



**Fifth Standard Solar Project  
Complex  
Final Environmental Impact  
Report**

No. 7257

State Clearinghouse No.  
2017091038

October 2020

Prepared for:

The County of Fresno,  
Department of Public Works and  
Planning  
Development Services and Capital  
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## APPENDIX A

ESA Technical Memorandum



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## ABBREVIATIONS

ALCC	Agricultural Land Conservation Committee
BRTR	Biological Resources Technical Report
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
County	Fresno County
Draft EIR	Draft Environmental Impact Report
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report
ESA	Environmental Science Associates
FCFPD	Fresno County Fire Protection District
Final EIR	Final Environmental Impact Report
MM	Mitigation Measure
NOP	Notice of Preparation
proposed project	Fifth Standard Solar Complex Project
REC	Recognized Environmental Condition
RWQCB	Regional Water Quality Control Board
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWHA	Swainson's hawk
TRBL	Tricolored Blackbird
VERA	Voluntary Emissions Reduction Agreement



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## 1.0 INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15088, Fresno County (County), as the lead agency, has evaluated the comments received on the Fifth Standard Solar Complex Project (proposed project) Draft Environmental Impact Report (Draft EIR) (State Clearinghouse No. 2017091038). The Draft EIR was circulated for 45-day public review between February 7, 2020 and March 23, 2020. The responses to the comments and other documents, which are included in this document, together with the Mitigation Monitoring and Reporting Program, comprise the Final Environmental Impact Report (Final EIR) for use by the Fresno County Planning Commission and County Board of Supervisors in their review.

### 1.1 BACKGROUND AND PURPOSE OF THE EIR

CEQA requires a lead agency that has prepared a Draft EIR to provide a copy of the Draft EIR to responsible and trustee agencies that have jurisdiction with respect to the proposed project, and to provide the general public with an opportunity to comment on the Draft EIR. The Final EIR is the mechanism for responding to these comments. This Final EIR has been prepared to respond to comments received on the Draft EIR, which are reproduced in this document; and to present corrections, revisions, and other clarifications and amplifications to the Draft EIR as a result of the County's ongoing planning efforts. The Draft EIR and Final EIR will be used to support the County's decision regarding whether to approve the proposed project.

This Final EIR can also be used by responsible and trustee agencies to ensure that they have met their requirements under CEQA before deciding whether to approve or permit proposed project elements over which they have jurisdiction. It may also be used by other state, regional, and local agencies that may have an interest in resources that could be affected by the proposed project or that have jurisdiction over portions of the proposed project. The following agencies may serve as responsible and trustee agencies:

- California Department of Fish and Wildlife (CDFW);
- Central Valley Regional Water Quality Control Board (CVRWQCB);
- San Joaquin Valley Air Pollution Control District (SJVAPCD);
- California Public Utilities Commission (CPUC); and
- Pacific Gas and Electric (PG&E).

#### 1.1.1 CEQA Public Review Process

The following provides a summary of the environmental review process to date for the proposed project that has resulted in the preparation of this Final EIR.



## Notice of Preparation

The Notice of Preparation (NOP) for the Draft EIR was submitted for a 30-day public review period on September 15, 2017. The comment period for the NOP closed on October 16, 2017. A scoping meeting was held on September 27, 2017, to solicit input from interested agencies and the public. The County received no comments at the scoping meeting and received several written comment letters during the public comment period. These comments are summarized in Appendix A of the Draft EIR.

## Draft EIR

The Draft EIR was released for public and agency review on February 7, 2020, with a 45-day review period ending on March 23, 2020. The Draft EIR contains a description of the project, description of the environmental setting, identification of project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives. The Draft EIR was provided to interested public agencies and the public and was made available for review at County offices and on the County's website.

## Final EIR

The County received comment letters from local and state agencies, and the public regarding the Draft EIR. This document responds to the written comments received, as required by CEQA. This document also contains minor edits to the Draft EIR, which are included in Section 3.0, *Minor Revisions to the Draft EIR*. This document constitutes the Final EIR.

### 1.1.2 Certification of the Final EIR/Project Consideration

The County will review and consider the Final EIR. If the County finds that the Final EIR is "adequate and complete," the County may certify the Final EIR. The rule of adequacy generally holds that the EIR can be certified if it does the following: (1) shows a good faith effort at full disclosure of environmental information; and (2) provides sufficient analysis to allow decisions to be made regarding the project in contemplation of its environmental consequences.

Upon review and consideration of the Final EIR, the County may act to adopt, revise, or reject the proposed project. A decision to approve the proposed project would be accompanied by written findings in accordance with CEQA Guidelines Sections 15091 and 15093. Public Resources Code Section 21081.6 also requires lead agencies to adopt a mitigation monitoring and reporting program to describe measures that have been adopted or have been made a condition of the project approval in order to mitigate or avoid significant impacts on the environment.



## 1.2 INTENDED USE OF THE EIR

The Environmental Impact Report (EIR) is intended to evaluate the environmental impacts of the proposed project to the greatest extent possible. This EIR, in accordance with CEQA Guidelines Section 15126, should be used as the primary environmental document to evaluate all planning and permitting actions associated with the proposed project. Please refer to Section 2.0, *Project Description*, of the Draft EIR for a detailed discussion of the proposed project.

## 1.3 ORGANIZATION AND SCOPE OF THE EIR

This document is organized into the following sections:

- **Section 1.0 – Introduction**

Section 1.0 provides an overview of the EIR process to date and the requirements of the Final EIR.

- **Section 2.0 – Responses to Written Comments on the Draft EIR**

Section 2.0 provides a list of the agencies, organizations, and individuals that commented on the Draft EIR. Copies of all the letters received regarding the Draft EIR and responses thereto are included in this section.

- **Section 3.0 – Minor Revisions to the Draft EIR**

Section 3.0 includes an addendum listing refinements and clarifications on the Draft EIR, which have been incorporated as a result of comments or staff-initiated changes.

- **Appendices**

A Technical Memorandum has been prepared in response to comments from CDFW to provide additional context regarding potential impacts to nesting birds, Swainson's hawks, and tri-colored blackbirds.

- **Mitigation Monitoring Reporting Program**

Measures that have been adopted or made a condition of the proposed project approval in order to mitigate or avoid significant impacts on the environment have been included in the Mitigation Monitoring Reporting Program, provided under separate cover.

Because of its length, the text of the Draft EIR is not included with these written responses; however, it is included by reference in this Final EIR. None of the revisions or clarifications to the Draft EIR identified in this document constitute "significant new information" pursuant to CEQA Guidelines Section 15088.5. As a result, recirculation of the Draft EIR is not required.



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## 2.0 COMMENTS AND RESPONSES TO THE DRAFT EIR

### 2.1 LIST OF COMMENTERS

A list of public agencies, organizations, and individuals that provided comments on the Draft EIR is presented in Table 2-1. Several of the commenters provided responses indicating no comments. In those instances, the “No comment” is noted in the table, and no further response is required. Individual comments within each communication have been numbered so comments can be cross-referenced with responses. Following this list, the text of the communication is reprinted and followed by the corresponding response.

**Table 2-1. List of Commenters**

Agency	Commenter Name (Last, First)	Comment Date (mm/dd/yyyy)	Comment Code
<b>State Agencies</b>			
California Department of Fish and Wildlife	Vance, Julie	03/25/2020	CDFW
Department of Toxic Substances Control	McCreary, Gavin	02/25/2020	DTSC
<b>Water Agencies</b>			
Westland’s Water District	Freeman, Russ	03/2/2020	WWD
<b>Local Agencies</b>			
San Joaquin Valley Air Pollution Control District	Marjollet, Arnaud	04/06/2020	SJVAPCD
<b>County Departments</b>			
Fresno County Sheriff’s Department	Alexander, Matt	02/10/2020	No comment
Fresno County Department of Public Works and Planning, Resources Division	Bump, Chris	02/07/2020	No comment
Fresno County Department of Agriculture	Lantsberger, Rusty	02/10/2020	No comment
Fresno County Fire Protection District	McDougald, Jim	02/12/2020	FCFPD



**Table 2-1 List of Commenters – cont.**

Agency	Commenter(s) Name (Last, First)	Comment Date (mm/dd/yyyy)	Comment Code
Fresno County Department of Public Works and Planning, Resources Division	Flores-Becker, Amina	03/22/2020	No comment
Fresno County Department of Public Works and Planning, Design Division	Hensley, Gloria	03/23/2020	No comment
Fresno County Department of Public Works and Planning, Development Services and Capital Projects Division, Zoning and Permit Review	Aguilar, Albert	03/23/2020	No comment
Fresno County Department of Public Works and Planning, Development Services and Capital Projects Division	Tigson, Scott	03/27/2020	No comment

## 2.2 COMMENTS AND RESPONSES

### 2.2.1 Requirements for Responding to Comments on a Draft EIR

CEQA Guidelines Section 15088 requires that lead agencies evaluate all comments on environmental issues received on the Draft EIR and prepare a written response. The written response must address the significant environmental issue(s) raised and must be detailed, especially when specific comments or suggestions (e.g., additional mitigation measures) are not accepted. In addition, there must be a good faith and reasoned analysis in the written response. However, lead agencies need only respond to significant environmental issues associated with the project and do not need to provide all the information requested by commenters, as long as a good faith effort at full disclosure is made in the EIR (CEQA Guidelines Section 15204).

CEQA Guidelines Section 15204 recommends that commenters provide detailed comments that focus on the sufficiency of the Draft EIR in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. CEQA Guidelines Section 15204 also notes that commenters should provide an explanation and evidence supporting their comments. Pursuant to CEQA Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence supporting such a conclusion.





CEQA Guidelines Section 15088 also recommends that where a response to comments results in revisions to the Draft EIR, those revisions be incorporated as a revision to the Draft EIR or as a separate section of the Final EIR.

## **2.2.2 Responses to Comments**

In accordance with CEQA Guidelines Section 15088, the County, as the lead agency, evaluated the comments received on the Draft EIR (State Clearinghouse No. 2017091038) for the proposed project, and has prepared the following responses to the comments received. This Response to Comments document is part of the Final EIR for the project in accordance with CEQA Guidelines Section 15132.

The comment letters reproduced in the following pages follow the same organization as used in the List of Commenters (Table 2-1).



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# State Agencies



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
Central Region  
1234 East Shaw Avenue  
Fresno, California 93710  
(559) 243-4005  
[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

**GAVIN NEWSOM, Governor**  
**CHARLTON H. BONHAM, Director**



March 25, 2020

Chrissy Monfette  
Fresno County Department of Public Works and Planning  
2220 Tulare Street, 6<sup>th</sup> Floor  
Fresno, California 93721

**Subject: Fifth Standard Solar Complex Project (Project)  
Draft Environmental Impact Report (DEIR)  
SCH#: 2017091038**

Dear Ms. Monfette:

The California Department of Fish and Wildlife (CDFW) received a DEIR from the Fresno County Department of Public Works and Planning for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.<sup>1</sup>

CDFW-1 Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under Fish and Game Code. While the comment period may have passed, CDFW would appreciate if the Fresno County Department of Public Works and Planning will still consider our comments.

## CDFW ROLE

CDFW-2 CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically

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<sup>1</sup> CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

CDFW-3

**Nesting Birds:** CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

In this role, CDFW is responsible for providing, as available, biological expertise during public agency environmental review efforts (e.g., CEQA), focusing specifically on Project activities that have the potential to adversely affect fish and wildlife resources. CDFW provides recommendations to identify potential impacts and possible measures to avoid or reduce those impacts.

CDFW-4

## PROJECT DESCRIPTION SUMMARY

**Proponent:** RWE Solar Development, LLC

**Objective:** The Project proponent has applied to the Fresno County Department of Public Works and Planning for three Unclassified Conditional Use Permits (CUPs) (CUP Application Nos. 3562, 3563, and 3564) to construct, operate, maintain, and decommission a 150-megawatt (MW) energy storage facility. The Project proposes the construction of photovoltaic electricity-generating facilities, a battery storage facility, and associated infrastructure. A new generation-tie line would be constructed to connect the solar and storage components of the proposed Project to PG&E's adjacent Gates Substation. The anticipated lifetime of the proposed Project would be 35 years and would be decommissioned once operations of the facility cease.

**Location:** The Project is located in unincorporated Fresno County, approximately 2 miles east of Interstate 5 (I-5) and approximately 13 miles east of Coalinga. Lassen

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↑ Avenue borders the eastern side of the property and is the only paved road adjacent to the Project site. Trinity Avenue, Tractor Avenue, and Phelps Avenue intersect the Project site, but are not improved roads. Nearby communities include Huron (1.5 miles north), Avenal (9 miles south), Kettleman City (12 miles southeast), and Coalinga (13 miles west).

**Timeframe:** The final lease agreement for the property (i.e. Project site) is anticipated to occur by 2022 with a lease term of 35 years. The CUP would tentatively have an end date of August 2057.

## COMMENTS AND RECOMMENDATIONS

CDFW-5

CDFW offers the following comments and recommendations to assist the Fresno County Department of Public Works and Planning in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

There are many special-status species that may be present within or adjacent to the Project site. These wildlife resources may need to be evaluated and addressed prior to any approvals that would allow ground-disturbing activities. CDFW is concerned regarding potential impacts to special-status species including, but not limited to, the State threatened Swainson's hawk (*Buteo swainsoni*), and the State threatened tricolored blackbird (*Agelaius tricolor*).

### I. Environmental Setting and Related Impact

**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 CDFW or the United States Fish and Wildlife Service (USFWS)?**

#### COMMENT 1: Swainson's Hawk (SWHA)

CDFW-6

**Issue:** The Project site consists of dense low vegetation crop fields (i.e. wheat and/or alfalfa fields) that are suitable foraging habitat for SWHA. Also, there are a few trees that may serve as nest sites. The proposed Project will involve activities that will potentially impact nest sites and remove SWHA foraging habitat.

**Specific impacts:** Without appropriate avoidance and minimization measures for SWHA, potential significant impacts that may result from Project activities include: nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young), and direct

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↑ mortality. Any take of SWHA without appropriate incidental take authorization would be a violation of Fish and Game Code.

**Evidence impact is potentially significant:** There are a few trees within the Project site that may potentially serve as nest sites. SWHA exhibit high nest-site fidelity year after year and lack of suitable nesting habitat in the San Joaquin Valley limits their local distribution and abundance (CDFW 2016). Approval of the Project will lead to subsequent ground-disturbing activities that involve noise, groundwork, and movement of workers that could affect nests within and adjacent to the Project site which may result in potential nest abandonment, and loss of foraging habitat, significantly impacting local nesting SWHA.

### **Recommended Potentially Feasible Mitigation Measure(s)**

To evaluate potential impacts to SWHA, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the Environmental Impact Report (EIR) prepared for this Project, and that these measures be made conditions of approval for the Project.

### **Recommended Mitigation Measure 1: SWHA Surveys**

CDFW recommends that a qualified wildlife biologist conduct surveys for nesting SWHA following the survey methods developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC 2000) prior to project implementation. The SWHA TAC recommends a 0.5-mile survey distance from the limits of disturbance. The survey protocol includes early season surveys to assist the project proponent in implementing necessary avoidance and minimization measures, and in identifying active nest sites prior to initiating ground-disturbing activities.

### **Recommended Mitigation Measure 2: SWHA No-disturbance Buffer**

If ground-disturbing activities are to take place during the SWHA breeding season (March 1 through September 15), CDFW recommends that additional pre-activity surveys for active nests be conducted by a qualified biologist no more than 10 days prior to the start of Project implementation to ensure that no SWHA have begun nesting activities near the Project site. CDFW recommends a minimum no-disturbance buffer of ½-mile be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

### **Recommended Mitigation Measure 3: SWHA Take Authorization**

CDFW recommends that in the event an active SWHA nest is detected during surveys and a ½-mile no-disturbance buffer is not feasible, consultation with CDFW is warranted to discuss how to implement the project and avoid take. If take cannot



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(Cont.)

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be avoided, take authorization through the issuance of an Incidental Take Permit (ITP), pursuant to Fish and Game Code section 2081(b) is necessary to comply with CESA.

## Recommended Mitigation Measure 4: Loss of SWHA Foraging Habitat

CDFW recommends compensation for the loss of SWHA foraging habitat as described in CDFW's "Staff Report Regarding Mitigation for Impacts to Swainson's Hawks" (CDFG 1994) to reduce impacts to foraging habitat to less than significant. The Staff Report recommends that mitigation for habitat loss occur within a minimum distance of 10 miles from known nest sites. CDFW has the following recommendations based on the Staff Report:

- For projects within 1 mile of an active nest tree, a minimum of 1 acre of habitat management (HM) land for each acre of development is advised.
- For projects within 5 miles of an active nest but greater than 1 mile, a minimum of  $\frac{3}{4}$  acre of HM land for each acre of development is advised.
- For projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree, a minimum of  $\frac{1}{2}$  acre of HM land for each acre of development is advised.

## COMMENT 2: Tricolored Blackbird (TRBL)

**Issue:** TRBL have the potential to occur near the Project site. Review of aerial imagery indicates that the agricultural practices on the Project site and adjacent properties may involve dense low vegetation crop fields (i.e. wheat and/or grain fields). These types of agricultural crop fields are known to serve as TRBL nest colony sites.

**Specific impact:** Without appropriate avoidance and minimization measures for TRBL, potential significant impacts include nest and/or colony abandonment, reduced reproductive success, and reduced health and vigor of eggs and/or young.

**Evidence impact would be significant:** TRBL aggregate and nest colonially, forming colonies of up to 100,000 nests (Meese et al. 2014). Approximately 86% of the global population is found in the San Joaquin Valley (Kelsey 2008, Weintraub et al. 2016). Increasingly, TRBL are forming larger colonies that contain progressively larger proportions of the species' total population (Kelsey 2008). In 2008, for example, 55% of the species' global population nested in only two colonies, which were located in silage fields (Kelsey 2008). In 2017, approximately 30,000 TRBL were distributed among only 16 colonies in Merced County (Meese 2017). Nesting can occur synchronously, with all eggs laid within one week (Orians 1961). For

CDFW-6  
(Cont.)

CDFW-7

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↑ these reasons, depending on timing, disturbance to nesting colonies can cause abandonment, significantly impacting TRBL populations (Meese et al. 2014).

## **Recommended Potentially Feasible Mitigation Measure(s)**

To evaluate potential impacts to TRBL, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

### **Recommended Mitigation Measure 5: TRBL Habitat Assessment**

CDFW recommends that a qualified biologist conduct a habitat assessment of the Project site in advance of Project implementation, to determine if the Project site or its vicinity contains suitable nesting habitat (i.e. appropriate grain crop) for TRBL.

### **Recommended Mitigation Measure 6: TRBL Surveys**

CDFW recommends that Project activities be timed to avoid the typical bird breeding season (February 1 through September 15). However, if Project activities must take place during that time, CDFW recommends that a qualified wildlife biologist conduct surveys for nesting TRBL, within a minimum 500-foot buffer from the Project site, no more than 10 days prior to the start of implementation to evaluate presence/absence of TRBL nesting colonies in proximity to Project activities and to evaluate potential Project-related impacts.

### **Recommended Mitigation Measure 7: TRBL Avoidance**

If an active TRBL nesting colony is found during pre-activity surveys, CDFW recommends implementation of a minimum 300-foot no-disturbance buffer in accordance with CDFW's "*Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015*" (CDFW 2015). CDFW advises that this buffer remain in place until the breeding season has ended or until a qualified biologist has determined that nesting has ceased, the birds have fledged, and are no longer reliant upon the colony or parental care for survival. It is important to note that TRBL colonies can expand over time and for this reason, the colony may need to be reassessed to determine the extent of the breeding colony within 10 days prior to Project initiation.

### **Recommended Mitigation Measure 8: TRBL Take Authorization**

In the event that a TRBL nesting colony is detected during surveys, consultation with CDFW is warranted to discuss how to implement the Project and avoid take, or if avoidance is not feasible, to acquire an ITP, pursuant to Fish and Game Code section 2081(b), prior to any ground-disturbing activities.

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## II. Editorial Comments and/or Suggestions

**Nesting birds:** CDFW agrees with Mitigation Measure BIO-2 of the DEIR that Project activities will be conducted outside of the bird nesting season (February – September 15). Mitigation Measure BIO-2 of the DEIR also states that if Project activities occur during the avian nesting season, the size of the no-disturbance buffers will be coordinated with CDFW. CDFW recommends the following:

To evaluate Project-related impacts on nesting birds, CDFW recommends that a qualified wildlife biologist conduct pre-activity surveys for active nests no more than 10 days prior to the start of ground or vegetation disturbance to maximize the probability that nests that could potentially be impacted are detected. CDFW also recommends that surveys cover a sufficient area around the Project site to identify nests and determine their status. A sufficient area means any area potentially affected by the Project. In addition to direct impacts (i.e. nest destruction), noise, vibration, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, CDFW recommends that a qualified biologist conduct a survey to establish a behavioral baseline of all identified nests. Once construction begins, CDFW recommends having a qualified biologist continuously monitor nests to detect behavioral changes resulting from the Project. If behavioral changes occur, CDFW recommends halting the work causing that change and consulting with CDFW for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, CDFW recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around active nests of non-listed raptors. These buffers are advised to remain in place until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or on-site parental care for survival. Variance from these no-disturbance buffers is possible when there is compelling biological or ecological reason to do so, such as when the construction area would be concealed from a nest site by topography. CDFW recommends that a qualified wildlife biologist advise and support any variance from these buffers and notify CDFW in advance of implementing a variance.

## ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural

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↑ communities detected during Project surveys to the California Natural Diversity Database (CNDDDB). The CNDDDB field survey form can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The completed form can be mailed electronically to CNDDDB at the following email address: [CNDDDB@wildlife.ca.gov](mailto:CNDDDB@wildlife.ca.gov). The types of information reported to CNDDDB can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

CDFW-10

**FILING FEES**


↓ If it is determined that the Project has the potential to impact biological resources, an assessment of filing fees will be necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CDFW-11

↓ CDFW appreciates the opportunity to comment on the Project to assist the Fresno County Department of Public Works and Planning in identifying and mitigating the Project's impacts on biological resources.

More information on survey and monitoring protocols for sensitive species can be found at CDFW's website (<https://www.wildlife.ca.gov/Conservation/Survey-Protocols>). If you have any questions, please contact Jim Vang, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 243-4014 extension 254, or by electronic mail at [Jim.Vang@wildlife.ca.gov](mailto:Jim.Vang@wildlife.ca.gov).

Sincerely,

DocuSigned by:  
  
FA83F09FE08945A...

Julie A. Vance  
Regional Manager

Attachment

# State Agencies

Chrissy Monfette  
Fresno County Department of Public Works and Planning  
March 25, 2020  
Page 9

## Literature Cited

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CDFW-12

**Attachment 1**

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE  
RECOMMENDED MITIGATION MONITORING AND REPORTING PROGRAM  
(MMRP)**

**PROJECT: Fifth Standard Solar Complex Project**

**SCH No.: 2017091038**

<b>RECOMMENDED MITIGATION MEASURE</b>	<b>STATUS/DATE/INITIALS</b>
<i>Before Disturbing Soil or Vegetation</i>	
Mitigation Measure 1: SWHA Surveys	
Mitigation Measure 3: SWHA Take Authorization	
Mitigation Measure 4: Loss of SWHA Foraging Habitat	
Mitigation Measure 5: TRBL Habitat Assessment	
Mitigation Measure 6: TRBL Surveys	
Mitigation Measure 8: TRBL Take Authorization	
<i>During Construction</i>	
Mitigation Measure 2: SWHA No-disturbance Buffer	
Mitigation Measure 7: TRBL Avoidance	

CDFW-13

## State Agencies

California Department of Fish and Wildlife (CDFW)

### *Response to CDFW-1*

The commenter provided introductory greetings and stated that the agency had reviewed the Draft EIR and welcomed the opportunity to provide comments and recommendations regarding project activities that may affect California fish and wildlife, which is the purview of CDFW. The commenter noted that while the comment period for the Draft EIR had passed (the comment period closed on March 23, 2020 and the comment letter was dated March 25, 2020), they requested the County to still consider the agency's comments.

The County accepted CDFW's comment letter. No further response is required.

### *Response to CDFW-2*

The commenter provided information on the CDFW's role as a trustee agency and a responsible agency. The comment is acknowledged by the County. No further response is required.

### *Response to CDFW-3*

The commenter provided information on CDFW's jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. The commenter provided reference to the California Fish and Game Code Sections 3503.5 and 3513 and described CDFW's role in providing biological expertise during public agency environment review efforts to provide recommendations to avoid or reduce those impacts.

The comment is acknowledged by the County. No further response is required.

### *Response to CDFW-4*

The commenter provided a summary of the proposed project description. No response is required.

### *Response to CDFW-5*

The commenter stated it offered the following comments and recommendations to the County in adequately identifying and/or mitigating the project's significant or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. The commenter noted that there are many special-status species that may be present within or adjacent to the project site and that wildlife may need to be evaluated and addressed prior to any approvals that would allow ground-disturbing activities. The commenter noted that CDFW is concerned with potential impacts to special-status species including but not limited to the state threatened Swainson's hawk (*Buteo swainsoni*) (SWHA), and the state threatened tricolored blackbird (*Agelaius tricolor*) (TRBL).



Section 4.4, Biological Resources, in the Draft EIR provided a thorough evaluation of potential biological resources that may be impacted by the proposed project. The information in Section 4.4 was informed by the Biological Resources Technical Report (BRTR) prepared by Environmental Science Associates (ESA) in 2016. Potential project-related effects to SWHA, TRBL, and other special-status plants and wildlife species were discussed in the BRTR and the Draft EIR Section 4.8.

The comment does not provide concerns over the adequacy of the analysis in the Draft EIR or provide any questions or concerns regarding the Draft EIR; therefore, no further response is required.

#### *Response to CDFW-6*

The commenter raised specific concerns regarding project activities that may impact SWHA as a result of nest abandonment, loss of nest trees, loss of foraging habitat, and direct mortality. A technical memorandum was prepared by ESA to provide clarifications on previous information in the BRTR and Draft EIR to help provide additional context regarding impacts to SWHA. The memorandum is included as Appendix A of the Final EIR. No new information has been provided, and the memorandum only serves to clarify previous information, as such, recirculation of the EIR is not necessary.

For the SWHA, CDFW notes in their comment letter that low vegetation crop fields on the project site provide foraging habitat for this species and states that the proposed project would involve activities that would potentially impact nest sites and remove SWHA foraging habitat. They conclude that this may result in a potentially significant impact, noting that “there are a few trees within the project site that may potentially serve as nest sites,” and that, “ground-disturbing activities that involve noise, groundwork, and movement of workers that could affect nests within and adjacent to the Project site.” On this basis, CDFW recommends several additional mitigation measures, including additional surveys, buffers, potential consultation regarding take authorization and mitigation for loss of foraging habitat.

As described in the BRTR, fewer than ten small shade trees occur on the 1,588-acre site, each of which was closely examined during the 2016 biological survey (ESA 2016). None of the small trees showed evidence of current or prior raptor nesting activity, and the BRTR concluded that no suitable SWHA nesting trees occur on the site (ESA 2016: pp. 3-2 and 3-9). The location and photos of the three largest trees are at photo points 7a, 9c, and 14 in the BRTR (ESA 2016, Figure A-1). Based on the absence of prior raptor nesting activity, none of these trees are considered to have recently supported raptor nesting activity, including nesting by SWHA.

It was observed during the survey that each of the shade trees was situated near agricultural equipment staging areas near the corners of 0.5-mile square blocks of crops. Hence, they are strategically located near work centers and staging areas on the site. These trees provide the only shade on the project site. Based on the observation of human food waste and containers near and beneath several of the trees, it is evident that field crews use the tree locations for shade protection beneath the trees, including during the peak SWHA nesting season, which



runs from approximately March through October. Given the small stature of trees on the site, lack of historic breeding as evidenced by the absence of SWHA or other raptor nests, year-round use of the tree locations for shade by farm workers, and nearby equipment and materials storage, it is highly unlikely that SWHA nest on the project site. Based on 2016 surveys, no trees within the Project site potentially serve as SWHA nest sites; therefore, there is no potential to impact SWHA nest sites on the site.

Relative to off-site nesting by SWHA, the BRTR summarized the California Natural Diversity Database records which noted seven historic SWHA nesting records within five miles of the Project site (ESA 2016, Figure 3). All of the historic nesting records indicated that SWHA nests were greater than three miles from the Project site, with five nests located at the California Aqueduct and another two located north of the town of Huron, over four miles north of the Project site.

The closest trees to the site that could provide potential SWHA nesting potential occur within a row of trees located precisely 0.25-mile (2,640 feet) southeast of the site, east of Lassen Avenue (Figure 1). These trees can be seen in the BRTR from photo point 4c (ESA 2016). As these trees are outside of the project site, they would not be directly impacted by the proposed project but do provide one of the few potential SWHA nesting opportunities within 3 miles of the project site. As shown in Figure 1, approximately 36 acres of the Project site are within 0.5 mile of this row of trees.





**Figure 1. Nearest Potential SWHA Nesting Area in the Project Vicinity**

Source: ESA 2020





As noted in the BRTR, the row of trees is surrounded by agricultural land uses and is subject to frequent nearby disturbance from human and equipment presence associated with agricultural activities. Hence, any birds nesting at this location would be expected to be accustomed to a certain amount of background equipment usage. Proposed project construction activities would be somewhat consistent with existing farming disturbances that currently occur both on the project site and in the vicinity of the row of trees. For these reasons, SWHA nesting success at the tree row would not be expected to be adversely affected by the proposed project, as the 0.25-mile (2,640 foot) buffer between the project site and the row of trees would provide an adequate buffer, and any impacts to nesting SWHA would be considered to be “less than significant” under CEQA.

During operations, the proposed project would result in very low levels of ongoing operational disturbance during solar panel maintenance activities. Therefore, any potential nests that could be established in this row of trees would be extremely unlikely to be impacted from ongoing operational activities.

Assuming that a 0.5-mile buffer is observed from the row of trees to accommodate potential SWHA nesting, then one of two approaches could be taken to accommodate the CDFW recommendation that surveys be undertaken within 0.5 mile of the project site: 1) proposed project construction within the closest 36-acre portion of the site would be delayed until after the SWHA nesting season (after September 15) with no other focused SWHA surveys needed during that year; or 2) surveys would be performed to verify the presence or absence of SWHA in the row of trees, and if SWHA are absent, then activities within the 36-acre area may proceed. If SWHA are detected, then activities could proceed after September 15. Either approach would result in a less than significant impact to nesting SWHA.

CDFW’s recommendation that the project mitigate for loss of SWHA habitat is not warranted. SWHA foraging suitability is considered very low on the Project site. The entire site is routinely tilled with almost no untilled edge habitat that would allow any SWHA forage species, such as rabbits, ground squirrels, or other small mammals, to seek refugia from agricultural management. As shown in the photo appendix in the BRTR (ESA 2016), the project site is managed in quarter-sections, or 160-acre blocks. Disking and deep tilling of such large areas results in virtually no cover for any small mammals that serve as forage species for SWHA. No potential food resources for SWHA were identified on the 1,588-acre site during the 2016 biological survey. Additionally, surrounding lands within approximately 3 miles are either similarly tilled for agricultural uses or support solar panel fields that provide limited forage for SWHA.

The site supports irrigated croplands consisting of a rotating crop of tomatoes and wheat. As characterized by Estep (2011), irrigated crops are generally characterized as having seasonal or fluctuating foraging habitat value depending on the planting and harvesting regime and vegetation structure. For example, tomatoes are planted in the spring, and vegetation height and density increase throughout the breeding season. Rodent populations increase during this period, but prey accessibility (and foraging use) decreases due to increasing vegetation height



and density (Bechard 1982; Estep 2011). When tomatoes are harvested in August, prey accessibility increases when rodent populations are at their highest and the value and foraging use of tomato fields reaches its peak. Adjacent vineyards and orchards, which occur to the south and east, are perennial crop types that preclude access by foraging SWHA (Estep 2011).

SWHA have been observed to forage widely over agricultural areas with regular foraging documented greater than 10 miles from nest sites (Estep 1989; Babcock 1995). However, foraging ranges are flexible and change seasonally as crops mature and are harvested and annually as crops rotate into new crop patterns. SWHA have proven to be very adaptable to this dynamic foraging landscape and have learned to opportunistically exploit suitable foraging conditions as they occur (Estep 2011).

Even with the absence of SWHA nest trees on the site and observed scarcity of potential SWHA nesting trees within 1 mile of the project site, the presence of SWHA nesting at the California Aqueduct, approximately 3 miles east of the project site suggests that foraging may occasionally occur at least seasonally within portions of the project site. Estep (2011) considers that foraging conditions for SWHA may be suitable during the period of wheat harvest (June) and tomato harvest (August). Because these crop types are among the most common in the Huron area of Fresno County, it is reasonable to suggest that SWHA foraging activity would be spread throughout the region as the crops are simultaneously harvested by different landowners.

Eleven SWHA nesting records have been reported to the California Natural Diversity Database (CNDDDB 2020) within 10 miles of the project site (Figure 2). Eight of the eleven nesting pairs were noted in the BRTR (ESA 2016, Figure 3). Each of these nests were active at some time between 2008 to 2016. Of these, 10 records were from lands that are managed by the California Department of Water Resources, and one record is from private land. A comprehensive record of current SWHA nesting is not available within 10 miles of the Project site. The estimate of 11 nesting pairs within 10 miles is used here as a surrogate to determine whether or not the loss of agricultural foraging habitat from the proposed project exceeds the suitable agricultural foraging habitat that is required to support 11 nesting SWHA pairs. The average size of a Swainson's hawk foraging range in this area from Estep (1989) was 6,820 acres. This equates to a total of 75,020 acres required to support the 11 nesting pairs.<sup>1</sup>

As shown in Figure 2, according to CNDDDB data, observations of SWHA have been concentrated along the California Aqueduct. This aqueduct extends north to south and is located more than 3 miles from the project site. Based on a GIS examination of irrigated agricultural lands within 10 miles of the Project site as shown in Figure 2, it is estimated that up

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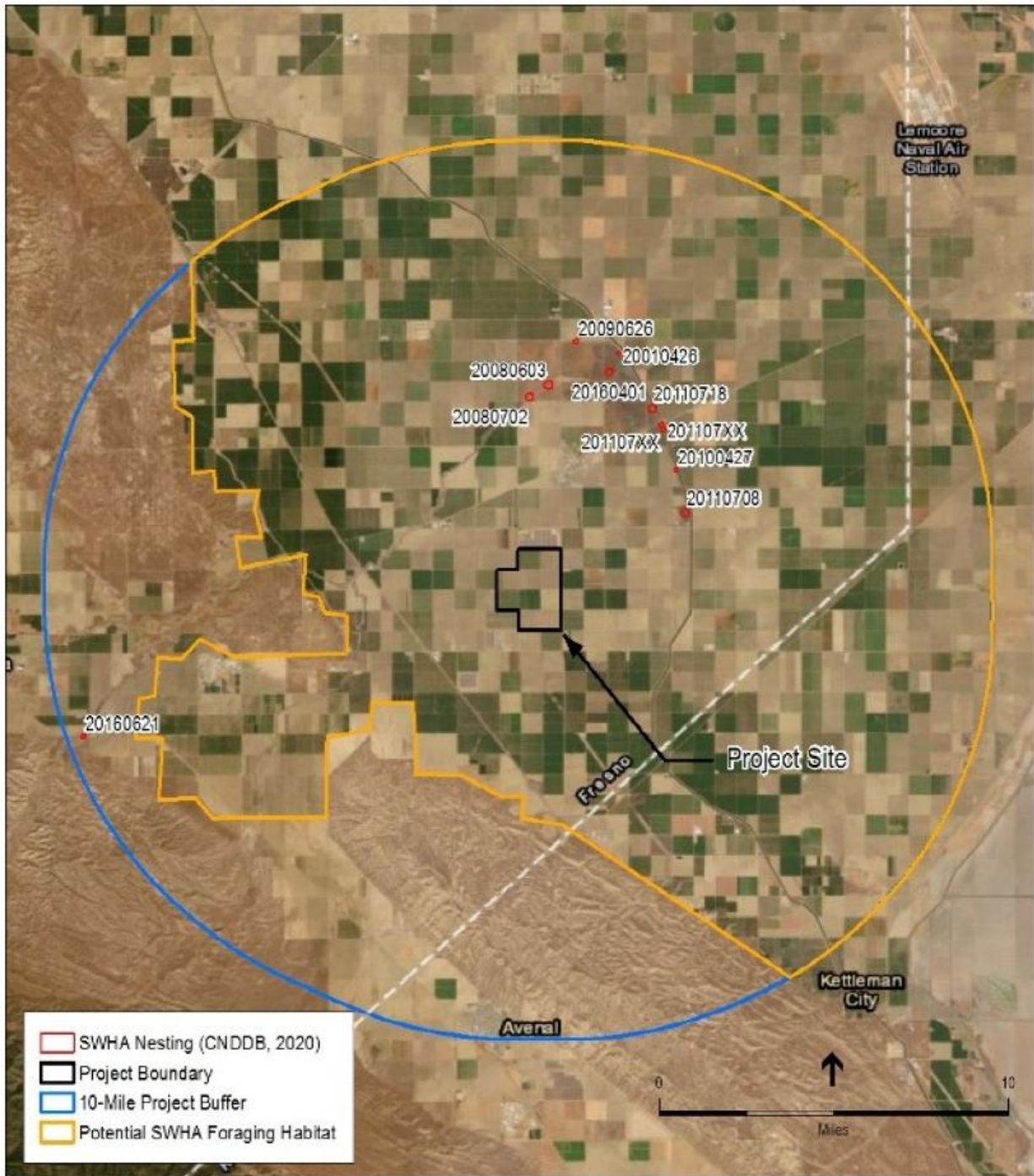
<sup>1</sup> The determination of potential SWHA impact criteria used by Estep (2011) is applied here to determine the potential impact of land development on SWHA. This is as follows: "if available foraging habitat acres exceed that required by the SWHA population and at least 70% of the remaining surplus suitable acres are retained, then the extent of habitat removal is not expected to affect either the existing population or substantially affect the opportunities for expansion of the population. The impact would thus be considered less than significant. The 70% threshold is considered to represent sufficient additional surplus acres to support a dynamic agricultural landscape and provide for expansion of the [SWHA] population."



to approximately 175,000 acres of available SWHA foraging habitat is present within 10 miles of the project site (Figure 2). Even assuming a substantial amount of variability in foraging ranges, with some birds foraging within several miles of nest sites, and varying habitat suitability for this species, there still remains substantially more available habitat than would be required to support 11 nesting pairs, with the approximately 180,000 available acres providing more than double the land required for the historic and existing nesting population. The proposed project would affect approximately 1.1 percent of this available foraging habitat. Based on a review of the project site and surrounding area and the findings of the BRTR, the most notable limiting factor for SWHA in the region is likely the lack of potential nesting sites for this species, not the lack of available foraging area. Based on this assessment, proposed project use would, therefore, not represent a significant impact to “surplus” acreage that would exceed the estimated amount required to support existing or expanded SWHA populations.

It is also notable that adult SWHA associated with the nesting sites identified in Figure 2 are also expected to forage in areas more than 10 miles from the site. The largely agricultural and undeveloped rural condition of the area shown in Figure 2 expresses the broad availability of SWHA foraging habitat in the proposed project region. The conversion of 1,588 acres of agricultural land under the proposed project would not affect the existing distribution and abundance of nesting SWHA, nor would it prevent an expansion of SWHA populations in the region. Thus, the potential proposed project impact to SWHA foraging habitat is already considered less than significant, and mitigation for loss of SHWA foraging habitat is not warranted.





**Figure 2. SWHA Nesting Sites and Potential Foraging Habitat within 10 Miles of the Project Site**

Source: ESA 2020

Note: Dates are provided in year, month, day in the figure (i.e. 20090626)



### *Response to CDFW-7*

The commenter raised specific concerns regarding proposed project activities that may impact TRBL, resulting in nest and/or colony abandonment, reduced reproductive success, and reduced health and vigor of eggs and/or young. A technical memorandum was prepared by ESA to provide clarifications on previous information in the BRTR and Draft EIR to help provide additional context regarding impacts to TRBL. The memorandum is included as Appendix A of the Final EIR. No new information has been provided, and the memorandum only serves to clarify previous information. As such, recirculation of the EIR is not necessary.

CDFW suggests that TRBL have the potential to nest on the project site; specifically, within wheat fields on the site. CDFW's comment letter includes a recommendation that a habitat assessment be undertaken to identify if potential TRBL habitat is present on the site, along with subsequent surveys and implementation of avoidance measures to prevent impacts to this species.

These additional mitigation measures are not warranted because impacts to TRBL are already reduced to a less than significant level. As noted in the BRTR (ESA 2016), no TRBL nesting colonies have been identified within 5 miles of the site, and the site provides no unique habitat that differs from other surrounding croplands to make the area attractive to this species. As cited by CDFW, in 2015 CDFW issued guidance entitled, "California Department of Fish and Wildlife (Department) Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015."

It is noted from CDFW's comment that wheat fields, particularly fields of triticale—a hybrid wheat-rye grain grown as forage for cows, can create a "habitat sink" for TRBL at agricultural areas where grain fields are harvested while TRBL young are still in the nest. As noted above, wheat is often harvested by June, when TRBL young may not have fledged. The result can be nearly total reproductive failure. Should the proposed project not be approved, the agricultural operations would continue on the project site, which are considered more likely to result in the project site being unsuitable to support TRBL, as compared to the construction and operation of the proposed project. The bird survey and protection measures presented in the Draft EIR provide 250- and 500-foot buffers for nesting passerine birds and raptors and would be sufficient to avoid potential impacts to TRBL. If a TRBL nesting colony is found during surveys, a 300-foot avoidance buffer would be applied, as suggested by CDFW.

### *Response to CDFW-8*

CDFW additionally provides comments and suggestions for the protection of other nesting birds. These additional measures are not warranted because nesting bird protection measures included in the Draft EIR employ take a standard "if/then" approach for the protection of nesting birds. For example, if the proposed project is initiated in the non-nesting season, then no preconstruction nesting bird surveys would be needed. However, if the proposed project is initiated during the nesting season, then surveys and nest avoidance would be warranted.



CDFW suggests that avian nesting surveys be conducted within 14 days prior to the start of ground or vegetation disturbance to avoid impacts to nesting birds.

As the Draft EIR provides, no-work buffers would be established around any active nests so that continuous monitoring would not be needed around active nests, as suggested by CDFW. The buffer distances provided in the Draft EIR (250 feet around active nests of passerine bird species and a 500-foot no-disturbance buffer around active nests of raptors) is entirely consistent with CDFW's recommended buffer distances. As such, a less than significant impact is expected to other nesting birds as a result of the proposed project.

*Response to CDFW-9*

CDFW requested that information developed in the EIR be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations and requested that any special-status species and natural communities detected during project surveys be reported to the California Natural Diversity Database.

The County acknowledges the comment and will include that clarification in the proposed mitigation measures for surveys; however, this clarification does not change the adequacy of the analysis presented in the Draft EIR.

*Response to CDFW-10*

CDFW provided information on potential filing fees when the Notice of Determination is filed.

The County is aware of filing fees with the Notice of Determination, and no further response is required.

*Response to CDFW-11*

CDFW provided closing remarks and contact information for the County to use if there are any questions regarding the comment letter.

The County acknowledges CDFW's contact information regarding further questions. The comment does not address the adequacy of the analysis in the Draft EIR, and therefore, no further comment is necessary.



*Response to CDFW-12*

CDFW provided a list of references used in the development of the agency's comment letter on the proposed project.

The County recognizes CDFW's references. The comment does not address the adequacy of the analysis in the Draft EIR, and therefore, no further comment is necessary.

*Response to CDFW-13*

CDFW provided an attachment that lists the proposed project's mitigation measures and requested the status/date/initials for those measures. No additional information on the attachment was provided.

The attachment is acknowledged.



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## Department of Toxic Substances Control



**Jared Blumenfeld**  
Secretary for  
Environmental Protection

Meredith Williams, Ph.D., Director  
8800 Cal Center Drive  
Sacramento, California 95826-3200

**Gavin Newsom**  
Governor

February 25, 2020

Ms. Christina Monfette  
County of Fresno  
2220 Tulare Street, 6<sup>th</sup> Floor  
Fresno, California 93721

DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR FIFTH STANDARD SOLAR  
COMPLEX ENVIRONMENTAL IMPACT REPORT NO. 7257 – DATED FEBRUARY  
2020 (STATE CLEARINGHOUSE NUMBER: 2017091038)

Dear Ms. Monfette:

DTSC-1 The Department of Toxic Substances Control (DTSC) received a Draft Environmental Impact Report (EIR) for the Fifth Standard Solar Complex. The proposed project would include the construction, operation, maintenance, and decommissioning of a 150 megawatt (MW) solar photovoltaic (PV) generation facility, a 20-MW solar PV generation facility, and an up to 100-MW energy storage facility. The proposed project includes PV electricity-generating facilities, a battery storage facility, and associated infrastructure. The proposed project would be located on approximately 1,600 acres in unincorporated Fresno County. A new generation-tie line would be constructed to connect the solar and storage components of the proposed project to Pacific Gas & Electric's adjacent Gates Substation (point of interconnect). The anticipated lifetime of the proposed project would be 35 years and it would be decommissioned once operations of the facility cease.

DTSC-2 DTSC recommends that the following issues be evaluated in the EIR Hazards and Hazardous Materials section:

1. The EIR should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have or occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The EIR should also identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.

DTSC-3

2. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 *Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers* ([https://dtsc.ca.gov/wpcontent/uploads/sites/31/2018/09/Guidance\\_Lead\\_Contamination\\_050118.pdf](https://dtsc.ca.gov/wpcontent/uploads/sites/31/2018/09/Guidance_Lead_Contamination_050118.pdf)).

DTSC-4

3. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to *DTSC's 2001 Information Advisory Clean Imported Fill Material* ([https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/SMP\\_FS\\_Cleanfill-Schools.pdf](https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/SMP_FS_Cleanfill-Schools.pdf)).

DTSC-5

4. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for organochlorinated pesticides should be discussed in the EIR. DTSC recommends the current and former agricultural lands be evaluated in accordance with DTSC's 2008 *Interim Guidance for Sampling Agricultural Properties (Third Revision)* (<https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/Ag-Guidance-Rev-3-August-7-2008-2.pdf>).

DTSC-6

DTSC appreciates the opportunity to review the EIR. Should you need any assistance with an environmental investigation, please submit a request for Lead Agency Oversight Application, which can be found at: [https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/VCP\\_App-1460.doc](https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/VCP_App-1460.doc). Additional information regarding voluntary agreements with DTSC can be found at: <https://dtsc.ca.gov/brownfields/>.

DTSC-7 If you have any questions, please contact me at (916) 255-3710 or via email at [Gavin.McCreary@dtsc.ca.gov](mailto:Gavin.McCreary@dtsc.ca.gov).

Sincerely,



Gavin McCreary  
Project Manager  
Site Evaluation and Remediation Unit  
Site Mitigation and Restoration Program  
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research  
State Clearinghouse  
[State.Clearinghouse@opr.ca.gov](mailto:State.Clearinghouse@opr.ca.gov)

Ms. Lora Jameson, Chief  
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California Department of Toxic Substances Control (DTSC)

*Response to DTSC-1*

The commenter provided introductory greetings, summarized the proposed project, and stated that the agency had reviewed the Draft EIR.

The comment is acknowledged by the County. No response is required.

*Response to DTSC-2*

The commenter included recommendations for issues to be evaluated in the EIR Hazards and Hazardous Materials section. Specifically, the commenter requested that the EIR acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. The commenter also recommended that in instances in which releases have occurred or may occur that further studies should be carried out to delineate the nature and extent of contamination and the potential threat to public health and/or the environment should be evaluated. Lastly, the commenter stated that the EIR should identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.

Section 4.8, Hazards and Materials, of the Draft EIR describes the potential impacts regarding hazards and hazardous materials that would result from implementation of the proposed project, consistent with the California Department of Toxic Substances Control's (DTSC's) recommendation. A Phase 1 Environmental Site Assessment was prepared for the proposed project, which was summarized in Section 4.8 of the Draft EIR and included in its entirety as Appendix G to the Draft EIR. The Phase 1 evaluated potential recognized environmental concerns (REC) both on- and off-site and included a records review of the project site to develop the history of the site and the surrounding area to evaluate if past uses may have resulted in RECs; a reconnaissance survey of the project site and its vicinity was also conducted.

The report findings identified six nearby listings but determined that none of the parcels constitute a REC to the project site. Surface soil staining was identified at six of the seven above-ground storage tanks and at two trailer-mounted, diesel-powered agricultural irrigation pumps on the project site. However, as shown on Figure 4.8-1 of the Draft EIR (page 4.8-10), the identified areas are outside the project footprint and would not be impacted by construction activities. The identified RECs are typical of agricultural production with similar infrastructure and if the stained soil areas are left undisturbed during construction, there would be a less than significant impact.

Section 4.8 of the Draft EIR evaluated potential hazards to the public through routine transport, use or disposal of hazardous materials (see Impact HAZ-1) and found that through all phases (construction, operation, and decommissioning) the proposed project would have a less than



significant impact through compliance with existing regulations for the handling and transport of hazardous materials.

Impact HAZ-2 in Section 4.8 of the Draft EIR evaluated potential upset and accident conditions involving hazardous materials release into the environment. The Draft EIR found that compliance with existing regulations (National Pollutant Discharge Elimination System permit requirements) and Mitigation Measure HAZ-1 for Broken Photovoltaic Module Detection and Handling Plan would reduce impacts to less than significant levels.

#### *Response to DTSC-3*

The commenter provided recommendations for the demolition of buildings or other structures on the project site. The proposed project does not involve any demolition or removal of structures; as such, the recommendations are not applicable.

#### *Response to DTSC-4*

The commenter provided recommendations for soil sampling if the project requires the importation of soil to backfill excavated areas. The proposed project would not require the importation of soil; as such, the recommendation is not applicable.

#### *Response to DTSC-5*

The commenter provided a recommendation that if any part of the proposed project has been used for agricultural, weed abatement or related activities, that proper investigation for organochlorinated pesticides should be discussed in the EIR. The commenter also recommended that current and former agricultural lands be evaluated in accordance with *DTSC's 2008 Interim Guidance for Sampling Agricultural Properties (Third Revision)*.

Section 4.8, Hazards and Hazardous Materials, of the Draft EIR included a discussion of potential hazards on the site, including exposure to pesticides, herbicides, and fertilizers (page 4.8-5). A Phase 1 Environmental Site Assessment was prepared for the project, which was summarized in Section 4.8 and included in its entirety as an appendix to the Draft EIR. As noted in Section 4.8 of the Draft EIR, the Phase 1 Environmental Site Assessment conducted for the proposed project did not identify an area of concern during construction or operation of the proposed project. The Phase 1 Environmental Site Assessment identified surface soil staining at six of the seven above-ground storage tanks and at two trailer-mounted, diesel-powered agricultural irrigation pumps on the project site. However, as shown on Figure 4.8-1 of the Draft EIR, the identified areas are outside the developed areas and would not be impacted by construction activities. The identified areas are typical of agricultural production with similar infrastructure, and if the stained soil areas are left undisturbed during construction, impacts would be less than significant.

Regarding the recommendation to conduct sampling of the site in accordance with DTSC's 2008 Guidance described above, the scope of that document is limited to evaluating only agricultural properties during a Preliminary Endangerment Assessment or other initial sampling



investigation. This applies to proposed new and/or expanded school sites or other projects where new land uses could result in increased human exposure, especially residential use. The proposed project would not involve any type of land use that would result in increased human exposure. Construction activities would be temporary, and dust control and erosion measures implemented as part of the proposed project would reduce potential exposure to organochlorinated pesticides. During operations, minimal staffing would be required, and soil disturbance would be minimal; as such, potential exposure to organochlorinated pesticides is less than significant.

*Response to DTSC-6*

The commenter provided closing remarks to end the agency's comment letter, a website to obtain any assistance with an environmental investigation, and another website for information on voluntary agreements with DTSC.

The comment is acknowledged by the County. No response is required.

*Response to DTSC-7*

The commenter provided contact information to address any questions on the provided comments. No response is required.



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## Westlands Water District

3130 N. Fresno Street, P.O. Box 6056, Fresno, California 93703-6056, (559) 224-1523, FAX (559) 241-6277

March 2, 2020

Ms. Christina Monfette  
Development Services and Capital Projects Division  
Fresno County Department of Public Works and Planning  
2220 Tulare Street, Sixth Floor  
Fresno, California 93721

Subject: COMMENTS REGARDING NOTICE OF AVAILABILITY OF A  
DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE FIFTH  
STANDARD COMPLEX SOLAR PROJECT (CUP NOS. 3562,  
3563 AND 3564; EIR NO. 7257)

Dear Ms. Monfette,

WWD-1 Westlands Water District (District) has reviewed the notice of preparation for the proposed solar panel project proposed by Fifth Standard Solar Complex. After reviewing Fifth Standard Solar application, the District does not have any additional comments. However, the District previously provided comments for the proposed project on September 25, 2017, a copy which is attached.

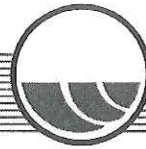
Thank you for the opportunity to assist the County of Fresno in this matter. If you have any additional questions, please feel free to contact Edith Ramirez at 559-241-6242.

Sincerely,

Russ Freeman, P.E.  
Deputy General Manager of Resources

Enclosures (1)

1. *Westlands Water District's Comment Letter Regarding Draft EIR 7257*



## Westlands Water District

3130 N. Fresno Street, P.O. Box 6056, Fresno, California 93703-6056, (559) 224-1523, FAX (559) 241-6277

September 25, 2017

Ms. Christina Monfette  
Fresno County Department of Public Works and Planning  
Development Services Division  
County of Fresno  
2220 Tulare Street, Sixth Floor  
Fresno, California 93721

Subject: COMMENTS REGARDING NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE FIFTH STANDARD SOLAR PROJECT COMPLEX (UCUP NOS. 3562, 3563 AND 3564; EIR NO. 7257)

Dear Ms. Monfette,

Westlands Water District (District) has reviewed the notice of preparation for the proposed solar panel project proposed by EC&R Solar Development, LLC.. After reviewing EC&R Solar Developments application, we have the following comments about the project site.

1. The Fifth Standard Solar Project Complex lies within the District boundary. This land currently receives an allocation of water from the District's agricultural water service contract. However once the land use changes to non agricultural, the land will no longer be eligible to receive an allocation of water from the District. Since the Applicant is proposing a solar development, the Applicant is eligible to receive water through the District's Municipal and Industrial (M&I) supply and the land will continue to have access to the District's distribution system.
2. The District has adopted regulations governing the application for and use of M&I water (Regulations). The Regulations stipulate the quantity of water that will be made available to a water user from the District's Central Valley Project (CVP) contract supply. The District will make available up to five (5) acre-feet per 160 acres annually for solar development operations. The Applicant is responsible for acquiring more water if needed. A copy of the Regulations is also provided for your information.
3. The project location has District easements, water delivery points (PV9-1.5-E-2.5N, PV9-1.5-E-3.0, PV9-1.5-E-3.0B & PV9-1.5-E-3.2) and private water user pipelines. During the construction and operation of this facility, please do not disturb District property. Prior to any excavation the applicant should contact Underground Service Alert.
4. The Applicant must comply with the District's Backflow Prevention guidelines for this connection to the water system.

WWD-2

Enclosure 1

Thank you for the opportunity to assist the County of Fresno in this matter, if you have any additional questions please feel free to contact Jose Rangel at 559-241-6220.

Sincerely,

A handwritten signature in cursive script that reads "Russ Freeman".

Russ Freeman  
Deputy General Manager of Resources

Enclosures (2)

1. *Terms and Conditions for Municipal and Industrial Water Service*
2. *Article \_ . Regulations Regarding the Application for and Use of Municipal and Industrial Water Within Westlands Water District*

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## Water Agencies

Westlands Water District (WWD)

### *Response to WWD-1*

The commenter noted that they had reviewed the Draft EIR and have no further comments; however, they had previously provided comments on the proposed project on September 25, 2017, which they attached. Additionally, they provided contact information if there were any additional questions. The comment is acknowledged by the County; however, it does not address the adequacy of the analysis in the Draft EIR or provide any questions or concerns regarding the Draft EIR. Therefore, no further response is necessary. Response to the provided attachment is provided in Response WWD-2.

### *Response to WWD-2*

The previously provided comments on the NOP for the proposed project are acknowledged by the County. These comments were documented and accounted for during the preparation of the Draft EIR (see Appendix A of the Draft EIR), and the concerns raised by the commenter were addressed in the Draft EIR.

Section 4.2, Agriculture, (page 4.2-11) describes the loss of water allocation from the District and the future eligibility for allocation through municipal and industrial water supply. Section 4.9, Hydrology, (page 4.9-4) in the Draft EIR also discusses water allocations from the District. Section 2.3.3, Irrigation Infrastructure, (page 2-9) in the Draft EIR provides a summary of the irrigation infrastructure. Section 2.8, Water Requirements and Waste Generation, (page 2-28) in the Draft EIR noted that onsite wells would be used during construction and operation, but that additional water may be obtained from Westland Water District. The proposed project would comply with the District's backflow prevention guidelines. The comment is acknowledged by the County. No further response is required.



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April 6, 2020

Chrissy Monfette  
County of Fresno  
Development Services and Capital Projects Division  
2220 Tulare Street, Sixth Floor  
Fresno, CA, 93721

**Project: Draft Environmental Impact Report (DEIR) for the Fifth Standard Solar Complex Project – Conditional Use Permit No. 3562, 3563, and 3564 and Environmental Impact Report No. 7257**

**District CEQA Reference No: 20200127**

Dear Ms. Monfette:

SJVAPCD-1 | The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above consisting to construct, operate, maintain, and decommission a 150-megawatt (MW) solar photovoltaic (PV) generation facility, an up to 20-MW solar PV generation facility, and an up to 100-MW energy storage facility on approximately 1,600 acres (Project), located in Fresno County, CA. The District offers the following comments:

SJVAPCD-2 | 1. Based on information as presented in the DEIR, after implementation of all feasible mitigation, the project would have a less than significant impact on air quality. Per the DEIR, the project specific annual emissions of criteria pollutants would not exceed any of the following District significance thresholds: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 27 tons per year of oxides of sulfur (SOx), 15 tons per year of particulate matter of 10 microns or less in size (PM10), or 15 tons per year of particulate matter of 2.5 microns or less in size (PM2.5). Therefore, the District concludes that the Project would have a less than significant impact on air quality when compared to the above-listed annual criteria pollutant emissions significance thresholds.

SJVAPCD-3 | 2. The Project is subject to District Rule 9510 (Indirect Source Review) because it exceeds the District's applicability threshold of 9,000 square feet of other space. Any applicant subject to District Rule 9510 is required to submit an Air Impact Assessment (AIA) application to the District no later than applying for final project-level approval. If approval of the Project constitutes the last approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including

**Samir Sheikh**

Executive Director/Air Pollution Control Officer

**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
Tel: (559) 230-6000 FAX: (559) 230-6061

**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: (661) 392-5500 FAX: (661) 392-5585

payment of all applicable fees before issuance of the first building permit, be made a condition of Project approval.

The purpose of District Rule 9510 is to reduce the growth in both NOx and PM10 emissions associated with development and transportation projects from mobile and area sources associated with construction and operation of development projects. The rule encourages clean air design elements to be incorporated into the development project. In case the proposed project clean air design elements are insufficient to meet the targeted emission reductions, the rule requires developers to pay a fee used to fund projects to achieve off-site emissions reductions. The District recommends that an Air Impact Assessment (AIA) application be submitted for the Project at this time.

Information about how to comply with District Rule 9510 can be found online at: <http://www.valleyair.org/ISR/ISRHome.htm>. The AIA application form can be found online at: <http://www.valleyair.org/ISR/ISRFormsAndApplications.htm>.

3. Mitigation Measure MM AIR-2 (Voluntary Emission Reduction Agreement (VERA)) of the DEIR indicates that the Project proponent is to enter into a VERA with the District. On Page 4.3-20 of the Draft EIR, MM AIR-2 states “*The developer shall enter into a Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD) or stagger the construction periods for the three facilities to avoid a significant impact. Proof of payment to the SJVAPCD shall be provided prior to issuance of grading permits for construction.*”

a. The District recommends that the VERA be executed prior to the issuance of construction/grading permits. This is consistent with the requirements of a VERA to have mitigation in place prior to the start of the first activity generating emissions, including but not limited to demolition, grading, etc., whichever occurs first. This will ensure that the targeted emissions reductions and the Project emissions occur contemporaneously.

The District is available to assist the project proponent with this VERA. Additional information on implementing a VERA can be obtained by contacting District staff at (559) 230-6000.

b. The MM AIR-2 offers the option to “*stagger the construction periods for the three facilities to avoid a significant impact.*” The DEIR also included an analysis that demonstrated the staggering of the construction periods in separate years would result in a less than significant impact. The District recommends that the County, as the lead agency under CEQA, include a requirement for the project proponent to provide documentation to the County supporting the “staggering” timing of the construction periods consistent with the DEIR and as such demonstrating that the

SJVAPCD-3  
(Cont.)

SJVAPCD-4

SJVAPCD-5



emissions are below the applicable significance thresholds for the project specific annual emissions of criteria pollutants as listed in comment 1 above.

SJVAPCD-5  
(Cont.)

4. The proposed Project may be subject to District Rules and Regulations, including: Regulation VIII (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the Project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants). The above list of rules is neither exhaustive nor exclusive. To identify other District rules or regulations that apply to this Project or to obtain information about District permit requirements, the applicant is strongly encouraged to contact the District's Small Business Assistance Office at (559) 230-5888. Current District rules can be found online at: [www.valleyair.org/rules/1ruleslist.htm](http://www.valleyair.org/rules/1ruleslist.htm).

SJVAPCD-6

5. The District recommends that a copy of the District's comments be provided to the Project proponent.

SJVAPCD-7

If you have any questions or require further information, please call Eric McLaughlin, at (559) 230-5808.

Sincerely,



For Arnaud Marjollet  
Director of Permit Services

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## Local Agencies

San Joaquin Valley Air Pollution Control District

### *Response to SJVAPCD-1*

The commenter's introductory text and background on the proposed project is acknowledged. The comment does not address the adequacy of the EIR, but subsequently lists comments in the remainder of the letter. These comments are addressed in Responses SJVAPCD-2 through SJVAPCD-7; therefore, no further response is required here.

### *Response to SJVAPCD-2*

The commenter restates conclusions from the Draft EIR regarding proposed project-specific emissions and confirms that the proposed project would have a less than significant impact on air quality. The comment is acknowledged by the County; however, the comment does not provide concerns over the adequacy of the analysis in the Draft EIR or provide any questions or concerns regarding the Draft EIR. Therefore, no further response is required.

### *Response to SJVAPCD-3*

The comment regarding compliance with San Joaquin Valley Air Pollution Control District's (SJVAPCD's) Rule 9510, Indirect Source Review, is acknowledged by the County. The proposed project would comply with Rule 9510. Rule 9510 is described in the Draft EIR in Section 4.3 (page 4.3-7). The purpose of Rule 9510 is acknowledged. The proposed project would submit an Air Impact Assessment to the SJVAPCD for Rule 9510 compliance. Proof of compliance and payment of any offsite mitigation fees would be made a condition of approval prior to issuance of grading permits by the County.

### *Response to SJVAPCD-4*

The comment regarding Mitigation Measure (MM) AIR-2, Voluntary Emission Reduction Agreement (VERA), from the Draft EIR is acknowledged by the County. The first sentence of Draft EIR MM AIR-2 has been updated as shown in the Revisions to the Draft EIR section of this Final EIR. MM AIR-2 has been revised to require that the VERA be executed prior to the issuance of ministerial construction/grading permits, but after the discretionary Unclassified Conditional Use Permits have been approved. See response to Comment SJVAPCD-5 for discussion relative to the other changes to MM AIR-2.

The County acknowledges SJVAPCD's contact information regarding further information on implementation of the VERA. The comment does not address the adequacy of the analysis in the Draft EIR, and therefore, no further response is required.



*Response to SJVAPCD-5*

The comment addresses MM AIR-2, which requires the applicant to enter a VERA or stagger the construction periods for the three facilities. A sentence has been added to the first paragraph of MM AIR-2 (see response to Comment SJVAPCD-4) to require that if “staggering” of the timing of the construction periods is used to avoid a significant impact, the developer shall provide documentation to the County to confirm that construction emissions would be reduced to below the applicable significance thresholds. Additionally, a typographical error has also been corrected in the second paragraph of MM AIR-2.

*Response to SJVAPCD-6*

The comment regarding the SJVAPCD’s rules and regulations is acknowledged by the County. Compliance with applicable SJVAPCD rules is discussed in the Draft EIR in Section 4.3, Air Quality, specifically pages 4.3-5 through 4.3-7 summarize applicable regulations. A copy of the comment letter has been provided to the applicant to inform them of the need to verify whether any additional regulations are applicable. The proposed project does not involve any demolition; therefore, the District Rule 4002 would not be applicable. The comment does not address the adequacy of the analysis in the Draft EIR; and therefore, no further comment is required.

*Response to SJVAPCD-7*

The comment regarding providing this comment letter to the project proponent is acknowledged by the County. The comment letter from the SJVAPCD was provided to the project proponent on April 14, 2020; therefore, no additional action is necessary. The County acknowledges SJVAPCD’s contact information regarding further questions on the comment letter.





# FRESNO COUNTY FIRE

PROTECTION DISTRICT

210 South Academy Avenue  
Sanger, California 93657  
Telephone: (559) 493-4300  
Fax: (559) 875-7451  
[www.fresnocountyfire.org](http://www.fresnocountyfire.org)

February 12, 2020

Christina Monfette, Planner 1 – Development Services Division  
County of Fresno  
Fresno County Public Works & Development Services  
2220 Tulare Street, Suite A  
Fresno, CA 93721

Transmitted by Email to: cmonfette@co.fresno.ca.us

RE: **Application Reference #:** **EIR#7257**  
**Name of Applicant:** **RWE SOLAR DEVELOPEMENT**  
**Address of Project:**  
**City, State & Zip of Project:**

Fresno County Fire Protection District (FCFPD) has received notice of the project and will continue to review the project for its potential impacts on the FCFPD.

### Application Types

- |   |  |
|---|--|
| <b>Site Plan Review (SPR)</b>                               | <b>Initial Study Application (ISA)</b> |
| <b>Director Review Application (DRA)</b>                    | <b>Variance Application (VA)</b>       |
| <b>Conditional Use Permit (CUP)</b>                         | <b>General Plan Application (GPA)</b>  |
| <b>Tentative Parcel Map (TPM, TPMW)</b>                     | <b>Tentative Tract Map (TTM)</b>       |
| <b>Pre-Application for Certificate of Compliance (PCOC)</b> |  |

All application types stated above **SHALL** comply with California Code of Regulations Title 24 – Fire Code. Prior to receiving your FCFPD conditions of approval for your project, you must submit construction plans to the County of Fresno Public Works and Planning for review. It is the **Applicants Responsibility** to deliver a minimum of **three** sets of plans to the FCFPD.

FCFPD-1

Project/Development including: Single Family Residential (SFR), Property of three (3) or more lots, Multi-Family Residential (MFR) Property, Commercial Property, Industrial Property, and/or Office Property shall annex into Community Facilities District No. 2010-01 of the Fresno county Fire Protection District.

Project/Development will be subject to the requirements of the current Fire Code and Building Code when a building permit or certificate of occupancy is sought.

Before plans are submitted to the Fresno County Fire Protection District please visit our website at [www.fresnocountyfire.org](http://www.fresnocountyfire.org) and fill out the Fire Permit Application to submit with your plans.

Please Note – requirements for your project may include but are not limited to:

**Water Flow Requirements**  
**Water Storage Requirements**  
**Fire Pumps**  
**Road Access**  
**Public Resources Code 4290**

**Fire Hydrants**  
**Fire Sprinklers Systems**  
**Fire Alarm Systems**  
**Premises Identification**  
**Title 15.60 County Ordinance**

Please contact the FCFPD at **(559) 493-4359** to schedule an over the counter meeting to receive your specific requirements for your project. Failure to schedule an appointment with the FCFPD will affect your ability to obtain final approval for your project.

Sincerely,

MARK A. JOHNSON  
Fire Chief

By



JIM McDOUGALD, BATALION CHIEF  
Fire Prevention

FCFPD-1  
(Cont.)

Fresno County Fire Protection District (FCFPD)

*Response to FCFPD-1*

The commenter acknowledged notice of the project and confirmed that the agency will continue to review the proposed project for potential impacts on the Fresno County Fire Protection District (FCFPD) as well as compliance with the applicable building codes and regulations. Additionally, the commenter provided contact information to schedule a meeting to receive specific proposed project requirements and noted that failure to schedule a meeting would affect the proposed project's ability to obtain final approval.

The proposed project would be built in accordance with the current fire code at the time building permits are sought. Section 4.10, Land Use and Planning, in the Draft EIR acknowledges that the project site would be annexed to the Community Facilities District No. 2010-01 of FCFPD (see page 4.10-11).

Section 4.8, Hazards and Hazardous Materials, in the Draft EIR discussed implementation of MM HAZ-2, which requires the preparation of a fire protection plan. As noted on page 4.8-19 of the Draft EIR, in the event of a fire, typical fire suppression methods would not be effective. Therefore, the proposed project would be required to implement MM HAZ-2 and prepare a fire protection plan. The Applicant would coordinate with the California Department of Forestry and Fire Protection and FCFPD to provide fire responders and proposed project staff with appropriate fire response training. The intent of this training would be to familiarize both responders and proposed project staff with potential fire hazards and reduction processes associated with solar power and energy storage facilities. The fire protection plan would be approved by FCFPD prior to the start of construction.



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### 3.0 MINOR REVISIONS TO THE DRAFT EIR

#### 3.1 INTRODUCTION

This section includes minor edits to the Draft EIR. These modifications resulted from minor clarifications and staff-initiated changes.

Revisions herein do not result in new significant environmental impacts, do not constitute significant new information, and do not alter the conclusions of the environmental analysis. Changes are provided in revision marks (underline for new text and ~~strikeout~~ for deleted text).

It should be noted that the term Applicant and Developer are synonymous with regard to the role in implementation of the proposed project and required environmental commitments. The terms “Applicant”, “Property Owner”, “Developer”, “Contractor” or “Operator” shall be interchangeable in that the parties affecting or allowing the uses and improvements which are a part of the project shall be mutually and individually responsible for implementing the mitigation measures.

#### 3.2 MINOR CHANGES AND EDITS TO THE DRAFT EIR

##### Section ES Executive Summary

Table ES-1 is revised on page ES-7 as follows:

Impacts	Mitigation Measures	Level of Significance After Mitigation
<b>Section 4.3 - Air Quality</b>		
<p><b>Impact AQ-1</b> The proposed project would not conflict with or obstruct implementation of the applicable air quality plan.</p>	<p><b>MM AIR-2: Voluntary Emission Reduction Agreement (VERA).</b></p> <p>a. The <del>d</del>Developer shall enter into a Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD) <u>prior to the issuance of ministerial construction/grading permits</u> or stagger the construction periods for the three facilities to avoid a significant impact. Proof of payment to the SJVAPCD shall be provided prior to issuance of grading permits</p>	<p>Less Than Significant Impact with Mitigation Incorporated.</p>



Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>for construction. <u>If “staggering” of the timing of the construction periods is used to avoid a significant impact, the Developer shall provide documentation to the County prior to the commencement of construction activities to confirm that construction emissions would be reduced to below the applicable significance thresholds.</u></p> <p>b. Twelve months prior to initiation of decommissioning activities, the Applicant shall prepare additional analysis to determine air quality impacts from the proposed decommissioning activities. If the emissions will exceed the SJVAPCD thresholds of <del>significance</del> <u>significance</u>, the Applicant shall enter into a new VERA with the SJVAPCD to offset the decommissioning emissions below the thresholds of significance.</p>	

Table ES-1 is revised on page ES-8 as follows:

Impacts	Mitigation Measures	Level of Significance After Mitigation
<b>Section 4.4 - Biological Resources</b>		
<p><b>Impact BIO-1</b> The proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p>	<p><b>MM BIO-2:</b> Reduce Construction-related Impacts to Nesting Birds. Ensure that active nests of raptors and other special-status nesting birds are not affected as a result of the proposed project.</p> <ul style="list-style-type: none"> <li>If construction work is scheduled to take place outside of the avian nesting season (September 16 through January 31), no action would be required to protect nesting birds. If any activities that could harm birds or their nests (e.g., clearing temporary workspaces; staging or stockpiling machinery or</li> </ul>	<p>Less Than Significant Impact with Mitigation Incorporated.</p>



Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>supplies; parking vehicles, equipment, or trailers; grading or leveling; creating stockpiles of dirt or gravel; or any activity that could cover existing habitat or disrupt surface soils) occur during the avian nesting season (February 1 through September 15), the following measures shall be implemented to avoid impacts on nesting raptors and other protected and common birds:</p> <ul style="list-style-type: none"> <li>• No more than 14 days prior to construction, a qualified wildlife biologist shall conduct preconstruction surveys of all construction sites to determine if birds or nests are present. Surveys may be phased as construction is phased, so that each section is surveyed no more than 14 days prior to the start of construction in that area.</li> </ul> <p>If active nests are found during preconstruction surveys, a no-disturbance buffer shall be created around nests until it is determined that all young have fledged or until the recognized nesting season has ended (i.e., September 15 annually). The size of any employed buffers will vary based on the species that is nesting, the status of the nest, site conditions, and work to be completed during the active period of the nest. All buffers will be appropriately sized, based on USFWS published recommendations to avoid take to the nest. The size of the buffer zones and types of construction activities restricted in these areas could be further modified during construction in coordination with CDFW and shall be based on the existing level of noise and human disturbance on the project site.</p> <ul style="list-style-type: none"> <li>• If preconstruction surveys indicate that nests are inactive, or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint determined to be unoccupied by nesting birds or that are outside the no-disturbance buffer for active nests could be removed.</li> </ul>	



Impacts	Mitigation Measures	Level of Significance After Mitigation
	<ul style="list-style-type: none"> <li>To prevent impacts to SWHA, construction within one half-mile of the windbreak identified in photo point 4c of the Biological Survey (ESA 2016) shall occur after the bird nesting season (September 15). If construction cannot be deferred until this date, a preconstruction survey shall be performed to determine if SWHA are present. If no SWHA are detected by the survey, then construction may proceed, otherwise it must be deferred until after the nesting season. If SWHA are detected, then activities shall not proceed until after September 15.</li> </ul>	

Table ES-1 is revised on page ES-17 as follows:

<b>Section 4.6 – Geology and Soils</b>		
<p><b>Impact GEO-2</b> The proposed project would not result in substantial soil erosion or the loss of topsoil.</p>	<p><b>MM AG-1: Reclamation Plan.</b></p>	<p>Less Than Significant Impact with Mitigation Incorporated.</p>

Table ES-1 is revised on page ES-28 as follows:

<b>Section 4.14 - Transportation</b>		
<p><b>Impact TRA-1</b> The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.</p>	<p><b>MM TRA-1: Construction and Decommissioning Traffic Control and Management Plan.</b> Prior to issuance of construction permits, building permits, or encroachment permits, the Applicant and/or its construction contractors shall prepare and submit a traffic control and management plan to Fresno County Department Public Works and Planning and the California Department of Transportation (Caltrans) District 6 office for approval. The traffic control and management plan shall be prepared in accordance with both the California’s Manual on Uniform Traffic Control Divisions and Work Area Traffic Control</p>	<p>Less Than Significant Impact with Mitigation Incorporated.</p>



	<p>Handbook and must include but not be limited to the following items:</p> <ul style="list-style-type: none"> <li>• Specify timing of deliveries of heavy equipment and building materials.</li> <li>• Direct construction traffic with a flagger.</li> <li>• Place temporary signage, lighting, and traffic control devices, if required, including but not limited to appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic.</li> <li>• Ensure access for emergency vehicles to the project site.</li> <li>• Maintain access to adjacent property.</li> <li>• Specify both construction-related vehicle travel and oversize-load haul routes, minimize construction traffic during the AM and PM peak hours, and avoid residential neighborhoods to the maximum extent feasible.</li> <li>• Obtain all necessary permits from the appropriate agencies for work within the road right-of-way or use of oversized/overweight vehicles, which may require California Highway Patrol or a pilot car escort.</li> <li>• Submit plans for any work on the proposed intersection improvements on Lassen Avenue at the site access driveways to the County and Caltrans District 6 for review and approval prior to the issuance of any encroachment or road improvement permit for the work.</li> <li>• Clean or remove any material that is deposited onto the roadways as soon as possible and at least prior to the end of each working day.</li> <li>• Obtain any access easements from private property owners necessary to perform required repair work.</li> </ul> <p><b>MM-TRA-2: Preconstruction and Pre-Decommissioning Road Survey Report.</b> A preconstruction report and a pre-decommissioning report shall be prepared by a qualified registered engineer to include a detailed analysis of road suitability to accommodate haul trucks during project construction. The report shall be submitted to the Fresno County Department of Public Works and Planning. Prior to initiating the</p>	
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	<p>preconstruction or decommissioning report, the proposed methodology shall be presented to the Fresno County Department of Public Works and Planning for review and approval. Improvements to existing roads may be necessary based on the findings of the report.</p> <p><b>MM TRA-3: Road Repair Agreement.</b> Prior to the start of construction, the Applicant shall enter into a secured agreement with the County to ensure that the proposed project contributes its fair-share portion towards repairs of any County roads that are impacted by this project. The scope of impacts shall be determined in consultation with the County of Fresno and Caltrans District 6.</p>	
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**Section 4.3 Air Quality**

Page 4.3-20

**MM AIR-2: Voluntary Emission Reduction Agreement (VERA).**

- a. The developer shall enter into a Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD) prior to the issuance of construction/grading permits or stagger the construction periods for the three facilities to avoid a significant impact. Proof of payment to the SJVAPCD shall be provided prior to issuance of grading permits for construction. If “staggering” of the timing of the construction periods is used to avoid a significant impact, the developer shall provide documentation to the County prior to the commencement of construction activities to confirm that construction emissions would be reduced to below the applicable significance thresholds.
- b. Twelve months prior to initiation of decommissioning activities, the Applicant shall prepare additional analysis to determine air quality impacts from the proposed decommissioning activities. If the emissions will exceed the SJVAPCD thresholds of significance, the Applicant shall enter into a new VERA with the SJVAPCD to offset the decommissioning emissions below the thresholds of significance.

**Section 4.4 Biological Resources**

Page 4.4-18

**MM BIO-2:** Reduce Construction-related Impacts to Nesting Birds. Ensure that active nests of raptors and other special-status nesting birds are not affected as a result of the proposed project.



If construction work is scheduled to take place outside of the avian nesting season (September 16 through January 31), no action would be required to protect nesting birds. If any activities that could harm birds or their nests (e.g., clearing temporary workspaces; staging or stockpiling machinery or supplies; parking vehicles, equipment, or trailers; grading or leveling; creating stockpiles of dirt or gravel; or any activity that could cover existing habitat or disrupt surface soils) occur during the avian nesting season (February 1 through September 15), the following measures shall be implemented to avoid impacts on nesting raptors and other protected and common birds:

- No more than 14 days prior to construction, a qualified wildlife biologist shall conduct preconstruction surveys of all construction sites to determine if birds or nests are present. Surveys may be phased as construction is phased, so that each section is surveyed no more than 14 days prior to the start of construction in that area.
- If active nests are found during preconstruction surveys, a no-disturbance buffer shall be created around nests until it is determined that all young have fledged or until the recognized nesting season has ended (i.e., September 15 annually). The size of any employed buffers will vary based on the species that is nesting, the status of the nest, site conditions, and work to be completed during the active period of the nest. All buffers will be appropriately sized, based on USFWS published recommendations to avoid take to the nest. The size of the buffer zones and types of construction activities restricted in these areas could be further modified during construction in coordination with CDFW and shall be based on the existing level of noise and human disturbance on the project site.
- If preconstruction surveys indicate that nests are inactive, or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint determined to be unoccupied by nesting birds or that are outside the no-disturbance buffer for active nests could be removed.
- To prevent impacts to SWHA, construction within one half-mile of the windbreak identified in photo point 4c of the Biological Survey (ESA 2016) shall occur after the bird nesting season (September 15). If construction cannot be deferred until this date, a preconstruction survey shall be performed to determine if SWHA are present. If no SWHA are detected by the survey, then construction may proceed, otherwise it must be deferred until after the nesting season. If SWHA are detected, then activities shall not proceed until after September 15.



## Section 4.6 Geology and Soils

Page 4.6-14, last paragraph.

During grading, erosion prevention measures would be implemented, including the separation of topsoil, whereby topsoil is separated and stockpiled separately from subsoil and stabilized to prevent erosion. When project construction is complete, stripped subsoil and topsoil would be replaced as required. Other erosion and sediment control measures would include watering for dust control and soil compaction during grading and throughout construction activities. The Applicant would comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit and prepare a Stormwater Pollution Prevention Plan (SWPPP), as discussed in Section 4.9, Hydrology and Water Quality, and ~~implement a dust control plan~~ comply with the SJVAPCD Regulation VIII, Fugitive PM<sub>10</sub> Prohibitions and Rule 9510 Indirect Source Review, as discussed in Section 4.3, Air Quality. The Central Valley Regional Water Quality Control Board and the County would be required to approve the SWPPP. The SWPPP would include BMPs such as the use of straw wattles, check dams, fabric blankets, or silt fencing to control sediment and limit erosion. All erosion control materials would be biodegradable and composed of natural fiber. Therefore, with the compliance with applicable regulations, and Mitigation Measure AG-1, and Mitigation Measure AIR-3 as described, soil erosion impacts from construction of the proposed project would be less than significant.

Page 4.6-15, Mitigation Measures

### Mitigation Measures

Mitigation Measure AG-1 ~~and Mitigation Measure AIR-3~~ would be required.

## Section 4.14 Transportation

Page 4.14-9.

**MM TRA-3: Road Repair Agreement.** Prior to the start of construction, the Applicant shall enter into a secured agreement with the County to ensure that the proposed project contributes its fair-share portion towards repairs of any County roads that are impacted by this project. The scope of impacts shall be determined in consultation with the County of Fresno and Caltrans District 6.





## 4.0 AGRICULTURAL LAND CONSERVATION COMMITTEE

The County of Fresno Agricultural Land Conservation Committee (ALCC) was established by the Board of Supervisors' Resolution pursuant to the Williamson Act on December 12, 1967 with additional legislation approved by the Board in 1995 and 1996. The purpose of the ALCC is to review the establishment of agricultural preserve formation applications, review applications for placing land under Williamson Act contract, review petitions to remove land from the Williamson Act program and make recommendations to the Board of Supervisors.

Because the proposed project involves the cancellation of Agricultural Land Conservation Contracts Nos. 1809, 2227, 2799, 5150 and partial cancellation of Agricultural Land Conservation Contract Nos. 365 and 367 (RLCC Nos. 982 through 987) in order to establish the two photovoltaic solar power generation facilities and the electrical battery storage facility, the ALCC was required to review the application for cancellation and provide a recommendation to the Board of Supervisors.

Cancellation is in the Public Interest as defined by the Department of Conservation (DOC 2015) and as set forth in Government Code Section 51282 (c) if the Board of Supervisors can find that:

1. Other public concerns substantially outweigh the objectives of this chapter; and
2. There is no proximate noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or that development of the contracted land would provide more contiguous patterns of urban development than development of proximate noncontracted land.

On July 8, 2020, the ALCC met to review the application for cancellation. At the hearing, Fresno County Staff provided a recommendation to deny the petition for cancellation of Agricultural Land Conservation Contract Nos. 1809, 2227, 2799, 5150 and partial cancellation of Agricultural Land Conservation Contract Nos. 365 and 367 based on their determination that the required findings under Government Code Section 51282(c) could not be made (as listed above).

Based on the information presented at the hearing, the ALCC voted unanimously to recommend approval of the cancellation application to the Board of Supervisors.

The application for cancellation of Agricultural Land Conservation Contracts Nos. 1809, 2227, 2799, 5150 and partial cancellation of Agricultural Land Conservation Contract Nos. 365 and 367 (RLCC Nos. 982 through 987) will be considered by the Board of Supervisors at the public hearing for the certification of the Final EIR.



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## 5.0 REFERENCES

- Bechard, M. J. 1982. Effect of Vegetative Cover on Foraging Site Selection by Swainson's Hawk. *Condor* 84:153–159.
- Babcock, K. W. 1995. Home Range and Habitat Use of Breeding Swainson's Hawks in the Sacramento Valley of California. *Journal of Raptor Research* 29:193–197.
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- Environmental Science Associates (ESA). *Technical Memorandum. Fifth Standard Solar Complex Project Draft Environmental Impact Report, SCH#: 2017091038; Response to March 25, 2020 Comments from the California Department of Fish and Wildlife*. April 2020
- \_\_\_\_\_. *EC&R Solar Development LLC. Biological Resources Technical Report*. September 2016.
- Estep, J.A. 2011. The Distribution and Abundance of Nesting Swainson's Hawks in the Vicinity of the Proposed RE Kamm LLC and RE Jameson LLC Solar Generation Facility, Fresno County, California, August 2011.
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# **APPENDIX A**

## **ESA Technical Memorandum**



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# Technical memorandum

date April 13, 2020

to Christina Monfette

from Brian Pittman, CWB

cc Matt Stucky, RWE  
Julie Watson, ESA

subject **Fifth Standard Solar Complex Project Draft Environmental Impact Report, SCH#: 2017091038;  
Response to March 25, 2020 Comments from the California Department of Fish and Wildlife**

This memorandum has been prepared in response to the March 25, 2020 California Department of Fish and Wildlife (CDFW) comment letter on the Fifth Standard Solar Complex Project (Project) Draft Environmental Impact Report (DEIR). CDFW submitted the comments on the DEIR as a state trustee agency for fish and wildlife resources in their capacity to ensure the protection of sensitive biological resources under their jurisdiction. The CDFW letter relayed their concern for three wildlife categories and provided recommendations for further evaluation of these species. As discussed below, either baseline conditions on the Project site either do not support these species and no potential impacts would occur, or, the measures identified in the DEIR provide adequate protection to ensure that Project-related impacts do not occur to protected resources. As such, the additional mitigation measures recommended by CDFW are not warranted for this project.

The two wildlife species discussed by CDFW are Swainson's hawk and tricolored blackbird. Potential project-related effects to these and other special-status plants and wildlife species were discussed in the 2016 *Biological Resources Technical Report* (BRTR) prepared by ESA (2016). As described and depicted in the BRTR, which was appended to the DEIR, neither Swainson's hawk nor tricolored blackbird have been identified within three miles of the Project site and their potential to occur on or adjacent to the site is considered low based on the absence of potentially suitable habitat. Additionally, CDFW provides several suggestions for focused surveys for common nesting birds. For the reasons explained below, these additional measures are not warranted. The DEIR's existing measures for the protection of common nesting birds are adequate. Each of these topics is discussed in more detail below.

## ***Swainson's hawk nesting***

For the Swainson's hawk, CDFW notes in their comment letter that low vegetation crop fields on the Project site provide foraging habitat for this species and states that the project will involve activities that will potentially impact nest sites and remove SWHA foraging habitat. They conclude that this may result in a potentially significant impact, noting that "there are a few trees within the Project site that may potentially serve as nest sites," and that, "ground-disturbing activities that involve noise, groundwork, and movement of workers that could affect nests within and adjacent to the Project site." On this basis, CDFW recommends several additional

mitigation measures, including additional surveys, buffers, potential consultation regarding take authorization and mitigation for loss of foraging habitat.

For the following reasons, these additional mitigation measures are not warranted because impacts to SWHA are already reduced to a less than significant level. Even though not required, the project sponsor is nonetheless willing to adhere to the following additional SWHA protection condition: Either 1) Project construction within the closest 36-acre portion of the site to an existing line of trees located 0.25-mile (2,640 feet) southeast of the site, east of Lassen Ave would be delayed until after the SWHA nesting season (after September 15); **or**, 2) surveys would be performed to verify the presence or absence of SWHA in the row of trees and, if SWHA are absent then activities within the 36-acre area may proceed. If SWHA are detected, then activities would be delayed until after September 15.

As described in the BRTR, fewer than ten small shade trees occur on the 1,588-acre site, each of which was closely examined during the 2016 biological survey (ESA, 2016). None of the small trees showed evidence of current or prior raptor nesting activity and the BRTR concluded that no suitable SWHA nesting trees occur on the site (BRTR, 2016, pp. 3-2 and 3-9). The location and photos of the three largest trees are at photo points 7a, 9c, and 14 in the BRTR (see ESA, 2016, Figure A-1). Based on the absence of prior raptor nesting activity, none of these trees are considered to have recently supported raptor nesting activity, including nesting by SWHA.

It was observed during the survey that each of the shade trees were situated near agricultural equipment staging areas near the corners of 0.5-mile square blocks of crops. Hence, they are strategically located near work centers and staging areas on the site. These trees provide the only shade on the Project site. Based on the observation of human food waste and containers near and beneath several of the trees, it is evident that field crews use the tree locations for shade protection beneath the trees, including during the peak SWHA nesting season, which runs from approximately March through October. Given the small stature of trees on the site, lack of historic breeding as evidenced by the absence of SWHA or other raptor nests, year-round use of the tree locations for shade by farm workers, and nearby equipment and materials storage, it is highly unlikely that SWHA nest on the Project site. Based on 2016 surveys, no trees within the Project site potentially serve as SWHA nest sites; therefore, there is no potential to impact SWHA nest sites on the site.

Relative to off-site nesting by SWHA, the BRTR summarized the California Natural Diversity Database records which noted seven historic SWHA nesting records within five miles of the Project site (see ESA, 2016, Figure 3). All of the historic records are greater than three miles from the Project site, with five nests at the California Aqueduct and another two located north of the town of Huron, greater than four miles north of the Project site.

The closest trees to the site that could provide potential SWHA nesting potential occur within a row of trees located precisely 0.25-mile (2,640 feet) southeast of the site, east of Lassen Ave (**Figure 1**). These trees can be seen in the BRTR from photo point 4c (ESA, 2016). As these trees are outside of the proposed Project site they would not be directly impacted by the Project but do provide one of the few potential SWHA nesting opportunities within three miles of the Project site. As shown in Figure 1, approximately 36 acres of the Project site are within 0.5-miles of this row of trees.

As noted in the BRTR the row of trees is surrounded by agricultural land uses and is subject to frequent nearby disturbance from human and equipment presence associated with agricultural activities. Hence, any birds nesting at this location would be expected to be accustomed to a certain amount of background equipment usage. Project construction activities would be somewhat consistent with existing farming disturbances that currently occur both on the Project site and in the vicinity of the tree row of trees. For these reasons, SWHA nesting success at the tree row would not be expected to be adversely affected by the Project, as the 0.25-mile (2,640 foot) buffer between the Project site and the row of trees would provide an adequate buffer, and any impacts to nesting SWHA would be considered to be “less than significant” under CEQA.



During operations, the Project would result in very low levels of ongoing operational disturbance during solar panel maintenance activities. Therefore, any potential nests that could be established in this row of trees would be extremely unlikely to be impacted from ongoing operational activities.

Assuming that a 0.5-mile buffer is observed from the row of trees to accommodate potential SWHA nesting, then one of two approaches could be taken to accommodate the CDFW recommendation that surveys be undertaken within 0.5-mile of the Project site: Either 1) Project construction within the closest 36-acre portion of the site would be delayed until after the SWHA nesting season (after September 15) with no other focused SWHA surveys needed during that year; or, 2) surveys would be performed to verify the presence or absence of SWHA in the row of trees and, if SWHA are absent then activities within the 36-acre area may proceed. If SWHA are detected, then activities could proceed after September 15. Either approach would result in no impact to nesting SWHA.

**Figure 1**

A row of trees located 0.25-mile (2,640 feet) southeast of the Project site provides the nearest potential Swainson's hawk nesting area in the Project vicinity.



***Swainson's hawk foraging***

CDFW's recommendation that the project mitigate for loss of SWHA habitat is not warranted. SWHA foraging suitability is considered very low on the Project site. The entire site is routinely tilled with almost no untilled edge habitat that would allow any SWHA forage species such as rabbits, ground squirrels, or other small mammals to seek refugia from agricultural management. As shown in the photo appendix in the BRTR (ESA, 2016), the site is managed in quarter-sections, or 160-acre blocks. Disking and deep tilling of such large areas results in virtually no cover for any small mammals that serve as forage species for SWHA. No potential food resources for SWHA were identified on the 1,588-acre site during the 2016 biological survey. Additionally, surrounding lands within approximately three miles are either similarly tilled for agricultural uses or support solar panel fields that provide limited forage for SWHA.

The site supports irrigated croplands consisting of a rotating crop of tomatoes and wheat, which comprised 50% and 40%, respectively, of the site in 2016 (ESA, 2016). As characterized by Estep (2011), irrigated crops are

generally characterized as having seasonal or fluctuating foraging habitat value depending on the planting and harvesting regime and vegetation structure. For example, tomatoes are planted in the spring and vegetation height and density increases throughout the breeding season. Rodent populations increase during this period, but prey accessibility (and foraging use) decreases due to increasing vegetation height and density (Bechard, 1982; Estep, 2011). When tomatoes are harvested in August, prey accessibility increases when rodent populations are at their highest and the value and foraging use of tomato fields reaches its peak. Adjacent vineyards and orchards, which occur to the south and east, are perennial crop types that preclude access by foraging SWHA (Estep, 2011).

SWHA have been observed to forage widely over agricultural areas with regular foraging documented greater than 10 miles from nest sites (Estep, 1989; Babcock, 1995). However, foraging ranges are flexible and change seasonally as crops mature and are harvested and annually as crops rotate into new crop patterns. Swainson's hawks have proven to be very adaptable to this dynamic foraging landscape and have learned to opportunistically exploit suitable foraging conditions as they occur (Estep, 2011).

Even with the absence of SWHA nest trees on the site and observed scarcity of potential SWHA nesting trees within one mile of the site; the presence of SWHA nesting at the California Aqueduct, approximately three miles east of the Project site suggests that foraging may occasionally occur at least seasonally within portions of the Project site. Estep (2011) considers that foraging conditions for SWHA may be suitable during the period of wheat harvest (June) and tomato harvest (August). Because these crop types are among the most common in the Huron area of Fresno County, it is reasonable to suggest SWHA foraging activity would be spread throughout the region simultaneously as the crops are harvested simultaneously by different landowners.

Eleven SWHA nesting records have been reported to the CNDDDB (2020) within 10 miles of the Project site (**Figure 2**). Eight of the 11 nesting pairs were noted in the BRTR (see ESA, 2016, Figure 3). Each of these nests were active at some time between 2008 to 2016. Of these, 10 records were from lands that are managed by the California Department of Water Resources and one record is from private land. A comprehensive record of current SWHA nesting is not available within 10 miles of the Project site. The estimate of 11 nesting pairs within 10 miles is used here as a surrogate to determine whether or not the loss of agricultural foraging habitat from the Project exceeds the suitable agricultural foraging habitat that is required to support 11 nesting SWHA pairs. The average size of a Swainson's hawk foraging range in this area from Estep (1989) was 6,820 acres. This equates to a total of 75,020 acres required to support the 11 nesting pairs.<sup>1</sup>

As shown in Figure 2, the nesting population of SWHA has historically been concentrated along the California Aqueduct. This aqueduct extends north to south and is located more than three miles from the Project site. Based on a GIS examination of irrigated agricultural lands within 10 miles of the Project site, as shown in Figure 2, it is estimated that up to approximately 175,000 acres of available Swainson's hawk foraging habitat is present within 10 miles of the Project site (Figure 2). Even assuming a substantial amount of variability in foraging ranges, with some birds foraging within several miles of nest sites, and varying habitat suitability for this species, there still remains substantially more available habitat than would be required to support 11 nesting pairs, with the approximately 180,000 available acres providing more than double the land required for the historic and existing nesting population. The Project would affect approximately 1.1% of this available foraging habitat. Based on a review of the Project site and surrounding area and the findings of the BRTR, the most notable limiting factor for SWHA in the region is likely the lack of potential nesting sites for this species, not the lack of available foraging area. Based on this assessment, Project use therefore would not represent a significant impact to "surplus" acreage that exceeds the estimated amount required to support existing or expanded SWHA populations.

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<sup>1</sup> The determination of potential SWHA impact criteria used by Estep (2011) is applied here to determine the potential impact of land development on SWHA. This is as follows: "if available foraging habitat acres exceed that required by the SWHA population and at least 70% of the remaining surplus suitable acres are retained, then the extent of habitat removal is not expected to affect either the existing population or substantially affect the opportunities for expansion of the population. The impact would thus be considered less than significant. The 70% threshold is considered to represent sufficient additional surplus acres to support a dynamic agricultural landscape and provide for expansion of the [SWHA] population."

**Figure 2**

Swainson's hawk nesting sites and potential foraging habitat within 10 miles of the Project site.



Given the availability of up to 180,000 acres of potential foraging habitat within 10 miles of the Project site, the conversion of 1,588 acres of agricultural land on the Project site to solar use would have a relatively small effect (a reduction by 1.3%) on overall SWHA foraging opportunities. It is also notable that adult SWHA associated with the nesting sites identified in Figure 2 are also expected to forage in areas beyond 10 miles from the site. The largely agricultural and undeveloped rural condition of the area shown in Figure 2 expresses the broad availability of SWHA foraging habitat in the Project region. Thus, the conversion of 1,588 acres of agricultural land under the Project will not affect the existing distribution and abundance of nesting SWHA nor would it prevent an expansion of SWHA populations in the region. Thus, the potential Project impact to SWHA foraging habitat is already considered less than significant and mitigation for loss of SHWA foraging habitat is not warranted.

### ***Tricolored blackbird***

CDFW suggests that tricolored blackbird (TRBL) have the potential to nest on the project site; specifically, within wheat fields on the site. The agency's comment letter includes a recommendation that a habitat assessment be undertaken to identify if potential TRBL habitat is present on the site, along with subsequent surveys and implementation of avoidance measures to prevent impacts to this species.

For the following reasons, these additional mitigation measures are not warranted because impacts to TRBL are already reduced to a less than significant level. As noted in the BRTR (ESA, 2016), no TRBL nesting colonies have been identified within five miles of the site, and the site provides no unique habitat that differs from other surrounding croplands to make the area attractive to this species. As cited by CDFW, in 2015 CDFW issued guidance entitled, "California Department of Fish and Wildlife (Department) Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015."

It is noted from CDFW's comment that wheat fields, particularly fields of triticale—a hybrid wheat-rye grain grown as forage for cows, can create a "habitat sink" for TRBL at agricultural areas where grain fields are harvested while young are still in the nest. As noted above, wheat is often harvested by June, when TRBB young may not have fledged. The result can be nearly total reproductive failure. It should be noted that the management and harvest of wheat and other crops on the Project site is entirely independent from the proposed Project and will continue as part of ongoing agricultural operations, which are considered more likely to result in the Project site being unsuitable to support TRBL when compared to the construction and operation of the Project. The bird survey and protection measures presented in the DEIR provide 250 and 500 foot buffers for nesting passerine birds and raptors, and would be sufficient to avoid potential impacts to TRBL. If a TRBL nesting colony is found during surveys, as 300-foot avoidance buffer will be applied, as suggested by CDFW.

### ***Other nesting birds***

CDFW additionally provides comments and suggestions for the protection of other nesting birds. These additional measures are not warranted for the following reasons. Nesting bird protection measures included in the DEIR employ take a standard "if/then" approach for the protection of nesting birds. For example, if the Project is initiated in the non-nesting season, then no preconstruction nesting bird surveys would be needed. However, if the Project is initiated during the nesting season, then surveys and nest avoidance would be warranted.

CDFW suggests that avian nesting surveys be conducted within 10 days prior to the start of ground or vegetation disturbance to avoid impacts to nesting birds. The DEIR presented a survey schedule of 30 days for nesting birds, consistent with the survey schedule for other major projects in Fresno County. For example, the California High Speed Rail Project EIR issued by the California High Speed Rail Authority and reviewed by the Fresno CDFW office, provides that a biologist will perform pre-construction nest surveys within 30 days prior to ground-disturbing activities (CHSR, 2011). This time period is considered appropriate for the proposed Project.

As the Project DEIR provides, no-work buffers would be established around any active nests so that continuous monitoring would not be needed around active nests, as suggested by CDFW. The buffer distances provided in the Project DEIR (250 feet around active nests of passerine bird species and a 500-foot no-disturbance buffer around active nests of raptors) is entirely consistent with CDFW's recommended buffer distances. As such, no impact is expected to other nesting birds as a result of the proposed Project.

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# The Distribution and Abundance of Nesting Swainson's Hawks in the Vicinity of the Proposed RE Kamm LLC and RE Jameson LLC Solar Generation Facility

August 2011



*Prepared by:*

**ESTEP**



*Environmental  
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# **The Distribution and Abundance of Nesting Swainson's Hawks in the Vicinity of the Proposed RE Kamm LLC and RE Jameson LLC Solar Generation Facilities**

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August 2011



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## **Section 1. Introduction**

This report describes the results of breeding season surveys of the state-threatened Swainson's hawk (*Buteo swainsoni*) in the vicinity of the proposed RE Kamm LLC Solar Generation Facility (SGF) and the RE Jameson LLC SGF in Fresno County. Using the survey data, this report also assesses the impact of these proposed projects, pursuant to the California Environmental Quality Act (CEQA), on the local and regional Swainson's hawk nesting population.

The RE Kamm SGF, proposed by applicant RE Kamm LLC, and RE Jameson SGF, proposed by applicant RE Jameson LLC, are two of a multi-project portfolio being pursued by Recurrent Energy, LLC in Kings and Fresno Counties. These projects are contiguous, so for purposes of this assessment they are addressed as a single project (RE Kamm/Jameson SGF). The overall survey and assessment effort included all proposed projects extending across an approximately 900,000 acre study area from Mendota on the north to Kettleman City on the south, and from Coalinga on the west to Hanford on the east. This report focuses on the results of the RE Kamm/Jameson SGF project survey and assessment.

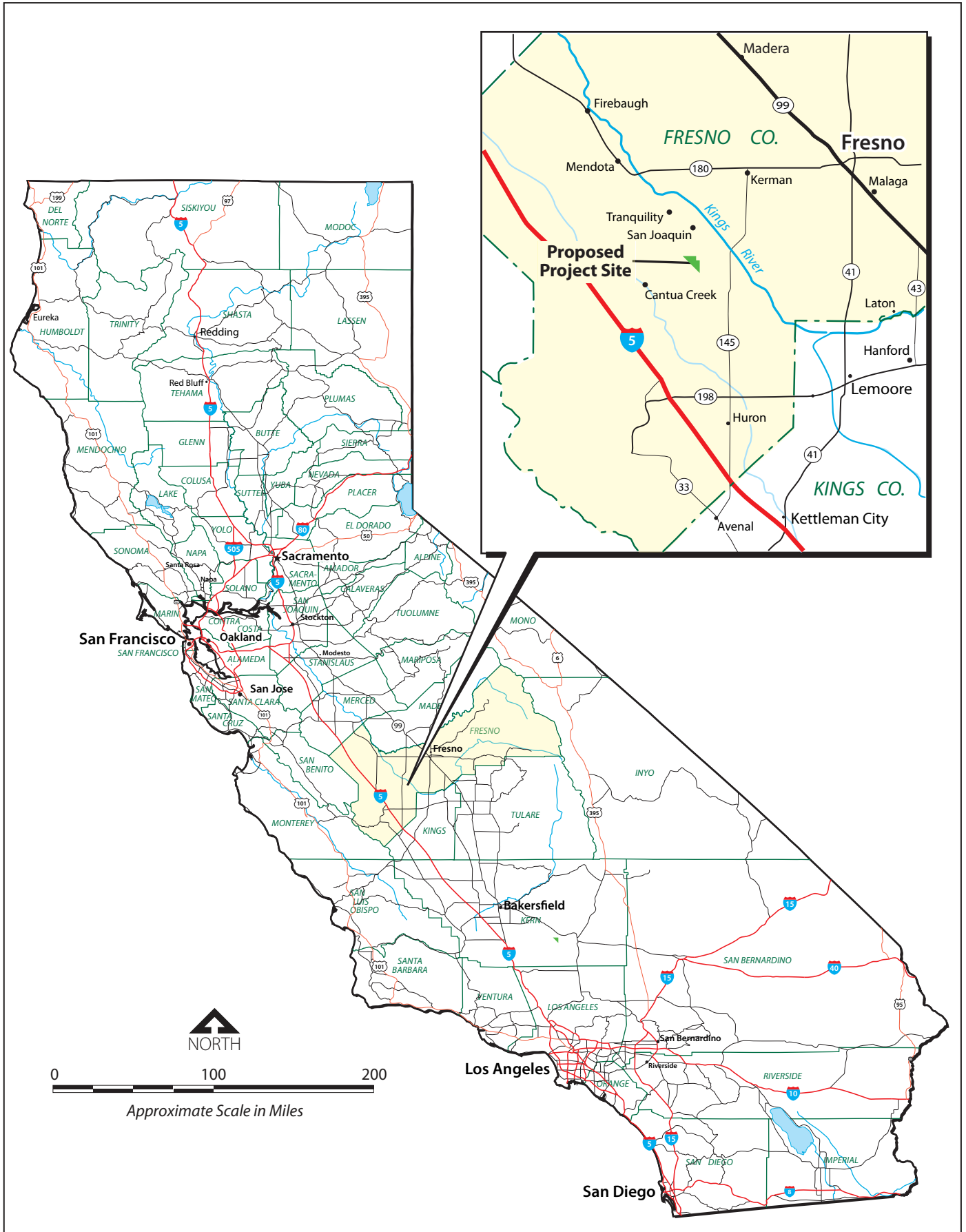
### **Project Background**

The RE Kamm SGF and RE Jameson SGF are solar photovoltaic (PV) projects proposed by RE Kamm LLC and RE Jameson LLC, respectively. The RE Kamm SGF is a 20 megawatt (MW) project and the contiguous RE Jameson SGF is a 5 MW project located generally south of the community of San Joaquin, California, on 240 acres of agricultural land in Fresno County (Figure 1). The project is within the range of the Swainson's hawk, a species that is dependent on agricultural habitats in the Central Valley to meet its foraging needs. Removal of agricultural lands could potentially affect individual nesting pairs and affect the local or regional distribution and abundance of the species.

The RE Kamm/Jameson SGF is currently undergoing preliminary CEQA review and an Initial Study/Negative Declaration is in progress. Results of this study are intended to be incorporated into the environmental document and is subject to review by Fresno County, the CEQA Lead Agency.

### **Project Location**

The project site is located approximately 5 miles south of the community of San Joaquin and approximately 17 miles east of Interstate 5. The project site is bounded by Kamm Road on the north, South Butte Road on the east, South Yuba Road on the west, and West Conejo Avenue on the south (Figure 2). The site is located on flat land at an approximate elevation of 190 feet above mean sea level. The site is active agricultural land currently planted with wheat. The project site is surrounded by active agricultural land in the cotton-wheat-tomato rotation typical of the area with the exception of an agricultural



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Figure 1  
Proposed RE Kamm/Jamesan SGF Project Regional Location



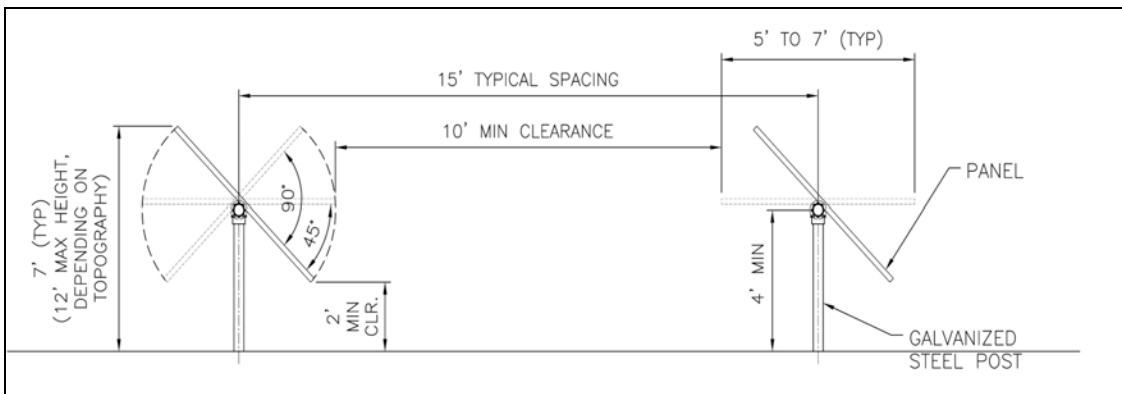
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**Figure 2**  
**Proposed RE Kamm/Jamesan SGF Project Site Location**

processing facility contiguous with the northeast corner of the site and seasonal wetlands along the north side of Kamm Road (Figure 2).

### Project Description

The proposed project consists of the construction, operation and maintenance, and eventual decommissioning of the solar PV facility. Project infrastructure includes: solar panels; inverters; a substation and transformer; access roads; electrical wiring; a 100- to 200-foot interconnection generation tie line that would interconnect from the project to a local electrical utility transmission line; and one electric utility pole installed adjacent to the substation. The solar array would be installed in parallel rows separated by approximately 10 feet from edge of panel to edge of panel (Figure 3).



**Figure 3. Configuration and layout of solar panel rows.**

The internal roadway system would consist of roads approximately 20 feet wide with a permeable surface, a 20-foot right-of-way, and a 20-foot perimeter road around the facility.

The project site would be secured by an 8-foot-high chain link perimeter fence topped with three-strand barbed wire. This perimeter fence would be “wildlife friendly” such that the bottom of the fence would be an average of 5 inches above the ground along the entire perimeter, as measured from the top of the ground to the highest point of the bottom of the fence.

As part of the maintenance activities that would take place during project operation, the solar panels would be washed several times a year (primarily during summer) to maintain optimal electricity production. Water used for panel washing would be drawn from either an on-site groundwater well or an off-site local well. No chemical cleaners would be used for panel washing.

Once the initial project construction is completed, the project site would be reseeded/ revegetated with appropriate low-growing species to reduce soil erosion, and prevent or control weed growth to reduce fire hazards. Combustible vegetation on and around the



project boundary would be actively managed to minimize fire risk, through mowing or sheep grazing on the project site.

## **Species Background**

### **Statewide Status**

Data have been collected on the distribution and abundance of Swainson's hawk in the Central Valley since the late 1970s. Bloom (1980) conducted the initial statewide survey that described a 90% reduction in the historic population and led to the state-listing of the species. At this time, the statewide estimate of breeding pairs was 375. Beginning in the early 1980s, long-term monitoring of selected survey sites was conducted to assess population trends. In 1988, DFG conducted a second and more intensive statewide survey, which recalibrated the statewide estimate to 550 breeding pairs. Neither the initial Bloom (1980) or 1988 statewide surveys were conducted using a standardized survey protocol that would lend itself to statistical analysis sufficient to reliably estimate population size. Thus, it was acknowledged that these early statewide estimates were not necessarily an accurate estimate of the statewide population and were cautiously used to describe the status of the species. The survey efforts were, however, important in establishing the current distribution of the species in California.

Since the mid-1980s, several survey and long-term monitoring efforts have been conducted in the Central Valley, particularly in Yolo, Solano, Sacramento, and San Joaquin Counties. These studies have provided additional information on distribution and abundance of the species, as well as providing additional life history data on the Central Valley population. Some of these efforts are listed below in Table 1.

As a result of these efforts and the increasing understanding of Swainson's hawk distribution and abundance in the Central Valley, but in the absence of any statistically-based analysis, the Swainson's Hawk Technical Advisory Committee (TAC) – an ad hoc group of researchers that conducts and facilitates research on the Swainson's hawk and advises DFG and local jurisdictions regarding Swainson's hawk ecology – provided a new estimated population range. In 2001 the TAC conservatively estimated that there were between 700 and 1,000 breeding pairs in the state with approximately 90% of these in the Central Valley.

In an effort to more conclusively estimate the population size, DFG and the TAC began a comprehensive, standardized, statistically-based statewide survey effort in 2005 (Anderson et al. 2007). Using a standardized sampling approach across the current range of the species in California, the population is currently estimated at 2,072 breeding pairs (SE = 157.1 at 95% CI), 1,948 (94%) of which are estimated to occur in the Central Valley (Anderson et al. 2007). This is considered the most reliable estimate to date and is thought to more accurately reflect the total number of breeding pairs in the Central Valley and throughout California.



**Table 1. Survey and Monitoring Studies of Swainson’s Hawks in the Central Valley.**

<b>Location</b>	<b>Date</b>	<b>Purpose</b>	<b>Reference</b>
Statewide	1980	Statewide survey to estimate population	Bloom 1980
Yolo, Sacramento, and San Joaquin Counties	1984 - 1988	Selected survey blocks to examine population trends	DFG 1984, 1985, 1986, 1987, 1988
Yolo, Sacramento, and San Joaquin Counties	1987-89	Biology, movements, habitat relationships	Estep 1989
Yolo County	1986-2010	Long-term population monitoring	Estep <i>in preparation</i>
Statewide	1988	Statewide survey to estimate population	DFG 1988
San Joaquin County	1990	Development of county-wide conservation plan	Jones & Stokes 1990
Yolo County	1995	Home ranges and habitat associations/use	Babcock 1995
Yolo, Sacramento, and San Joaquin Counties	1995	Nest site selection and reproduction of urban nesting population	England et al. 1995
City of Stockton	1990s	Monitoring of urban nesting population	Holt unpublished reports
UC Davis campus – Putah Creek	1990s	Monitoring of local UC Davis population	England unpublished data; Maurer unpublished data
Sacramento-San Joaquin Delta	2000s	Monitoring/impact avoidance associated with DWR projects.	Bradbury – unpublished agency reports
Natomas Basin, northern Sacramento and southern Sutter Counties	1999-2006	Compliance biological monitoring for Natomas Basin HCP	Swainson’s Hawk Technical Advisory Committee 1999, 2000, 2001, Estep 2002, 2003, Jones & Stokes 2004, 2005, 2006
Multi-county survey	2002 - 2003	Distribution/abundance surveys – estimate regional population	Gifford et al. 2004, 2011
Northeastern San Joaquin County	2002-2004	Habitat use study	Swolsgard 2004
Statewide	2005-06	Statewide survey to estimate population.	Anderson et al. 2007
South Sacramento County	2006	South Sacramento County-wide baseline surveys to assist with conservation efforts	Estep 2006a, 2006b
Yolo County	2007	Yolo County census to assist with regional conservation efforts	Estep 2008

The extent to which this revised statewide estimate reflects simply a more accurate estimation or whether it may represent an increasing population since the early 1980s is unclear. However, a long-term population study in Yolo County from 1986 to 2007 indicates that following an initial increase in population in the late-1980s – which could be attributed to refined survey technique and increased survey experience – this population remained relatively stable from the late 1980s to present (Estep *in preparation*), suggesting that the current higher statewide estimate may be primarily due to more reliable estimation techniques.

## **Population Declines and Factors Affecting Distribution**

Initial population declines of Swainson's hawk in California were attributed to loss of habitat from urbanization and conversion of native habitats to agriculture. Urbanization, agricultural conversion, channelization of watercourses and other factors have reduced the extent of nesting habitat (e.g., riparian forests, oak woodland) and foraging habitat, primarily native grasslands. As a result, the species is no longer found in southern California (with the exception of a few known nest sites in the Mojave Desert and Antelope Valley) or in coastal valleys. The species has persisted, however, in much of the Central Valley, particularly in the southern Sacramento and northern San Joaquin Valleys. While intensively farmed for over 100 years, much of this area retains a relative abundance of nesting habitat – narrow riparian corridors along rivers and streams, remnant oak groves and trees, roadside trees – and an agricultural pattern that is compatible with Swainson's hawk foraging requirements. Thus, the species is relatively common in the central portion of the Central Valley and perhaps on a local basis - even more common than it was historically.

However, this area supports a disproportionate percentage of the Central Valley population. While the breeding range extends to the northern and southern extent of the Central Valley, the majority of the population resides between Stanislaus County on the south and Butte County on the north. Within this area, the largest number of breeding pairs and the highest breeding densities are found in Yolo, Sacramento, Solano, and San Joaquin Counties (Anderson et al. 2007).

Today, the distribution and abundance of the Swainson's hawk in the Central Valley is primarily a function of agricultural patterns and nest tree availability. Swainson's hawks are dependent on an agricultural landscape that provides available and accessible food resources (See Section 3). Where these compatible landscapes are lacking, Swainson's hawks occur in less abundance.

In general, the agricultural landscape of the San Joaquin Valley supports relatively few nesting Swainson's hawks compared with other regions of the Central Valley. South of Stanislaus County, the agricultural landscape becomes increasingly monotypic with large expanses devoted to vineyards and orchards, which are not compatible with Swainson's hawk foraging. But probably most important is the lack of trees throughout much of the San Joaquin Valley, which is likely the main factor limiting the distribution of the Swainson's hawk in that area. Where trees do occur, including riparian habitat along natural drainages, planted eucalyptus tree rows and groves, and remnant oak woodland habitat, Swainson's hawks do occur as long as suitable agricultural foraging habitat is nearby.

Unlike the Sacramento Valley region, urbanization in the San Joaquin Valley region has had less influence on the distribution and abundance of nesting Swainson's hawks. Instead, the agricultural matrix, which across large landscapes has marginal value for Swainson's hawks, and the relative lack of suitable nest trees are the principal factors affecting the distribution and abundance of the species in the San Joaquin Valley region.

## Conservation and Management

The Swainson's hawk (Plate 1) is reliant on certain types of agricultural land uses and remaining uncultivated grasslands. While changes in agricultural patterns can have a significant influence on the distribution and abundance of the species, because of the inherent conflicts between urbanization, the preservation of agricultural and valley grassland habitats, and compliance with state laws and regulations, addressing land use-related impacts that affect the Swainson's hawk continues to be a key issue for land use decision-making in the Central Valley.



*Plate 1. Adult Swainson's hawk*

In 1994, Region 2 of California Department of Fish and Game (DFG) took an initial step in addressing the issue of habitat conservation for Swainson's hawks by issuing guidelines for mitigating development-related impacts (California Department of Fish and Game 1994). The guidelines were developed primarily to address the increasing extent of agricultural habitat loss from urbanization in the Sacramento region. Since then, the DFG Swainson's Hawk Mitigation Guidelines have been used by local agencies as a method to mitigate habitat impacts on individual development projects pursuant to CEQA. In an effort to standardize mitigation costs for impacts to Swainson's hawk habitat and consolidate conservation efforts, some local agencies established ordinances or similar programs that required payment of mitigation fees. The fees are applied to all development projects that would remove Swainson's hawk habitat and used to compensate for this loss through acquisition and management of offsite lands.

Concurrent with these activities, larger regional habitat conservation plans were also being considered or developed for lands within the range of the Swainson's hawk. Driven by the presence of federally listed species, habitat conservation plans (HCPs) are

prepared pursuant to Section 10 of the federal Endangered Species Act under consultation with the U.S. Fish and Wildlife Service. State-listed species can be included as ‘covered’ species in HCPs under agreement and permit authorization of DFG (Section 2081 or 2080.1 of DFG Code). At the state level, Natural Community Conservation Plans (NCCPs) can also be prepared pursuant to Fish and Game Code (Sections 2800-2835) to provide a means of complying with the California endangered species act (CESA). An NCCP is similar to an HCP in that it is designed to protect and conserve intact natural landscapes and biological communities, biological diversity, and species listed under CESA while allowing appropriate development and economic growth. The HCP and NCCP processes can provide a more regional approach to addressing impacts and mitigation and potentially allowing for consolidation of conservation lands and a greater potential for conservation at a regional population level. Several multispecies HCPs have either been completed (e.g., Natomas Basin, San Joaquin County) or are in preparation (e.g., South Sacramento County) and several others are in progress that combine the HCP and NCCP processes (e.g., Yolo County, Solano County, Butte County) within the range of the Central Valley population of Swainson’s hawk.

## **Regulatory**

The Swainson’s hawk was listed as a state-threatened species by the California Fish and Game Commission in 1983 largely as a result of a statewide survey conducted in the late 1970s that estimated a population decline of greater than 90% (Bloom 1980). Species that are listed as threatened or endangered receive protection under the provisions of the California Endangered Species Act (CESA) (Section 2050 of the Fish and Game Code), and related Fish and Game Code Sections, including Section 2080 that prohibits the “take” of any threatened or endangered species. Take is defined in Section 86 as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

While not specifically defined in the definition of take, loss of essential habitat can result in the direct or indirect loss of breeding territories and reproductive potential leading to further population declines, and thus can potentially be included in the definition of take. However, most habitat-related impacts on the Swainson’s hawk are addressed through CEQA.

CEQA defines the significance of an impact on a state-listed species based on the following:

- Appendix G of the State CEQA guidelines states that a biological resource impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in “substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS”; and
- CEQA Section 15065 (Mandatory Findings of Significance), a biological resource impact is considered significant if the project has the potential to “substantially

reduce the number or restrict the range of an endangered, rare or threatened species”.

It has been pursuant to both the CESA and CEQA processes that mitigation and management, including the development of regional strategies, have been developed to address land use issues related to Swainson’s hawk conservation.

## **Purpose of the Study**

The purpose of this study is several-fold and includes:

- Determining the distribution and abundance of the Swainson’s hawk in the study area.
- Determining nesting and foraging habitat associations of Swainson’s hawk in the study area.
- Determining the reproductive performance of Swainson’s hawks in the study area.
- Using data on distribution and abundance and available nesting and foraging habitat to assess the effects of the proposed project on the nesting population, and
- Providing baseline information to assist Fresno County in the development regional conservation strategies to protect and sustain the Swainson’s hawk nesting population.

## Section 2. Description of the Study Area

A minimum 10-mile radius study area was established around the proposed project site (See Methods Section) (Figure 4), that encompasses a total of 223,840 acres (350 square miles).

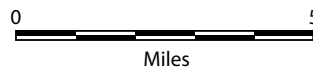
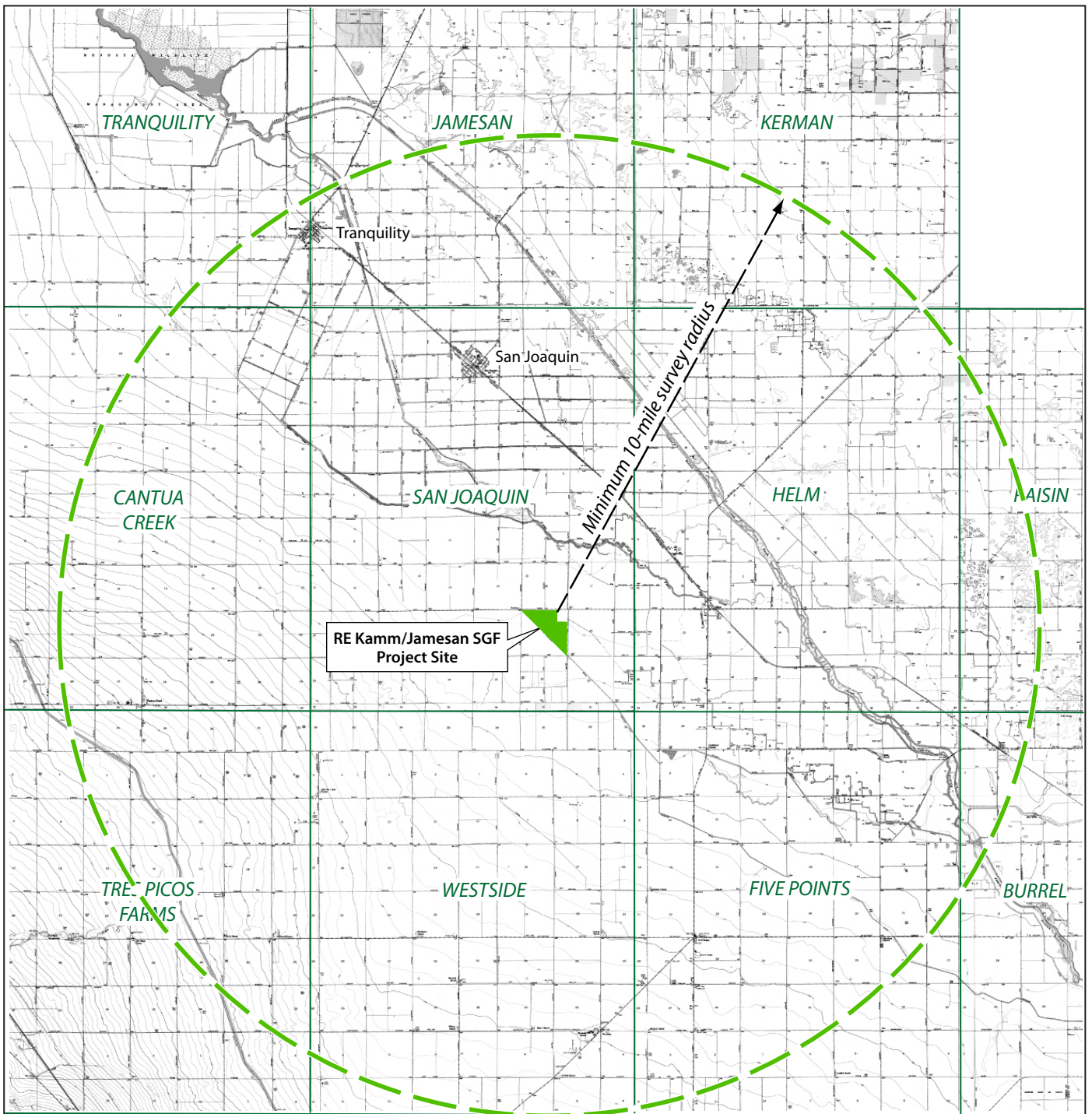
The RE Kamm/Jameson SGF site is located within cultivated farmlands approximately 5 miles south of the small farming community of San Joaquin. The project site is entirely agricultural, and while fallowed for the past 15 years, the site is currently planted with wheat (Plate 2). There are no trees, shrubs, or other natural vegetation on the site and no topographical or unique biological features on the site. An irrigation canal borders the western edge of the site that supports weedy vegetation and two willow trees along its outer edge (Plates 2 and 3).



*Plate 2. Looking northeast from the southwestern boundary of the RE Kamm/Jameson SGF project site.*

Most of the immediately surrounding area consists of annually cultivated irrigated cropland, primarily in the cotton-tomato-wheat rotation, with some orchards, alfalfa fields, and small irrigated pastures. The land immediately north of Kamm Road has been developed as managed seasonal wetland, probably for purposes of winter waterfowl hunting.





BASE MAP: USGS 7.5' Quadrangles

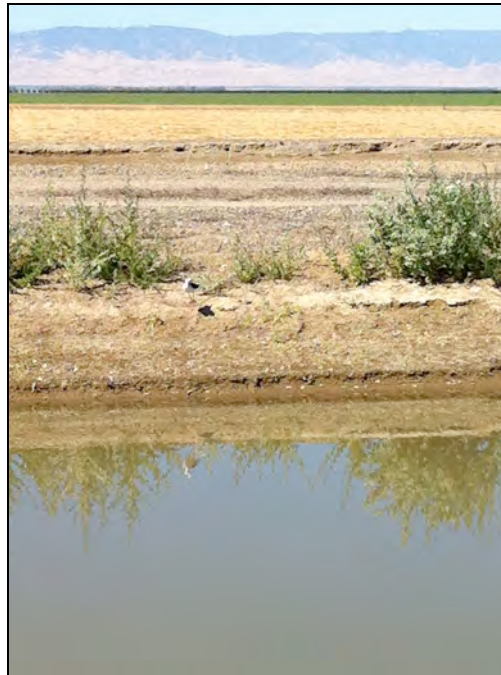
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**Figure 4**  
**Proposed RE Kamm/Jamesan SGF Project Study Area**



*Plate 3. Looking southeast from the southwest boundary of the RE Kamm/Jameson SGF project site. On the right is one of two willow trees along the irrigation canal.*

With the exception of two willow trees on the southwestern border of the project site (Plate 3), both of which are outside of the proposed project fence line, there are no trees in the immediate vicinity or within 1 to 2 miles of the project site, and very few trees west and south of the project site (Plate 4).



*Plate 4. Looking west from the southwestern edge of the RE Kamm/Jameson SGF project site.*



The entire RE Kamm/Jameson SGF study area can be similarly characterized; however, there are differences in the agricultural landscape east and west of Fresno Slough. Fresno Slough is the most prominent natural feature in the study area (Figure 4). Fresno Slough is approximately 1.5 miles north of the project site and extends northwest to southeast through the study area. The James Bypass, a large water conveyance channel, roughly parallels the Fresno Slough to the northeast until approximately 3 miles southeast of the town of Helm, where the two drainages meet. Fresno Slough then continues southeastward (Figure 4).

With the exception of the large patch of managed seasonal wetland and the small communities of San Joaquin and Tranquility, the entire study area is under agricultural production (Figures A1 through A11, Appendix A). The most common crop types in the study area, and throughout Kings County (Kings County 2010) are cotton, wheat, and tomatoes (Plates 5 and 6). Other irrigated crop types, along with alfalfa and orchard/vineyards, make up the majority of the agricultural landscape in the study area.

However, the portion of the study area east of Fresno Slough is somewhat more diverse and includes most of the alfalfa hay production. These types are typically associated with dairies, which are also primarily located in the eastern portion of the study area. The majority of orchards and vineyards also occur east of the Fresno Slough, although they continue to expand throughout the study area. The agricultural landscape west of Fresno Slough is mostly in the typical cotton-tomato-wheat rotation, and is generally characterized by larger, parcel sizes and fewer trees.



*Plate 5. Cotton field in the RE Kamm SGF study area.*



*Plate 6. Tomato field in the RE Kamm SFG study area.*

Trees are unevenly distributed throughout the study area (Figures A1 through A11 in Appendix A). Fresno Slough and James Bypass support sparse willow-dominated riparian habitat along most of their lengths (Plate 7). These drainages support the majority of available Swainson's hawk nest trees in the study area. Other trees nearest the project site and in the study area consist mainly of eucalyptus groves and tree rows, rural residential trees, and occasional isolated trees along channels or roadsides (Figures A-1 through A-11 in Appendix A). Eucalyptus tree rows and groves are the most

common non-riparian tree type in the study area (Plate 8). Eucalyptus is also the most common tree available for Swainson's hawk nesting west of Fresno Slough.



*Plate 7. Fresno Slough, southeast of the RE Kamm/Jameson SGF project site.*



*Plate 8. Eucalyptus tree row.*

## Section 3. Description and Habitat Requirements of the Species

### Distinguishing Characteristics (Plumage and Morphology)

Swainson's hawk is a medium-sized buteo with an overall body size similar to the red-tailed hawk (*Buteo jamaicensis*), the species for which it is most often confused in the Central Valley. However, with its more streamlined body shape and longer wings, the Swainson's hawk is designed for soaring and is most often observed in flight, compared with the more robust red-tailed hawk, which is often observed perching.

As with most raptors, males are smaller than females. Using data from the Central Valley population, mean weight in males is 701.7g (range = 600 to 860g, N = 55), and mean wing length is 123.1 cm (range = 111.0 to 128.0, N=47); female mean weight is 954.9g (range = 820 to 1,130g, N=49), and mean wing length is 132.6 cm (range=126.0 to 139.7 cm, N=43) (Anderson and Estep unpublished data). While somewhat smaller than range-wide estimates, size difference between sexes is generally consistent with other parts of the species range (England et al 1997).

The Swainson's hawk is characterized by its long, narrow, and tapered wings held in flight in a slight dihedral shape (Plate 9). The body size is somewhat smaller, thinner, and less robust than other buteos, although the wings are at least as long as other buteos. This body and wing shape allows for efficient soaring flight and aerial maneuverability, important for foraging, which Swainson's hawks do primarily from the wing, and during courtship and inter-specific territorial interactions.



Plate 9. Swainson's Hawk in Flight.

There are three definitive plumage morphs: light, rufous, and dark. However, there are numerous intermediate variations between these plumage morphs. The two most distinguishing plumage characteristics are a dark breast band and the contrasting darker flight feathers and lighter wing linings on the underwings giving most individuals a distinctive bicolored underwing pattern (Plate 10). These characteristics are most pronounced in lighter morph birds and become less so as the plumage darkens, and can be indistinguishable in the definitive dark morph, which is completely melanistic. All three definitive plumage morphs are present in the Central Valley with a relatively large proportion of the population categorized as intermediate morph, with varying amounts of streaking or coloration in the belly and wing linings.



*Plate 10. Light Morph Adult Swainson's Hawk*

## **Range and Populations**

Swainson's hawks inhabit grassland plains and agricultural regions of western North America during the breeding season and winters in grassland and agricultural regions from Central Mexico to southern South America (England et al. 1997; Bradbury et al. *in preparation*). Early accounts described Swainson's hawk as one of the most common raptors in the state, occurring throughout much of lowland California (Sharp 1902). Since the mid-1800s, the native habitats that supported the species have undergone a gradual conversion to agricultural uses. Today, native grassland habitats are virtually nonexistent in the state, and only remnants of the once vast riparian forests and oak woodlands still exist (Katibah 1983). This habitat loss has caused a substantial reduction in the breeding range and in the size of the breeding population in California (Bloom 1980; England et al. 1997). Swainson's hawks are also sensitive to habitat fragmentation. Foraging use declines as suitable foraging patch size decreases even though suitable prey conditions may exist (Estep and Teresa 1992). However, Swainson's hawks are also known to re-inhabit dense urban areas to nest if suitable nesting trees are present and



suitable foraging habitat exists within 3.2 kilometers (2 miles) of the nest (England et al. 1995). The most recent statewide population estimate is 2,081 breeding pairs (Anderson et al. 2007). While this estimate is higher than the original statewide estimate that led to the state listing of the species (Bloom 1980) and subsequent estimates through the 1980s and 1990s, it represents a substantial decline (50-90%) of the statewide breeding population in California (Bloom 1980).

The Central Valley population (currently estimated at 1,948 breeding pairs) extends from Tehama County south to Tulare and Kings Counties. The optimum foraging and nesting habitat conditions in portions of Yolo, Solano, Sacramento, and San Joaquin Counties support the bulk of this Central Valley population (Estep 1989, 2007, 2008, Anderson et al. 2007). The Central Valley is surrounded by mountains—the Sierra Nevada on the east and the Cascade Range on the north—that geographically isolate it from the rest of the species' range. Extensive banding (Anderson, Bloom, Estep, Woodbridge unpublished data) suggests that no movement occurs between the Central Valley breeding population and other populations. Results of satellite radio telemetry studies of migratory patterns further indicate minimal interaction between the Central Valley population and other populations of Swainson's hawks (Bradbury et al. *in preparation*).

Despite the loss of native habitats in the Central Valley, Swainson's hawks appear to have adapted relatively well to certain types of agricultural patterns in areas where suitable nesting habitat remains (Plate 11). However, nesting habitat for Swainson's hawks continues to decline in the Central Valley because of flood control projects, agricultural practices, and urban expansion.



Plate 11. Typical Swainson's hawk riparian nesting and agricultural foraging habitat in the Central Valley.

## Habitats and Habitat Use

### Nesting

Throughout the Central Valley, Swainson's hawks nest in large native trees such as valley oak (*Quercus lobata*), cottonwood (*Populus fremontia*), walnut (*Juglans californica*), and willow (*Salix* spp.), and in nonnative trees, such as eucalyptus (*Eucalyptus* spp.) and ornamental pine trees (Plates 12 through 15). Nests occur in riparian woodlands, roadside trees, trees along field borders, isolated trees, small groves, and on the edges of remnant oak woodlands. Stringers of remnant riparian forest along drainages contain the majority of known nests in the Central Valley (Estep 1984; Schlorff and Bloom 1984; England et al. 1997). However, this is a function of nest tree availability rather than dependence on riparian forest. Nests are usually constructed as high as possible in the tree, providing protection to the nest as well as visibility from it (Plate 16).

Use of eucalyptus trees increases southward into the San Joaquin Valley where rows and groves of eucalyptus trees have been planted for wind breaks, visual screens, or ornamental trees. Occurring along field borders, roadsides, and around farm residences, eucalyptus trees have replaced native species in many areas and throughout large areas are the only available nest tree for Swainson's hawks. The majority of native trees throughout much of the San Joaquin Valley are restricted to riparian corridors.

Nesting pairs are highly traditional in their use of nesting territories and nesting trees. Many nesting territories in the Central Valley have been occupied annually since at least the 1970s and banding studies conducted since 1986 confirm a high degree of nest and mate fidelity (Estep *in preparation*).



Plate 12. Valley oak riparian nesting habitat



Plate 13. Nest in willow tree in sparse riparian habitat



*Plate 14. Nest in isolated eucalyptus tree.*



*Plate 15. Nest in cottonwood tree*



*Plate 16. Typical Swainson's hawk nest*

## **Foraging**

Swainson's hawks are essentially plains or open-country hunters, requiring large areas of open landscape for foraging. Historically, the species used the grasslands of the Central Valley and other inland valleys. With substantial conversion of these grasslands to farming operations, Swainson's hawks have shifted their nesting and foraging into those agricultural lands that provide low, open vegetation for hunting and high rodent prey populations.

In the Central Valley, Swainson's hawks feed primarily on small rodents, usually in large fields that support low vegetative cover (to provide access to the ground) and high



densities of prey (Bechard 1982; Estep 1989, 2009). These habitats include hay fields, grain crops, certain row crops, and lightly grazed pasturelands. Fields lacking adequate prey populations or those that are inaccessible to foraging birds (e.g., vineyards and orchards) are rarely used (Estep 1989; Babcock 1995, Swolsgard 2003).

Meadow vole (*Microtus californicus*) is the principal prey item taken by Swainson's hawks in the Central Valley. Pocket gopher (*Thomomys bottae*) is also an important prey item. Other small rodents, including deer mouse (*Peromyscus californicus*) and house mouse (*Mus musculus*) are also taken, along with a variety of small birds, reptiles, and insects (Estep 1989).

The importance of crop types for foraging habitat rest on two variables: abundance of voles and other important prey, and amount of vegetative cover that affects access to prey (Bechard 1982, Estep 1989, 2009). Important land cover or agricultural crops for foraging are alfalfa and other hay, grain and row crops, bare fallow fields, irrigated and dryland pasture, and annual grasslands. The matrix of these cover types across a large area creates a dynamic foraging landscape as temporal changes in vegetation results in changing foraging patterns and foraging ranges.

Hay crops, particularly alfalfa, provide the highest value because of the low vegetation structure (high prey accessibility), relatively large prey populations (high prey availability), and because farming operations (e.g., weekly irrigation and monthly mowing during the growing season) enhance prey accessibility (Plate 17). Most row and grain crops are planted in winter or spring and have foraging value while the vegetation remains low, but become less suitable as vegetative cover and density increases (Plate 18). During harvest, vegetation cover is eliminated while prey populations are highest, significantly enhancing their suitability during this period. Some crop types, such as rice, orchards, and vineyards, provide little to no value because of reduced accessibility and relatively low prey populations.



Plate 17. Alfalfa fields are consistently suitable for foraging due to regular mowing.



Plate 18. Prey are inaccessible to foraging hawks in mature wheat fields due to tall, dense vegetation.



## Foraging Ranges

Foraging ranges are highly variable depending on cover type, and fluctuate seasonally and annually with changes in vegetation structure (e.g., growth, harvest) (Estep 1989, Woodbridge 1991, Babcock 1995). Foraging ranges of Central Valley Swainson's hawks range from 830 to 21,543 acres (336 to 8,718 ha) (Estep 1989, Babcock 1995). Smaller foraging ranges consist of high percentages of alfalfa, fallow fields, and dry pastures (Estep 1989, Woodbridge 1991, Babcock 1995). Larger foraging ranges were associated with higher proportions of cover types with reduced prey accessibility, such as orchards and vineyards, or reduced prey abundance, such as flooded rice fields. Swainson's hawks regularly forage across a very large landscape compared with most raptor species. Data from Estep (1989) and England et al. (1995) indicate that it remains energetically feasible for Swainson's hawks to successfully reproduce when food resources are limited around the nest and large foraging ranges are required. Radio-telemetry studies indicate that breeding adults in the Central Valley routinely forage as far as 30 kilometers (km) (18.7 miles) from the nest (Estep 1989, Babcock 1995).

## Breeding Season Phenology

Swainson's hawks arrive at the breeding grounds from early March to early April. Breeding pairs immediately begin constructing new nests or repairing old ones. Eggs are usually laid in April, and incubation continues until mid-May when young begin to hatch. The brooding period typically continues through early to mid-July when young begin to fledge (England et al. 1997) (Plates 19 through 22). Studies conducted in the Sacramento Valley indicate that one or two—and occasionally three—young typically fledge from successful nests, with an average of 1.4–1.8 young per successful nest (Estep *in preparation*). After fledging, young remain near the nest and are dependent on the adults for about 4 weeks, after which they permanently leave the breeding territory (Anderson et al. *in progress*). By mid-August, breeding territories are no longer defended and Swainson's hawks begin to form communal groups. These groups begin their fall migration from late August to mid-September.

Central Valley Swainson's hawks winter primarily in Central Mexico and, to a lesser extent, throughout portions of Central and South America (Bradbury et al. *in preparation*). This differs from what is known about the migratory pattern and wintering grounds of Swainson's hawk populations outside of the Central Valley, most of which take a different migratory route and winter entirely in southern South America, with the largest wintering populations known to occur in northern Argentina (England et al 1997).



*Plate 19. Swainson's Hawk Nest with Eggs*



*Plate 20. Nestling Swainson's Hawks*



*Plate 21. Five-Week-Old Nestlings*



*Plate 22. Nearly Fledged Swainson's Hawks*

## Section 4. Methods

The following methods apply to each of the proposed Recurrent Energy, LLC project sites including the RE Kamm/Jameson SGF site. Together, the total study area for all proposed projects extended across more than 900,000 acres from Kettleman City on the south to Mendota on the north, and from Coalinga on the west to Hanford on the east.

### Assessment of Populations

The goal of the nesting survey was to record all active nests within the study area. While the survey focused primarily on nesting Swainson's hawks, activity and nesting data were also collected on several other species that compete for nesting and/or foraging habitat resources and may influence the distribution and abundance of Swainson's hawk, including red-tailed hawk, red-shouldered hawk (*Buteo lineatus*), white-tailed kite (*Elanus leucurus*), and great-horned owl (*Bubo virginianus*). The intent was to generally indicate how these species were distributed across the landscape and to compare particularly the differences in distribution, abundance, and habitat characteristics between Swainson's hawk and red-tailed hawk.

Each study area was selected by establishing a minimum 10-mile radius area extending from the edges of the project site. Because the project sites are irregularly shaped, the study areas were expanded outward until a circular-shaped study area was achieved. As a result, the RE Kamm/Jameson SGF study area is greater than a 10-mile radius and includes a total of 223,840 acres, or 350 square miles.

The survey was designed as a complete census. All potential nesting areas within the study areas were surveyed equally according to the protocol described below regardless of past survey effort or existing data on Swainson's hawk nests.

Surveys were conducted in two phases, once during the incubation/early nestling phase from April 12 to April 29, and once during late nestling/early fledging phase from June 6 to July 1. Conducting an early and later survey ensures that all active nesting territories are documented and that failed nests and nests abandoned later in the breeding season are not missed as they may be if only a June survey were conducted. It also provides a second follow-up opportunity to resurvey all areas in the event any active sites were missed during the first survey, and allows for documentation of reproductive performance.

Surveys were conducted by systematically driving all available roads within the study area. Where roads were not available to drive or where there were no roads to access potential nest trees, the survey was conducted on foot unless access to private property was not granted. In general, access in the study area was very good and we were provided with access to state lands, and access and gate keys to all levees maintained by the Kings River Conservation District. All potential nest trees were searched for nests

and adult Swainson's hawks using binoculars and/or a spotting scope. Photographs were taken of each active nest site and surrounding land use.

All suitable nesting habitats were checked for the presence of adult Swainson's hawks and to note all nesting activity and behavior (e.g., nest construction, courtship flights, defensive behavior). All trees were searched for the presence of active nests. Nest site and habitat data were recorded on a standardized field form. Activity was noted and mapped on field maps; locations of active nests were documented on 7.5 minute USGS quadrangle maps and a hand-held GPS unit was used to record latitude-longitude locations of each nest.

Follow-up surveys were conducted as needed until all potential habitats were inspected. As necessary, each active nest was revisited to determine activity and reproductive status and to record the number of fledged young. Many nesting territories were visited on multiple occasions over the course of the survey in order to collect the necessary data. Activity data were recorded based on the following definitions:

- An *active nesting territory* is defined as a nesting area that was occupied by a breeding pair of Swainson's hawks throughout all or a significant portion of the breeding season. The location of the nesting territory was based on the location of the nest or if the nest was not located based on the primary area of observed activity within potential nesting habitat.
- An *active nest site* refers to the location of the actual nest tree and nest structure.
- An *active nesting territory with confirmed nesting status* includes all active nesting territories for which reproductive outcome (i.e., successful or unsuccessful) was confirmed.
- An *active nesting territory with unconfirmed nesting status* includes all active nesting territories for which reproductive outcome (i.e., successful or unsuccessful) of the nest was not confirmed. This includes active nesting territories where access was not sufficient to determine nesting activity (in some cases the actual nest was not observed) or repeat visits were inconclusive to determine success or failure of the nest.
- A *successful nest* is defined as an active nesting territory with confirmed nesting status that produced fledged young.
- An *unsuccessful nest* is defined as an active nesting territory with confirmed nesting status that did not produce fledged young.

Each active nesting territory was characterized with respect to overall habitat conditions and availability and land use patterns. Each active nest site was characterized with regard to nesting habitat type and condition, tree species, and estimated tree and nest height.

## Distribution of Nesting and Foraging Habitats

The distribution and characterization of land uses and habitat types throughout the study area was documented and mapped in the field on 7.5 minute USGS quadrangle maps. A total of 50 quad maps were used during the entire study, 11 of which are included in the RE Kamm/Jameson SGF study area (Figure 4, Figures A-1 through A-11 in Appendix A). Surveyors documented the current 2011 land use or cover type in the field according to the land use/cover type categories listed below. Using the USGS base maps, field boundaries were recorded, confirmed, or adjusted as needed.

For purposes of this study, foraging habitat associations were assessed in part on the basis of broad agricultural land use categories rather than the specific cover types. The agricultural crop pattern mosaic is dynamic in the study area and throughout the San Joaquin Valley and is subject to change annually and seasonally. Therefore, with the exception of perennial and long-term crop types (e.g., vineyards, orchards, pasturelands), and semi-perennial types (e.g., alfalfa), specific agricultural crop types were grouped into broad categories that represent long-term land use patterns in the study area and that were used to characterize relative habitat suitability at the landscape level (Estep 1989, 2007, 2008, Babcock 1995, Jones & Stokes 2005). As a result, land use/cover type categories in the study area include the following:

- Irrigated cropland (annually cultivated and rotated crops)
- Alfalfa and other hay crops
- Irrigated pastureland
- Orchards
- Vineyards
- Managed wetland
- Natural land (includes all uncultivated grassland and scrub natural communities)
- Developed land (excluding rural residential less than 1 acre)
- Riparian
- Tree row
- Tree grove
- Isolated trees

Following the initial field mapping of habitat/land use categories, the data were then re-mapped using aerial photos to confirm field boundaries. These maps were then converted to graphic maps using Adobe Illustrator (See Figures A-1 through A-11 in Appendix A).

Habitat/land use cover type acreages were calculated from the graphic maps using a plug-in filter from Telegraphics Inc.. While this process provided an accurate representation, and particularly relative abundance of the mapped types across the landscape, it did not exclude roads and other edge features. As a result, the acreage totals may exceed the actual acreage for most types. However, at the scale of the study area and for purposes of this study where characterizing broader landscapes is most important, this was considered to have a negligible effect on the total calculations or the relative abundance of the

various types. The distribution and abundance of Swainson's hawk was analyzed with respect to these broad habitat associations.

The data collected during this survey and assessment were not subjected to statistical analysis for purposes of analyzing habitat use preferences or differences between data sets. The data were used solely to report and describe the nesting distribution and habitat associations of Swainson's hawk and other raptors within the study area.

## Section 5. Results

### Distribution and Abundance

A total of 25 active Swainson’s hawk nest sites were documented within the RE Kamm/Jameson SGF study area. Figure 5 illustrates the distribution of the nests within the study area, Table 2 summarizes the activity and reproductive data and Table 3 provides the location, activity, habitat association, and reproductive data for each nest.

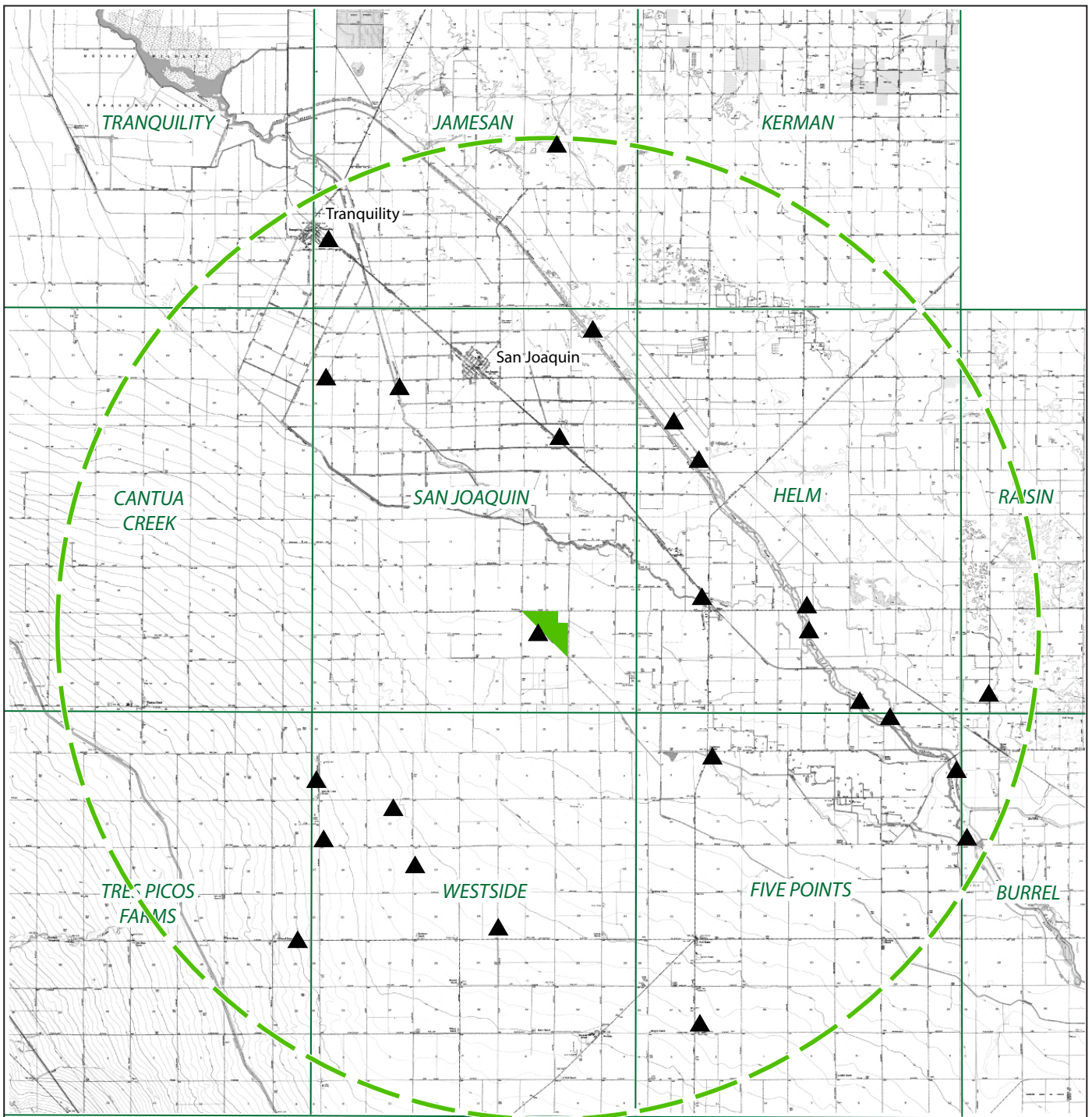
Confirmed nesting status (i.e., reproductive outcome) was documented at 25 of the 25 active nesting territories (100%). Of these, 17 successfully reproduced and 6 failed to successfully reproduce. Two territories were active with both adults occupying the nesting area, but no nesting was documented. Nesting territory occupancy was determined based on a variety of observed behaviors typical of adults during the breeding season, such as regular presence, nest construction, courtship displays, regular circling low above the nest tree or nesting stand, defensive behavior, and prey exchanges. Where these behaviors were observed but nesting was not documented at a site with appropriate access and visibility, the territory was considered occupied but not nesting.

**Table 2. Summary of Swainson’s hawk nest site data within the RE Kamm/Jameson SGF Survey Area.**




<b>Activity</b>		
	<b>Number</b>	<b>Percent of Total</b>
# Active nests – successful	17	68.0
# Active nests – failed	6	24.0
# Active territories not nesting	2	8.0
# Active nests with unknown status	0	0.0
Total Active Nests	25	100
<b>Reproduction</b>		
Total # young produced	23	
# young per occupied territory (successful, failed, not nesting)	0.92	
# young per active nest (successful + failed)	1.00	
# young per successful nest	1.35	

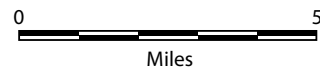
Figure 5 indicates that Swainson’s hawks were distributed relatively evenly across the study area. The nesting distribution generally follows the distribution of suitable nesting habitat, which occurs along a northwest-southeast corridor along and between Fresno Slough and James Bypass. Ten (40%) of the 25 nesting territories were along the Fresno Slough or James Bypass, and 14 (56%) were east of Fresno Slough (Figure 5). While relatively few nesting opportunities were available west of Fresno Slough due to the lack of trees, occupancy of available nesting sites was relatively high with 11 (44%) of the





**LEGEND**

-  Proposed RE Kamm/Jamesan SGF Project Site
-  Study Area (minimum 10-mile radius around project site)
-  Swainson's Hawk Nest Site



BASE MAP: USGS 7.5' Quadrangles

8/23/2011

**Figure 5**  
**Swainson's Hawk Nest Sites within the Proposed RE Kamm/Jamesan SGF Project Study Area**



nest sites in eucalyptus tree rows or isolated cottonwood trees in the open, largely treeless agricultural lands west of Fresno Slough.

**Table 3. Swainson's hawk nest site locations, status, and nesting habitat type within the RE Kamm/Jameson SGF study area.**

Site #	USGS Quad	Location	GPS coordinates	Status	# Yg	Nesting Habitat	Nest Tree
SH1	Westside	Sonoma at Cerni Roads	36.457813 N 120.247940 W	F	0	Tree row	Eucalyptus
SH2	Westside	Sonoma Road, N. of Davis Road	36.475461 N 120.248120 W	F	0	Tree row	Eucalyptus
SH3	Westside	Davis Road, 0.5 mi E of Napa Road	36.471914 N 120.220868 W	S	2	Tree row	Eucalyptus
SH4	Westside	Mt. Whitney Road at Colusa Road	36.431870 N 120.179147 W	F	0	Tree row	Eucalyptus
SH5	Westside	El Dorado Road, 0.5 mi S of Cerini Road	36.451792 N 120.211907 W	S	2	Tree row	Eucalyptus
SH6	Five Points	Fresno Slough	36.472044 N 120.003411 W	F	0	Riparian	Willow
SH7	Five Points	Lassen Blvd., 2 mi. S. of Five Points	36.401387 N 120.103344 W	S	1	Rural residential	Cottonwood
SH8	Five Points	Lassen Blvd at Elkhorn Road	36.486356 N 120.097979	F	0	Isolated tree	Cottonwood
SH9	Five Points	Fresno Slough	36.496045 N 120.028789	S	2	Riparian	Willow
SH10	Tres Picos Farm	Mt. Whitney Road, E. of CA Aqueduct	36.428909 N 120.256670 W	S	1	Rural residential	Eucalyptus
SH11	Burrel	Fresno Slough	36.461274 N 119.997343 W	S	1	Riparian	Willow
SH12	San Joaquin	Western border of Kamm project site	36.524622 N 120.161670 W	S	2	Isolated tree	Willow
SH13	San Joaquin	Fresno Slough	36.599948 N 120.218670 W	S	1	Riparian	Cottonwood
SH14	San Joaquin	Manning Road	36.60285 N 120.24339 W	S	1	Roadside tree row	Eucalyptus
SH15	San Joaquin	James Bypass	36.61533 N 120.14275 W	S	1	Isolated tree	Cottonwood
SH16	San Joaquin	Colorado Avenue, 0.3 mi N of Huntsman		S	2	Roadside tree	Eucalyptus
SH17	Jameson	Central Ave. between Yuba and Butte	36.67631 N 120.15494 W	NN		Rural residential	
SH18	Jameson	East side of Tranquility	36.64729 N 120.24754	S	1	Rural residential	Eucalyptus
SH19	Raisin	Jameson Road at Cone Road	36.50582 N 119.98973 W	S	1	Rural residential	Eucalyptus
SH20	Helm	Fresno Slough	36.499353 N 120.038444	F	0	Riparian	Willow
SH21	Helm	James Bypass		NN		Riparian	
SH22	Helm	Fresno Slough	36.52401 N 120.06186 W	S	1	Riparian	Willow
SH23	Helm	Fresno Slough	36.53231 N 120.06159 W	S	1	Riparian	Willow

Site #	USGS Quad	Location	GPS coordinates	Status	# Yg	Nesting Habitat	Nest Tree
SH24	Helm	James Bypass	36.57908 N 120.10668 W	S	2	Riparian	Willow
SH25	Helm	Fresno Slough	36.53781 N 120.10092 W	S	1	Riparian	Willow

S = Successful, F = Failed, NN = active territory but not nesting

## Reproduction

Reproductive performance is calculated on the basis of the number of fledged young. While data are collected on the number of nestlings at various ages, these data are inconsistent due to the inability to observe nests sufficiently to confirm the number of nestlings from all nests at various stages of the breeding cycle. Data on the number of eggs per nest are also not calculated because of the risk of nest abandonment during the sensitive incubation phase of the breeding cycle.

A total of 23 fledged young were recorded. This equates to 1.00 young per nesting attempt (the total of successful and failed nests) and 1.35 young per successful nest, which is generally consistent with other past and ongoing studies of Swainson's hawk in the Central Valley (Estep *in preparation*, 2007, 2008, ICF 2010). It is also lower than most populations outside of the Central Valley. One speculative explanation for this is the dynamic nature of Central Valley agricultural systems. While the diverse matrix of cover types and the planting and harvesting regimes can produce periodic surpluses of rodent prey, the growth and harvesting of crops also creates an inconsistent surplus forcing birds to hunt further from the nest during some portions of the breeding season and possibly contributing to lower reproductive success per nesting pair.

## Nest Density

Nesting density, based on the number of active nest sites per square mile, across the study area was 0.07 active nest sites per square mile (0.17 per square kilometer). This is a very low nesting density compared with the Sacramento Valley breeding population, but similar to other portions of the breeding range (Table 4).

**Table 4. Nesting Density within the RE Kamm/Jameson SGF Study Area Relative to Other Geographic Areas.**

Location	Nesting Density (Nesting territories per sq mi [km])	Source
Yolo County	0.38 (0.98)	Estep 2008
Sacramento County	0.37 (0.96)	Estep 2006
Butte Valley	0.14 (0.37)	Woodbridge et al. 1995
Alberta, Canada	0.09 (0.23)	Schmutz 1987
New Mexico	0.07 (0.17)	Bednarz et al. 1990
Fresno County	0.07 (0.17)	This study

A review of the entire survey data set that includes all of Recurrent Energy’s proposed projects reveals similar results with an estimated density of 0.07 nesting territories per square mile (0.17 per square km) across the approximately 900,000 acre study area.

### **Proximity of Nest Sites to the Project Site**

Figure 5 and Figures A-1 through A-11 in Appendix A illustrates the geographic relationship of the project site to the 25 Swainson’s hawk nest sites in the study area. Of the 25 nest sites, one is within 1 mile of the project site (this site is along the southwestern border of the project site outside of the proposed fence line [Plate 23]), none are within are within 1 to 2 miles, 5 are within 2 to 5 miles, and 19 are within 5 to 10 miles of the project site. Other than the nest along the southwestern border of the project site, there were no active Swainson’s hawks within a 3-mile radius of the project site.



*Plate 23. Nest Site SH12, along the southwestern border of the RE Kamm/Jammeson SGF project..*

### **Habitat Associations**

Figures A-1 through A-11 in Appendix A illustrate the distribution of land use/cover types across the entire 223,840 acre study area. Table 5 indicates the acreages of each of the nine defined cover types in the study area according to USGS quadrangle maps, and Table 6 summarizes these data and indicates the relative abundance of each of the cover types in the study area. Descriptions of each type follow.

**Table 5. Land use acreages by USGS quadrangle – RE Kamm/Jameson SGF Study Area.**

Land Use/Cover Type	USGS Quadrangle Map											
	Tranquility	Jameson	Kerman	Cantua Creek	San Joaquin	Helm	Raisin	Tres Picos	Westside	Five Points	Burrel	Total
Irrigated Agriculture	1,963	8,439	3,875	22,993	28,372	16,509	1,414	15,618	36,717	25,745	295	161,940
Alfalfa		396	977		661	2,773	745	1,950	316		80	7,898
Irrigated Pasture					158							158
Orchard/Vineyard	433	4,988	3,438	3,974	2,857	16,249	4,966		279	5,638	1,719	44,541
Developed Land	94	81			378	228	71					852
Riparian		51			121	116				21	19	328
Tree Grove		54								19		73
Managed Wetland					5,502	1,854					110	7,466
Natural Land		584										584
Total	2,490	14,593	8,290	26,967	38,049	37,729	7196	17,568	37,312	31,423	2,223	223,840

**Table 6. Land use acreage totals within the RE Kamm/Jameson SGF Study Area.**

Land Use Type	Acres	Percent of Total
Irrigated Cropland	161,940	72.3
Orchard/Vineyard	44,541	19.9
Alfalfa Hay	7,898	3.5
Managed Wetland	7,466	3.3
Developed Land	852	0.4
Natural Land	584	0.3
Irrigated Pasture	158	0.1
Riparian	328	0.2
Grove	73	0.0
Total	223,840	100

### **Foraging Habitat**

**Land Use/Cover Types Suitable as Swainson’s Hawk Foraging Habitat.** Within the study area, lands uses considered suitable for Swainson’s hawk foraging included irrigated croplands, alfalfa and other hay fields, irrigated pastures, and natural lands. A total of 178,046 acres (80%) of the study area is considered suitable Swainson’s hawk foraging habitat. The following describes the land use/cover type categories that are considered suitable as Swainson’s hawk foraging habitat.

- Irrigated Cropland. This type is defined as areas that are dominated by crop patterns that involve annual or seasonal cultivation and rotation. This is the dominant cover type in the study area comprising approximately 72% of the land area (Table 6). While there are smaller acreages of several other crop types within this category, the majority of acreage within this type in the study area and throughout Fresno County includes (in order of total acreage):

- Tomatoes
- Wheat
- Corn
- Cotton

These four crop types comprised approximately 52% of the total annually rotated irrigated cropland in Fresno County in 2009 (Fresno County 2009). Although the percent acreages of specific crop types changes over time due mainly to economic influences, the proportion of the study area that includes irrigated cropland has remained relatively constant for many years. A typical crop rotation in western Fresno County includes cotton, wheat, and tomatoes. With milk products also an important commodity in Fresno County, dairies support the continuation of a variety of silage and hay crops including corn, wheat, sorghum, and triticale (Fresno County 2009). Alfalfa is also an important part of this rotation, but as noted below alfalfa hay will remain for several consecutive seasons, and thus is addressed separately below.

Irrigated crops are generally characterized as having seasonal or fluctuating foraging habitat value depending on the planting and harvesting regime and vegetation structure (Estep 2009). For example, tomatoes are planted in the spring and vegetation height and density increases throughout the breeding season. Rodent populations increase during this period, but prey accessibility (and foraging use) decreases due to increasing vegetation height and density (Bechard 1982, Estep 2009). When tomatoes are harvested in August, prey accessibility increases when rodent populations are at their highest and the value and foraging use of tomato fields reaches its peak.

Each crop type within the category undergoes a similar temporal change in value and use; however, the timing is different for each. Some crop types, including cotton and corn have limited value because their vegetation structure precludes foraging relatively early in the breeding season, prey populations are generally lower in these crop types, and harvesting often occurs after Swainson's hawks have begun fall migration.

In general, however, irrigated croplands as a whole are considered to have at least moderate foraging value due to the matrix of different crop types across the agricultural landscape, the seasonal value of certain types such as tomatoes and wheat, and the seasonal or annual rotation practices.

- *Alfalfa*. Alfalfa is an ungrazed irrigated hay crop used for livestock feed. Alfalfa typically remains uncultivated for 4 to 5 years, and occasionally longer. During this time, it is not rotated to other crop types. Alfalfa is considered to be the cover type with the highest foraging value to Swainson's hawks due to its relatively low vegetation structure and the practice of regular mowing and flood irrigating during the breeding season. During the spring and summer growing season, alfalfa is typically mowed once per month and irrigated once per week, activities that make rodent prey more accessible and increase foraging use by Swainson's hawk and other raptors. Following several consecutive growing seasons, alfalfa is often converted back to the irrigated cropland rotation described above. Alfalfa constitutes a relatively small percentage of the land area within the study area (3.5%) (Table 6), with the largest proportion occurring east of the Fresno River/James Bypass (Figures A-1 through A-11 in Appendix A).
- *Irrigated Pasture*. Irrigated pastures are irrigated grasses or hays that are grazed by livestock and may be periodically cut for hay. Irrigated pastures maintain a relatively consistent structure and prey populations compared with other agricultural types, and therefore can be high value foraging cover types. There is very little irrigated pasture in the study area (0.1%), most of it occurring in one patch northwest of the project site (Figure A-5 in Appendix A).
- *Natural Land*. Natural land refers to uncultivated portions of the landscape that have retained some natural topography, vegetation characteristics, or other values.

These lands are rare in the study area and throughout the valley floor portion of Fresno County and are usually associated with remnant patches of grazing land or river bottom land along the edges of watercourses. Only 0.03% of the study area consist of this cover type (Table 6).

- *Managed Wetland.* In the Central Valley, most managed wetlands are agricultural fields or former agricultural fields periodically flooded to provide habitat for wintering waterfowl. During the spring and summer months, these areas are typically dry and provide upland habitat for foraging raptors and other wildlife. A large, approximately 7,400 acre patch of managed wetland occurs along the Fresno Slough corridor immediately north of the project site (Figure A-5 in Appendix A).

**Cover Types with Limited or No Foraging Habitat Value.** Of the seven defined land use cover types (excluding riparian and tree groves, which are addressed as nesting habitat below), two (Vineyards/Orchards and Developed Land) represent distinct land uses or cover types that provide limited to no suitable Swainson's hawk foraging habitat. These types represent 20.3% of the study area (Table 5). Each is described below.

- *Vineyards and Orchards.* These are perennial crop types that develop a vegetative overstory that precludes access by foraging Swainson's hawks and most other raptors. While potentially converted back to a suitable foraging habitat and thus having potential value for conservation purposes, vineyards and orchards are considered unsuitable habitat areas for at least relatively long periods of time. Approximately 19.9% of the study area consists of these types (Table 5) (Figures A-1 through A-11 in Appendix A).
- *Developed Land.* Developed land refers to urban, industrial, and some rural residential areas. These types generally consist of high density developed areas that lack natural or cultivated landscapes and provide no foraging habitat value. Rural Residential is lower density urbanization that fragments natural or cultivated landscapes. Both high density urban areas and lower density rural residential areas are considered unsuitable habitat areas. Approximately 0.4% of the study area consists of these types (Table 5).

### **Nesting Habitat**

Swainson's hawk nest sites were found in the following 6 defined nesting habitat types (Table 3):

- Riparian
- Tree row
- Roadside tree
- Isolated tree
- Rural residential

Each is described below:

- *Riparian*. In the study area, riparian vegetation occurs primarily along the Fresno Slough and James Bypass, where 10 of the nest sites were found (40%) (Plate 24). Riparian is streamside vegetation that is generally characterized by an overstory of cottonwood, willow, and valley oak trees, which are commonly used nest tree species by Swainson's hawks. In the study area, eucalyptus, salt cedar, and other exotic species also occur within riparian zones. Riparian habitat is limited in the study area to intermittent, patchy, willow-cottonwood habitat along the Fresno Slough and James Bypass (Figures A-1 through A-11 in Appendix A). These sites support suitable nesting habitat for nesting Swainson's hawks and other raptors. Nest tree species used by Swainson's hawks in riparian habitat include willow (8) and cottonwood (1) (Table 3).



Plate 24. Nest site SH11. Willow tree along Fresno Slough.

- *Tree Row*. Tree row refers to planted rows of trees that are not associated with roadsides. These often occur along field borders or rural driveways and were usually planted as windbreaks or for landscaping purposes. Five of the 25 nest sites were found in this habitat type (20%) (Table 3). Most tree rows in the study area consist entirely of eucalyptus trees, including all of those where active nests were found (Plate 25).





Plate 25. Nest site SH3, along eucalyptus tree row.

- *Isolated Tree.* Isolated trees are single trees (and sometimes two or three trees) that are not associated with roadsides, residences or other features. In the study area, most of these trees are along field borders or irrigation channels. Three of the 25 nest sites were in isolated trees (12%), two in cottonwood trees and one in a willow tree (Table 3) (Plate 26).



Plate 26. Nest site SH8, isolated cottonwood tree.

- *Roadside Tree.* Roadside trees are distinguished from other isolated trees and tree rows because they generally receive a substantially greater amount of noise and other human disturbances. This type includes any naturally occurring or planted native or nonnative tree. Two of the 25 nest sites were found in roadside trees (8%), both in eucalyptus trees (Table 3).
- *Rural Residential.* Rural residential refers to trees that are planted for windbreak cover, shade, or ornamentals around rural farmsteads. These trees are of a variety of species, but in the study area are predominantly eucalyptus. Swainson's hawks can be quite tolerant of human activities and often use trees associated with rural farm residences or farmyards (Estep 2007, 2008). Five of the 25 nest sites were found in the rural residential type (20%), all in eucalyptus trees (Table 3) (Plate 27).



*Plate 27. Nest site SH10, eucalyptus trees around farmhouse.*

Table 7 indicates the tree species used by nesting Swainson's hawks within the study area. Eucalyptus is the most common tree species in the study area and the most commonly used nest tree species (43.5%).

**Table 7. Nest Tree Species used by Nesting Swainson’s Hawks in the RE Kamm/Jameson SGF Study Area.**

<b>Tree Species</b>	<b>Number of Active Nest Sites</b>	<b>Percent of Total</b>
Eucalyptus	10	43.5
Willow	9	39.1
Cottonwood	4	17.4
Total	23	100

**Relationship Between Distribution and Habitat Associations**

Figures A1 through A-11 in Appendix A illustrate the distribution of Swainson’s hawk nesting territories relative to the distribution of land use/cover types in the study area. A review of these maps suggests the relationship between the distribution and habitat associations is based primarily on the distribution of available nesting habitat.

In general, nesting habitat in the study includes riparian habitat along the Fresno Slough and James Bypass corridors, where a large proportion of the nest sites in the study area occur; and in isolated trees or tree rows, which are scattered sparsely and unevenly in the study area. Much of the study area southwest of the Fresno Slough lacks suitable nest trees for Swainson’s hawks other than occasional eucalyptus tree rows or isolated trees. However, where these isolated habitats occur, they are often occupied by nesting Swainson’s hawks (A1 through A-11 in Appendix A).

Nesting distribution appears less associated with the distribution of suitable foraging habitat, which constitutes a large proportion (80%) of the study area. The majority of suitable foraging habitat in the study area, particularly west of the Fresno Slough is considered low to moderate value consisting of irrigated cropland in the tomato/wheat/cotton rotation. High value foraging habitat (e.g., alfalfa and irrigated pasture) constitutes a relatively small proportion of the foraging landscape and while most is concentrated east of the Fresno Slough, it does not appear to be a significant factor regulating the nesting distribution. The largest proportion of the unsuitable habitat (e.g., orchards/vineyards) also occurs east of the Fresno Slough, and while these habitats are not used by foraging Swainson’s hawks, nesting density in areas with a large proportion of orchards and vineyards are generally similar to other portions of the study area and thus they also do not appear to be a primary factor regulating the nesting distribution. (Figures A1 through A-11 in Appendix A). This suggests that there is sufficient suitable and accessible foraging habitat in the study area to support the existing population and that the distribution of Swainson’s hawk nest sites is primarily a function of the availability of suitable nest trees.

**Habitat Use of the Landscape by Foraging Swainson’s Hawks**

Swainson’s hawks forage widely over agricultural landscapes, and foraging has been documented to regularly occur greater than 10 miles from nest sites (Estep 1989,

Babcock 1995). However, foraging ranges are highly elastic and change seasonally as crops mature and are harvested and annually as crops rotate into new crop patterns. Swainson's hawks have proven to be very adaptable to this dynamic foraging landscape and have learned to opportunistically exploit suitable foraging conditions as they occur. Using the information on general crop patterns throughout the study area (Figures A-1 through A-11 in Appendix A) and data on Swainson's hawk foraging use patterns in the Central Valley (Estep 1989, Babcock 1995), it is possible to qualitatively describe the likely use of the study area by the 25 nesting pairs that reside within it.

Because of the relatively even distribution of nest sites throughout the study area, and because the majority of the study area is characterized as annually rotated irrigated cropland, it is reasonable to assume that foraging activity occurs fairly consistently throughout the study area, with the exception of areas devoted to orchard/vineyard agriculture. Because alfalfa provides consistent, high value foraging habitat, these areas likely receive the highest proportion of regular foraging use. However, because alfalfa occurs relatively infrequently on the landscape, foraging Swainson's hawks are likely using a variety of cover types and foraging conditions. Swainson's hawks readily travel significant distances from their nest sites to forage when opportunities occur. For example, high quality foraging conditions occur during the period of wheat harvest (June), and tomato harvest (August). During these periods, these crop types are used extensively by foraging Swainson's hawks. Because these crop types are among the most common in the study area and throughout Fresno County, it is reasonable to suggest that irrigated cropland receives a substantial amount of foraging activity in the study area.

## **Other Nesting Raptors**

During the survey all other stick-nest-building raptor nest locations were also recorded. Other species were limited in the study area to red-tailed hawk and great-horned owl. A total of only 12 other raptor nests were documented in the study area during the survey (Appendix B), making the Swainson's hawk twice as common in the study area as all other stick-nest-building raptors.

The most abundant raptor in the study area other than Swainson's hawk was the red-tailed hawk, with a total of 9 active nests documented (Appendix B). A summary of red-tailed hawk nest site data is provided in Table 8.

The more common red-tailed hawk competes with the Swainson's hawk for nesting sites and food resources; however, the red-tailed hawk is more of a generalist and can inhabit more fragmented landscapes where the Swainson's hawk is much less frequently found. Red-tailed hawks also generally have higher reproductive rates than Swainson's hawks (Table 8). However, the majority of the study area consisted of open agricultural landscapes with low to moderate foraging value and with relatively few nesting opportunities (Figures A-1 through A-11 in Appendix A). Swainson's hawks may occupy these areas more readily than red-tailed hawks due to their foraging behavior and larger foraging ranges.

**Table 8. Summary of red-tailed hawk nest site data within the RE Kamm/Jameson SGF Survey Area.**

<b>Activity</b>		
	<b>Number</b>	<b>Percent of Total</b>
# Active nests – successful	7	77.8
# Active nests – failed	1	11.1
# Active nests with unknown status	1	11.1
Total Active Nests	9	100
<b>Reproduction</b>		
Total # young produced	13	
# young per occupied nest with known status (successful + failed)	1.63	
# young per successful nest	1.86	

## Section 6. CEQA Assessment

As noted in Section 1, CEQA defines the significance of an impact on a state-listed species based on the following:

- Appendix G of the State CEQA guidelines states that a biological resource impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in “substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS”; and
- CEQA Section 15065 (Mandatory Findings of Significance), a biological resource impact is considered significant if the project has the potential to “substantially reduce the number or restrict the range of an endangered, rare or threatened species”.

To address CEQA guidance pursuant to Appendix G, a threshold of significance is generally established to provide definition and a framework to address the otherwise somewhat vague term “substantial adverse effect”. For purposes of this assessment, that threshold is conservatively defined to indicate whether or not the impact would affect the distribution and abundance of the existing breeding population or affect the future expansion of that population. So, if it can be demonstrated that a project or projects that reduce available nesting or foraging habitat for Swainson’s hawks would in turn reduce the distribution or abundance of the nesting population or prevent expansion of that population, the impact would be considered significant. If, however, it can be demonstrated that removal or alteration of nesting or foraging habitat would not reduce the distribution or abundance of the existing population or prevent expansion of that population, then the impact would be considered less than significant.

### **Nesting Habitat and Direct Impacts on Active Nests**

There are no trees on the project site and therefore there would be no impacts to Swainson’s hawk nesting habitat.

There is one active nest in an isolated willow tree along the southwestern border of the project site (Plate 23, Figure A-5 in Appendix A). The tree is along an irrigation canal that parallels the project border and is outside of the proposed project fence line, and therefore would not be directly impacted by the project. Because the project area would be subject to only very low levels of ongoing operational disturbance from periodic maintenance activities, it is unlikely to be impacted from ongoing operational activities. However, because the nest site is immediately adjacent to the project site, it could be disturbed during initial construction of facility. Disturbance during the breeding season from noise and related construction activities and increased human presence could cause abandonment of the nest and result in possible take of the species.

## Foraging Habitat

The determination of whether or not the loss of agricultural foraging habitat from the project exceeds the significance threshold is derived from a review of the survey and habitat/land use data to estimate an existing baseline condition expressed as habitat availability, and a review of the requirements of foraging Swainson’s hawks in the Central Valley to estimate the extent of suitable agricultural foraging habitat that is required for each of the 25 nesting pairs. The assessment is initially conducted using the entire study area to compare availability and species requirements followed by the same assessment using a smaller assessment subarea that is more representative of the nesting distribution in the vicinity of the project.

Table 9 indicates the acres of suitable agricultural foraging habitat within the study area, the amount of agricultural foraging habitat required to support 25 nesting pairs of Swainson’s hawks (from Estep1989), the number of acres that exceeds the estimated amount required (surplus acres), the number of acres removed by the project, and the acres and percent remaining following implementation of the project.

**Table 9. Total acres of available, required, and impacted agricultural foraging habitat within the RE Kamm SGF study area.**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>Available foraging habitat (ac)</b>	<b>Unadjusted foraging habitat required to support 25 nesting pairs (ac)</b>	<b>Foraging habitat required (adjusted for 30% overlap) (ac)</b>	<b>Difference (A-C, representing the estimate of surplus available acres)</b>	<b>Impact of the project (ac)</b>	<b>Remaining available habitat following impact (A-E (ac/%))</b>	<b>Remaining surplus available habitat following impact (D-E) (ac/%)</b>
178,046	170,500	119,350	58,696	240	177,806 (99.9%)	58,456 (99.6%)

From Table 9, if A (available foraging habitat) is greater than C (foraging habitat required by the existing population), then this indicates that there is a greater amount of available foraging habitat in the study area than is required to support the existing nesting population. However, recognizing that the landscape is not static and that Swainson’s hawk foraging patterns change with changes in crop patterns, to be considered significant, the remaining available surplus acres (D) must be reduced below 70% of the total surplus, as expressed in column G. So this means that if available foraging habitat acres exceed that required by the population and at least 70% of the remaining surplus suitable acres are retained, then the extent of habitat removal is not expected to affect either the existing population or substantially affect the opportunities for expansion of the population. The impact would thus be considered less than significant. The 70%

threshold is arbitrarily set but is considered to represent sufficient additional surplus acres to support a dynamic agricultural landscape and provide for expansion of the population.

The average size of a Swainson's hawk foraging range from Estep (1989) was 6,820 acres. While variable in quality and use, nearly all of land within the calculated home ranges was considered suitable Swainson's hawk foraging habitat, and so this number is also used here to represent the average number of acres of suitable, available foraging habitat required by a nesting pair of Swainson's hawks. This equates to a total of 170,500 acres required to support the 25 nesting pairs. Incorporating the 40% overlap in foraging ranges estimated by Estep (1989), and then reducing this to 30% to account for less overlap assumed for several of the more isolated nesting pairs, the total required for the 25 nesting pairs is 119,350 acres. The difference (A – C from Table 9) between the available and required acres (D) represents the estimate of surplus acres available to account for a changing agricultural landscape and population expansion. The term 'surplus' is used here only to estimate this difference and not to suggest that the area does not actually receive foraging use by Swainson's hawks, which it certainly does. Finally, columns E and F in Table 9 estimate the remaining acres of available foraging habitat and surplus foraging habitat following implementation of the project.

Table 9 indicates that there is nearly 40% more available foraging habitat in the study area than is required by the existing nesting population and that the amount removed from project implementation would not affect the distribution and abundance of the population. Table 9 also indicates that 99.6% of the surplus available acreage will remain following implementation of the project and thus the project would not prevent future expansion of this population.

The nesting population within the study area is generally distributed in two areas, along or east of the northwest-southeast Fresno Slough/James Bypass corridor, and in the open agricultural lands southwest of the project site. Because the project site is not within either of these concentration areas, a subarea was selected that incorporates portions of each and excludes much of the unoccupied (i.e., no nest sites) portions of the study area. Therefore the subarea is considered somewhat more representative of the occupied lands within the study area. The subarea is defined as a swath of land extending three miles east and west of the project site and extending due north and south to the edge of the study area. So this smaller assessment area includes a 7-mile-wide swath (including the 1 mile width of the project site) running down the center of the study area totaling approximately 76,480 acres of available Swainson's hawk foraging habitat and incorporates 12 of the 25 nest sites within the study area (Table 10).

Even assuming a substantial amount of variability in foraging ranges, there still remains more available habitat than required within this more narrow assessment area (Table 10). The project impact would also have a very small effect (1.3%) on surplus habitat and does not meet the 70% threshold established to determine a significant impact to surplus habitat. Thus, clearly the conversion of 240 acres of agricultural land within the study area will not affect the distribution and abundance of nesting Swainson's hawks nor



would it prevent an expansion of this population. Thus, this impact is considered less than significant.

**Table 10. Total acres of available, required, and impacted agricultural foraging habitat within the RE Kamm/Jameson subarea.**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>Approx. available foraging habitat (ac)</b>	<b>Unadjusted foraging habitat required to support 12 nesting pairs (ac)</b>	<b>Foraging habitat required (adjusted for 30% overlap)</b>	<b>Difference (A-C, representing the estimate of surplus available acres)</b>	<b>Impact of the project (ac)</b>	<b>Remaining available habitat following impact (A-E)(ac/%)</b>	<b>Remaining surplus available habitat following impact (D-E)(ac/%)</b>
76,480	81,840	57,288	19,192	240	79,240 (99.7%)	18,952 (98.7%)

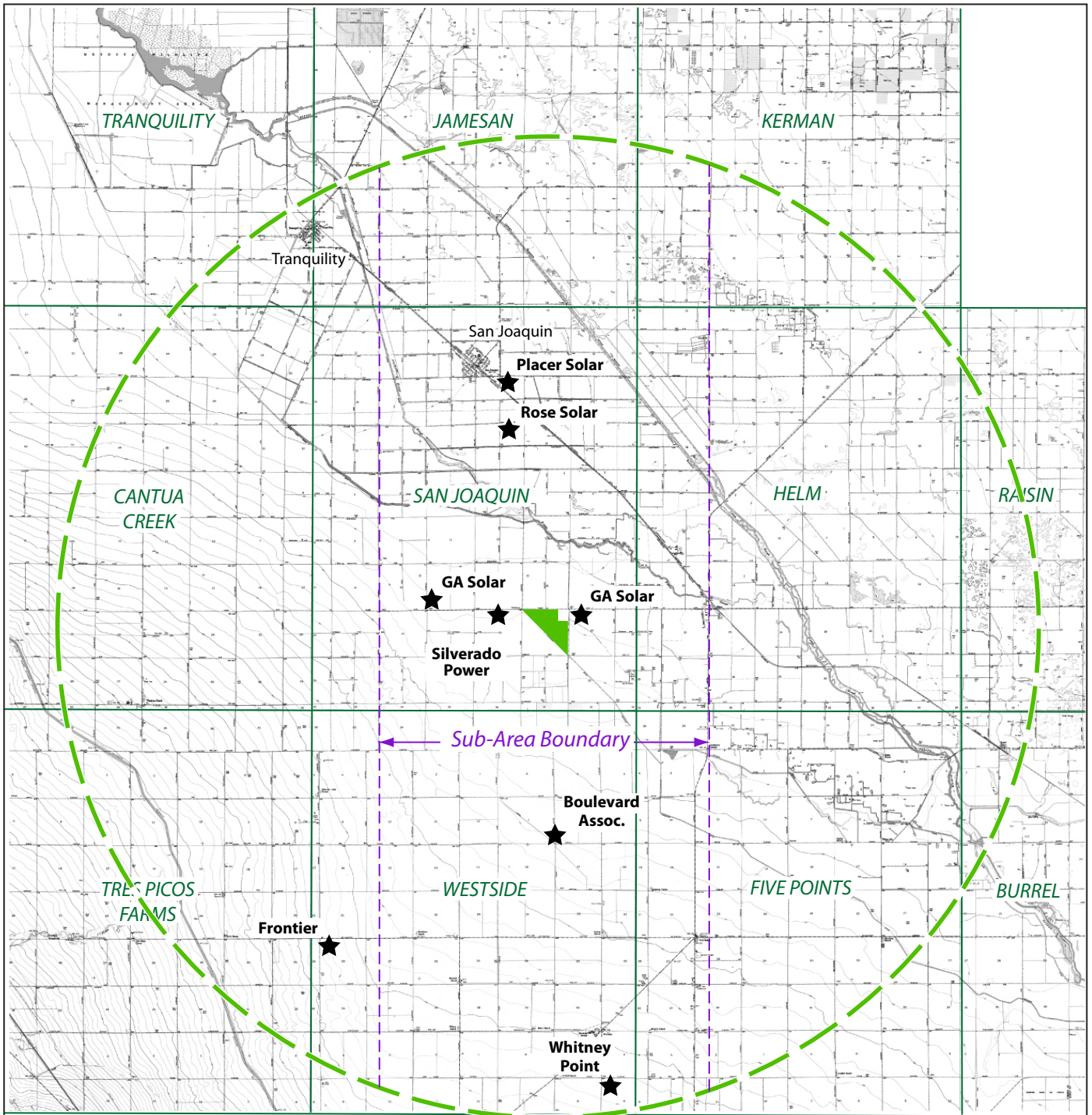
## Cumulative Assessment

In addition to a project-specific assessment, CEQA also requires that a cumulative assessment be conducted to determine the contribution of the project to a larger possible impact. To do this, the study area is used as the cumulative impact assessment area. For purposes of this assessment, the cumulative impact is defined as all planned and proposed solar energy projects within the plan area (Figure 6).




Including the RE Kamm/Jameson SGF, there are currently 9 proposed projects within the study area totaling 2,340 acres or approximately 1.0% of the study area. Using a similar method as described above, 98.7% of the total available foraging habitat and 96.0% of the surplus portion remain as suitable habitat following implementation of all projects (Table 11). Table 11 indicates that the cumulative loss of suitable foraging habitat study-area-wide does not meet the threshold for significance.

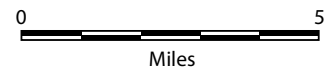
**Table 11. Total acres of available, required, and cumulatively impacted agricultural foraging habitat within the RE Kamm/Jameson SGF study area.**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>Available foraging habitat (ac)</b>	<b>Unadjusted foraging habitat required to support 25 nesting pairs (ac)</b>	<b>Foraging habitat required (adjusted for 30% overlap) (ac)</b>	<b>Difference (A-C, representing the estimate of surplus available acres)</b>	<b>Cumulative impact of nine proposed projects (ac)</b>	<b>Remaining available habitat following impact (A-E) (ac/%)</b>	<b>Remaining surplus available habitat following impact (D-E) (ac/%)</b>
178,046	170,500	119,350	58,696	2,340	175,706 (98.7%)	56,356 (96.0%)



**LEGEND**

-  Proposed RE Kamm/Jamesan SGF Project Site
-  Study Area (minimum 10-mile radius around project site)
-  Proposed Solar Projects within the RE Kamm/Jamesan SGF Study Area



BASE MAP: USGS 7.5' Quadrangles

8/23/2011

**Figure 6**  
**Proposed Solar Energy Developments within the Study Area**

Eight of the nine planned or proposed projects, totaling 2,040 acres (87.2%) of the total cumulative impact acres in the study area occur within the assessment subarea (Figure 6). Following the implementation of all projects, 97.3% of the available foraging habitat remains as suitable foraging habitat and 89.4% of the surplus area remain as suitable foraging habitat (Table 12). Table 12 indicates that the cumulative loss of suitable agricultural habitat within the smaller, more representative portion of the study area also does not reach the 70% threshold for significance and that the impact is therefore less than significant

**Table 12. Total acres of available, required, and cumulatively impacted agricultural foraging habitat within the RE Kamm/Jameson subarea.**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>Approx. available foraging habitat (ac)</b>	<b>Unadjusted foraging habitat required to support 12 nesting pairs (ac)</b>	<b>Foraging habitat required (adjusted for 30% overlap)</b>	<b>Difference (A-C, representing the estimate of surplus available acres)</b>	<b>Cumulative impact of eight proposed projects (ac)</b>	<b>Remaining available habitat following impact (A-E)(ac/%)</b>	<b>Remaining surplus available habitat following impact (D-E)(ac/%)</b>
76,480	81,840	57,288	19,192	2,040	74,440 (97.3%)	17,152 (89.4%)

## Conclusions and Recommendations

Results of the survey indicate a relatively sparse Swainson’s hawk nesting population within the 223,840 acre (350 square mile) RE Kamm/Jameson SGF study area. A total of 25 nesting territories were confirmed, including 6 within 5 miles of the project site and 19 within 5 to 10 miles of the project site. Within the study area, the project site occurs within an area that is particularly lacking in available nest sites and where only one Swainson’s hawk nests occurs within two miles. Overall, this represents a nesting density of 0.07 nests per square mile within the study area and 0.09 nests per square mile within the subarea. This contrasts with the nesting density found in the Sacramento Valley, where as much as 6 times the nesting density is reported, including 0.38 nests per square mile in Yolo County and 0.37 nests per square mile in South Sacramento County (Estep 2008).

Within the study area, 178,046 acres (80% of the study area) is considered suitable foraging habitat. However, there is relatively little high value foraging habitat (e.g., alfalfa and irrigated pastures). The majority of the agricultural land is in the cotton/tomato/wheat rotation typical of the area, which provides suitable but low to moderate value foraging habitat. While likely related to lower nesting density and reproductive output, Swainson’s hawks in the Central Valley are well-suited to diverse agricultural land conditions due to their ability to forage widely across a broad

agricultural landscape. In general, suitable agricultural foraging habitat was widespread across the study area; however, some areas, particularly in the northeast had larger areas devoted to orchards and vineyards, a condition that appears to be expanding rapidly throughout the region. Still, in the study area it appears that the availability of nest trees is the key factor regulating distribution and abundance. Available nest trees were primarily along the Fresno Slough/James Bypass corridors, where 44% of the nesting pairs occurred. The remaining 56% of the nesting pairs used non-riparian habitats, mostly in the central and southern portions of the study area in eucalyptus tree rows, isolated trees, and small groves around rural residences, and some in fairly isolated locations with extremely limited nest tree availability.

The proposed RE Kamm/Jameson SGF project will not affect Swainson's hawk nesting habitat or directly affect any Swainson's hawk nest site. There is potential, however, for construction-related disturbance to the nest site along the southwestern border of the site. While the tree would not be removed or directly affected by the project, disturbances from construction could cause abandonment of the site and may be considered a take of the species pursuant to the state endangered species act. This is a potentially significant impact that will require implementation of avoidance measures to reduce it to a less than significant level.

Other than the aforementioned nest, the nearest active nest is more than two miles from the project site. The project would therefore have little to no affect on Swainson's hawk nests or nesting habitat. This assessment therefore focused on the loss of agricultural foraging habitat and how the loss or alteration of 240 acres would affect the distribution and abundance of the nesting population and the extent to which the reduction would contribute to restricting the range of the population and its ability to expand in the future. Determining the significance of the loss of agricultural foraging habitat within the study area was based on an analysis of the abundance and distribution of available foraging habitat and how nesting Swainson's hawks might respond to this loss. A threshold was established to determine whether or not significance, pursuant to CEQA definition, was reached. A similar assessment was conducted to determine the effect of the cumulative loss of habitat from all proposed solar projects within the study area.

The loss of 240 acres of agricultural land will not affect the distribution or abundance of nesting Swainson's hawks in the study area. Because it represents only 0.1% of the available foraging habitat within the study area, its conversion is negligible relative to availability, and particularly with regard to the relatively small number of Swainson's hawks that nest in the study area. At the project level, this loss would not represent a significant loss of foraging habitat for Swainson's hawks and does not represent a significant CEQA impact.

While a fairly substantial amount of additional agricultural foraging habitat would be removed (2,340 acres), the cumulative reduction of available foraging habitat from all proposed solar energy projects in the study area also did not reach the threshold for significance, as defined. There is sufficient suitable habitat in the study area, and in just the portion of the study area selected as an assessment subarea, to support and provide for

the expansion of this small population. The cumulative loss of suitable foraging habitat is not expected to affect the distribution or abundance of the existing nesting population or prevent the future expansion of that population, and therefore this impact is also considered less than significant.

The cumulative loss of habitat would also cause some fragmentation of the agricultural landscape within the study area (Figure 6); however, this is not expected to substantially affect Swainson's hawk use of the landscape. The proposed projects are relatively small individually and spread across a broad agricultural landscape.

Therefore, in my opinion the proposed RE Kamm/Jameson SGF would not result in a significant reduction of available Swainson's hawk agricultural foraging habitat at either the project-specific or cumulative level, and that no mitigation should be required as per CEQA guidance.

The approach used here to assess impacts on the Swainson's hawk could be regarded as conservative due mainly to the relatively high significance threshold established and the narrowing of the assessment area to incorporate a more representative portion of the nesting population. However, while Swainson's hawks can successfully respond to some agricultural land use changes, they occur in a highly modified and largely privately-owned landscape for which there is little certainty regarding the long-term ability of the agricultural lands to support suitable Swainson's hawk foraging habitat. For example, the continuing increase in orchards throughout Fresno County reduces available foraging habitat for Swainson's hawks at a rate far greater than other types of land conversion. The extent of uncertainty, particularly regarding the long-term cumulative reduction of suitable agricultural foraging habitat, necessitates a somewhat conservative approach to assessing the effects of habitat loss with regard to its long-term effect on the species range and the potential for range expansion.

The information contained in this and subsequent reports should be used by Fresno County with assistance from the California Department of Fish and Game to develop a comprehensive program for ongoing population and habitat monitoring. These data can be used to begin establishing a framework for large-scale regional conservation planning and to monitor impact thresholds for continued CEQA analysis.

### **Mitigation**

As noted above, construction-related disturbances could cause nest abandonment of the active Swainson's hawk nest site along the southwestern border of the RE Kamm/Jameson SGF project site. To avoid addressing possible take of the species pursuant to Section 2080 of the Fish and Game Code, avoidance measures should be implemented during time the nest is active. Standard avoidance of active Swainson's hawk nests includes the following procedures:

- If construction is scheduled to begin during the spring or summer months, prior to any construction or ground-clearing activity, conduct a survey of

the site to determine if the nest is active. If the nest is inactive during the construction year, then work can proceed without further mitigation.

- If, however, the site is active, then postpone construction in the vicinity of the active nest for the duration of the breeding season by establishing a no-disturbance set-back (see below). In general, the breeding season extends from mid-March through mid-September. However, once young have fledged and are no longer dependent on the adults or have left the natal site, then construction can proceed without further mitigation. This generally occurs from late July to late mid-August. Monitoring would be required to determine status of the nest in order to determine the earliest possible construction start date. Otherwise, no restrictions are required for construction activities occurring between September 15 and March 15.
- If the site is active, establish a no-disturbance set-back from the nest sufficient in size to avoid the possibility of nest abandonment from construction-related disturbances. The set-back can be established through consultation with DFG based on line-of-site, type and level of disturbance, or other factors.

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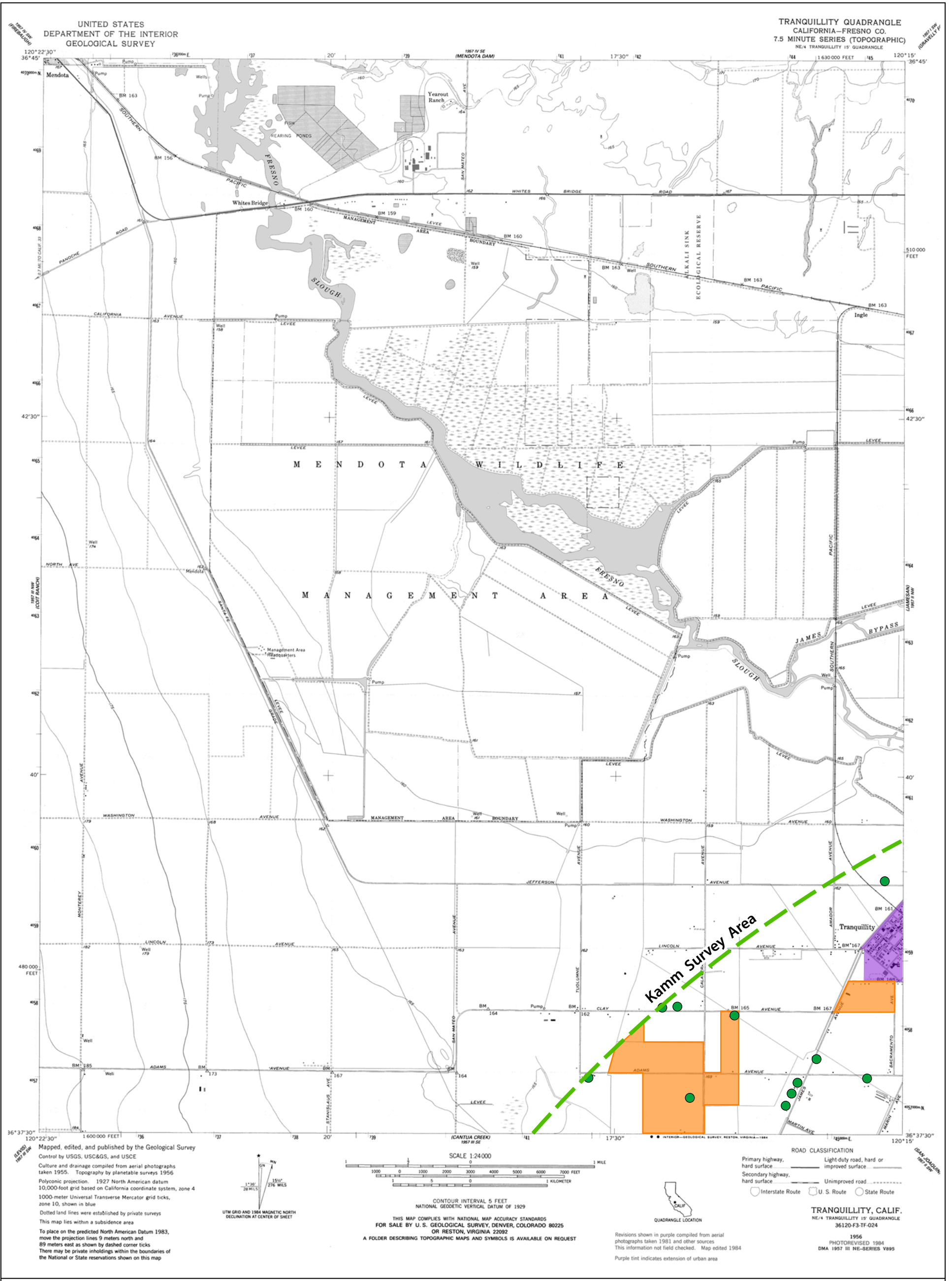
## **Appendix A. USGS Quadrangle Maps – Distribution of Land Cover Types and Nest Sites**

## Appendix B. Other Raptor Data

**Table B-1. Other raptor nest site locations, status, and nesting habitat type within the RE Kamm/Jameson SGF study area.**

Site #	USGS Quad	Location	GPS coordinates	Status	# Yg	Nesting Habitat	Nest Tree
GH1	Burrel	Fresno Slough	36.461717 N 119.997829 W	S	2	Riparian	Cottonwood
GH2	San Joaquin	James Bypass, 0.2 mi No. of Manning Rd		S	3	Riparian	Willow
GH3	Helm	James Bypass between Huntsman and Floral	36.57976 N 120.10737 W	S	1	Riparian	Willow
RT1	San Joaquin	James Bypass, 2.3 mi N of Manning Rd.		S	1	Riparian	Cottonwood
RT2	San Joaquin	Manning Road and Sonoma Road	36.60253 N 120.23975 W	S	2	Roadside tree row	Eucalyptus
RT3	Helm	James Bypass, 0.5 mi No of Kamm Road	36.53184N 120.06131 W	U	U	Riparian	Willow
RT4	Helm	Colorado Road, just S of town of Helm	36.52939 N 120.09790 W	F	0	Rural residential	Eucalyptus
RT5	Helm	Floral Road	36.57490 N 120.02361 W	S	2	Roadside utility pole	Utility pole
RT6	Helm	James Bypass between Huntsman and Dinuba	36.58299 N 120.11059 W	S	3	Riparian	Willow
RT7	Jameson	James Bypass between Colusa and Placer	36.65845 N 120.19017 W	S	2	Tree row	Cottonwood
RT8	Jameson	Lincoln Ave at Placer Ave.	36.64686 N 120.18195 W	S	2	Rural residential	Eucalyptus
RT9	Raisin	Jameson Rd at Nebraska Rd	36.56039 N 119.98949 W	S	1	Rural residential	Conifer

GH = great-horned owl, RT = red-tailed hawk  
S = Successful, F = Failed, U = Unknown



**LEGEND**

**Land Use/Foraging Habitat**

- 1,963 Ac. Irrigated Agriculture
- 433 Ac. Orchard/Vineyard
- Alfalfa
- Irrigated Pasture
- Natural Land
- 94 Ac. Developed Land
- Managed Wetland

**Nesting Habitat**

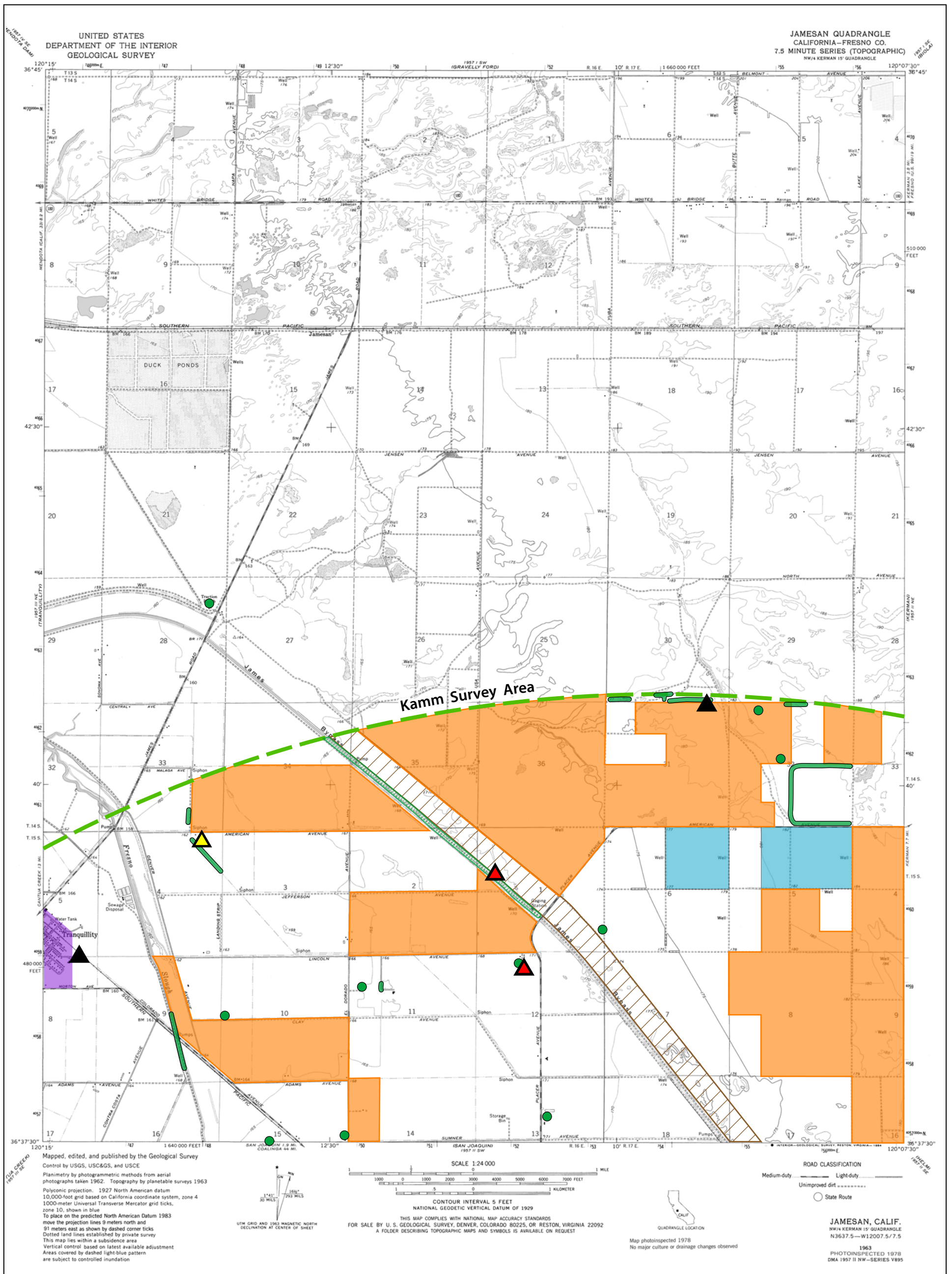
- Riparian Habitat
- Isolated Tree
- Tree Row
- Grove

**Nesting Raptor Species**

- ▲ Swainson's Hawk
- ▲ Red-Tailed Hawk
- ▲ Great Horned Owl
- ▲ White-Tailed Kite
- ▲ Red-Shouldered Hawk

**Figure A-1**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Tranquillity Quadrangle**





### LEGEND

#### Land Use/Foraging Habitat

8,439 Ac.	Irrigated Agriculture
4,988 Ac.	Orchard/Vineyard
396 Ac.	Alfalfa
	Irrigated Pasture
584 Ac.	Natural Land
81 Ac.	Developed Land
	Managed Wetland

#### Nesting Habitat

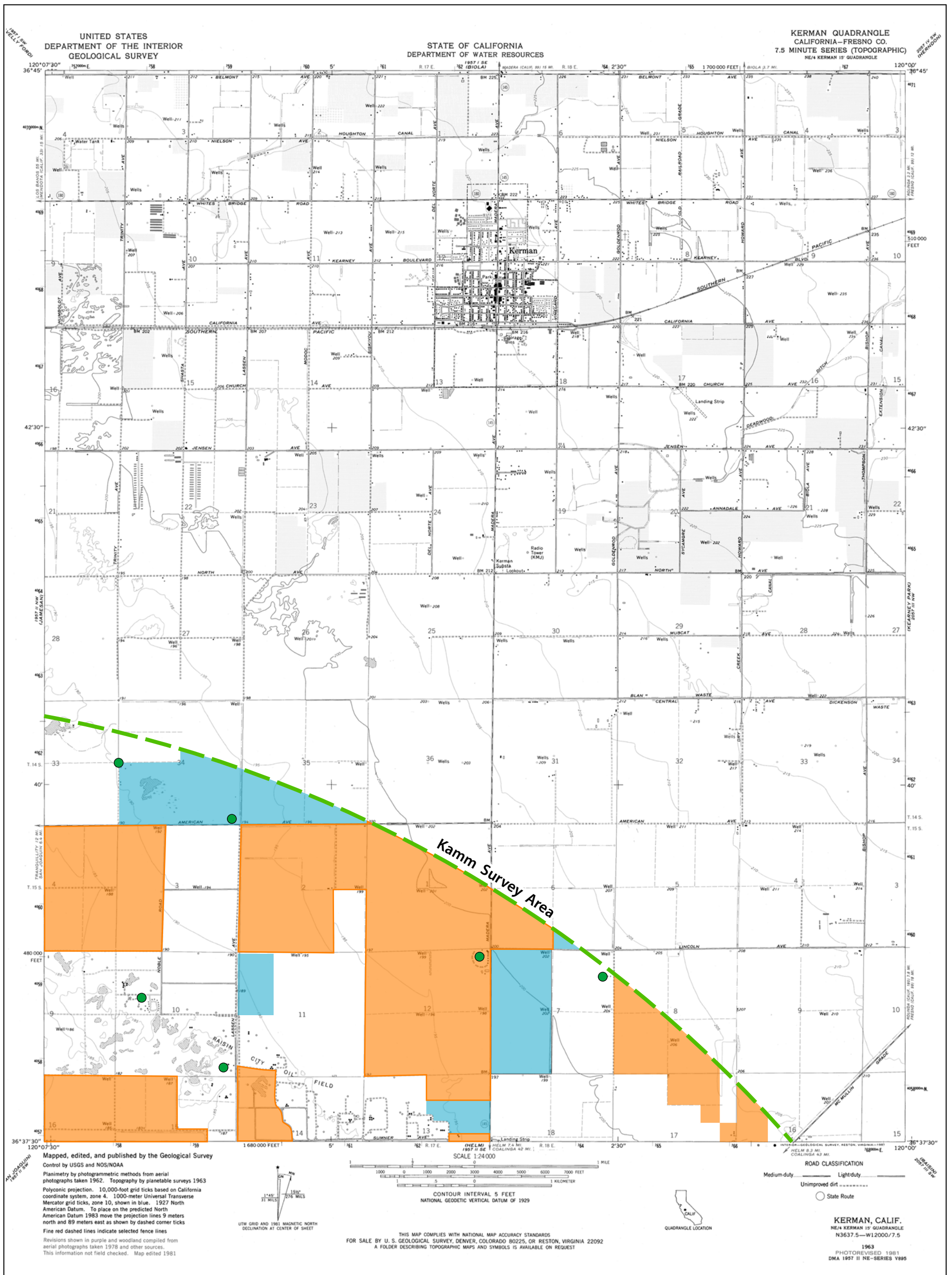
51 Ac.	Riparian Habitat
	Isolated Tree
54 Ac.	Tree Row
	Grove

#### Nesting Raptor Species

▲	Swainson's Hawk
▲	Red-Tailed Hawk
▲	Great Horned Owl
▲	White-Tailed Kite
▲	Red-Shouldered Hawk

**Figure A-2**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Jamesan Quadrangle**





**LEGEND**

**Land Use/Foraging Habitat**

- 3,875 Ac. Irrigated Agriculture
- 3,438 Ac. Orchard/Vineyard
- 977 Ac. Alfalfa
- Irrigated Pasture
- Natural Land
- Developed Land
- Managed Wetland

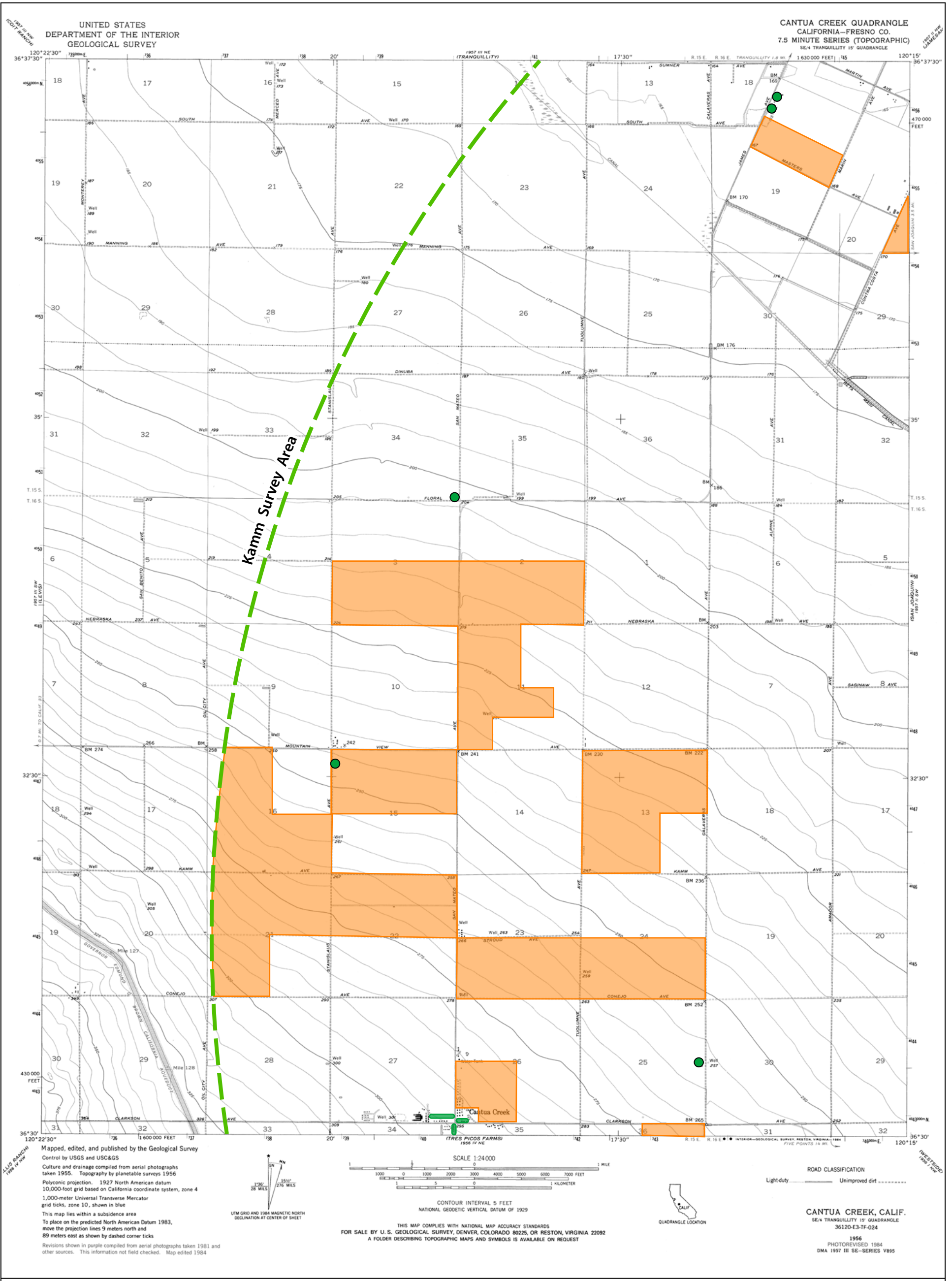
**Nesting Habitat**

- Riparian Habitat
- Isolated Tree
- Tree Row
- Grove

**Nesting Raptor Species**

- ▲ Swainson's Hawk
- ▲ Red-Tailed Hawk
- ▲ Great Horned Owl
- ▲ White-Tailed Kite
- ▲ Red-Shouldered Hawk

**Figure A-3**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Kerman Quadrangle**



**LEGEND**

**Land Use/Foraging Habitat**

- 22,993 Ac. Irrigated Agriculture
- 3,974 Ac. Orchard/Vineyard
- Alfalfa
- Irrigated Pasture
- Natural Land
- Developed Land
- Managed Wetland

**Nesting Habitat**

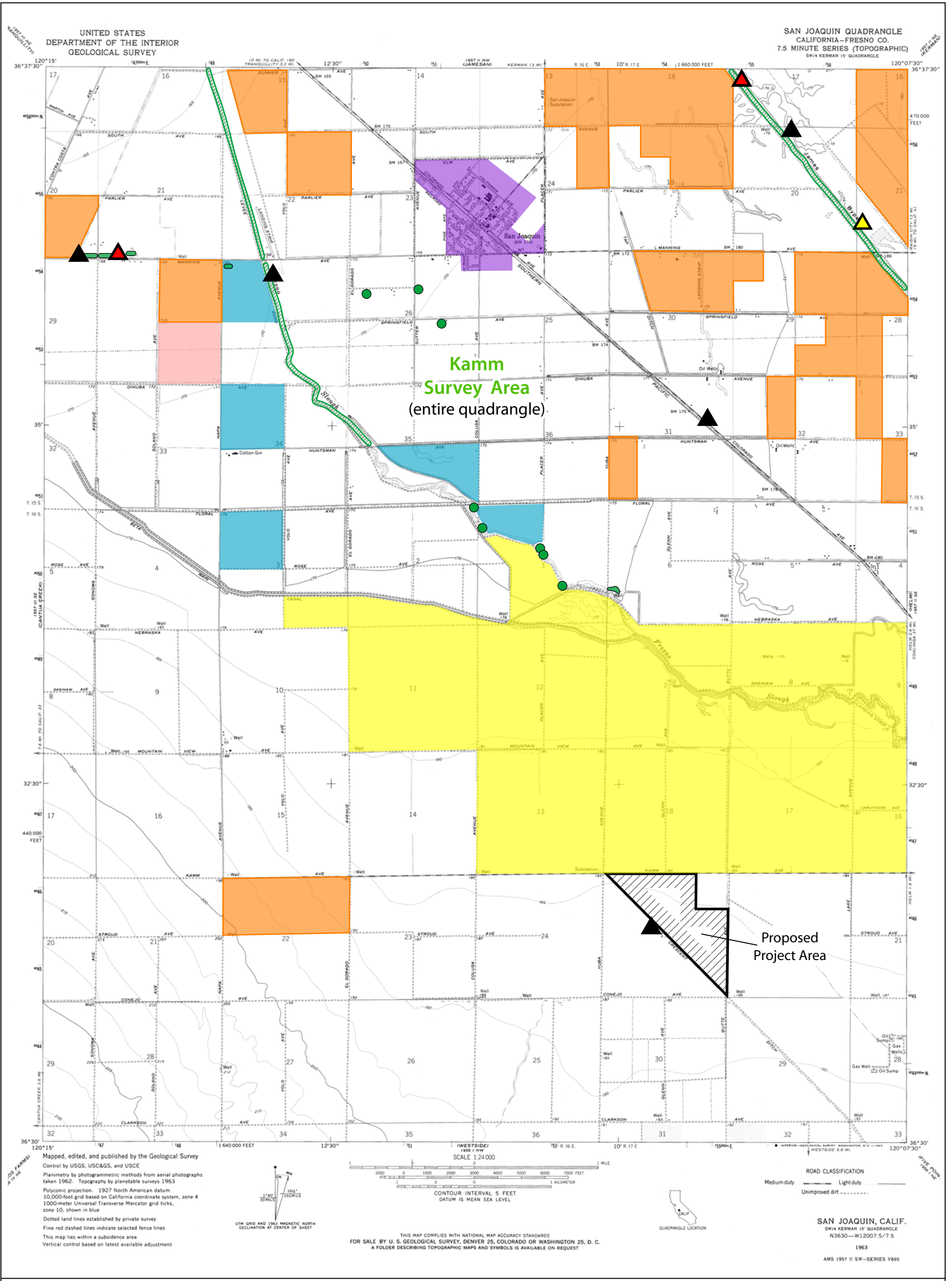
- Riparian Habitat
- Isolated Tree
- Tree Row
- Grove

**Nesting Raptor Species**

- Swainson's Hawk
- Red-Tailed Hawk
- Great Horned Owl
- White-Tailed Kite
- Red-Shouldered Hawk

**Figure A-4**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Cantua Creek Quadrangle**





**LEGEND**

**Land Use/Foraging Habitat**

- 28,372 Ac. Irrigated Agriculture
- 2,857 Ac. Orchard/Vineyard
- 661 Ac. Alfalfa
- 158 Ac. Irrigated Pasture
- Natural Land
- 378 Ac. Developed Land
- 5,502 Ac. Managed Wetland

**Nesting Habitat**

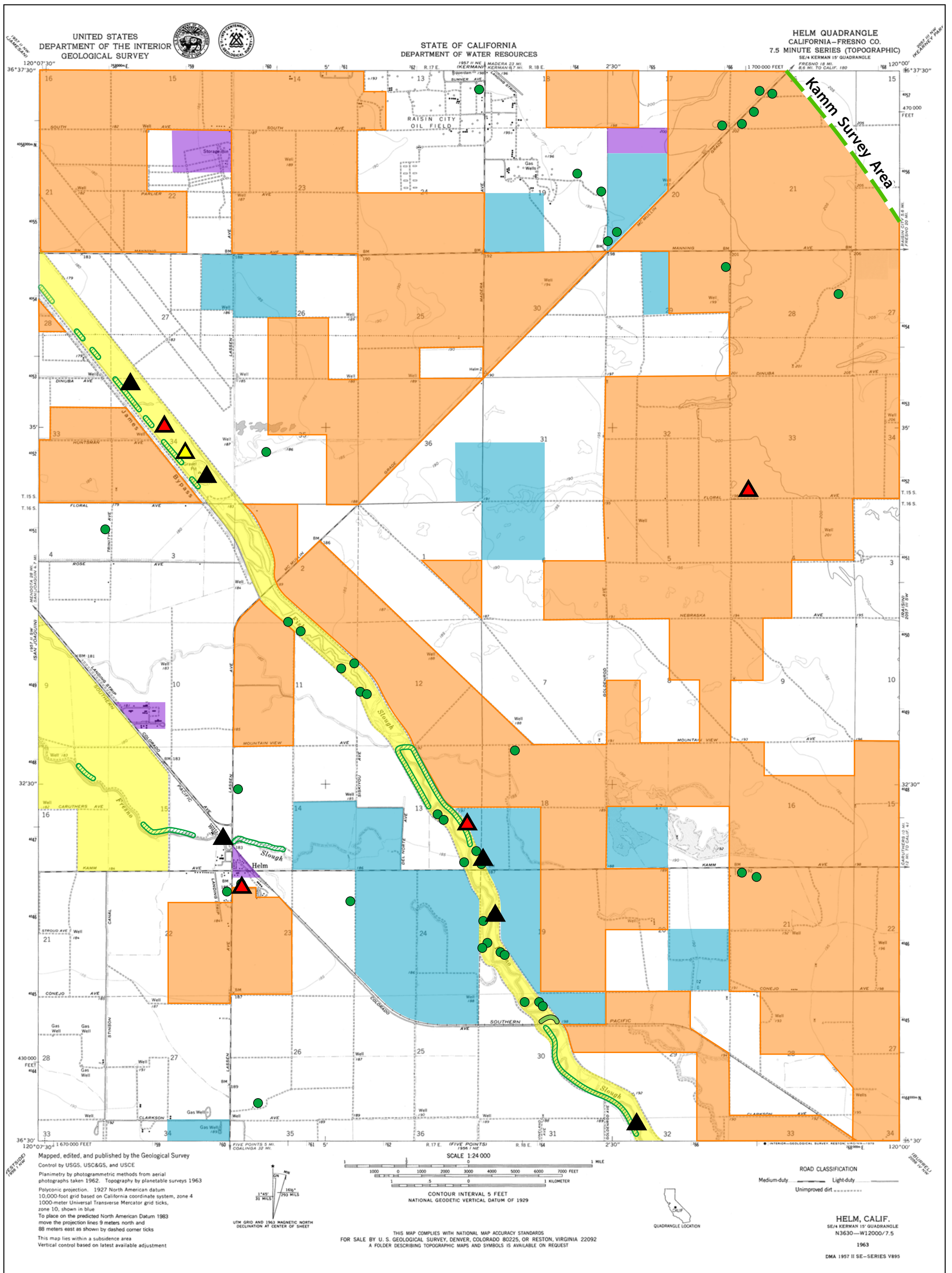
- Riparian Habitat 121 Ac.
- Isolated Tree
- Tree Row
- Grove

**Nesting Raptor Species**

- Swainson's Hawk
- Red-Tailed Hawk
- Great Horned Owl
- White-Tailed Kite
- Red-Shouldered Hawk

**Figure A-5**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**San Joaquin Quadrangle**





**LEGEND**

**Land Use/Foraging Habitat**

- 16,509 Ac. Irrigated Agriculture
- 16,249 Ac. Orchard/Vineyard
- 2,773 Ac. Alfalfa
- Irrigated Pasture
- Natural Land
- 228 Ac. Developed Land
- 1,854 Ac. Managed Wetland

**Nesting Habitat**

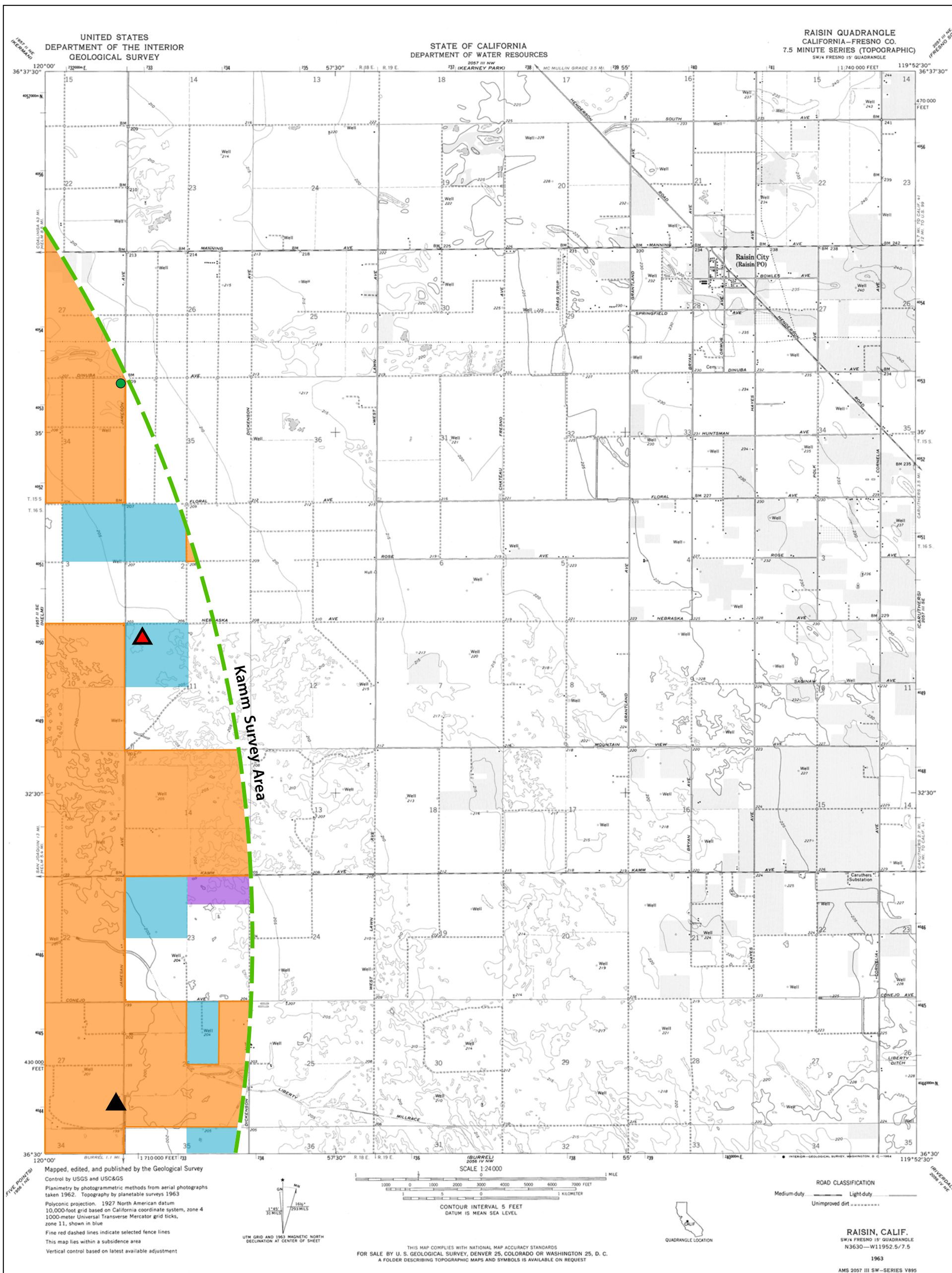
- 116 Ac. Riparian Habitat
- Isolated Tree
- Tree Row
- Grove

**Nesting Raptor Species**

- Swainson's Hawk
- Red-Tailed Hawk
- Great Horned Owl
- White-Tailed Kite
- Red-Shouldered Hawk

**Figure A-6**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Helm Quadrangle**





**LEGEND**

**Land Use/Foraging Habitat**

- 1,414 Ac. Irrigated Agriculture
- 4,966 Ac. Orchard/Vineyard
- 745 Ac. Alfalfa
- Irrigated Pasture
- Natural Land
- 71 Ac. Developed Land
- Managed Wetland

**Nesting Habitat**

- Riparian Habitat
- Isolated Tree
- Tree Row
- Grove

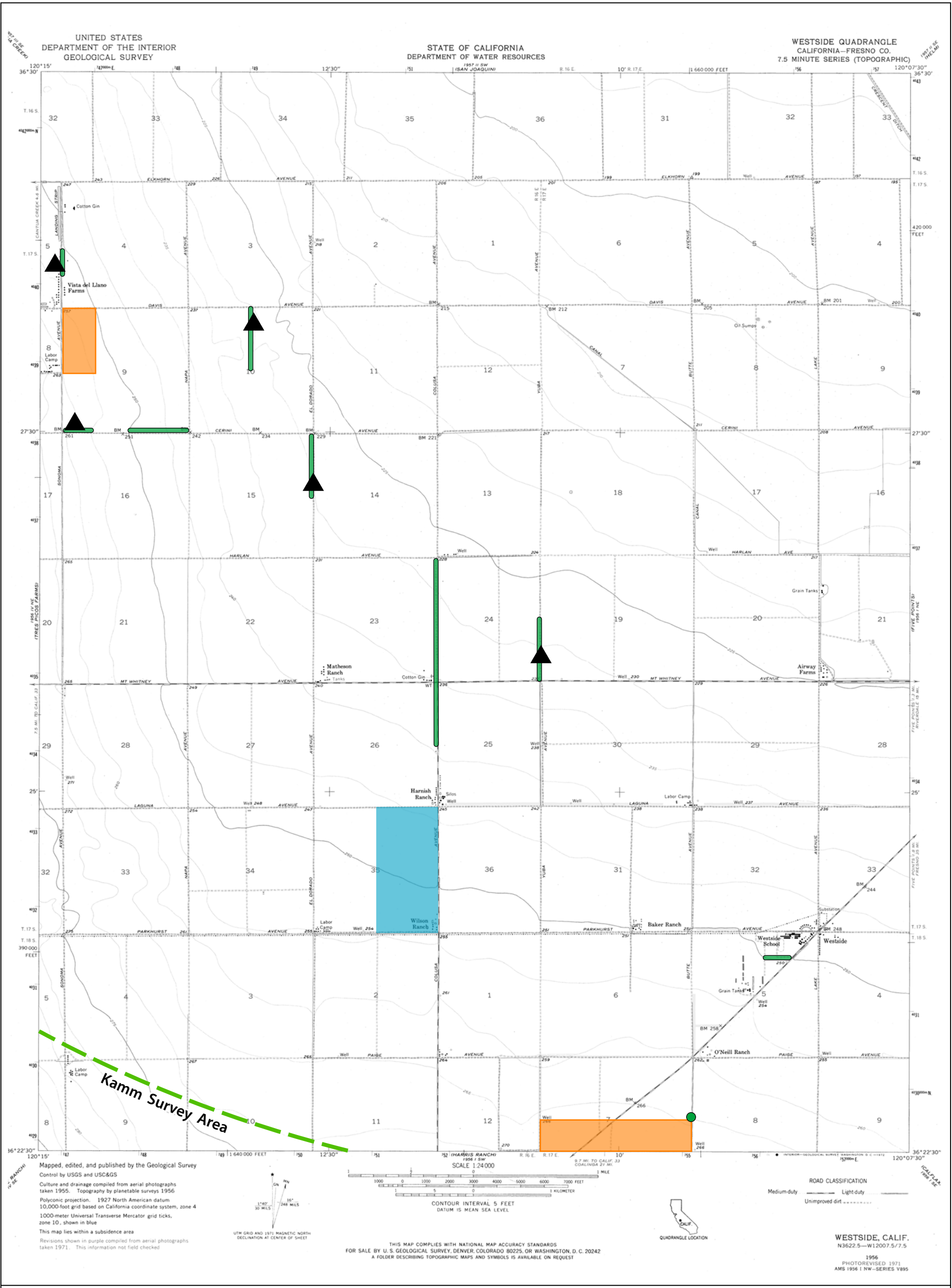
**Nesting Raptor Species**

- ▲ Swainson's Hawk
- ▲ Red-Tailed Hawk
- ▲ Great Horned Owl
- ▲ White-Tailed Kite
- ▲ Red-Shouldered Hawk

**Figure A-7**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Raisin Quadrangle**







**LEGEND**

**Land Use/Foraging Habitat**

36,717 Ac.	Irrigated Agriculture
279 Ac.	Orchard/Vineyard
316 Ac.	Alfalfa
	Irrigated Pasture
	Natural Land
	Developed Land
	Managed Wetland

**Nesting Habitat**

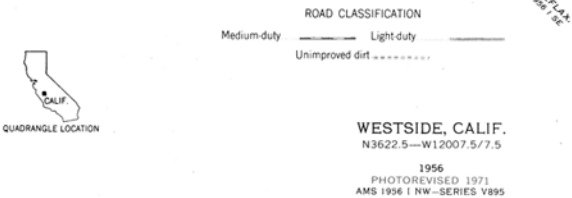
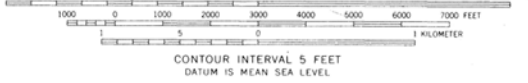
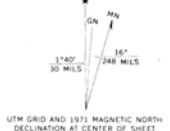
	Riparian Habitat
	Isolated Tree
	Tree Row
	Grove

**Nesting Raptor Species**

	Swainson's Hawk
	Red-Tailed Hawk
	Great Horned Owl
	White-Tailed Kite
	Red-Shouldered Hawk

**Figure A-9**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Westside Quadrangle**

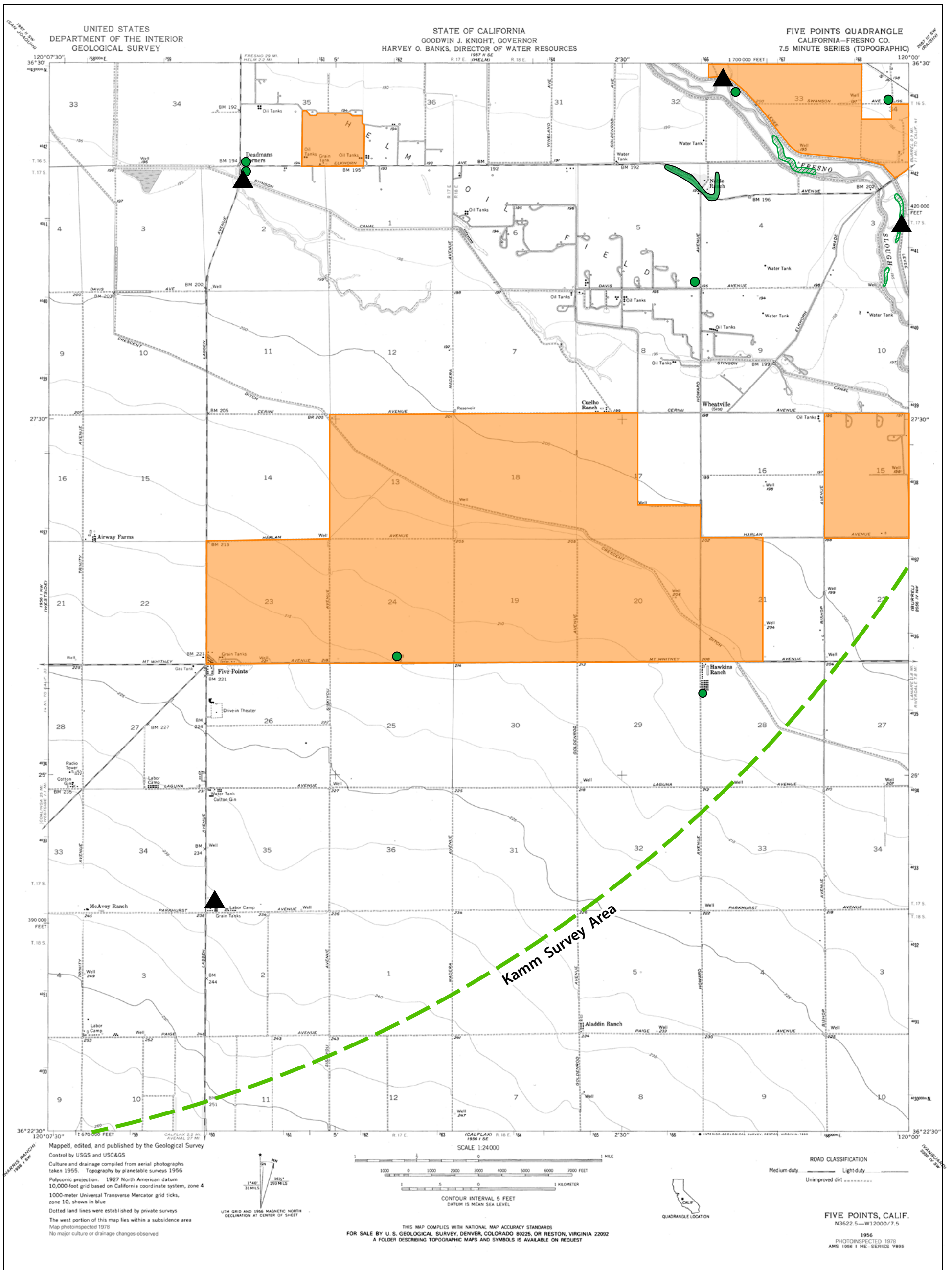
Mapped, edited, and published by the Geological Survey  
 Control by USGS and USC&GS  
 Culture and drainage compiled from aerial photographs  
 taken 1955. Topography by planetable surveys 1956  
 Polyconic projection. 1927 North American datum  
 10,000-foot grid based on California coordinate system, zone 4  
 1000-meter Universal Transverse Mercator grid ticks,  
 zone 10, shown in blue  
 This map lies within a subsidence area  
 Revisions shown in purple compiled from aerial photographs  
 taken 1971. This information not field checked



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
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WESTSIDE, CALIF.  
 N3622.5—W12007.5/7.5  
 1956  
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**LEGEND**

**Land Use/Foraging Habitat**

- 25,745 Ac. Irrigated Agriculture
- 5,638 Ac. Orchard/Vineyard
- Alfalfa
- Irrigated Pasture
- Natural Land
- Developed Land
- Managed Wetland

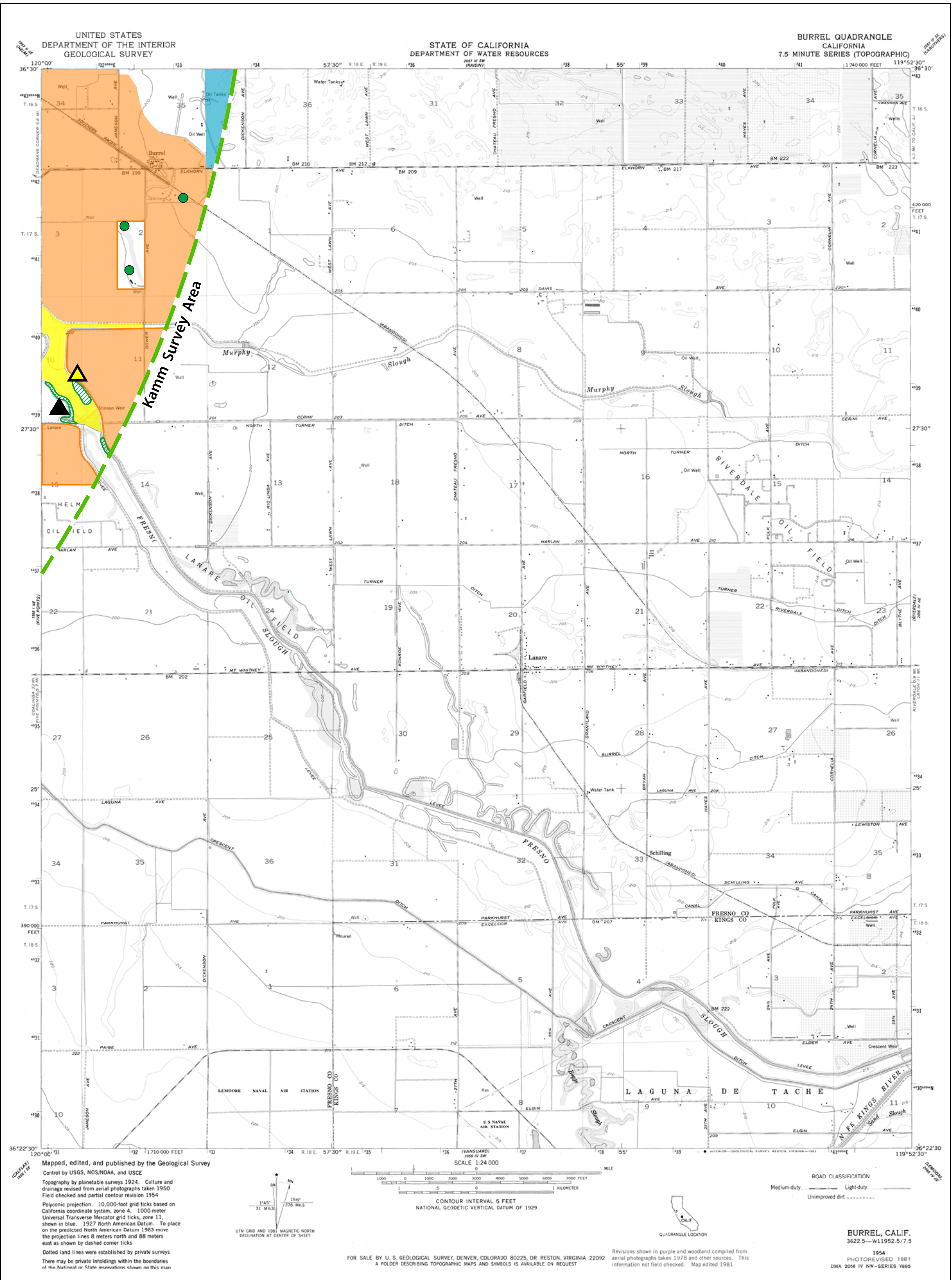
**Nesting Habitat**

- 21 Ac. Riparian Habitat
- Isolated Tree
- 19 Ac. Tree Row
- Grove

**Nesting Raptor Species**

- Swainson's Hawk
- Red-Tailed Hawk
- Great Horned Owl
- White-Tailed Kite
- Red-Shouldered Hawk

**Figure A-10**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Five Points Quadrangle**



**LEGEND**

**Land Use/Foraging Habitat**

- 295 Ac. Irrigated Agriculture
- 1,719 Ac. Orchard/Vineyard
- 80 Ac. Alfalfa
- Irrigated Pasture
- Natural Land
- Developed Land
- 110 Ac. Managed Wetland

**Nesting Habitat**

- Riparian Habitat  
19 Ac.
- Isolated Tree
- Tree Row
- Grove

**Nesting Raptor Species**

- ▲ Swainson's Hawk
- ▲ Red-Tailed Hawk
- ▲ Great Horned Owl
- ▲ White-Tailed Kite
- ▲ Red-Shouldered Hawk

**Figure A-11**  
**Nest Site Locations and Land Use/Habitat**  
**Distribution in the RE Kamm SGF Study Area,**  
**Burrel Quadrangle**