Latitude/Longitude:** 36.12012 / -119.38552
**Elevation (feet):** 250

**County Summary:**
Tulare

**Quad Summary:**
Taylor Weir (3611914), Paige (3611924)

**Sources:**

| | |
|---|---|
| MOR75M0001 | MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX |
| SWI73R0001 | SWICK, C.D. - DETERMINATION OF SAN JOAQUIN KIT FOX RANGE IN CCA, SJQ, ALA & TUL COUNTIES, CDFG 1973-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67784
**EO Index:** 67936
**Key Quad:** Goshen (3611934)
**Element Code:** AMAJA03041
**Occurrence Number:** 907
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 1.7 MI NE OF GOSHEN, NEAR INTERSECTION OF ALLISON RD AND MODOC DITCH.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T18S, R24E, Sec. 17 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4026939 E285097
**Latitude/Longitude:** 36.36357 / -119.39525
**Elevation (feet):** 300

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67792
**EO Index:** 67945
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAJA03041
**Occurrence Number:** 914
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 4.3 MI NW OF CORCORAN, JUST S OF WHERE GUIBERSON CANAL MEETS CROSS CREEK.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
DEN OBSERVED SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T21S, R22E, Sec. 06 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4001805 E263624
**Latitude/Longitude:** 36.13218 / -119.62678
**Elevation (feet):** 210

**County Summary:**
Kings

**Quad Summary:**
Waukena (3611925), Guernsey (3611926)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67793
**EO Index:** 67946
**Key Quad:** Waukena (3611925)
**Element Code:** AMAJA03041
**Occurrence Number:** 915
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 6.4 MI N OF CORCORAN, 1.4 MI S OF INTERSECTION OF 6TH & KANSAS AVE, NEAR LAKELAND CANAL.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
DEN OBSERVED SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T20S, R22E, Sec. 15 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4008242 E269173
**Latitude/Longitude:** 36.19148 / -119.56706
**Elevation (feet):** 220

**County Summary:**
Kings

**Quad Summary:**
Waukena (3611925)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67795
**EO Index:** 67947
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAJA03041
**Occurrence Number:** 916
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 6.7 MI ESE OF STRATFORD, 0.9 MI NE OF INTERSECTION OF MANTECA AVE & 14 1/2 AVE.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T20S, R21E, Sec. 28 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4005515 E256396
**Latitude/Longitude:** 36.16379 / -119.70817
**Elevation (feet):** 210

**County Summary:**
Kings

**Quad Summary:**
Guernsey (3611926)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67798
**EO Index:** 67948
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAJA03041
**Occurrence Number:** 917
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 6.5 MI ENE OF STRATFORD, ON KENT AVE & 14TH AVE NEAR THEIR INTERSECTION.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING, ROAD KILL OR DEN PRIOR TO 1972. SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T20S, R21E, Sec. 05 (M)
**Accuracy:** non-specific area
**Area (acres):** 531
**UTM:** Zone-11 N4011656 E255906
**Latitude/Longitude:** 36.21898 / -119.71552
**Elevation (feet):** 220

| County Summary: | Quad Summary: |
|---|---|
| Kings | Guernsey (3611926) |

**Sources:**

MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67799
**EO Index:** 67949
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAJA03041
**Occurrence Number:** 918
**Occurrence Last Updated:** 2007-02-22

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 9.8 MILES NW OF CORCORAN, NW OF GUERNSEY, NORTH OF KANSAS AVE AND WEST OF 10TH AVE.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
TWO DENS AND ONE FOX SIGHTING AT THE DEN SOMETIME FROM 1972 THROUGH JULY 1975.

**PLSS:** T20S, R21E, Sec. 02 (M)
**Accuracy:** non-specific area
**Area (acres):** 895
**UTM:** Zone-11 N4011343 E260989
**Latitude/Longitude:** 36.21743 / -119.65894
**Elevation (feet):** 220

**County Summary:**
Kings

**Quad Summary:**
Guernsey (3611926)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67800
**EO Index:** 67952
**Key Quad:** Guernsey (3611926)
**Element Code:** AMAJA03041
**Occurrence Number:** 919
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 6 MI S OF HANFORD, JUST NW OF INTERSECTION OF JERSEY AVE AND 10TH AVE.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T19S, R21E, Sec. 25 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4014557 E262661
**Latitude/Longitude:** 36.24678 / -119.64132
**Elevation (feet):** 230

**County Summary:**
Kings

**Quad Summary:**
Guernsey (3611926), Hanford (3611936)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67801
**EO Index:** 67953
**Key Quad:** Remnoy (3611935)
**Element Code:** AMAJA03041
**Occurrence Number:** 920
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 7 MI SE OF HANFORD, W OF INTERSECTION OF IDAHO AVE AND 5TH AVE, IN THE VICINITY OF CROSS CREEK.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T19S, R22E, Sec. 23 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4016852 E270729
**Latitude/Longitude:** 36.26940 / -119.55229
**Elevation (feet):** 240

**County Summary:**
Kings

**Quad Summary:**
Remnoy (3611935)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67804
**EO Index:** 67954
**Key Quad:** Remnoy (3611935)
**Element Code:** AMAJA03041
**Occurrence Number:** 921
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 6.4 MI E OF HANFORD ON LACEY BLVD AT INTERSECTION WITH HIGHLINE CANAL.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
ROAD KILL SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T18S, R23E, Sec. 31 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4023137 E273025
**Latitude/Longitude:** 36.32655 / -119.52858
**Elevation (feet):** 250

**County Summary:**
Kings

**Quad Summary:**
Remnoy (3611935)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67805
**EO Index:** 67955
**Key Quad:** Remnoy (3611935)
**Element Code:** AMAJA03041
**Occurrence Number:** 922
**Occurrence Last Updated:** 2007-02-20

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1971-XX-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1971-XX-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
JUST E OF HANFORD, JUST SW OF INTERSECTION OF HWY 198 AND 9 1/4 AVE. NORTH OF HANFORD MUNICIPAL AIRPORT.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING, ROAD KILL OR DEN PRIOR TO 1972.

**PLSS:** T18S, R22E, Sec. 31 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4023304 E264304
**Latitude/Longitude:** 36.32597 / -119.62570
**Elevation (feet):** 250

**County Summary:**
Kings

**Quad Summary:**
Remnoy (3611935), Hanford (3611936)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67806
**EO Index:** 67956
**Key Quad:** Remnoy (3611935)
**Element Code:** AMAJA03041
**Occurrence Number:** 923
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 5.8 MI ENE OF HANFORD, 0.7 MI NE OF INTERSECTION OF 5TH AVE AND GRANGEVILLE BLVD.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T18S, R22E, Sec. 24 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4026024 E272037
**Latitude/Longitude:** 36.35232 / -119.54042
**Elevation (feet):** 260

| County Summary: | Quad Summary: |
|---|---|
| Kings | Remnoy (3611935) |

**Sources:**

MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67807
**EO Index:** 67957
**Key Quad:** Remnoy (3611935)
**Element Code:** AMAJA03041
**Occurrence Number:** 924
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 8.3 MI ENE OF HANFORD & 4.7 MI NW OF GOSHEN, NEAR EAST BRANCH CROSS CREEK.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING FROM 1972 THROUGH JUL 1975.

**PLSS:** T18S, R23E, Sec. 08 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4028199 E275554
**Latitude/Longitude:** 36.37274 / -119.50189
**Elevation (feet):** 260

**County Summary:**
Kings

**Quad Summary:**
Goshen (3611934), Remnoy (3611935), Traver (3611944), Burris Park (3611945)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67808
**EO Index:** 67958
**Key Quad:** Laton (3611946)
**Element Code:** AMAJA03041
**Occurrence Number:** 925
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 2.5 MI SE OF LATON, 0.6 MI N OF INTERSECTION OF 11TH AVE AND EXCELSIOR AVE & S OF THE KINGS RIVER.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T17S, R21E, Sec. 36 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4032746 E262090
**Latitude/Longitude:** 36.41045 / -119.65323
**Elevation (feet):**

**County Summary:**
Kings

**Quad Summary:**
Laton (3611946)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 67809
**EO Index:** 67959
**Key Quad:** Laton (3611946)
**Element Code:** AMAJA03041
**Occurrence Number:** 926
**Occurrence Last Updated:** 2007-01-17

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**Rare Plant Rank:**
**State:** Threatened
**Other Lists:**
**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 1975-07-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1975-07-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 3.5 MI NNW OF LATON, JUST SW OF INTERSECTION OF CLOVIS AVE & ATCHISON TOPEKA AND SANTA FE RR.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

**PLSS:** T17S, R21E, Sec. 05 (M)
**Accuracy:** 2/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4040635 E257116
**Latitude/Longitude:** 36.48025 / -119.71111
**Elevation (feet):** 260

**County Summary:**
Fresno

**Quad Summary:**
Laton (3611946)

**Sources:**
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 69175
**EO Index:** 69953
**Key Quad:** Hanford (3611936)
**Element Code:** AMAJA03041
**Occurrence Number:** 1101
**Occurrence Last Updated:** 2007-05-07

**Scientific Name:** *Vulpes macrotis mutica*
**Common Name:** San Joaquin kit fox

**Listing Status:** **Federal:** Endangered
**State:** Threatened
**Rare Plant Rank:**
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G4T2
**State:** S3

**General Habitat:**

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

**Micro Habitat:**

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

**Last Date Observed:** 2006-06-12
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2006-06-12
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

NW OF HANFORD, EAST OF KINGS ROAD, NORTH OF GRANGEVILLE ROAD AND WEST OF RAILROAD TRACKS.

**Detailed Location:**

FOX OBSERVED IN AN UNDEVELOPED 15.26 ACRE PARCEL.

**Ecological:**

**Threats:**

**General:**

1 INDIVIDUAL OBSERVED ON 12 JUN 2006.

**PLSS:** T18S, R21E, Sec. 23, SW (M)
**Accuracy:** non-specific area
**Area (acres):** 35
**UTM:** Zone-11 N4025460 E260863
**Latitude/Longitude:** 36.34453 / -119.66465
**Elevation (feet):** 250

| County Summary: | Quad Summary: |
|---|---|
| Kings | Hanford (3611936) |

**Sources:**

| | |
|---|---|
| SHE06F0001 | SHERMAN, M. (KINGS COUNTY PLANNING AGENCY) - FIELD SURVEY FORM FOR VULPES MACROTIS MUTICA 2006-06-12 |
| SLO07U0001 | BRIDEN, L. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE-BAY DELTA DIVISION) - E-MAIL REGARDING LOCATION OF SIGHTING OF SHE06F0001 2007-05-04 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 32770
**EO Index:** 676
**Key Quad:** Guernsey (3611926)
**Element Code:** ARAAD02030
**Occurrence Number:** 10
**Occurrence Last Updated:** 1996-01-08

**Scientific Name:** *Emys marmorata*
**Common Name:** western pond turtle

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable
USFS_S-Sensitive

**CNDDB Element Ranks:** **Global:** G3G4
**State:** S3

**General Habitat:**

A THOROUGHLY AQUATIC TURTLE OF PONDS, MARSHES, RIVERS, STREAMS AND IRRIGATION DITCHES, USUALLY WITH AQUATIC VEGETATION, BELOW 6000 FT ELEVATION.

**Micro Habitat:**

NEEDS BASKING SITES AND SUITABLE (SANDY BANKS OR GRASSY OPEN FIELDS) UPLAND HABITAT UP TO 0.5 KM FROM WATER FOR EGG-LAYING.

**Last Date Observed:** XXXX-XX-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** XXXX-XX-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

10.5 MILES EAST OF STRATFORD; W OF GUERNSEY; SOUTHWEST CORNER OF KANSAS AVENUE X TENTH AVENUE.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**

COLLECTION MADE BY CALIF. DEPT. OF FISH AND GAME, DATE AND NUMBER OF SPECIMENS UNKNOWN.

**PLSS:** T20S, R21E, Sec. 12, NW (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4010287 E261804
**Latitude/Longitude:** 36.20812 / -119.64957
**Elevation (feet):** 215

**County Summary:**

Kings

**Quad Summary:**

Guernsey (3611926)

**Sources:**

BRA88R0001 BRATTSTROM, B. & D. MESSER - CURRENT STATUS OF THE SOUTHWESTERN POND TURTLE, CLEMMYS MARMORATA PALLIDA, IN SOUTHERN CALLIFORNIA. REPORT TO CALIFORNIA DEPARTMENT OF FISH AND GAME. 1988-XX-XX

HOL88U0002 HOLLAND, D. (UNIVERSITY OF SOUTHWESTERN LOUISIANA) - LIST OF DOCUMENTED CLEMMYS MARMORATA LOCALITIES 1988-03-23

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 40283
**EO Index:** 35290
**Key Quad:** Stratford (3611927)
**Element Code:** ARAAD02030
**Occurrence Number:** 141
**Occurrence Last Updated:** 1998-12-02

**Scientific Name:** *Emys marmorata*
**Common Name:** western pond turtle

**Listing Status:** **Federal:** Proposed Threatened
**State:** None
**Rare Plant Rank:**

**CNDDB Element Ranks:** **Global:** G3G4
**State:** S3
**Other Lists:** BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable
USFS_S-Sensitive

**General Habitat:**

A THOROUGHLY AQUATIC TURTLE OF PONDS, MARSHES, RIVERS, STREAMS AND IRRIGATION DITCHES, USUALLY WITH AQUATIC VEGETATION, BELOW 6000 FT ELEVATION.

**Micro Habitat:**

NEEDS BASKING SITES AND SUITABLE (SANDY BANKS OR GRASSY OPEN FIELDS) UPLAND HABITAT UP TO 0.5 KM FROM WATER FOR EGG-LAYING.

**Last Date Observed:** 1998-04-27
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1998-04-27
**Occurrence Rank:** Fair
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

MUSSEL SLOUGH, ON SANTA ROSA RANCHERIA, 5 MILES NE OF STRATFORD.

**Detailed Location:**

MUSSEL SLOUGH IS A CLOSED SYSTEM, CUT OFF FROM OUTLET BY AGRICULTURAL FILLS NORTH AND SOUTH OF THE SLOUGH.

**Ecological:**

HABITAT CONSISTS OF A STAGNANT SLOUGH, CONTAINING LARGE AND SMALL MOUTH BASS, GREEN SUNFISH, AND MOSQUITOFISH.

**Threats:**

POSSIBLE THREAT FROM PROPOSAL TO RESTORE FLOW TO THE SLOUGH, WHICH MAY REQUIRE DREDGING.

**General:**

2 ADULTS OBSERVED ON 27 APRIL 1998.

**PLSS:** T19S, R20E, Sec. 36, NE (M)
**Accuracy:** specific area
**Area (acres):** 76
**UTM:** Zone-11 N4013278 E252549
**Latitude/Longitude:** 36.23273 / -119.75335
**Elevation (feet):** 215

**County Summary:**

Kings

**Quad Summary:**

Guernsey (3611926), Stratford (3611927)

**Sources:**

LYN98F0003 LYNCH, S. & G. MONK (MONK AND ASSOCIATES, INC.) - FIELD SURVEY FORM FOR CLEMMYS MARMORATA 1998-04-27

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 39951
**EO Index:** 34953
**Key Quad:** Guernsey (3611926)
**Element Code:** ARACF07010
**Occurrence Number:** 268
**Occurrence Last Updated:** 1998-10-15

**Scientific Name:** *Gambelia sila*
**Common Name:** blunt-nosed leopard lizard

**Listing Status:** **Federal:** Endangered
**State:** Endangered
**Rare Plant Rank:**
**Other Lists:** CDFW_FP-Fully Protected
IUCN_EN-Endangered

**CNDDB Element Ranks:** **Global:** G1
**State:** S2

**General Habitat:**

RESIDENT OF SPARSELY VEGETATED ALKALI AND DESERT SCRUB HABITATS, IN AREAS OF LOW TOPOGRAPHIC RELIEF.

**Micro Habitat:**

SEEKS COVER IN MAMMAL BURROWS, UNDER SHRUBS OR STRUCTURES SUCH AS FENCE POSTS; THEY DO NOT EXCAVATE THEIR OWN BURROWS.

**Last Date Observed:** 1990-04-27
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1990-04-27
**Occurrence Rank:** Good
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

NORTH SIDE OF KANSAS AVENUE, WEST SIDE OF 14TH AVENUE. 7 MILES EAST OF STRATFORD.

**Detailed Location:**

**Ecological:**

HABITAT CONSISTS OF GRAZED VALLEY SINK SCRUB; DOMINANTS INCLUDE SUAEDA FRUTICOSA AND ALLENROLFEA OCCIDENTALIS. ALTHOUGH THE SITE IS BEING ADVERSELY IMPACTED FROM GRAZING, THE VEGETATION IS IN GOOD CONDITION.

**Threats:**

THREATENED BY GRAZING.

**General:**

2 ADULTS (1 MALE, 1 FEMALE) OBSERVED ON 27 APRIL 1990.

**PLSS:** T20S, R21E, Sec. 05, SE (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4011051 E256260
**Latitude/Longitude:** 36.21362 / -119.71140
**Elevation (feet):** 215

**County Summary:**

Kings

**Quad Summary:**

Guernsey (3611926)

**Sources:**

LAU90F0001 LAUGHLIN, T. - FIELD SURVEY FORM FOR GAMBELIA SILA (=SILUS) 1990-04-27

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 15270
**EO Index:** 8665
**Key Quad:** Goshen (3611934)
**Element Code:** CTT42120CA
**Occurrence Number:** 12
**Occurrence Last Updated:** 1998-07-14

**Scientific Name:** *Valley Sacaton Grassland*
**Common Name:** Valley Sacaton Grassland

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:**
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G1
**State:** S1.1

**General Habitat:**

**Micro Habitat:**

**Last Date Observed:** 1985-03-12
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1985-03-12
**Occurrence Rank:** Poor
**Owner/Manager:** PVT
**Trend:** Decreasing
**Presence:** Presumed Extant

**Location:**

CROSS CREEK NORTH OF HWY 198, ABOUT 3 MILES WEST OF HWY 99 VIA AVE 328 & DIRT ROAD CONNECTING TO 320.

**Detailed Location:**

**Ecological:**

HEAVILY GRAZED W/ VERY FEW SPOROBOLUS & SOME DEGRADED VERNAL POOLS, DISTICHLIS, HORDEUM, ERODIUM, ELYMUS DOM. LOW DIVERSITY, LOW NATIVE COVER. POOLS W/ MYOSURUS, LASTHENIA GLABRATA, JUNCUS, LEPIDIUM, PLAGIOBOTHRYS.

**Threats:**

GRAZING HAS DISTURBED THIS SITE.

**General:**

SEE HTTPS://WILDLIFE.CA.GOV/DATA/VEGCAMP/NATURAL-COMMUNITIES TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

**PLSS:** T18S, R23E, Sec. 16, NW (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4027618 E276472
**Latitude/Longitude:** 36.36772 / -119.49151
**Elevation (feet):** 260

**County Summary:**

Kings, Tulare

**Quad Summary:**

Goshen (3611934), Remnoy (3611935), Traver (3611944), Burris Park (3611945)

**Sources:**

BIT85F0016 BITTMAN, R. ET AL. - FIELD SURVEY FORM FOR VALLEY SACATON GRASSLAND 1985-03-12

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 15328
**EO Index:** 26434
**Key Quad:** Traver (3611944)
**Element Code:** CTT44120CA
**Occurrence Number:** 10
**Occurrence Last Updated:** 1998-07-15

**Scientific Name:** *Northern Claypan Vernal Pool*
**Common Name:** Northern Claypan Vernal Pool

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:**
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G1
**State:** S1.1

**General Habitat:**

**Micro Habitat:**

**Last Date Observed:** 1983-XX-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1983-XX-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

CROSS CREEK VERNAL POOLS. NEAR HWY 99 & ALONG CROSS CREEK 4 MILES NORTH OF GOSHEN. BOTH SIDES OF HWY.

**Detailed Location:**

CATTLE GRAZING SITE. IRRIGATED BARLEY SURROUNDS.

**Ecological:**

ANASTOMOSING POOLS ON CREEK FLOOD PLAIN. PROFUSE DOWNINGIA BELLA, LASTHENIA FREMONTII. GRASSLAND OF HORDEUM DEPRESSUM & DISTICHLIS. ELYMUS ALONG EPHEMERAL WATER WAYS (1980).

**Threats:**

**General:**

UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO. SEE HTTPS://WILDLIFE.CA.GOV/DATA/VEGCAMP/NATURAL-COMMUNITIES TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

**PLSS:** T17S, R23E, Sec. 34, SE (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4031608 E279616
**Latitude/Longitude:** 36.40439 / -119.45762
**Elevation (feet):** 270

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

GRI80F0022 GRIGGS, T. - FIELD SURVEY FORM FOR VERNAL POOLS ALONG CROSS CREEK, TULARE COUNTY 1980-04-27

WER83U0001 WERSCHKULL, G. & T. GRIGGS - NDDB PRINTOUT WITH ANNOTATIONS FROM 1983 FIELD OBSERVATIONS. 1983-06-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 32735
**EO Index:** 17486
**Key Quad:** Traver (3611944)
**Element Code:** ICBRA03030
**Occurrence Number:** 110
**Occurrence Last Updated:** 1995-12-15

**Scientific Name:** *Branchinecta lynchi*
**Common Name:** vernal pool fairy shrimp

**Listing Status:** **Federal:** Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3
**State:** S3

**General Habitat:**

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.

**Micro Habitat:**

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

**Last Date Observed:** 1992-02-22
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1992-02-22
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT-HARRELL
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ESE OF TRAVER; 0.4 KM NW OF ROAD 80 AT COTTONWOOD CREEK.

**Detailed Location:**

HARRELL PROPERTY.

**Ecological:**

NATURAL POOL (SALTGRASS); 12 INCHES DEEP AT GREATEST DEPTH, PH=6.5.

**Threats:**

GRAZING (IN MIDST OF PRIME DAIRY DEVELOPMENT AREA); DEVELOPMENT (PROPOSAL FOR MODEL AIRCRAFT FIELD AS OF 1992).

**General:**

1 FEMALE (APPROX 16 MM IN LENGTH) OBSERVED BY R. HANSEN AND K. KIRKPATRICK; AMBYSTOMA CALIFORNIENSE OBSERVED NEAR SITE.

**PLSS:** T17S, R24E, Sec. 20, SW (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4034868 E285123
**Latitude/Longitude:** 36.43500 / -119.39716
**Elevation (feet):** 285

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

WOO92R0001 WOODWARD-CLYDE CONSULTANTS - FOCUSED BIOLOGICAL SURVEYS FOR 8 TARGET SPECIES IN TULARE COUNTY (APPENDICES) 1992-09-02

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 32737 | **EO Index:** | 17096 |
| **Key Quad:** | Goshen (3611934) | **Element Code:** | ICBRA03030 |
| **Occurrence Number:** | 111 | **Occurrence Last Updated:** | 2015-01-14 |

**Scientific Name:** *Branchinecta lynchi* **Common Name:** vernal pool fairy shrimp

**Listing Status:** **Federal:** Threatened **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.

**Micro Habitat:**

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 1995-02-09 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 1995-02-09 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

0.4 MILE NW OF THE INTERSECTION OF W GOSHEN AVENUE (ROAD J32) AND PLAZA DRIVE (ROAD J19), GOSHEN, WEST OF VISALIA.

**Detailed Location:**

MAPPED TO LOCATION GIVEN FOR OCCUPIED POOL ON JACUZZI PROPERTY, IN 1992 REPORT. SPECIMEN LOCALITY GIVEN ONLY AS "0.5 MI E OF GOSHEN CITY, T18S, R24E, S20, SW1/4;" ATTRIBUTED HERE.

**Ecological:**

NATIVE TOPOGRAPHY IN VACANT LOT; POOL WAS 9 INCHES DEEP; PH=6; FENCELINE OF LOT WAS DISKED; SURVEY MARKERS PRESENT.

**Threats:**

PROPOSED LAND CONVERSION; HISTORIC GRAZING.

**General:**

1 MALE BRANCHINECTA OBSERVED BY R. HANSEN AND K. KIRKPATRICK, 22 FEB 1992. 40 B. LYNCHI COLLECTED ON 6 FEB 1995 (CASIZ #103005 -103014). ANOTHER 30 COLLECTED 23 FEB-27 MAR 1995 (CASIZ #103290 & 11 OTHERS).

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R24E, Sec. 20, SW (M) | **Accuracy:** | 80 meters | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4024937 E284641 | **Latitude/Longitude:** | 36.34544 / -119.39978 | **Elevation (feet):** | 290 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| AVE95S0007 | AVERY, S. - CASIZ #103005, 103006, 103007, 103008, 103009, 103010, 103011, 103012,103013, & 103014, COLLECTED "0.5 MI E OF GOSHEN CITY." 1995-02-06 |
| GAN95S0003 | GANZ, H. - CASIZ #103290, 103291, 103295, 103300, 103303, 103307, 103308, 103309, 103324, 103328, 103331, & 103334, COLLECTED "DUE EAST OF GOSHEN, 1 MILE EAST OF STATE HIGHWAY 99." 1995-03-27 |
| WOO92R0001 | WOODWARD-CLYDE CONSULTANTS - FOCUSED BIOLOGICAL SURVEYS FOR 8 TARGET SPECIES IN TULARE COUNTY (APPENDICES) 1992-09-02 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 32752
**EO Index:** 18594
**Key Quad:** Traver (3611944)
**Element Code:** ICBRA03030
**Occurrence Number:** 113
**Occurrence Last Updated:** 1996-01-29

**Scientific Name:** *Branchinecta lynchi*
**Common Name:** vernal pool fairy shrimp

**Listing Status:** **Federal:** Threatened
**State:** None
**Rare Plant Rank:**
**Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3
**State:** S3

**General Habitat:**

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.

**Micro Habitat:**

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

**Last Date Observed:** 1993-01-09
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1993-01-09
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

SSE OF TRAVER; APPROXIMATELY 1.0 KM NORTH OF HIGHWAY 99 AT CROSS CREEK.

**Detailed Location:**

**Ecological:**

POOL A: SLIGHT TURBIDITY, 10 X 30 M. POOL B: SLIGHT TURBIDITY, 10 X 50 M. POOL C: VERY TURBID, 10 X 50 M. ALL POOLS 54 DEGREES FAHRENHEIT.

**Threats:**

CURRENT LAND USE: CATTLE GRAZING; THREATS INCLUDE DEVELOPMENT OR HABITAT CONVERSION.

**General:**

B. LYNCHI OBSERVED BY G. AND K. KIRKPATRICK, AND R. HANSEN.

**PLSS:** T17S, R23E, Sec. 35, NW (M)
**Accuracy:** specific area
**Area (acres):** 15
**UTM:** Zone-11 N4032699 E279792
**Latitude/Longitude:** 36.41425 / -119.45597
**Elevation (feet):** 270

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

WOO93R0002 WOODWARD-CLYDE CONSULTANTS - FOCUSED BIOLOGICAL SURVEYS FOR VERNAL POOL FAIRY SHRIMP (BRANCHINECTA LYNCHI) IN TULARE COUNTY, CALIFORNIA. 1993-09-28

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 41569
**EO Index:** 41569
**Key Quad:** Burris Park (3611945)
**Element Code:** ICBRA03030
**Occurrence Number:** 206
**Occurrence Last Updated:** 2017-10-04

**Scientific Name:** *Branchinecta lynchi*
**Common Name:** vernal pool fairy shrimp

**Listing Status:** **Federal:** Threatened
**Rare Plant Rank:**
**State:** None
**Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3
**State:** S3

**General Habitat:**

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.

**Micro Habitat:**

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

**Last Date Observed:** 2017-03-01
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-03-01
**Occurrence Rank:** Fair
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

VICINITY OF CROSS CREEK, 1.8 MI SE OF 4TH AVE AT EXCELSIOR AVE & 3.6 MI WSW OF HWY 99 AT AVE 328, SW OF BURRIS PARK.

**Detailed Location:**

1999: MAPPED TO LOCATION PROVIDED FOR VERNAL POOL(S) IN AREA "B" (NORTHMOST POLYGON). 2017: MAPPED TO SPECIFIC LOCATIONS GIVEN FOR OCCUPIED POOLS (SOUTHMOST POLYGONS).

**Ecological:**

VERNAL POOLS IN GRAZED, NON-NATIVE GRASSLAND. PROPERTIES BEING CONSIDERED AS MITIGATION LANDS FOR HIGH SPEED RAIL AUTHORITY IN 2017.

**Threats:**

DEVELOPMENT TO FARMLAND (1999).

**General:**

HUNDREDS OBSERVED HERE AND IN AREA "A" (OCCURRENCE #207); 64 COLLECTED 21 FEB-14 MAR 1999 (CASIZ #122186-122193). BRANCHINECTA CYSTS FOUND DURING 2016 DRY SEASON SURVEYS. FOUND IN 56 POOLS THROUGHOUT PROPERTY IN 2017; 12 POOLS MAPPED HERE.

**PLSS:** T18S, R23E, Sec. 8, SW (M)
**Accuracy:** non-specific area
**Area (acres):** 59
**UTM:** Zone-11 N4028817 E274975
**Latitude/Longitude:** 36.37817 / -119.50853
**Elevation (feet):** 261

**County Summary:**

Kings

**Quad Summary:**

Remnoy (3611935), Burris Park (3611945)

**Sources:**

| | |
|---|---|
| HAL99F0003 | HALSTEAD, J. & P. HALSTEAD - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 1999-03-04 |
| HAL99S0013 | HALSTEAD, J. - CASIZ #122186, 122187, 122188, 122189, 122190, 122191, 122192, & 122193, COLLECTED "12 MI NW VISALIA, SECTIONS 4& 8, T18S, R23E... VERNAL POOL GRASSLANDS NEAR CROSS CREEK." 1999-02-22 |
| HEL16R0003 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR16F0009 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2016-08-22 |
| OBR17F0003 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2017-03-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 41571 | **EO Index:** | 41571 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ICBRA03030 |
| **Occurrence Number:** | 207 | **Occurrence Last Updated:** | 2017-10-04 |

**Scientific Name:** *Branchinecta lynchi* **Common Name:** vernal pool fairy shrimp

**Listing Status:** **Federal:** Threatened **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.

**Micro Habitat:**

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Fair |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

VICINITY OF CROSS CREEK, ABOUT 1.5-2.1 MI SW OF RD 44 AT AVE 352 & 2.3-2.7 MI NW OF HWY 99 AT AVE 328, NW OF VISALIA.

**Detailed Location:**

1999: DETECTED IN VERNAL POOL(S) IN AREA "A." MAPPED TO SPECIFIC LOCATIONS GIVEN FOR OCCUPIED POOLS IN 2017.

**Ecological:**

VERNAL POOLS IN GRAZED, NON-NATIVE GRASSLAND. 2017: PROPERTIES BEING CONSIDERED AS MITIGATION LANDS FOR HIGH SPEED RAIL AUTHORITY.

**Threats:**

CONVERSION TO FARMLAND (1999).

**General:**

HUNDREDS OBSERVED HERE AND IN AREA "B" (OCCURRENCE #206); 64 COLLECTED 21 FEB-14 MAR 1999 (CASIZ #122186-122193). BRANCHINECTA CYSTS DETECTED DURING DRY SEASON SURVEYS IN 2016. ADULTS FOUND IN 56 POOLS IN 2017 SURVEYS, 12 POOLS MAPPED HERE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 4, SW (M) | **Accuracy:** | specific area | **Area (acres):** | 52 |
| **UTM:** | Zone-11 N4030509 E276762 | **Latitude/Longitude:** | 36.39382 / -119.48911 | **Elevation (feet):** | 264 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HAL99F0004 | HALSTEAD, J.A. & P.S. HALSTEAD - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 1999-03-04 |
| HAL99S0013 | HALSTEAD, J. - CASIZ #122186, 122187, 122188, 122189, 122190, 122191, 122192, & 122193, COLLECTED "12 MI NW VISALIA, SECTIONS 4& 8, T18S, R23E... VERNAL POOL GRASSLANDS NEAR CROSS CREEK." 1999-02-22 |
| HEL16R0003 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR16F0009 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2016-08-22 |
| OBR17F0003 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2017-03-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 43430 | **EO Index:** | 43430 |
| **Key Quad:** | Waukena (3611925) | **Element Code:** | ICBRA03030 |
| **Occurrence Number:** | 248 | **Occurrence Last Updated:** | 2014-10-24 |

**Scientific Name:** *Branchinecta lynchi*

**Common Name:** vernal pool fairy shrimp

**Listing Status:** **Federal:** Threatened

**State:** None

**Rare Plant Rank:**

**Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.

**Micro Habitat:**

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2000-03-11 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2000-03-11 | **Occurrence Rank:** | Poor |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

ABOUT 0.7 MILE WNW OF ROAD 28 AT AVENUE 208 AND 2.2 MILES NNW OF WAUKENA; 10 MI WSW OF TULARE.

**Detailed Location:**

RAVISCIONI FARMS PROPERTY. MUSEUM SPECIMEN WITH LOCALITY "10 MI W TULARE, SECTION 19, TOWNSHIP 20S, RANGE 23E" ATTRIBUTED HERE.

**Ecological:**

NATIVE ANNUAL GRASSLAND/DRYLAND PASTURE WITH VERNAL POOLS TO THE WEST. AGRICULTURE (IRRIGATED CROPLAND) TO THE EAST, NORTH AND SOUTH.

**Threats:**

FARMLAND CONVERSION.

**General:**

HUNDREDS OF INDIVIDUALS OBSERVED, 11 MAR 2000; 22 COLLECTED AND DEPOSITED IN CAS (CASIZ #150391).

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T20S, R23E, Sec. 19, SW (M) | **Accuracy:** | non-specific area | **Area (acres):** | 22 |
| **UTM:** | Zone-11 N4005707 E273086 | **Latitude/Longitude:** | 36.16958 / -119.52286 | **Elevation (feet):** | 227 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Waukena (3611925) |

**Sources:**

| | |
|---|---|
| HAL00F0001 | HALSTEAD, J.A. & P.S. HALSTEAD - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 2000-03-11 |
| HAL00S0020 | HALSTEAD, J. - CASIZ #150391, COLLECTED "10 MI W TULARE, SECTION 19, TOWNSHIP 20S, RANGE 23E" 2000-03-11 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | A6723 | **EO Index:** | 108492 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ICBRA03030 |
| **Occurrence Number:** | 911 | **Occurrence Last Updated:** | 2017-10-18 |

**Scientific Name:** *Branchinecta lynchi* **Common Name:** vernal pool fairy shrimp

**Listing Status:** **Federal:** Threatened **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.

**Micro Habitat:**

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Excellent |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

VICINITY OF CROSS CREEK, FROM 1.6 MI NNW-1.9 MI NW OF HWY 99 AT AVE 328 & 2.25 MI SSE OF RD 36 AT AVE 352, NW OF VISALIA

**Detailed Location:**

MAPPED TO PROVIDED MAPS.

**Ecological:**

CROSS CREEK PROPERTIES BEING EVALUATED AS POTENTIAL MITIGATION LANDS FOR THE HIGH SPEED RAIL AUTHORITY (2017).

**Threats:**

**General:**

BRANCHINECTA CYSTS DETECTED DURING 2016 DRY SEASON SAMPLING. ADULTS FOUND IN 56 POOLS ACROSS PROPERTY IN 2017; 31 MAPPED HERE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R23E, Sec. 34, SE (M) | **Accuracy:** | specific area | **Area (acres):** | 86 |
| **UTM:** | Zone-11 N4031342 E279102 | **Latitude/Longitude:** | 36.40187 / -119.46327 | **Elevation (feet):** | 272 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HEL16R0003 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR16F0009 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2016-08-22 |
| OBR17F0003 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2017-03-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | A6724 | **EO Index:** | 108493 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ICBRA03030 |
| **Occurrence Number:** | 912 | **Occurrence Last Updated:** | 2017-10-19 |

**Scientific Name:** *Branchinecta lynchi* **Common Name:** vernal pool fairy shrimp

**Listing Status:** **Federal:** Threatened **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MOUNTAINS, AND SOUTH COAST MOUNTAINS, IN ASTATIC RAIN-FILLED POOLS.

**Micro Habitat:**

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Excellent |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

VICINITY OF CROSS CREEK, 2.0 MI NW OF HWY 99 AT AVE 328 & 1.8 MI SSE OF RD 44 AT AVE 352, NW OF VISALIA.

**Detailed Location:**

MAPPED TO PROVIDED MAPS.

**Ecological:**

CROSS CREEK PROPERTIES BEING EVALUATED AS POTENTIAL MITIGATION LANDS FOR THE HIGH SPEED RAIL AUTHORITY (2017).

**Threats:**

**General:**

BRANCHINECTA CYSTS DETECTED DURING 2016 DRY SEASON SAMPLING. ADULTS FOUND IN 56 POOLS ACROSS PROPERTY IN 2017; 1 MAPPED HERE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 4, SE (M) | **Accuracy:** | 80 meters | **Area (acres):** | 5 |
| **UTM:** | Zone-11 N4030338 E277665 | **Latitude/Longitude:** | 36.39249 / -119.479 | **Elevation (feet):** | 268 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HEL16R0003 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR16F0009 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2016-08-22 |
| OBR17F0003 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2017-03-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5572
**Key Quad:** Traver (3611944)
**Occurrence Number:** 492
**EO Index:** 118542
**Element Code:** ICBRA06010
**Occurrence Last Updated:** 2020-05-27

**Scientific Name:** *Linderiella occidentalis*
**Common Name:** California linderiella

**Listing Status:** **Federal:** None
**State:** None
**Other Lists:** IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S2S3

**Rare Plant Rank:**

**General Habitat:**

SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.

**Micro Habitat:**

WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TOTAL DISSOLVED SOLIDS.

**Last Date Observed:** 2016-09-14
**Last Survey Date:** 2016-09-14
**Owner/Manager:** PVT
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Good
**Trend:** Unknown

**Location:**

PROPERTY ON WEST SIDE OF HWY 99 AT CROSS CREEK, FROM HWY 99 TO ABOUT 2 MILES WEST, 4.75 MILES NNW OF GOSHEN.

**Detailed Location:**

MAPPED TO LOCATIONS PROVIDED IN REPORT. THIS OCCURRENCE INCLUDES POOLS W- 30, 51, 65, 101, 131, 135, 144, 182, 192, 241, 315, 319, 331, 350, 432, 464, 469, 476, 493, 511, 535, 541, 542, 564.

**Ecological:**

PROPERTY HAS POTENTIAL FOR SOME OF THE HIGHEST RATES OF LARGE BRANCHIOPODS IN THE STATE.

**Threats:**

POTENTIAL HIGH-SPEED RAIL CONSTRUCTION SITE (2016)

**General:**

FOUND IN 34 OF 46 VERNAL POOLS SAMPLED DURING DRY-SEASON SURVEYS AUG-SEP 2016 (24 MAPPED HERE, SEE ALSO EO #493, 494, & 495).

**PLSS:** T18S, R23E, Sec. 3 (M)
**Accuracy:** specific area
**Area (acres):** 208

**UTM:** Zone-11 N4031208 E279046
**Latitude/Longitude:** 36.40065 / -119.46387
**Elevation (feet):** 271

**County Summary:**

Kings, Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

HEL16R0003 HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5573
**Key Quad:** Traver (3611944)
**Occurrence Number:** 493
**EO Index:** 118543
**Element Code:** ICBRA06010
**Occurrence Last Updated:** 2020-05-27

**Scientific Name:** *Linderiella occidentalis*
**Common Name:** California linderiella

**Listing Status:** **Federal:** None
**State:** None
**Other Lists:** IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S2S3

**Rare Plant Rank:**

**General Habitat:**

SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.

**Micro Habitat:**

WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TOTAL DISSOLVED SOLIDS.

**Last Date Observed:** 2016-09-14
**Last Survey Date:** 2016-09-14
**Owner/Manager:** PVT
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Good
**Trend:** Unknown

**Location:**

CROSS CREEK PROPERTY, 2.1 MILES NW OF AVE 320 AT RD 52 AND 1.9 MILES SW OF CA-99 AT THE CROSS CREEK CROSSING.

**Detailed Location:**

MAPPED TO LOCATIONS PROVIDED IN REPORT. THIS OCCURRENCE INCLUDES POOLS W-641 & 642.

**Ecological:**

PROPERTY HAS POTENTIAL FOR SOME OF THE HIGHEST RATES OF LARGE BRANCHIOPODS IN THE STATE.

**Threats:**

POTENTIAL HIGH-SPEED RAIL CONSTRUCTION SITE (2016).

**General:**

FOUND IN 34 OF 46 VERNAL POOLS SAMPLED DURING DRY-SEASON SURVEYS AUG-SEP 2016 (2 MAPPED HERE, SEE ALSO EO #492, 494 & 495).

**PLSS:** T18S, R23E, Sec. 4, SW (M)
**Accuracy:** specific area
**Area (acres):** 19
**UTM:** Zone-11 N4030162 E276981
**Latitude/Longitude:** 36.39075 / -119.48657
**Elevation (feet):** 268

**County Summary:**

Kings

**Quad Summary:**

Traver (3611944)

**Sources:**

HEL16R0003 HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5574
**Key Quad:** Traver (3611944)
**Occurrence Number:** 494
**EO Index:** 118544
**Element Code:** ICBRA06010
**Occurrence Last Updated:** 2020-05-27

**Scientific Name:** *Linderiella occidentalis*
**Common Name:** California linderiella

**Listing Status:** **Federal:** None
**State:** None
**Other Lists:** IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S2S3

**Rare Plant Rank:**

**General Habitat:**

SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.

**Micro Habitat:**

WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TOTAL DISSOLVED SOLIDS.

**Last Date Observed:** 2016-09-14
**Last Survey Date:** 2016-09-14
**Owner/Manager:** PVT
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Good
**Trend:** Unknown

**Location:**

CROSS CREEK PROPERTY, S SIDE CROSS CREEK, 2.5 MI NW OF AVE 320 AT RD 52, AND 3 MI W OF CA-99 AT AVE 328, NNW OF GOSHEN.

**Detailed Location:**

MAPPED TO LOCATIONS PROVIDED IN REPORT. THIS OCCURRENCE INCLUDES POOLS W-639, 651, 655, 657, 658, 665, & 671.

**Ecological:**

PROPERTY HAS POTENTIAL FOR SOME OF THE HIGHEST RATES OF LARGE BRANCHIOPODS IN THE STATE.

**Threats:**

POTENTIAL HIGH-SPEED RAIL CONSTRUCTION SITE (2016).

**General:**

FOUND IN 34 OF 46 VERNAL POOLS SAMPLED DURING DRY-SEASON SURVEYS AUG-SEP 2016 (7 MAPPED HERE, SEE ALSO EO #492, 493 & 495)

**PLSS:** T18S, R23E, Sec. 5 (M)
**Accuracy:** specific area
**Area (acres):** 55
**UTM:** Zone-11 N4029912 E275889
**Latitude/Longitude:** 36.38824 / -119.49867
**Elevation (feet):** 263

**County Summary:**

Kings

**Quad Summary:**

Traver (3611944), Burris Park (3611945)

**Sources:**

HEL16R0003 HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5575
**Key Quad:** Burris Park (3611945)
**Occurrence Number:** 495

**EO Index:** 118545
**Element Code:** ICBRA06010
**Occurrence Last Updated:** 2020-05-27

**Scientific Name:** *Linderiella occidentalis*
**Common Name:** California linderiella

**Listing Status:** **Federal:** None
**State:** None

**Rare Plant Rank:**
**Other Lists:** IUCN_NT-Near Threatened

**CNDDB Element Ranks:** **Global:** G2G3
**State:** S2S3

**General Habitat:**

SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.

**Micro Habitat:**

WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TOTAL DISSOLVED SOLIDS.

**Last Date Observed:** 2016-09-14
**Last Survey Date:** 2016-09-14
**Owner/Manager:** PVT
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Good
**Trend:** Unknown

**Location:**

CROSS CREEK PROPERTY, ON SE SIDE OF CROSS CREEK ABOUT 2.7 MI WNW OF AVE 320 AT RD 52, 3.4 MI SW OF CA-99 AT AVE 328.

**Detailed Location:**

MAPPED TO LOCATIONS PROVIDED IN REPORT. THIS OCCURRENCE INCLUDES POOL W-680.

**Ecological:**

PROPERTY HAS POTENTIAL FOR SOME OF THE HIGHEST RATES OF LARGE BRANCHIOPODS IN THE STATE.

**Threats:**

POTENTIAL HIGH-SPEED RAIL CONSTRUCTION SITE (2016).

**General:**

FOUND IN 34 OF 46 VERNAL POOLS SAMPLED DURING DRY-SEASON SURVEYS AUG-SEP 2016 (7 MAPPED HERE, SEE ALSO EO #492, 493 & 494)

**PLSS:** T18S, R23E, Sec. 8, E (M)
**UTM:** Zone-11 N4028911 E275251

**Accuracy:** specific area
**Latitude/Longitude:** 36.37908 / -119.50549

**Area (acres):** 11
**Elevation (feet):** 263

**County Summary:**

Kings

**Quad Summary:**

Burris Park (3611945)

**Sources:**

HEL16R0003 HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 40395
**EO Index:** 35402
**Key Quad:** Traver (3611944)
**Element Code:** ICBRA10010
**Occurrence Number:** 129
**Occurrence Last Updated:** 2015-02-19

**Scientific Name:** *Lepidurus packardi*
**Common Name:** vernal pool tadpole shrimp

**Listing Status:** **Federal:** Endangered
**State:** None
**Rare Plant Rank:**
**Other Lists:** IUCN_EN-Endangered

**CNDDB Element Ranks:** **Global:** G3
**State:** S3

**General Habitat:**

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

**Micro Habitat:**

POOLS COMMONLY FOUND IN GRASS-BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED AND HIGHLY TURBID.

**Last Date Observed:** 1998-04-10
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1998-04-10
**Occurrence Rank:** Fair
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

SOUTH OF CROSS CREEK, ABOUT 1.5 MILES NNE OF HIGHWAY 99 AT AVE 328, 4.5 MILES SE OF TRAVER.

**Detailed Location:**

**Ecological:**

NON-NATIVE ANNUAL GRASSLAND WITH VERNAL POOLS. BURROWING OWLS ALSO OBSERVED IN THE VICINITY. AGRICULTURE TO SOUTH AND EAST. AIR PHOTOS FROM 2014 SHOW POSSIBLE CHANGE IN HYDROLOGY (FLOODING OF FIELD ADJACENT TO IRRIGATION DITCH).

**Threats:**

THREATENED BY AGRICULTURAL CONVERSION (1998).

**General:**

100S OF TADPOLE SHRIMP OBSERVED ON 10 APRIL 1998. 20 COLLECTED, 15 IN CAS (CASIZ #118377).

**PLSS:** T17S, R23E, Sec. 35, SE (M)
**Accuracy:** 1/10 mile
**Area (acres):** 0
**UTM:** Zone-11 N4031773 E281054
**Latitude/Longitude:** 36.40620 / -119.44165
**Elevation (feet):** 280

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

| | |
|---|---|
| HAL98F0001 | HALSTEAD, J.A. & P.S. HALSTEAD (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 1998-04-10 |
| HAL98S0003 | HALSTEAD, J. - CASIZ #118377, COLLECTED "10 MILES NW OF VISALIA, T17S R23S, NE1/4 OF SE1/4 OF SEC 35." 1998-04-10 |
| HAL98U0001 | HALSTEAD, J. A. - SCIENTIFIC COLLECTING REPORT OF SPECIMENS COLLECTED 1998-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 41568 | **EO Index:** | 41568 |
| **Key Quad:** | Burris Park (3611945) | **Element Code:** | ICBRA10010 |
| **Occurrence Number:** | 139 | **Occurrence Last Updated:** | 2018-01-22 |

**Scientific Name:** *Lepidurus packardi* **Common Name:** vernal pool tadpole shrimp

**Listing Status:** **Federal:** Endangered **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_EN-Endangered

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

**Micro Habitat:**

POOLS COMMONLY FOUND IN GRASS-BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED AND HIGHLY TURBID.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Fair |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

0.3 MILE WEST OF CROSS CREEK, 1.8 MILES SE OF JUNCTION OF 4TH AVENUE AND EXCELSIOR AVE, ABOUT 6 MILES SW OF BURRIS PARK.

**Detailed Location:**

1999: VERNAL POOL(S) IN AREA "B." 2017: CROSS CREEK WEST PROPERTY.

**Ecological:**

1999: VERNAL POOLS IN GRAZED NON-NATIVE GRASSLAND. 2017: PROPERTY BEING CONSIDERED FOR MITIGATION BANK BY HIGH SPEED RAIL AUTHORITY.

**Threats:**

CONVERSION TO FARMLAND (1999).

**General:**

100S OBSERVED HERE & IN AREA "A" (OCCURRENCE #140) ON 14 MAR 1999; COLLECTIONS DEPOSITED AT CAS. CYSTS FOUND IN 31 OF 46 POOLS DRY-SAMPLED IN 2016; 1 MAPPED HERE. DETECTED AT ABOUT 20 SAMPLING SITES IN 5 POOLS, JAN-MAR 2017; 1 MAPPED HERE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 8, NW (M) | **Accuracy:** | specific area | **Area (acres):** | 14 |
| **UTM:** | Zone-11 N4029078 E274978 | **Latitude/Longitude:** | 36.38052 / -119.50857 | **Elevation (feet):** | 263 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Burris Park (3611945) |

**Sources:**

| | |
|---|---|
| HAL99F0001 | HALSTEAD, J.A. & P.S. HALSTEAD - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (TADPOLE SHRIMP) 1999-03-04 |
| HAL99S0010 | HALSTEAD, J. - CASIZ #122199, 122201, & 122202, COLLECTED FROM "12 MI NW VISALIA, SECTIONS 4 & 8, T18S, R23E... VERNAL POOL GRASSLANDS NEAR CROSS CREEK." 1999-03-14 |
| HAL99S0011 | HALSTEAD, J. - CASIZ #122200, COLLECTED FROM "12 MI NW VISALIA, SECTIONS 4 & 8, T18S, R23E... VERNAL POOL GRASSLANDS NEAR CROSS CREEK." 1999-03-06 |
| HEL16R0003 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR16F0008 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2016-08-22 |
| OBR17F0004 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2017-02-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 41572 | **EO Index:** | 41572 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ICBRA10010 |
| **Occurrence Number:** | 140 | **Occurrence Last Updated:** | 2018-01-22 |

**Scientific Name:** *Lepidurus packardi* **Common Name:** vernal pool tadpole shrimp

**Listing Status:** **Federal:** Endangered **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_EN-Endangered

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

**Micro Habitat:**

POOLS COMMONLY FOUND IN GRASS-BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED AND HIGHLY TURBID.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-01 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-01 | **Occurrence Rank:** | Fair |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

BOTH SIDES OF CROSS CREEK ABOUT 1.25-2.8 MILES SW OF WHERE IT CROSSES HIGHWAY 99, 4 MILES SOUTH OF TRAVER.

**Detailed Location:**

1999: VERNAL POOL(S) IN AREA "A." 2016-17: ON CROSS CREEK EAST AND WEST PROPERTIES.

**Ecological:**

VERNAL POOLS IN NON-NATIVE GRASSLAND. 2016-17: PROPERTY BEING EVALUATED FOR HIGH SPEED RAIL AUTHORITY MITIGATION BANK.

**Threats:**

CONVERSION TO FARMLAND (1999).

**General:**

100S OBSERVED HERE & IN AREA "B" (OCCURRENCE #139) IN 1999; COLLECTIONS DEPOSITED AT CAS. CYSTS FOUND IN 31 OF 46 POOLS DRY-SAMPLED IN 2016; 12 MAPPED HERE. DETECTED IN 23 POOLS ACROSS PROPERTY IN 2017; ABOUT 9 SAMPLING SITES MAPPED HERE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 4, NW (M) | **Accuracy:** | specific area | **Area (acres):** | 111 |
| **UTM:** | Zone-11 N4030584 E276690 | **Latitude/Longitude:** | 36.39448 / -119.48994 | **Elevation (feet):** | 263 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings | Traver (3611944), Burris Park (3611945) |

**Sources:**

| | |
|---|---|
| HAL99F0002 | HALSTEAD, J.A. & P.S. HALSTEAD - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (TADPOLE SHRIMP) 1999-03-04 |
| HAL99S0010 | HALSTEAD, J. - CASIZ #122199, 122201, & 122202, COLLECTED FROM "12 MI NW VISALIA, SECTIONS 4 & 8, T18S, R23E... VERNAL POOL GRASSLANDS NEAR CROSS CREEK." 1999-03-14 |
| HAL99S0011 | HALSTEAD, J. - CASIZ #122200, COLLECTED FROM "12 MI NW VISALIA, SECTIONS 4 & 8, T18S, R23E... VERNAL POOL GRASSLANDS NEAR CROSS CREEK." 1999-03-06 |
| HEL16R0003 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR16F0008 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2016-08-22 |
| OBR17F0004 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2017-02-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | B2907 | **EO Index:** | 87257 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ICBRA10010 |
| **Occurrence Number:** | 292 | **Occurrence Last Updated:** | 2019-04-16 |

**Scientific Name:** *Lepidurus packardi* **Common Name:** vernal pool tadpole shrimp

**Listing Status:** **Federal:** Endangered **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_EN-Endangered

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

**Micro Habitat:**

POOLS COMMONLY FOUND IN GRASS-BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED AND HIGHLY TURBID.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2018-04-09 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2018-04-09 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT-WESTERVELT ECOLOGICAL SVCS | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

WEST SIDE OF ROAD 80 (ALTA AVE) ALONG COTTONWOOD CREEK ABOUT 0.5 MILE SOUTH OF AVENUE 360, ABOUT 5 MILES ESE OF TRAVER.

**Detailed Location:**

MAPPED GENERALLY TO PROJECT SITE, LOCATION DESCRIPTIONS OF POOLS, & COORDINATES GIVEN FOR 2017 & 2018 DETECTIONS. 1992: "COMMON IN THE TURBID WATER OF POOL #3," FOUND "IN COTTONWOOD CREEK" & "IN THE IRRIGATION CANAL." 2018: VP-6 & 47.

**Ecological:**

NON-NATIVE GRASSLAND, NORTHERN CLAYPAN VERNAL POOL, GREAT VALLEY WILLOW SCRUB, VALLEY SACATON & WILDRYE GRASSLANDS IN AGRICULTURAL AREA. NO CHANGE BETWEEN 1994 & 2011 AERIAL; DISKING APPARENT IN 2011 IMAGE. MITIGATION SITE AS OF 2018.

**Threats:**

**General:**

DETECTED & PHOTOGRAPHED ON 21 MAR, 21 & 22 JUN, 1992. NONE DETECTED DURING NON-PROTOCOL SAMPLING OF 7 VERNAL POOLS IN THE NE 1/4 OF FEATURE ALONG CANAL, 2011. MANY DETECTED AT 6 SITES, 2017. ABOUT 10 DETECTED IN 2 POOLS, 2018.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R24E, Sec. 20, SW (M) | **Accuracy:** | non-specific area | **Area (acres):** | 151 |
| **UTM:** | Zone-11 N4034747 E284909 | **Latitude/Longitude:** | 36.43386 / -119.39953 | **Elevation (feet):** | 288 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HAL11R0001 | HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX |
| HAN92R0001 | HANSEN, R. B. - BIOLOGICAL ASSESSMENT OF NATURAL HABITAT AREAS & SENSITIVE SPECIES STATUS ON THE SITE OF A PROPOSED REGIONAL FLYING SITE... (HARRELL RANCH) IN TULARE COUNTY, CA. 1992-07-XX |
| HEL17F0017 | HELM, B. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2017-03-08 |
| OBR18F0010 | O'BRIEN, S. (HELM BIOLOGICAL CONSULTING) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2018-04-09 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 86221 | **EO Index:** | 87258 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ICBRA10010 |
| **Occurrence Number:** | 293 | **Occurrence Last Updated:** | 2012-06-28 |

**Scientific Name:** *Lepidurus packardi* **Common Name:** vernal pool tadpole shrimp

**Listing Status:** **Federal:** Endangered **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_EN-Endangered

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

**Micro Habitat:**

POOLS COMMONLY FOUND IN GRASS-BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED AND HIGHLY TURBID.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2011-05-24 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2011-05-24 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

VICINITY OF CROSS CREEK (COTTONWOOD CRK) ABOUT 1.3 MI SW OF ROAD 80 (ALTA AVE) AT AVE 360, & ABOUT 4.7 MI ESE OF TRAVER.

**Detailed Location:**

MAPPED GENERALLY TO PROVIDED TOPOGRAPHIC AND AERIAL MAPS (GEOREFERENCED). THIS SITE REPRESENTS THE GENERAL AREA OF 2 VERNAL POOLS (#48 & 50) OF 64 ON THE PROJECT SITE THAT CONTAINED VERNAL POOL TADPOLE SHRIMP.

**Ecological:**

HABITAT DESCRIBED AS NON-NATIVE GRASSLANDS, BUT WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. WESTERN SPADEFOOT TOAD (SPEA HAMMONDII) ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

UNKNOWN NUMBER OF LEPIDURUS PACKARDI DETECTED IN TWO VERNAL POOLS DURING 3 SURVEYS (NON-PROTOCOL) FROM 1 APR - 24 MAY 2011. ABOUT 10 TOTAL ADULTS WERE DETECTED IN 3 POOLS FROM SITE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R24E, Sec. 30, NE (M) | **Accuracy:** | non-specific area | **Area (acres):** | 48 |
| **UTM:** | Zone-11 N4034238 E284038 | **Latitude/Longitude:** | 36.42907 / -119.40907 | **Elevation (feet):** | 285 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HAL11F0019 | HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2011-04-25 |
| HAL11R0001 | HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 86222 | **EO Index:** | 87264 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | ICBRA10010 |
| **Occurrence Number:** | 294 | **Occurrence Last Updated:** | 2012-06-28 |

**Scientific Name:** *Lepidurus packardi* **Common Name:** vernal pool tadpole shrimp

**Listing Status:** **Federal:** Endangered **Rare Plant Rank:**

**State:** None **Other Lists:** IUCN_EN-Endangered

**CNDDB Element Ranks:** **Global:** G3

**State:** S3

**General Habitat:**

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

**Micro Habitat:**

POOLS COMMONLY FOUND IN GRASS-BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED AND HIGHLY TURBID.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2011-05-16 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2011-05-16 | **Occurrence Rank:** | Good |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

EAST SIDE OF HWY 99, ABOUT 1/4 MILE NORTH OF WHERE CROSS CREEK PASSES UNDER HWY 99, ABOUT 3.6 MI SSE OF TRAVER.

**Detailed Location:**

VERNAL POOL #6. MAPPED GENERALLY TO TOPOGRAPHIC AND AERIAL MAPS (GEOREFERENCED). VERNAL POOL TADPOLE SHRIMP DETECTED IN 3 OF 64 POOLS ON THE PROJECT SITE.

**Ecological:**

HABITAT DESCRIBED AS NON-NATIVE GRASSLANDS, BUT WAS RECENTLY DISKED (OCT 2010) AND PLANTED WITH WHEAT. SITE HAS NOT BEEN LEVELED LIKE ADJACENT AGRICULTURE LANDS. WESTERN SPADEFOOT TOAD (SPEA HAMMONDII) ALSO FOUND ON SITE.

**Threats:**

THREATENED BY CONVERSION TO AGRICULTURE AND ALTERATIONS TO VERNAL POOL GEOMORPHOLOGY.

**General:**

UNKNOWN NUMBER OF LEPIDURUS PACKARDI DETECTED IN THIS VERNAL POOL DURING 3 SURVEYS (NON-PROTOCOL) FROM 18 MAR - 16 MAY 2011. ABOUT 10 TOTAL ADULTS WERE DETECTED IN 3 POOLS FROM SITE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T17S, R23E, Sec. 35, E (M) | **Accuracy:** | 1/10 mile | **Area (acres):** | 0 |
| **UTM:** | Zone-11 N4032047 E279765 | **Latitude/Longitude:** | 36.40837 / -119.45608 | **Elevation (feet):** | 275 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| HAL11F0019 | HALSTEAD, J. & A. ROBERTS (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2011-04-25 |
| HAL11R0001 | HALSTEAD & ASSOCIATES - CALIFORNIA TIGER SALAMANDER SURVEY REPORT FOR MILKY WAY DAIRY'S DRYLAND FARMING ACTIVITIES ALONG CROSS CREEK NEAR VISALIA (TULARE COUNTY, CALIFORNIA). 2011-12-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 86223
**EO Index:** 87265
**Key Quad:** Traver (3611944)
**Element Code:** ICBRA10010
**Occurrence Number:** 295
**Occurrence Last Updated:** 2018-01-22

**Scientific Name:** *Lepidurus packardi*
**Common Name:** vernal pool tadpole shrimp

**Listing Status:** **Federal:** Endangered
**State:** None
**Rare Plant Rank:**
**Other Lists:** IUCN_EN-Endangered

**CNDDB Element Ranks:** **Global:** G3
**State:** S3

**General Habitat:**

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

**Micro Habitat:**

POOLS COMMONLY FOUND IN GRASS-BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED AND HIGHLY TURBID.

**Last Date Observed:** 2017-03-01
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-03-01
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

BOTH SIDES OF CROSS CREEK FROM THE HWY 99 CROSSING TO ABOUT 0.9 MILES SW, ABOUT 4 MILES SSE OF TRAVER.

**Detailed Location:**

ON CROSS CREEK EAST PROPERTY. MAPPED TO PROVIDED MAPS. 2007: ADJACENT TO ROAD 60 WHICH IS A FRONTAGE ROAD TO HWY 99.

**Ecological:**

2007: WETLAND POND IN INTERMITTENT DRAINAGE OF CROSS CREEK SURROUNDED BY NON-NATIVE ANNUAL GRASSLAND USED FOR CATTLE GRAZING. 2016-17: POTENTIAL MITIGATION PROPERTY FOR HIGH SPEED RAIL AUTHORITY.

**Threats:**

**General:**

ABOUT 30 ADULTS DETECTED ON 17 MAY 2007. CYSTS FOUND IN 31 OF 46 POOLS DRY-SAMPLED IN 2016, 18 MAPPED HERE. DETECTED IN 18 POOLS THROUGHOUT CROSS CREEK EAST PROPERTY IN 2017 (ABOUT 9 SAMPLING SITES REPRESENTED HERE).

**PLSS:** T17S, R23E, Sec. 34, SE (M)
**Accuracy:** specific area
**Area (acres):** 153
**UTM:** Zone-11 N4031277 E279078
**Latitude/Longitude:** 36.40128 / -119.46353
**Elevation (feet):** 271

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

| | |
|---|---|
| HAL07F0002 | HALSTEAD, J. ET AL (HALSTEAD ASSOCIATES) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2007-05-17 |
| HEL16R0003 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL DRY-SEASON SAMPLING FOR FEDERALLY LISTED LARGE BRANCHIOPODS AT THE CROSS CREEK PROPERTIES, KINGS AND TULARE COUNTIES. 2016-09-XX |
| HEL17R0001 | HELM, B. (HELM BIOLOGICAL CONSULTING) - RECONNAISSANCE-LEVEL LARGE BRANCHIOPOD WET-SEASON SURVEYS AT THE CROSS CREEK PROPERTIES KINGS AND TULARE COUNTIES. 2017-03-XX |
| OBR16F0008 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2016-08-22 |
| OBR17F0004 | O'BRIEN, S. ET AL. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2017-02-01 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 61636
**EO Index:** 61672
**Key Quad:** Guernsey (3611926)
**Element Code:** IICOL0220E
**Occurrence Number:** 2
**Occurrence Last Updated:** 2005-06-17

**Scientific Name:** *Cicindela tranquebarica joaquinensis*
**Common Name:** San Joaquin tiger beetle

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:**
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G5T1
**State:** S1

**General Habitat:**
KNOWN ONLY FROM TULARE AND KINGS COUNTIES.

**Micro Habitat:**

**Last Date Observed:** 2005-XX-XX
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2005-XX-XX
**Occurrence Rank:** Unknown
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ABOUT 3.8-5.8 MILES WEST OF GUERNSEY.

**Detailed Location:**
SOUTH SIDE OF KANSAS AVENUE BETWEEN 14TH AND 16TH AVENUES.

**Ecological:**

**Threats:**

**General:**
UNKNOWN NUMBER COLLECTED IN SPRING 2005.

**PLSS:** T20S, R21E, Sec. 07 (M)
**Accuracy:** non-specific area
**Area (acres):** 222
**UTM:** Zone-11 N4010646 E254779
**Latitude/Longitude:** 36.20960 / -119.72773
**Elevation (feet):** 215

**County Summary:**
Kings

**Quad Summary:**
Guernsey (3611926)

**Sources:**

HAI05U0003 HAINES, D. - NOTES OF PHONE CONVERSATION BETWEEN SANDY SHANKS & DENNIS HAINES REGARDING HIS COLLECTION DATA FOR THE SAN JOAQUIN TIGER BEETLE, CICINDELA TRANQUEBARICA NEW SUBSPECIES. 2005-05-09

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B9082
**Key Quad:** Traver (3611944)
**Occurrence Number:** 123
**EO Index:** 124256
**Element Code:** IIHYM24260
**Occurrence Last Updated:** 2023-06-28

**Scientific Name:** *Bombus pensylvanicus*
**Common Name:** American bumble bee

**Listing Status:** **Federal:** None
**State:** None
**Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3G4
**State:** S2

**Rare Plant Rank:**

**General Habitat:**

**Micro Habitat:**

LONG-TONGUED; FORAGES ON A WIDE VARIETY OF FLOWERS INCLUDING VETCHES (VICIA), CLOVERS (TRIFOLIUM), THISTLES (CIRSIUM), SUNFLOWERS (HELIANTHUS), ETC. NESTS ABOVE GROUND UNDER LONG GRASS OR UNDERGROUND. QUEENS OVERWINTER IN ROTTEN WOOD OR UNDERGROUND.

**Last Date Observed:** 1975-10-07
**Last Survey Date:** 1975-10-07
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

VICINITY OF ROAD 80 AT AVENUE 368, 5.5 MI S OF DINUBA AND 10.5 MI NW OF VISALIA.

**Detailed Location:**

EXACT LOCATION UNKNOWN. MAPPED NON-SPECIFICALLY TO LOCATION STATED AS "5.5 MI S OF DINUBA." MUSEUM GEOREFERENCING PUTS THIS 9.3 MILES S OF DINUBA NEAR SAINT JOHNS RIVER.

**Ecological:**

AREA COMPRISED PRIMARILY OF DAIRY AND AGRICULTURAL FIELDS.

**Threats:**

**General:**

4 ADULT MALES COLLECTED BY E. LINSLEY ET AL. ON 7 OCT 1975 (EMEC #550190, #550191, #550192, & #550193).

**PLSS:** T17S, R24E, Sec. 8 (M)
**Accuracy:** 1 mile
**Area (acres):** 1,987
**UTM:** Zone-11 N4037642 E285893
**Latitude/Longitude:** 36.46015 / -119.38935
**Elevation (feet):** 295

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Monson (3611943), Traver (3611944) |

**Sources:**

| | |
|---|---|
| LIN75S0011 | LINSLEY, E. ET AL. - EMEC #550190, #550191, #550192, & #550193 COLLECTED 5.5 MI S OF DINUBA, TULARE COUNTY 1975-10-07 |
| RIC22D0001 | RICHARDSON, L. (XERCES SOCIETY) - CALIFORNIA EXTRACT OF BUMBLE BEES OF NORTH AMERICA DATABASE. HTTPS://WWW.LEIFRICHARDSON.ORG/BBNA.HTML. ACCESSED 7 DEC 2022. 2022-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B9085
**Key Quad:** Visalia (3611933)
**Occurrence Number:** 125

**EO Index:** 124262
**Element Code:** IIHYM24260
**Occurrence Last Updated:** 2023-06-28

**Scientific Name:** *Bombus pensylvanicus*
**Common Name:** American bumble bee

**Listing Status:** **Federal:** None
**State:** None

**Rare Plant Rank:**
**Other Lists:** IUCN_VU-Vulnerable

**CNDDB Element Ranks:** **Global:** G3G4
**State:** S2

**General Habitat:**

**Micro Habitat:**

LONG-TONGUED; FORAGES ON A WIDE VARIETY OF FLOWERS INCLUDING VETCHES (VICIA), CLOVERS (TRIFOLIUM), THISTLES (CIRSIUM), SUNFLOWERS (HELIANTHUS), ETC. NESTS ABOVE GROUND UNDER LONG GRASS OR UNDERGROUND. QUEENS OVERWINTER IN ROTTEN WOOD OR UNDERGROUND.

**Last Date Observed:** 1979-09-18
**Last Survey Date:** 1979-09-18
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

TAGUS, NEAR CA-99 AT ROAD 92B, ABOUT 5.8 MI SW OF VISALIA.

**Detailed Location:**

EXACT LOCATION UNKNOWN. MAPPED NON-SPECIFICALLY TO COMMUNITY OF TAGUS.

**Ecological:**

**Threats:**

**General:**

2 ADULT MALES & 4 ADULT FEMALES COLLECTED BY E. LINSLEY & J. LINSLEY ON 18 SEP 1979 (EMEC #550194, #550195, #550730, #550731, #550732, & #550733).

**PLSS:** T19S, R24E, Sec. 15 (M)
**UTM:** Zone-11 N4016589 E287390

**Accuracy:** 1 mile
**Latitude/Longitude:** 36.27084 / -119.3669

**Area (acres):** 1,987
**Elevation (feet):** 298

**County Summary:**

Tulare

**Quad Summary:**

Visalia (3611933), Goshen (3611934)

**Sources:**

| | |
|---|---|
| LIN79S0003 | LINSLEY, E. & J. LINSLEY - EMEC #550194, #550195, #550730, #550731, #550732, & #550733 COLLECTED NEAR TAGUS, TULARE COUNTY 1979-09-18 |
| RIC22D0001 | RICHARDSON, L. (XERCES SOCIETY) - CALIFORNIA EXTRACT OF BUMBLE BEES OF NORTH AMERICA DATABASE. HTTPS://WWW.LEIFRICHARDSON.ORG/BBNA.HTML. ACCESSED 7 DEC 2022. 2022-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 25124
**Key Quad:** Goshen (3611934)
**Occurrence Number:** 22
**EO Index:** 118554
**Element Code:** PDAST5L030
**Occurrence Last Updated:** 2020-05-28

**Scientific Name:** *Lasthenia chrysantha*
**Common Name:** alkali-sink goldfields

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
VERNAL POOLS.

**Micro Habitat:**
ALKALINE. 0-200 M.

**Last Date Observed:** 1914-03-26
**Last Survey Date:** 1914-03-26
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**
GOSHEN.

**Detailed Location:**
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS IN THE VICINITY OF GOSHEN BASED ON 1897 & 1914 COLLECTIONS.

**Ecological:**

**Threats:**
VICINITY HAS BEEN IMPACTED BY DEVELOPMENT OR CONVERSION TO AGRICULTURE.

**General:**
SITE BASED ON TWO SETCHELL COLLECTIONS FROM 1897 AND A 1914 EASTWOOD COLLECTION FROM GOSHEN. REMAINING HABITAT IN THIS AREA SHOULD BE SEARCHED.

**PLSS:** T18S, R24E, Sec. 19 (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4025373 E282725
**Latitude/Longitude:** 36.34893 / -119.42124
**Elevation (feet):**

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| EAS14S0010 | EASTWOOD, A. - EASTWOOD #3919 CAS-BOT-BC #354207 & #354210, CAS #193460 & #5448, JEPS #17308, UC #895380, POM #50940 1914-03-26 |
| SET97S0004 | SETCHELL, W. - SETCHELL SN UC #80029 1897-04-23 |
| SET97S0005 | SETCHELL, W. - SETCHELL SN UC #31348 1897-04-27 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | B3004 | **EO Index:** | 118558 |
| **Key Quad:** | Traver (3611944) | **Element Code:** | PDAST5L030 |
| **Occurrence Number:** | 23 | **Occurrence Last Updated:** | 2020-07-02 |

**Scientific Name:** *Lasthenia chrysantha* **Common Name:** alkali-sink goldfields

**Listing Status:** **Federal:** None **Rare Plant Rank:** 1B.1

**State:** None **Other Lists:**

**CNDDB Element Ranks:** **Global:** G2

**State:** S2

**General Habitat:**

VERNAL POOLS.

**Micro Habitat:**

ALKALINE. 0-200 M.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 2017-03-31 | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 2017-03-31 | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | PVT | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

CROSS CREEK PROPERTY, ALONG WEST SIDE OF HIGHWAY 99, 3.7 MILES NW OF GOSHEN.

**Detailed Location:**

MAPPED BY CNDDB AS MANY POLYGONS BASED ON 2016-2017 PRESTON DIGITAL DATA FOR PUCCINELLA SIMPLEX. 1925 ABRAMS COLECTION FROM "TRAVERS TO GOSHEN" AND 1940 COPELAND COLLECTION FROM "15 MI N OF TULARE, U.S. 99" ALSO ATTRIBUTED HERE.

**Ecological:**

SHALLOW ALKALINE VERNAL POOLS AND SCALDS, WITH LEPIDIUM DICTYOTUM, HORDEUM DEPRESSUM, CENTROMADIA PUNGENS, JUNCUS BUFONIUS, SPERGULARIA ATROSPERMA, AND THE RARE PUCCINELLIA SIMPLEX.

**Threats:**

NONE NOTED.

**General:**

SITE BASED ON 2016 & 2017 PRESTON SURVEYS FOR PUCCINELLIA SIMPLEX WHERE LASTHENIA IS LISTED AS AN ASSOCIATE. UNKNOWN NUMBER OF PLANTS OBSERVED DURING PUCCINELLIA SURVEYS. PROPOSED MITIGATION SITE.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T18S, R23E, Sec. 3, N (M) | **Accuracy:** | specific area | **Area (acres):** | 173 |
| **UTM:** | Zone-11 N4031132 E278793 | **Latitude/Longitude:** | 36.39991 / -119.46666 | **Elevation (feet):** | 270 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Kings, Tulare | Traver (3611944) |

**Sources:**

| | |
|---|---|
| ABR25S0005 | ABRAMS, L. - ABRAMS #10788 CAS-BOT-BC #354206, DS #148202, POM #88213 1925-03-24 |
| COP40S0001 | COPELAND, H. - COPELAND SN UC #754033 1940-03-16 |
| PRE16F0008 | PRESTON, R. - FIELD SURVEY FORM FOR PUCCINELLIA SIMPLEX 2016-03-30 |
| PRE17F0030 | PRESTON, R. - FIELD SURVEY FORM FOR PUCCINELLIA SIMPLEX 2017-03-31 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5585
**Key Quad:** Remnoy (3611935)
**Occurrence Number:** 24

**EO Index:** 118561
**Element Code:** PDAST5L030
**Occurrence Last Updated:** 2020-07-03

**Scientific Name:** *Lasthenia chrysantha*
**Common Name:** alkali-sink goldfields

**Listing Status:** **Federal:** None
**State:** None

**Rare Plant Rank:** 1B.1
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
VERNAL POOLS.

**Micro Habitat:**
ALKALINE. 0-200 M.

**Last Date Observed:** 1965-04-11
**Last Survey Date:** 1965-04-11
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**
5 MILES EAST OF HANFORD ON GRANGEVILLE BLVD.

**Detailed Location:**
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB ALONG E GRANGEVILLE BLVD ABOUT 4.5-5.5 ROAD MILES EAST OF 10TH AVE IN HANFORD BASED ON A 1965 JUNELL COLLECTION.

**Ecological:**
RANGELAND.

**Threats:**
MUCH OF AREA HAS BEEN CONVERTED TO AGRICULTURE.

**General:**
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1965 JUNELL COLLECTION. REMAINING HABITAT IN AREA SHOULD BE SEARCHED. NEEDS FIELDWORK.

**PLSS:** T18S, R22E, Sec. 24, S (M)
**UTM:** Zone-11 N4024984 E271933

**Accuracy:** non-specific area
**Latitude/Longitude:** 36.34293 / -119.54129

**Area (acres):** 110
**Elevation (feet):** 255

**County Summary:**
Kings

**Quad Summary:**
Remnoy (3611935)

**Sources:**
JUN65S0001 JUNELL, D. - JUNELL #19 HSC #5145 1965-04-11

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5587
**Key Quad:** Remnoy (3611935)
**Occurrence Number:** 25
**EO Index:** 118565
**Element Code:** PDAST5L030
**Occurrence Last Updated:** 2020-07-03

**Scientific Name:** *Lasthenia chrysantha*
**Common Name:** alkali-sink goldfields

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
VERNAL POOLS.

**Micro Habitat:**
ALKALINE. 0-200 M.

**Last Date Observed:** 1958-03-15
**Last Survey Date:** 1958-03-15
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**
AT 6TH AVENUE AND LACEY BOULEVARD, HANFORD, HIGHWAY 198.

**Detailed Location:**
EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB AROUND THE INTERSECTION OF 6TH AVE AND LACEY BLVD EAST OF HANFORD BASED ON A 1958 ORNDUFF COLLECTION.

**Ecological:**
IN ALKALI-SCALDED FIELD, ADJACENT TO SCALDS.

**Threats:**
MUCH OF AREA HAS BEEN CONVERTED TO AGRICULTURE.

**General:**
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1958 ORNDUFF COLLECTION. NEEDS FIELDWORK.

**PLSS:** T18S, R22E, Sec. 34, NE (M)
**Accuracy:** 2/5 mile
**Area (acres):** 280
**UTM:** Zone-11 N4023402 E269752
**Latitude/Longitude:** 36.32816 / -119.56511
**Elevation (feet):** 250

**County Summary:**
Kings

**Quad Summary:**
Remnoy (3611935)

**Sources:**
ORN58S0020 ORNDUFF, R. - ORNDUFF #4784 UC #1363804 1958-03-15

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5593
**EO Index:** 118570
**Key Quad:** Laton (3611946)
**Element Code:** PDAST5L030
**Occurrence Number:** 27
**Occurrence Last Updated:** 2020-05-28

**Scientific Name:** *Lasthenia chrysantha*
**Common Name:** alkali-sink goldfields

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
VERNAL POOLS.

**Micro Habitat:**
ALKALINE. 0-200 M.

**Last Date Observed:** 1958-03-15
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1958-03-15
**Occurrence Rank:** None
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Possibly Extirpated

**Location:**
1.1 MILES NORTH OF LATON, DEL RIO RD.

**Detailed Location:**
ROADSIDE, ON EAST SIDE OF ROAD. EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS ALONG S FOWLER AVE ABOUT 1.1 ROAD MILES NORTH OF LATON BASED ON A 1958 ORNDUFF COLLECTION.

**Ecological:**
LOW PLACES, ROADSIDE, ALKALI FLATS.

**Threats:**
AREA HAS BEEN HIGHLY MODIFIED BY AGRICULTURAL CONVERSION.

**General:**
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1958 ORNDUFF COLLECTION. POSSIBLY EXTIRPATED; REMAINING HABITAT IN THIS AREA SHOULD BE SEARCHED.

**PLSS:** T17S, R21E, Sec. 16, E (M)
**Accuracy:** non-specific area
**Area (acres):** 31
**UTM:** Zone-11 N4037404 E258853
**Latitude/Longitude:** 36.45159 / -119.69075
**Elevation (feet):** 255

**County Summary:**
Fresno

**Quad Summary:**
Laton (3611946)

**Sources:**
ORN58S0021 ORNDUFF, R. - ORNDUFF #4783 UC #1363805, RSA #202273 1958-03-15

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5595
**Key Quad:** Laton (3611946)
**Occurrence Number:** 28

**EO Index:** 118572
**Element Code:** PDAST5L030
**Occurrence Last Updated:** 2020-07-02

**Scientific Name:** *Lasthenia chrysantha*
**Common Name:** alkali-sink goldfields

**Listing Status:** **Federal:** None
**State:** None

**Rare Plant Rank:** 1B.1
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
VERNAL POOLS.

**Micro Habitat:**
ALKALINE. 0-200 M.

**Last Date Observed:** 1934-03-26
**Last Survey Date:** 1934-03-26
**Owner/Manager:** UNKNOWN
**Presence:** Possibly Extirpated

**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** None
**Trend:** Unknown

**Location:**
4 MILES NORTH OF LATON.

**Detailed Location:**
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS TO ENCOMPASS VARIOUS MEASUREMENTS OF ABOUT 4 AIR, ROAD, AND RAILROAD MILES NORTH OF LATON, BASED ON A 1934 ROSE COLLECTION.

**Ecological:**
ALKALINE PLAINS.

**Threats:**
AREA HAS BEEN HIGHLY MODIFIED BY AGRICULTURAL CONVERSION.

**General:**
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1934 ROSE COLLECTION. PROBABLY EXTIRPATED; SURROUNDING AREA HAS BEEN CONVERTED TO AGRICULTURE.

**PLSS:** T17S, R21E, Sec. 4 (M)
**Accuracy:** 1 mile
**Area (acres):** 1,987
**UTM:** Zone-11 N4041585 E258465
**Latitude/Longitude:** 36.48914 / -119.69638
**Elevation (feet):**

**County Summary:**
Fresno

**Quad Summary:**
Laton (3611946), Conejo (3611956)

**Sources:**

ROS34S0013 ROSE, L. - ROSE #34078 CAS-BOT-BC #354152, #354153 & #354158, CAS #235719, DS #379895 & #232243, JEPS #17264, RSA #94389 1934-03-26

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 25124
**EO Index:** 3244
**Key Quad:** Goshen (3611934)
**Element Code:** PDCHE040B0
**Occurrence Number:** 30
**Occurrence Last Updated:** 2009-11-02

**Scientific Name:** *Atriplex cordulata var. cordulata*
**Common Name:** heartscale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:** BLM_S-Sensitive

**CNDDB Element Ranks:** **Global:** G3T2
**State:** S2

**General Habitat:**

CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLAND, MEADOWS AND SEEPS.

**Micro Habitat:**

ALKALINE FLATS AND SCALDS IN THE CENTRAL VALLEY, SANDY SOILS. 3-275 M.

**Last Date Observed:** 1938-09-05
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1938-05-09
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

NEAR GOSHEN.

**Detailed Location:**

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS CENTERED ON GOSHEN.

**Ecological:**

**Threats:**

RESIDENTIAL AND COMMERCIAL DEVELOPMENT SURROUNDS; MAY NOT BE SUITABLE HABITAT REMAINING (SEE ATRIPLEX SUBTILIS EO 8).

**General:**

ONLY SOURCE OF INFO IS 1938 EASTWOOD & HOWELL COLLECTION. AREA SHOULD BE FIELD CHECKED FOR THE PRESENCE OF SUITABLE HABITAT. ID OF SPECIMEN SHOULD ALSO BE CHECKED; PRESTON (2009) HAS NOT FOUND THIS POPULATION, POSSIBLY A. ERECTICAULIS.

**PLSS:** T18S, R24E, Sec. 19 (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4025373 E282725
**Latitude/Longitude:** 36.34893 / -119.42124
**Elevation (feet):** 285

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| EAS38S0010 | EASTWOOD, A. & J. HOWELL - EASTWOOD #6274 RSA #22184, CAS #261511 1938-09-05 |
| PRE09U0002 | PRESTON, R. - ADDITIONAL INFORMATION REGARDING FIELD SURVEY FORMS SUBMITTED FOR ATRIPLEX CORDULATA 2009-10-30 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 24422
**Key Quad:** Laton (3611946)
**Occurrence Number:** 13
**EO Index:** 7077
**Element Code:** PDCHE042L0
**Occurrence Last Updated:** 2011-05-31

**Scientific Name:** *Atriplex depressa*
**Common Name:** brittlescale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

CHENOPOD SCRUB, MEADOWS AND SEEPS, PLAYAS, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

**Micro Habitat:**

USUALLY IN ALKALI SCALDS OR ALK. CLAY IN MEADOWS OR ANNUAL GRASSLND; RARELY ASSOCIATED WITH RIPARIAN, MARSHES, OR VERNAL POOLS. 1-325 M.

**Last Date Observed:** XXXX-XX-XX
**Last Survey Date:** XXXX-XX-XX
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

LATON.

**Detailed Location:**

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS CENTERED ON LATON.

**Ecological:**

**Threats:**

**General:**

ONLY SOURCE OF INFORMATION IS UNDATED KEARNEY COLLECTION. NEEDS FIELDWORK.

**PLSS:** T17S, R21E, Sec. 22 (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4035584 E259139
**Latitude/Longitude:** 36.43527 / -119.68698
**Elevation (feet):**

**County Summary:**

Fresno, Kings

**Quad Summary:**

Laton (3611946)

**Sources:**

KEANDS0001 KEARNEY, T. - KEARNEY #33 US (CITED IN TAY93U0002) XXXX-XX-XX

TAY93U0002 TAYLOR, D. - ENDEMIC CA ANNUAL ATRIPLEX RECORDS. (COLLECTIONS FOR SEVERAL TAXA) 1993-07-27

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 82784
**EO Index:** 83810
**Key Quad:** Traver (3611944)
**Element Code:** PDCHE042L0
**Occurrence Number:** 76
**Occurrence Last Updated:** 2011-06-06

**Scientific Name:** *Atriplex depressa*
**Common Name:** brittlescale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

CHENOPOD SCRUB, MEADOWS AND SEEPS, PLAYAS, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

**Micro Habitat:**

USUALLY IN ALKALI SCALDS OR ALK. CLAY IN MEADOWS OR ANNUAL GRASSLND; RARELY ASSOCIATED WITH RIPARIAN, MARSHES, OR VERNAL POOLS. 1-325 M.

**Last Date Observed:** 1968-05-13
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1968-05-13
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

4 MILES S OF DINUBA.

**Detailed Location:**

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS 4 MILES S OF DINUBA FROM SOUTHERN PACIFIC RAILROAD; MULTIPLE ROADS LEAD S OUT OF DINUBA, CENTERED ON ROAD 80 AND ROAD 84.

**Ecological:**

**Threats:**

**General:**

ONLY SOURCE OF INFORMATION IS A 1968 HOOVER COLLECTION. NEEDS FIELDWORK.

**PLSS:** T17S, R24E, Sec. 05 (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4040025 E285977
**Latitude/Longitude:** 36.48164 / -119.38907
**Elevation (feet):**

**County Summary:**

Tulare

**Quad Summary:**

Monson (3611943), Traver (3611944)

**Sources:**

HOO68S0019 HOOVER, R. - HOOVER #11078 OBI (CITED IN TAY93U0002) 1968-05-13

TAY93U0002 TAYLOR, D. - ENDEMIC CA ANNUAL ATRIPLEX RECORDS. (COLLECTIONS FOR SEVERAL TAXA) 1993-07-27

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 56415
**EO Index:** 56431
**Key Quad:** Goshen (3611934)
**Element Code:** PDCHE042M0
**Occurrence Number:** 14
**Occurrence Last Updated:** 2011-05-11

**Scientific Name:** *Atriplex minuscula*
**Common Name:** lesser saltscale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:** SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 0-225 M.

**Last Date Observed:** 2002-09-12
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2002-09-12
**Occurrence Rank:** Fair
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
N SIDE OF AVE 308, 0.4 MILE W OF ROAD 76, GOSHEN.

**Detailed Location:**
IN FIELD ON N SIDE OF ROAD. MAPPED WITHIN THE SW 1/4 NE 1/4 SECTION 19.

**Ecological:**
ALKALI GRASSLAND WITH CENTROMADIA PUNGENS, SUAEDA MOQUINII, BASSIA HYSSOPIFOLIA, CUSCUTA CALIFORNICA, AND ANNUAL GRASSES.

**Threats:**
FIELD DISKED SOMETIME IN PREVIOUS YEAR. NEW HOUSING DEVELOPMENT ADJACENT TO SITE.

**General:**
25 PLANTS SEEN IN 2002. COLLECTION BY EASTWOOD & HOWELL IN 1938 "NEAR GOSHEN" ATTRIBUTED TO THIS OCCURRENCE.

**PLSS:** T18S, R24E, Sec. 19, NE (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4025366 E283702
**Latitude/Longitude:** 36.34909 / -119.41036
**Elevation (feet):** 290

**County Summary:**
Tulare

**Quad Summary:**
Goshen (3611934)

**Sources:**

| | |
|---|---|
| EAS38S0037 | EASTWOOD, A. & J. HOWELL - EASTWOOD #6275 RSA #22185, CAS #261516, CAS-BOT-BC #180937 1938-09-05 |
| PRE02F0014 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX MINUSCULA 2002-09-12 |
| PRE02S0007 | PRESTON, R. - PRESTON #1947 DAV #77395 2002-09-12 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 56417
**EO Index:** 56433
**Key Quad:** Traver (3611944)
**Element Code:** PDCHE042M0
**Occurrence Number:** 15
**Occurrence Last Updated:** 2018-09-19

**Scientific Name:** *Atriplex minuscula*
**Common Name:** lesser saltscale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:** SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 0-225 M.

**Last Date Observed:** 2002-09-12
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2002-09-12
**Occurrence Rank:** Fair
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ALONG E SIDE OF ROAD 80, N OF COTTONWOOD CREEK, 7 MILES N OF GOSHEN.

**Detailed Location:**
MAPPED AS A SERIES OF 3 POLYGONS FROM 51-307 M N OF LEVEE AND ROAD 80 INTERESECTION. IN THE SW 1/4 NE 1/4 SECTION 20.

**Ecological:**
ROADSIDE DRAINAGE.

**Threats:**
PROPOSED ROAD WIDENING.

**General:**
UNKNOWN NUMBER IN 2000. 3 SMALL PATCHES OF PLANTS EACH ~900 SQ FT IN AREA SEEN BY PRESTON IN 2002. 1995 STUTZ COLLECTION FROM "5 MILES N OF GOSHEN" AND 2000 LEVERETT COLLECTION FROM "E SIDE OF RD 80, 0.1 MI S OF AVE 360" ATTRIBUTED HERE.

**PLSS:** T17S, R24E, Sec. 20, NE (M)
**Accuracy:** specific area
**Area (acres):** 1
**UTM:** Zone-11 N4035226 E285395
**Latitude/Longitude:** 36.43828 / -119.39423
**Elevation (feet):** 285

**County Summary:**
Tulare

**Quad Summary:**
Traver (3611944)

**Sources:**

| | |
|---|---|
| LEV00S0001 | LEVERETT, R. - LEVERETT SN DAV #148759 & #97544 2000-07-10 |
| PRE00F0003 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX ERECTICAULIS (INCLUDES MENTION OF A. MINUSCULA AT THE SITE) 2000-09-22 |
| PRE02F0015 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX MINUSCULA 2002-09-12 |
| STU95S0008 | STUTZ, H. - STUTZ #9791 RSA #612717 1995-08-06 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 56419
**EO Index:** 56435
**Key Quad:** Traver (3611944)
**Element Code:** PDCHE042M0
**Occurrence Number:** 16
**Occurrence Last Updated:** 2004-08-18

**Scientific Name:** *Atriplex minuscula*
**Common Name:** lesser saltscale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:** SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**

IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 0-225 M.

**Last Date Observed:** 2000-07-10
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2000-07-10
**Occurrence Rank:** Good
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

ALONG ROAD 80 BETWEEN BANKS DITCH AND BUTTON DITCH, S OF DINUBA AND N OF VISALIA.

**Detailed Location:**

MAPPED AT THE CENTER OF SECTION 17 EXTENDING FROM N TO S OF SECTION.

**Ecological:**

ANNUAL GRASSLAND COMMUNITY WITH LOLIUM MULTIFLORUM, HORDEUM MARINUM SSP. GUSSONEANUM, HELIOTROPIUM CURASSAVICUM, CRESSA TRUXILLENSIS, AND DISTICHLIS SPICATA. ALSO WITH CAPSELLA BURSA-PASTORIS, XANTHIUM STRUMARIUM, AND RUMEX CRISPUS.

**Threats:**

ROAD WIDENING.

**General:**

200 PLANTS SEEN IN 2000. THE RARE ATRIPLEX CORDULATA OR A. ERECTICAULIS MAY ALSO OCCUR AT THIS SITE. SITE NEEDS TO BE REVISITED.

**PLSS:** T17S, R24E, Sec. 17, E (M)
**Accuracy:** specific area
**Area (acres):** 59
**UTM:** Zone-11 N4036708 E285458
**Latitude/Longitude:** 36.45164 / -119.39394
**Elevation (feet):** 290

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

LEV00F0001 LEVERETT, R. - FIELD SURVEY FORM FOR ATRIPLEX MINUSCULA 2000-07-10

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B0731
**EO Index:** 112600
**Key Quad:** Waukena (3611925)
**Element Code:** PDCHE042M0
**Occurrence Number:** 51
**Occurrence Last Updated:** 2018-09-25

**Scientific Name:** *Atriplex minuscula*
**Common Name:** lesser saltscale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:** SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**

IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 0-225 M.

**Last Date Observed:** 2011-11-18
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-11-18
**Occurrence Rank:** Poor
**Owner/Manager:** PVT
**Trend:** Decreasing
**Presence:** Presumed Extant

**Location:**

FIELD ON NE SIDE OF THE HWY 43 AND NEVADA AVENUE JUNCTION, NORTH OF CORCORAN.

**Detailed Location:**

MAPPED ACCORDING TO COORDINATES AND LOCATION DESCRIPTION. EXACT LOCATIONS OF ATRIPLEX ACROSS PROPERTY UNCLEAR BUT LIKELY SCATTERED ACROSS SITE.

**Ecological:**

IN SCALDS, VERNAL POOLS, AND BLADED AREAS. ASSOCIATED WITH ATRIPLEX ERECTICAULIS, A. SUBTILIS, AND A. ARGENTEA.

**Threats:**

SOLAR DEVELOPMENT. BY 2016, AERIAL IMAGERY SHOWS MAJORITY OF SITE EXTIRPATED BY SOLAR DEVELOPMENT.

**General:**

6000 PLANTS IN 2011. ~50 PLANTS IN EXCAVATED AREA AT W END OF MAPPED AREA AND ONE LARGE OCCURRENCE (SEVERAL THOUSAND) IN E PORTION OF FIELD WITH MULTIPLE SATELLITE POPULATIONS THROUGHOUT PROPERTY. SITE MOSTLY EXTIRPATED ACC TO 2016 IMAGERY.

**PLSS:** T20S, R22E, Sec. 34, S (M)
**Accuracy:** non-specific area
**Area (acres):** 307
**UTM:** Zone-11 N4002719 E268398
**Latitude/Longitude:** 36.14155 / -119.57406
**Elevation (feet):** 215

**County Summary:**

Kings

**Quad Summary:**

Waukena (3611925)

**Sources:**

WIN11F0004 WINCHELL, C. - FIELD SURVEY FORM FOR ATRIPLEX MINUSCULA 2011-11-18

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B0734
**Key Quad:** Traver (3611944)
**Occurrence Number:** 52
**EO Index:** 112603
**Element Code:** PDCHE042M0
**Occurrence Last Updated:** 2018-09-20

**Scientific Name:** *Atriplex minuscula*
**Common Name:** lesser saltscale

**Listing Status:** **Federal:** None
**State:** None
**CNDDB Element Ranks:** **Global:** G2
**State:** S2
**Rare Plant Rank:** 1B.1
**Other Lists:** SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

**General Habitat:**
CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 0-225 M.

**Last Date Observed:** 2016-08-02
**Last Survey Date:** 2016-08-02
**Owner/Manager:** PVT
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Excellent
**Trend:** Unknown

**Location:**
APPROXIMATELY 1.9 AIR MILES ENE OF WHERE CROSS CREEK CROSSES THE KINGS/TULARE COUNTY LINE.

**Detailed Location:**
PROPOSED MITIGATION SITE. MAPPED AROUND THE NE 1/4 OF THE NE 1/4 OF SECTION 2 ACCORDING TO 2016 PRESTON INFORMATION.

**Ecological:**
ALKALINE RAIN POOLS/VERNAL POOLS WITH ATRIPLEX CORDULATA VAR. CORDULATA, A. MINUSCULA, CENTROMADIA PUNGENS, FRANKENIA SALINA, HORDEUM DEPRESSUM, DISTICHLIS SPICATA, AND LEPIDIUM DICTYOTUM.

**Threats:**
NONE NOTED.

**General:**
1000S OF PLANTS OBSERVED IN 2016 BETWEEN OCCURRENCES #52-54.

**PLSS:** T18S, R23E, Sec. 2, NE (M)
**Accuracy:** non-specific area
**Area (acres):** 39
**UTM:** Zone-11 N4030897 E281065
**Latitude/Longitude:** 36.39831 / -119.44128
**Elevation (feet):** 280

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Traver (3611944) |

**Sources:**
PRE16F0005 PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX MINUSCULA 2016-08-02

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B0735
**EO Index:** 112604
**Key Quad:** Traver (3611944)
**Element Code:** PDCHE042M0
**Occurrence Number:** 53
**Occurrence Last Updated:** 2018-09-20

**Scientific Name:** *Atriplex minuscula*
**Common Name:** lesser saltscale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:** SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**

IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 0-225 M.

**Last Date Observed:** 2016-08-02
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2016-08-02
**Occurrence Rank:** Excellent
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

APPROXIMATELY 1.2 AIR MILES NE OF WHERE CROSS CREEK CROSSES THE KINGS/TULARE COUNTY LINE.

**Detailed Location:**

PROPOSED MITIGATION SITE. MAPPED ACCORDING TO 2016 PRESTON DIGITAL DATA, MOSTLY IN THE NW 1/4 OF THE NW 1/4 OF SECTION 2 AND THE NE 1/4 OF THE NE 1/4 OF SECTION 3.

**Ecological:**

ALKALINE RAIN POOLS/VERNAL POOLS WITH ATRIPLEX CORDULATA VAR. CORDULATA, A. MINUSCULA, CENTROMADIA PUNGENS, FRANKENIA SALINA, HORDEUM DEPRESSUM, DISTICHLIS SPICATA, AND LEPIDIUM DICTYOTUM.

**Threats:**

NONE NOTED.

**General:**

1000S OF PLANTS OBSERVED IN 2016 BETWEEN OCCURRENCES #52-54.

**PLSS:** T18S, R23E, Sec. 2, NW (M)
**Accuracy:** specific area
**Area (acres):** 24
**UTM:** Zone-11 N4030979 E279752
**Latitude/Longitude:** 36.39874 / -119.45594
**Elevation (feet):** 275

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

PRE16F0005 PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX MINUSCULA 2016-08-02

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B0736
**EO Index:** 112605
**Key Quad:** Traver (3611944)
**Element Code:** PDCHE042M0
**Occurrence Number:** 54
**Occurrence Last Updated:** 2018-09-20

**Scientific Name:** *Atriplex minuscula*
**Common Name:** lesser saltscale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:** SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 0-225 M.

**Last Date Observed:** 2016-08-02
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2016-08-02
**Occurrence Rank:** Excellent
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
APPROXIMATELY 1 AIR MILE NNE OF WHERE CROSS CREEK CROSSES THE KINGS/TULARE COUNTY LINE.

**Detailed Location:**
PROPOSED MITIGATION SITE. MAPPED ACCORDING TO 2016 PRESTON DIGITAL DATA, IN THE SOUTH 1/2 OF SECTION 34.

**Ecological:**
ALKALINE RAIN POOLS/VERNAL POOLS WITH ATRIPLEX CORDULATA VAR. CORDULATA, A. MINUSCULA, CENTROMADIA PUNGENS, FRANKENIA SALINA, HORDEUM DEPRESSUM, DISTICHLIS SPICATA, AND LEPIDIUM DICTYOTUM.

**Threats:**
NONE NOTED.

**General:**
1000S OF PLANTS OBSERVED IN 2016 BETWEEN OCCURRENCES #52-54.

**PLSS:** T17S, R23E, Sec. 34, S (M)
**Accuracy:** specific area
**Area (acres):** 17
**UTM:** Zone-11 N4031489 E279056
**Latitude/Longitude:** 36.40318 / -119.46384
**Elevation (feet):** 275

**County Summary:**
Tulare

**Quad Summary:**
Traver (3611944)

**Sources:**

| | |
|---|---|
| PRE16F0005 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX MINUSCULA 2016-08-02 |
| PRE16S0002 | PRESTON, R. - PRESTON #3062 DAV #218568 & #166856 2016-08-02 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B0737
**EO Index:** 112606
**Key Quad:** Burris Park (3611945)
**Element Code:** PDCHE042M0
**Occurrence Number:** 55
**Occurrence Last Updated:** 2018-09-21

**Scientific Name:** *Atriplex minuscula*
**Common Name:** lesser saltscale

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.1
**Other Lists:** SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**
CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 0-225 M.

**Last Date Observed:** 2016-08-03
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2016-08-03
**Occurrence Rank:** Excellent
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
SOUTH SIDE OF CROSS CREEK, 3.4 MILES WEST OF HIGHWAY 99, 5.2 MILES NW OF GOSHEN.

**Detailed Location:**
PROPOSED MITIGATION SITE. MAPPED ACCORDING TO 2016 PRESTON DIGITAL DATA, IN THE NE 1/4 OF THE NW 1/4 OF SECTION 8.

**Ecological:**
ALKALINE RAIN POOLS/VERNAL POOLS WITH ATRIPLEX CORDULATA VAR. CORDULATA, HORDEUM DEPRESSUM, DISTICHLIS SPICATA, AND SPERGULARIA SP.

**Threats:**
NONE NOTED.

**General:**
100S OF PLANTS OBSERVED IN 2016.

**PLSS:** T18S, R23E, Sec. 8, NW (M)
**Accuracy:** specific area
**Area (acres):** 6
**UTM:** Zone-11 N4029513 E275390
**Latitude/Longitude:** 36.38454 / -119.50411
**Elevation (feet):** 265

| County Summary: | Quad Summary: |
|---|---|
| Kings | Burris Park (3611945) |

**Sources:**
PRE16F0006 PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX MINUSCULA 2016-08-03

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 25124
**EO Index:** 33912
**Key Quad:** Goshen (3611934)
**Element Code:** PDCHE042T0
**Occurrence Number:** 8
**Occurrence Last Updated:** 2011-05-23

**Scientific Name:** *Atriplex subtilis*
**Common Name:** subtle orache

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G1
**State:** S1

**General Habitat:**
VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
ALKALINE SOILS. 20-100 M.

**Last Date Observed:** 1905-09-01
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2002-09-12
**Occurrence Rank:** None
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Possibly Extirpated

**Location:**
NEAR RAILROAD STATION, GOSHEN.

**Detailed Location:**
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS CENTERED ON RAILROAD STATION IN GOSHEN.

**Ecological:**

**Threats:**
SURROUNDING LAND USE RESIDENTIAL OR COMMERCIAL. PRESTON STATES THAT LITTLE SUITABLE HABITAT REMAINS HERE.

**General:**
SITE BASED ON A 1905 BRANDEGEE COLLECTION. LISTED AS A. SUBTILIS BY STUTZ & CHU IN 1997 AND ANNOTATED TO A. SUBTILIS BY ZACHARIAS IN 2010. PLANTS NOT OBSERVED BY PRESTON IN 2002.

**PLSS:** T18S, R24E, Sec. 19 (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4025373 E282725
**Latitude/Longitude:** 36.34893 / -119.42124
**Elevation (feet):** 285

**County Summary:**
Tulare

**Quad Summary:**
Goshen (3611934)

**Sources:**

| | |
|---|---|
| BRA05S0005 | BRANDEGEE, K. - BRANDEGEE SN UC #110268 1905-09-01 |
| PRE02F0016 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX SUBTILIS 2002-09-12 |
| STU97A0001 | STUTZ, H. & G. CHU - ATRIPLEX SUBTILIS: A NEW SPECIES FROM SOUTH-CENTRAL CALIFORNIA (IN MADRONO 44(2) PP. 184-188) 1997-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 41361
**EO Index:** 41361
**Key Quad:** Waukena (3611925)
**Element Code:** PDCHE042T0
**Occurrence Number:** 17
**Occurrence Last Updated:** 1999-07-08

**Scientific Name:** *Atriplex subtilis*
**Common Name:** subtle orache

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G1
**State:** S1

**General Habitat:**
VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
ALKALINE SOILS. 20-100 M.

**Last Date Observed:** 1994-08-30
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1994-08-30
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
SE CORNER OF KANSAS AVENUE AND 6TH AVENUE, 12 MILES WEST OF TULARE.

**Detailed Location:**
MAPPED NEAR CROSS CREEK WITHIN THE NW 1/4 SECTION 11. COLLECTION LABEL STATES OCCURRENCE IS IN SECTION 4 BUT THIS DOES NOT MATCH LOCATION DESCRIPTION. MAPPED BY CNDDB ACCORDING TO LOCATION DESCRIPTION.

**Ecological:**

**Threats:**

**General:**
TYPE LOCALITY. ONLY SOURCE OF INFORMATION IS A 1994 COLLECTION BY STUTZ. NEEDS FIELDWORK.

**PLSS:** T20S, R22E, Sec. 11, NW (M)
**Accuracy:** 1/5 mile
**Area (acres):** 0
**UTM:** Zone-11 N4010181 E269653
**Latitude/Longitude:** 36.20907 / -119.56230
**Elevation (feet):** 225

| County Summary: | Quad Summary: |
|---|---|
| Kings | Waukena (3611925) |

**Sources:**

| | |
|---|---|
| STU94S0003 | STUTZ, H. - STUTZ #9654 UCR #100891, CAS #946662, NY #232837, RSA #612726, GH #107038, MO #4944369, BRY (ALSO CITED IN STU97A0001) 1994-08-30 |
| STU97A0001 | STUTZ, H. & G. CHU - ATRIPLEX SUBTILIS: A NEW SPECIES FROM SOUTH-CENTRAL CALIFORNIA (IN MADRONO 44(2) PP. 184-188) 1997-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 89597
**EO Index:** 90596
**Key Quad:** Waukena (3611925)
**Element Code:** PDCHE042T0
**Occurrence Number:** 30
**Occurrence Last Updated:** 2013-06-28

**Scientific Name:** *Atriplex subtilis*
**Common Name:** subtle orache

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G1
**State:** S1

**General Habitat:**
VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
ALKALINE SOILS. 20-100 M.

**Last Date Observed:** 2011-11-18
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-11-18
**Occurrence Rank:** Fair
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
NORTH SIDE OF NEVADA AVE, APPROXIMATELY 120 FT EAST OF HIGHWAY 43, NORTH OF CORCORAN.

**Detailed Location:**
MAPPED IN THE SW 1/4 OF THE SW 1/4 OF SECTION OF SECTION 34.

**Ecological:**
EXCAVATED AREA. ASSOCIATED WITH ATRIPLEX ERECTICAULIS, A. MINUSCULA, AND A. ARGENTEA.

**Threats:**
SITE HISTORICALLY USED FOR AGRICULTURE. THREATENED BY SOLAR DEVELOPMENT.

**General:**
75 PLANTS OBSERVED IN 2011.

**PLSS:** T20S, R22E, Sec. 34, SW (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4002427 E267642
**Latitude/Longitude:** 36.13875 / -119.58235
**Elevation (feet):** 210

**County Summary:**
Kings

**Quad Summary:**
Waukena (3611925)

**Sources:**
WIN11F0002 WINCHELL, C. - FIELD SURVEY FORM FOR ATRIPLEX SUBTILIS 2011-11-18

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 47219
**EO Index:** 47219
**Key Quad:** Waukena (3611925)
**Element Code:** PDCHE042V0
**Occurrence Number:** 14
**Occurrence Last Updated:** 2020-06-19

**Scientific Name:** *Atriplex cordulata var. erecticaulis*
**Common Name:** Earlimart orache

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G3T1
**State:** S1

**General Habitat:**
VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
60-115 M.

**Last Date Observed:** 1994-08-30
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2002-09-12
**Occurrence Rank:** Good
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
12 MILES WEST OF TULARE, NEAR JUNCTION OF KANSAS AVENUE & 6TH AVENUE.

**Detailed Location:**
MAPPED ACCORDING TO COORDINATES & MAP PROVIDED BY PRESTON, WHO STATES THAT THIS SITE IS THE PLANT'S "NEAREST SUITABLE HABITAT." MAPPED LOCATION IS ABOUT 0.5 MI DUE W OF JUNCTION OF KANSAS AVE AND 6TH AVE; SOUTH OF KANSAS AVE.

**Ecological:**
ALKALI GRASSLAND, WITH CENTROMADIA PUNGENS, CRESSA TRUXILLENSIS, FRANKENIA SALINA, DISTICHLIS SPICATA, & ANNUAL GRASSES.

**Threats:**

**General:**
SITE BASED ON A 1994 STUTZ COLLECTION. ZERO PLANTS OBSERVED IN 2002.

**PLSS:** T20S, R22E, Sec. 10, NE (M)
**Accuracy:** non-specific area
**Area (acres):** 24
**UTM:** Zone-11 N4010265 E269372
**Latitude/Longitude:** 36.20976 / -119.56545
**Elevation (feet):** 230

**County Summary:**
Kings

**Quad Summary:**
Waukena (3611925)

**Sources:**

| | |
|---|---|
| PRE02F0033 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX ERECTICAULIS 2002-09-12 |
| STU94S0005 | STUTZ, H. - STUTZ #9655 BRY #35981, SEINET #4133517 1994-08-30 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 47221
**EO Index:** 47221
**Key Quad:** Traver (3611944)
**Element Code:** PDCHE042V0
**Occurrence Number:** 16
**Occurrence Last Updated:** 2020-06-25

**Scientific Name:** *Atriplex cordulata var. erecticaulis*
**Common Name:** Earlimart orache

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G3T1
**State:** S1

**General Habitat:**
VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
60-115 M.

**Last Date Observed:** 2017-09-06
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-09-07
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
ALONG ROAD 80 BETWEEN AVENUE 360 AND COTTONWOOD CREEK.

**Detailed Location:**
MAPPED AS 3 POLYGONS ACCORDING TO 2000, 2002, AND 2017 PRESTON DATA. PORTIONS OF SITE WEST OF ROAD 80 ARE ON PROPOSED MITIGATION SITE.

**Ecological:**
IN DRAINAGE CHANNEL; DISTURBED AREAS IN ALKALI GRASSLAND WITH SUAEDA MOQUINII, DISTICHLIS SPICATA, CRESSA TRUXILLENSIS, CENTROMADIA PUNGENS, HELIOTROPIUM CURASSAVICUM, FRANKENIA SALINA, A. SERENANA, CYNODON DACTYLON & ANNUAL GRASSES.

**Threats:**
WIDENING OF ROAD 80 HAS ELIMATED PLANTS ON THE EAST SIDE OF ROAD 80.

**General:**
1000'S OF PLANTS ESTIMATED IN 2000. 100'S OF PLANTS OBSERVED IN 2002; FEWER PLANTS PROBABLY DUE TO DROUGHT YEAR. 1150 PLANTS SEEN WEST OF ROAD 80 ON 9/6/2017; NO PLANTS ON EAST SIDE OF ROAD 80 ON 9/7/2017, LIKELY ELIMINATED PRIOR TO 2012.

**PLSS:** T17S, R24E, Sec. 20 (M)
**Accuracy:** specific area
**Area (acres):** 38
**UTM:** Zone-11 N4035009 E285219
**Latitude/Longitude:** 36.43628 / -119.39614
**Elevation (feet):** 285

**County Summary:**
Tulare

**Quad Summary:**
Traver (3611944)

**Sources:**

| | |
|---|---|
| PRE00F0003 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX ERECTICAULIS (INCLUDES MENTION OF A. MINUSCULA AT THE SITE) 2000-09-22 |
| PRE00S0041 | PRESTON, R. - PRESTON #1441 DAV #77390 & #148613 2000-09-06 |
| PRE02F0032 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX ERECTICAULIS 2002-09-12 |
| PRE17F0005 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX CORDULATA VAR. ERECTICAULIS 2017-09-06 |
| PRE17F0009 | PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX CORDULATA VAR. ERECTICAULIS 2017-09-07 |
| PRE17S0003 | PRESTON, R. - PRESTON #3162 DAV #228936 2017-09-06 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 89948
**EO Index:** 90965
**Key Quad:** Waukena (3611925)
**Element Code:** PDCHE042V0
**Occurrence Number:** 22
**Occurrence Last Updated:** 2013-08-07

**Scientific Name:** *Atriplex cordulata var. erecticaulis*
**Common Name:** Earlimart orache

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G3T1
**State:** S1

**General Habitat:**
VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
60-115 M.

**Last Date Observed:** 2011-11-18
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2011-11-18
**Occurrence Rank:** Fair
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
NORTH SIDE OF NEVADA AVE, APPROXIMATELY 120 FT EAST OF HIGHWAY 43, NORTH OF CORCORAN.

**Detailed Location:**
MAPPED IN THE SW 1/4 OF THE SW 1/4 OF SECTION 34.

**Ecological:**
EXCAVATED AREA AND WITHIN DEPRESSIONS/VERNAL POOLS SCATTERED THROUGHOUT FIELD. ASSOCIATED WITH ATRIPLEX SUBTILIS, A. MINUSCULA, AND A. ARGENTEA.

**Threats:**
SITE HISTORICALLY USED FOR AGRICULTURE. THREATENED BY SOLAR DEVELOPMENT.

**General:**
APPROXIMATELY 200 PLANTS OBSERVED IN EXCAVATED AREA AND ~300 PLANTS FOUND IN FIELD IN 2011.

**PLSS:** T20S, R22E, Sec. 34, SW (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4002388 E267674
**Latitude/Longitude:** 36.13840 / -119.58198
**Elevation (feet):** 200

**County Summary:**
Kings

**Quad Summary:**
Waukena (3611925)

**Sources:**
WIN11F0003 WINCHELL, C. - FIELD SURVEY FORM FOR ATRIPLEX SUBTILIS 2011-11-18

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B5726
**EO Index:** 118719
**Key Quad:** Traver (3611944)
**Element Code:** PDCHE042V0
**Occurrence Number:** 23
**Occurrence Last Updated:** 2020-06-22

**Scientific Name:** *Atriplex cordulata var. erecticaulis*
**Common Name:** Earlimart orache

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G3T1
**State:** S1

**General Habitat:**
VALLEY AND FOOTHILL GRASSLAND.

**Micro Habitat:**
60-115 M.

**Last Date Observed:** 2017-09-07
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-09-07
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
WEST OF ROAD 80 APPROXIMATELY 5.4 AIR MILES NNE OF GOSHEN.

**Detailed Location:**
PROPOSED MITIGATION SITE. MAPPED AS SEVERAL POLYGONS ACCORDING TO 2017 PRESTON DIGITAL DATA, NEAR THE COMMON CORNER OF SECTIONS 19, 20, 29, & 30.

**Ecological:**
ALKALI GRASSLAND, WITH HORDEUM SPP., CENTROMADIA PUNGENS, ATRIPLEX SERENANA, HELIOTROPIUM CURASSAVICUM, AND TRICHOSTEMA LANCEOLATUM.

**Threats:**
NONE NOTED.

**General:**
150 PLANTS OBSERVED IN 2017.

**PLSS:** T17S, R24E, Sec. 29, NW (M)
**Accuracy:** specific area
**Area (acres):** 30
**UTM:** Zone-11 N4034184 E284615
**Latitude/Longitude:** 36.42872 / -119.40265
**Elevation (feet):** 287

**County Summary:**
Tulare

**Quad Summary:**
Traver (3611944)

**Sources:**
PRE17F0006 PRESTON, R. - FIELD SURVEY FORM FOR ATRIPLEX CORDULATA VAR. ERECTICAULIS 2017-09-07

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 80351
**EO Index:** 81338
**Key Quad:** Guernsey (3611926)
**Element Code:** PDHYD0A0H0
**Occurrence Number:** 23
**Occurrence Last Updated:** 2010-10-11

**Scientific Name:** *Nama stenocarpa*
**Common Name:** mud nama

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 2B.2
**Other Lists:**

**CNDDB Element Ranks:** **Global:** G4G5
**State:** S1S2

**General Habitat:**
MARSHES AND SWAMPS.

**Micro Habitat:**
LAKE SHORES, RIVER BANKS, INTERMITTENTLY WET AREAS. 15-815 M.

**Last Date Observed:** 1999-03-26
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1999-03-26
**Occurrence Rank:** Fair
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**
SW OF THE JUNCTION OF KANSAS AVENUE AND 11TH AVENUE, WEST OF GUERNSEY.

**Detailed Location:**

**Ecological:**
DRY BOTTOM OF FLOOD CONTROL CHANNEL WITH GNAPHALIUM PALUSTRE, RORIPPA CURVISILIQUA, POTENTILLA NORVEGICA, AND MONTIA FONTANA.

**Threats:**
AREA DISTURBED BY CATTLE GRAZING AND PERCOLATION BASINS BUT UNKNOWN IF THIS IS A THREAT.

**General:**
SEEN IN 1999.

**PLSS:** T20S, R21E, Sec. 11, NE (M)
**Accuracy:** 80 meters
**Area (acres):** 0
**UTM:** Zone-11 N4010155 E260791
**Latitude/Longitude:** 36.20668 / -119.66077
**Elevation (feet):** 215

**County Summary:**
Kings

**Quad Summary:**
Guernsey (3611926)

**Sources:**

PRE99F0009 PRESTON, R. (JONES AND STOKES ASSOCIATES) - FIELD SURVEY FORM FOR NAMA STENOCARPUM 1999-03-26

PRE99S0004 PRESTON, R. - PRESTON #1205 JEPS #110480 1999-03-26

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 51929
**EO Index:** 51929
**Key Quad:** Guernsey (3611926)
**Element Code:** PDRAN0B1J0
**Occurrence Number:** 15
**Occurrence Last Updated:** 2003-07-30

**Scientific Name:** *Delphinium recurvatum*
**Common Name:** recurved larkspur

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:** BLM_S-Sensitive
SB_SBBG-Santa Barbara Botanic Garden

**CNDDB Element Ranks:** **Global:** G2?
**State:** S2

**General Habitat:**

CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLAND, CISMONTANE WOODLAND.

**Micro Habitat:**

ON ALKALINE SOILS; OFTEN IN VALLEY SALTBUSH OR VALLEY CHENOPOD SCRUB. 3-790 M.

**Last Date Observed:** 1914-03-25
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1914-03-25
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

GUERNSEY, TULARE CO.

**Detailed Location:**

AS THERE IS NO GUERNSEY IN TULARE COUNTY, SITE MAPPED IN KINGS COUNTY AT GUERNSEY AT THE JUNCTION OF KANSAS AVENUE WITH THE ATCHISON-TOPEKA & SANTE FE RAILROAD.

**Ecological:**

**Threats:**

**General:**

ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1914 COLLECTION BY EASTWOOD. NEEDS FIELDWORK.

**PLSS:** T20S, R21E, Sec. 01 (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4010807 E262607
**Latitude/Longitude:** 36.21300 / -119.64079
**Elevation (feet):**

| County Summary: | Quad Summary: |
|---|---|
| Kings | Waukena (3611925), Guernsey (3611926) |

**Sources:**

EAS14S0002 EASTWOOD, A. - EASTWOOD #3898 CAS #89124, CAS-BOT-BC #17139 1914-03-25

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B8065
**Key Quad:** Guernsey (3611926)
**Occurrence Number:** 138
**EO Index:** 121178
**Element Code:** PMALI040Q0
**Occurrence Last Updated:** 2022-03-01

**Scientific Name:** *Sagittaria sanfordii*
**Common Name:** Sanford's arrowhead

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:** BLM_S-Sensitive

**CNDDB Element Ranks:** **Global:** G3
**State:** S3

**General Habitat:**

MARSHES AND SWAMPS.

**Micro Habitat:**

IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-605 M.

**Last Date Observed:** 1980-09-22
**Last Survey Date:** 1980-09-22
**Owner/Manager:** UNKNOWN
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Unknown
**Trend:** Unknown

**Location:**

10TH AVENUE AT KENT, SOUTH OF HANFORD.

**Detailed Location:**

MAPPED AS BEST GUESS BY CNDDB AT INTERSECTION OF 10TH AVE AND KENT AVE. LABEL ALSO GIVES TRS: T19S R21E SEC 36; INTERSECTION IS AT CONER OF SECS 1, 6, 31, & 36. LABEL STATES"10TH AVE AT KENT N. W. HANFORD," BUT JCT IS SOUTH OF HANFORD.

**Ecological:**

IN IRRIGATION DITCH.

**Threats:**

**General:**

SITE IS BASED ON A 1980 DUNNICLIFF COLLECTION. NEEDS FIELDWORK.

**PLSS:** T19S, R21E, Sec. 36, SE (M)
**Accuracy:** 2/5 mile
**Area (acres):** 280
**UTM:** Zone-11 N4012238 E262970
**Latitude/Longitude:** 36.22598 / -119.6372
**Elevation (feet):** 219

**County Summary:**

Kings

**Quad Summary:**

Guernsey (3611926)

**Sources:**

DUN80S0002 DUNNICLIFF, J. - DUNNICLIFF SN CDA #0046053 1980-09-22

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 25124
**EO Index:** 100163
**Key Quad:** Goshen (3611934)
**Element Code:** PMPOA53110
**Occurrence Number:** 14
**Occurrence Last Updated:** 2016-01-22

**Scientific Name:** *Puccinellia simplex*
**Common Name:** California alkali grass

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:** BLM_S-Sensitive

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

MEADOWS AND SEEPS, CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLANDS, VERNAL POOLS.

**Micro Habitat:**

ALKALINE, VERNALLY MESIC. SINKS, FLATS, AND LAKE MARGINS. 1-915 M.

**Last Date Observed:** 1925-03-24
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1925-03-24
**Occurrence Rank:** None
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Possibly Extirpated

**Location:**

GOSHEN.

**Detailed Location:**

EXACT LOCATION UNKNOWN, MAPPED IN GENERAL VICINITY OF GOSHEN.

**Ecological:**

ALKALI.

**Threats:**

POSSIBLY EXTIRPATED BY DEVELOPMENT AND AGRICULTURAL CONVERSION BASED ON AERIAL IMAGERY OF THE AREA.

**General:**

SITE IS BASED ON A 1914 EASTWOOD COLLECTION FROM GOSHEN AND A 1925 ABRAMS COLLECTION FROM "TRAVERS TO GOSHEN." REMAINING HABITAT IN THIS AREA SHOULD BE SEARCHED.

**PLSS:** T18S, R24E, Sec. 19 (M)
**Accuracy:** 1 mile
**Area (acres):** 0
**UTM:** Zone-11 N4025373 E282725
**Latitude/Longitude:** 36.34893 / -119.42124
**Elevation (feet):**

| County Summary: | Quad Summary: |
|---|---|
| Tulare | Goshen (3611934) |

**Sources:**

| | |
|---|---|
| ABR25S0004 | ABRAMS, L. - ABRAMS #10794 DAV #92068 1925-03-24 |
| EAS14S0006 | EASTWOOD - EASTWOOD SN HERBARIUM UNKNOWN (CITED IN HOO37R0001) 1914-03-26 |
| HOO37R0001 | HOOVER, R. - ENDEMISM IN THE FLORA OF THE GREAT VALLEY OF CALIFORNIA. DISSERTATION FOR PHD, UNIVERSITY OF CALIFORNIA. 1937-XX-XX |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** 98703
**EO Index:** 100164
**Key Quad:** Remnoy (3611935)
**Element Code:** PMPOA53110
**Occurrence Number:** 15
**Occurrence Last Updated:** 2016-01-22

**Scientific Name:** *Puccinellia simplex*
**Common Name:** California alkali grass

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:** BLM_S-Sensitive

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

MEADOWS AND SEEPS, CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLANDS, VERNAL POOLS.

**Micro Habitat:**

ALKALINE, VERNALLY MESIC. SINKS, FLATS, AND LAKE MARGINS. 1-915 M.

**Last Date Observed:** 1942-04-11
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1942-04-11
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

2 MILES EAST OF HANFORD.

**Detailed Location:**

EXACT LOCATION UNKNOWN, MAPPED BY CNDDB AS A BEST GUESS.

**Ecological:**

ALKALINE SOIL, DRYING MUD FLAT ASSOC WITH DISTICHLIS SPICATA AND POLYPOGON MONSPELIENSIS.

**Threats:**

POSSIBLY EXTIRPATED BY DEVELOPMENT AND AGRICULTURAL CONVERSION BASED ON AERIAL IMAGERY OF THE AREA.

**General:**

ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1942 BEETLE COLLECTION. REMAINING HABITAT IN THIS AREA SHOULD BE SEARCHED.

**PLSS:** T18S, R22E, Sec. 29 (M)
**Accuracy:** 1 mile
**Area (acres):** 1,987
**UTM:** Zone-11 N4023842 E266501
**Latitude/Longitude:** 36.33134 / -119.60142
**Elevation (feet):** 250

**County Summary:**

Kings

**Quad Summary:**

Remnoy (3611935)

**Sources:**

BEE42S0006 BEETLE, A. - BEETLE #2963 DAV #92071 1942-04-11

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B3004
**Key Quad:** Traver (3611944)
**Occurrence Number:** 76
**EO Index:** 114929
**Element Code:** PMPOA53110
**Occurrence Last Updated:** 2019-05-03

**Scientific Name:** *Puccinellia simplex*
**Common Name:** California alkali grass

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:** BLM_S-Sensitive

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

MEADOWS AND SEEPS, CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLANDS, VERNAL POOLS.

**Micro Habitat:**

ALKALINE, VERNALLY MESIC. SINKS, FLATS, AND LAKE MARGINS. 1-915 M.

**Last Date Observed:** 2017-03-31
**Last Survey Date:** 2017-03-31
**Owner/Manager:** PVT
**Presence:** Presumed Extant
**Occurrence Type:** Natural/Native occurrence
**Occurrence Rank:** Good
**Trend:** Unknown

**Location:**

CROSS CREEK PROPERTY; WEST SIDE OF HIGHWAY 99, 3.7 MILES NW OF GOSHEN.

**Detailed Location:**

MOSTLY NORTH OF CROSS CREEK. PROPOSED MITIGATION SITE. MAPPED AS MANY POLYGONS ACCORDING TO PRESTON DIGITAL DATA.

**Ecological:**

IN SHALLOW ALKALINE VERNAL POOLS AND SCALDS WITH LEPIDIUM DICTYOTUM, LASTHENIA CHRYSANTHA, HORDEUM DEPRESSUM, CENTROMADIA PUNGENS, JUNCUS BUFONIUS, AND SPERGULARIA ATROSPERMA.

**Threats:**

NONE NOTED.

**General:**

20,000 PLANTS OBSERVED IN 2016 AND 2017.

**PLSS:** T18S, R23E, Sec. 3, N (M)
**Accuracy:** specific area
**Area (acres):** 173
**UTM:** Zone-11 N4031132 E278793
**Latitude/Longitude:** 36.39991 / -119.46666
**Elevation (feet):** 270

**County Summary:**

Kings, Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

| | |
|---|---|
| PRE16F0008 | PRESTON, R. - FIELD SURVEY FORM FOR PUCCINELLIA SIMPLEX 2016-03-30 |
| PRE17F0030 | PRESTON, R. - FIELD SURVEY FORM FOR PUCCINELLIA SIMPLEX 2017-03-31 |
| PRE17I0001 | PRESTON, R. - PHOTOS OF PUCCINELLIA SIMPLEX, CALPHOTOS ID: 0000 0000 0517 0238 & 0239 2017-03-30 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B3005
**EO Index:** 114931
**Key Quad:** Traver (3611944)
**Element Code:** PMPOA53110
**Occurrence Number:** 77
**Occurrence Last Updated:** 2019-05-06

**Scientific Name:** *Puccinellia simplex*
**Common Name:** California alkali grass

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:** BLM_S-Sensitive

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

MEADOWS AND SEEPS, CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLANDS, VERNAL POOLS.

**Micro Habitat:**

ALKALINE, VERNALLY MESIC. SINKS, FLATS, AND LAKE MARGINS. 1-915 M.

**Last Date Observed:** 2017-04-05
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 2017-04-05
**Occurrence Rank:** Good
**Owner/Manager:** PVT
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

COTTONWOOD CREEK JUST WEST OF ROAD 80, 5.8 MILES NNE OF GOSHEN.

**Detailed Location:**

PROPOSED MITIGATION SITE. MAPPED AS 6 POLYGONS ACCORDING TO 2017 PRESTON DIGITAL DATA.

**Ecological:**

ALKALI VERNAL POOLS WITH LEPIDIUM DICTYOTUM, CENTROMADIA PUNGENS, HORDEUM MARINUM, H. DEPRESSUM, AND PLAGIOBOTHRYS.

**Threats:**

NONE NOTED.

**General:**

3,065 PLANTS OBSERVED IN 2017.

**PLSS:** T17S, R24E, Sec. 20, SW (M)
**Accuracy:** specific area
**Area (acres):** 24
**UTM:** Zone-11 N4034785 E284659
**Latitude/Longitude:** 36.43414 / -119.40232
**Elevation (feet):** 285

**County Summary:**

Tulare

**Quad Summary:**

Traver (3611944)

**Sources:**

| | |
|---|---|
| PRE17F0031 | PRESTON, R. - FIELD SURVEY FORM FOR PUCCINELLIA SIMPLEX 2017-04-04 |
| PRE17I0002 | PRESTON, R. - PHOTO OF PUCCINELLIA SIMPLEX, CALPHOTOS ID: 0000 0000 0517 0240 2017-04-04 |
| PRE17I0003 | PRESTON, R. - PHOTOS OF PUCCINELLIA SIMPLEX, CALPHOTOS ID: 0000 0000 0517 0241 & 0242 2017-04-05 |

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Map Index Number:** B3009
**EO Index:** 114937
**Key Quad:** Hanford (3611936)
**Element Code:** PMPOA53110
**Occurrence Number:** 80
**Occurrence Last Updated:** 2019-05-03

**Scientific Name:** *Puccinellia simplex*
**Common Name:** California alkali grass

**Listing Status:** **Federal:** None
**State:** None
**Rare Plant Rank:** 1B.2
**Other Lists:** BLM_S-Sensitive

**CNDDB Element Ranks:** **Global:** G2
**State:** S2

**General Habitat:**

MEADOWS AND SEEPS, CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLANDS, VERNAL POOLS.

**Micro Habitat:**

ALKALINE, VERNALLY MESIC. SINKS, FLATS, AND LAKE MARGINS. 1-915 M.

**Last Date Observed:** 1942-04-11
**Occurrence Type:** Natural/Native occurrence
**Last Survey Date:** 1942-04-11
**Occurrence Rank:** Unknown
**Owner/Manager:** UNKNOWN
**Trend:** Unknown
**Presence:** Presumed Extant

**Location:**

4 MILES SOUTH OF ARMONA, NORTH OF TULARE LAKE.

**Detailed Location:**

EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS ABOUT 4 AIR MILES SOUTH OF ARMONA.

**Ecological:**

IN ALKALINE MEADOW.

**Threats:**

**General:**

ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1942 BEETLE COLLECTION. NEEDS FIELDWORK.

**PLSS:** T19S, R21E, Sec. 21 (M)
**Accuracy:** 1 mile
**Area (acres):** 1,987
**UTM:** Zone-11 N4015944 E256630
**Latitude/Longitude:** 36.25777 / -119.70882
**Elevation (feet):** 230

| County Summary: | Quad Summary: |
|---|---|
| Kings | Guernsey (3611926), Hanford (3611936) |

**Sources:**

BEE42S0009 BEETLE, A. - BEETLE #2969 SEINET #12895811, F 1942-04-11