AGENDA
March 15, 2010

This special meeting will be held in the Board of Supervisors Chambers, Administration Building, Kings County Government Center, 1400 W. Lacey Boulevard, Hanford, California.

I. CALL TO ORDER - Kings County Planning Commission Meeting
   1. PLEDGE OF ALLEGIANCE
   2. SUMMARY OF THE AGENDA - Staff
   3. UNSCHEDULED APPEARANCES
      Any person may address the Commission on any subject matter within the jurisdiction or responsibility of the Commission at the beginning of the meeting; or may elect to address the Commission on any agenda item at the time the item is called by the Chair, but before the matter is acted upon by the Commission. Unscheduled comments will be limited to five minutes.
   4. APPROVAL OF MINUTES – Meeting of February 1, 2010.

II. OLD BUSINESS

   None

III. NEW BUSINESS

   1. CONDITIONAL USE PERMIT NO’S. 09-08 and 09-09 – Both conditional use permit applications are part of a single project. One staff report will be provided and the Commission will take separate actions for the individual conditional use permits.

      A. CONDITIONAL USE PERMIT NO. 09-08 (SUN CITY PROJECT LLC) – The applicant proposes to construct a 20 megawatt photovoltaic solar farm located southeast of the intersection of 36th Avenue and the Salem Avenue alignment, Avenal, Assessor Parcel Number’s 038-290-009 and 038-290-011.

         1. Staff Report (C.U.P. No. 09-08 Pages 1 to 15)
         2. Public Hearing
         3. Decision:
            Adopt Resolution No. 10-02 (C.U.P. No. 09-08 Pages 1 to 29) Roll Call Vote
B. CONDITIONAL USE PERMIT NO. 09-09 (SAND DRAG LLC) – The applicant proposes to construct a 19 megawatt photovoltaic solar farm located southeast of the intersection of 36th Avenue and the Salem Avenue alignment, Avenal, Assessor Parcel Number’s 038-290-007 and 038-290-008.

1. Staff Report (C.U.P. No. 09-09 Pages 1 to 15)
2. Public Hearing
3. Decision:
   Adopt Resolution No. 10-03 (C.U.P. No. 09-09 Pages 1 to 29) Roll Call Vote

IV. MISCELLANEOUS
1. FUTURE MEETINGS - The next regular meeting of the Planning Commission is scheduled for Monday, April 5, 2010.
2. CORRESPONDENCE
3. STAFF COMMENTS:
4. COMMISSION COMMENTS

V. ADJOURNMENT

h:/planning/planning commission/pc-agenda/2010/3-15-10 pc agenda.doc
CALL TO ORDER: The meeting of the Kings County Planning Commission was called to order by Chairman Cartwright, on February 1, 2010, at 7:00 p.m. in the Board of Supervisors Chambers, Administration Building, Kings County Government Center, Hanford, California. The Pledge of Allegiance was recited.

COMMISSIONERS PRESENT: Mark Cartwright, Louise Draxler, R.G. Trapnell, Riley Jones, Jim Gregory

COMMISSIONERS ABSENT:

STAFF PRESENT: Greg Gatzka, Johanna Hartley, Chuck Kinney, Terri Yarbrough, Mark Sherman, Sandy Roper

VISITORS PRESENT: David Avila, Robert Zumwalt, Danny Sozinho, Michael Blankinship

SUMMARY OF THE AGENDA: Mr. Gatzka summarized the Agenda for the Commission.

UNSCHEDULED APPEARANCES: No one spoke during this portion of the meeting.

APPROVAL OF MINUTES: A motion was made and seconded (Trapnell/Draxler) to approve the minutes of the January 4, 2010 meeting. Motion carried unanimously.

OLD BUSINESS

Revocation Hearing for Site Plan Review No. 01-20 – Mr. Mark Sherman reported that progress had been made toward compliance with the Notice of Violation and that a new site plan review for the unpermitted expansion was submitted on January 13, 2010. Mr. Sherman recommended that the revocation hearing for Site Plan Review No. 01-20 for the J.D. Mello Dairy, located at 15609 Grangeville Blvd., Hanford be discontinued and proceedings be dropped due to progress made in bringing the dairy into compliance. Commissioner Trapnell wanted to insure that the improvements were captured for the tax roles.

Chairman Cartwright reopened the public hearing and asked if anyone wanted to testify. Seeing none, he closed the public hearing.

A motion was made and seconded (Gregory/Draxler) to discontinue the revocation hearing for Site Plan Review No. 01-20. The motion carried unanimously.

Revocation Hearing for Conditional Use Permit No. 96-06. Mr. Mark Sherman reported that progress had been made toward compliance with the Notice of Violation. Mr. Sherman recommended that the revocation hearing for Conditional Use Permit No. 96-06 for the Joe and Mary Sozinho Dairy, located at 11447 8 ½ Avenue, Hanford be discontinued and the proceedings be dropped due to progress made with the new Conditional Use Permit submitted to bring the dairy into compliance with the zoning ordinance and the Dairy Element. Commissioner Draxler was concerned that based on the previous compliance history of the property owner, they would not become compliant or remain compliant. Mr. Gatzka responded that the property owner had now hired a reputable consultant to work on the environmental review portion of the project.
Chairman Cartwright reopened the public hearing and asked if anyone wanted to testify. Seeing none, he closed the public hearing.

A motion was made by Commissioner Gregory to discontinue the revocation hearing for Conditional Use Permit No. 96-06. The motion died due to a lack of a second. There was discussion and a new motion was made and seconded (Trapnell/Jones) to continue the revocation hearing to a later date and receive monthly progress reports from staff. The motion carried unanimously.

Progress updated for Conditional Use Permit No. 09-05 - Mr. Mark Sherman provided an informational update regarding the Pimentel Dairy Conditional Use Permit No. 09-05. Mr. Sherman reported that the lagoon and crop capacity had been an issue but have now been resolved with the submission of corrections to the technical report by Blankinship and Associates. Once the document is reviewed by staff, the Conditional Use Permit application should be able to be certified complete.

NEW BUSINESS

Zoning Ordinance Amendments for Zone Text Change No. 269.66 – Mr. Mark Sherman provided an overview of the proposed changes to the Zoning Ordinance and advised the Commission that “table of contents” would be removed from the third paragraph on the first page of the draft resolution.

Chairman Cartwright opened the public hearing and asked if there was anyone wanting to speak. Seeing none, he closed the public hearing.

A motion was made and seconded (Draxler/Gregory) to adopt Resolution No. 10-01, with the change noted by Mr. Sherman, to approve the Zoning Ordinance amendments.

MISCELLANEOUS

1. FUTURE MEETINGS
The next regular meeting of the Planning Commission is scheduled for Monday, March 1, 2010.

2. CORRESPONDENCE: None

3. STAFF COMMENTS: None

4. COMMISSION COMMENTS: Commissioner Trapnell stated that he was in favor of reviewing the Dairy Element.

ADJOURNMENT – The meeting was adjourned at 7:53 p.m.

Respectfully Submitted,

KINGS COUNTY PLANNING COMMISSION

[Signature]

Greg Gatzka, Commission Secretary
KINGS COUNTY PLANNING COMMISSION
STAFF REPORT

Conditional Use Permit No. 09-08 & 09-09
Zoning Ordinance No. 269.65
March 15, 2010

APPLICANT: Sun City Project LLC (CUP No. 09-08) and Sand Drag LLC (CUP 09-09), 4660 La Jolla Village Dr. Suite 400, San Diego, CA 92122

PROPERTY OWNER: Donald H. Morris, 267 Scarborough Street, Thousand Oaks, CA 91361

LOCATION: Southeast of the Intersection of 36th Avenue and Salem Avenue, Avenal, CA 93204 (Assessor’s Parcel Number 038-290-007, 008, 009, 011)

GENERAL PLAN DESIGNATION: General Agriculture (AG-40)

ZONE DISTRICT CLASSIFICATION: General Agricultural (AG-40)

CONDITIONAL USE PROPOSED: The applicant’s are proposing to establish a 39 megawatt photovoltaic solar farm.

DISCUSSION:

The applicant’s are proposing to establish a 39 megawatt photovoltaic (PV) solar farm comprised of two project subareas to be located on four leased parcels currently under agricultural production. The projects two subareas under the names Sun City Project LLC and Sand Drag LLC are identified in the following table.

<table>
<thead>
<tr>
<th>Project Element</th>
<th>APNs</th>
<th>Combined Parcel Size (Acres)</th>
<th>Approximate Electricity Generation (Megawatts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun City (CUP 09-08)</td>
<td>038-290-009 038-290-011</td>
<td>180</td>
<td>20</td>
</tr>
<tr>
<td>Sand Drag (CUP 09-09)</td>
<td>038-290-007 038-290-008</td>
<td>240</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>420</td>
<td></td>
<td>39</td>
</tr>
</tbody>
</table>

The two projects would provide renewable solar energy during periods of high demand to the citizens of Avenal as well as the greater Kings County area. The project would involve the construction of a solar energy electrical generation facility consisting of an array of solar PV panels, supported on a galvanized metal racking system. The PV panels would be manufactured at an offsite location and transported to the
project site. The panels would be made of either a poly crystalline or thin-film amorphous silicon material covering a glass pane, would be black in color, and would be highly absorptive.

The arrays would be oriented along an east-west axis with the panels facing generally to the south. The panels would be mounted on a galvanized steel rack, with one panel mounted above the second. The two panel configuration would measure approximately 9 feet, 4 inches in total combined length, and 3 feet, 4 inches in width. The total height of the two-panel system measured from ground surface would be approximately 8 feet. The panels would be tilted at an approximate 20-30-degree angle or as otherwise determined necessary during final project design.

The length of each row of panels would be approximately 310 feet along the east/west axis. Spacing between each row along the vertical axis would be approximately 10.5 feet. A north-south running access road, of minimum 20 foot width, would be provided every 310 feet between the horizontal rows.

Panels would be electrically connected into panel strings using wiring attached to the racking. Panel strings would be electrically connected to each other via underground wiring. Wire depths will be constructed to depths necessary to accommodate agricultural activities including tilling and harvesting in between the PV rows.

Approximately 40 small-scale, aboveground structures would be located within the solar panel fields to weatherize inverter/distributor transformers and switching gear. These structures would be approximately 10 by 26 feet in size and 12 feet high at the roof apex. They would be constructed of concrete or steel and would be beige or neutral in color. Each structure would be constructed on a level concrete building pad. Each structure would be designed to provide two feet of clearance above each inverter with screened ventilation provided on the roof to allow for the circulation of air for cooling purposes. The AC would then travel through underground gathering lines to the project substations.

Two project substations would be located on the west side of parcel APN 038-290-009, one substation for each subarea. The project substations would include transformers, breakers, switches, meters, and related equipment. Each substation would also contain a control room approximately 12 feet by 20 feet with an overall height of less than 15 feet. The overall footprint of each project substation would be approximately 150 feet by 90 feet each and up to 35 feet in height at the apex. Both project substations would interconnect to the existing PG&E 70-kilovolt (kV) transmission line immediately west of the substations.

The project would require interconnection with the existing local telecommunication system at the southeast corner of the intersection of Salem and 36th Avenue. From this location, a fiber optic cable and/or 25-pair telephone line would be installed below ground southwards to proposed project substations in the southwest corner of Parcel no 038-290-009. Upgrading of the local telecommunication line may require installation of additional fiber in existing conduit, or trenching and replacement of the existing line to a minimum depth of 24". This trenching and related work activities will be conducted within AT&T's existing Right of Way franchise.

Small-scale signage would be posted at the main entry gates, as well as intermittently along the perimeter fencing on all exterior parcel boundaries, to indicate “No Trespassing” and “Private Property” for security purposes. Fencing will be eight feet tall topped by one foot coils of constantine wire or barbed wire. Drought resistant vegetation would be planted along the western edge of the project on the west side of the perimeter fence to provide a visual barrier from Avenal’s adjacent soccer and softball diamonds.
Access to the parcels would be provided from 36th Avenue. 36th Avenue is a two-lane partially surfaced roadway that provides access to the east-west easement that borders the project area along the northern boundary. Interior access would be provided by a 20-foot-wide perimeter road (measured inward from the property boundary) on all parcels. These roads would be surfaced with 4 inches of aggregate and would be maintained to provide a fire buffer as well as to facilitate onsite circulation for emergency vehicles. In addition, internal roadways, approximately 20 feet in width, would be provided along the north-south access every 310 feet between the east-west running rows of PV panels.

The facility will be monitored remotely by the operating company. Once the solar panels were installed, the panels would operate during daylight seven days per week, 365 days per year. A security patrol will be contracted by the applicant for security purposes. Should the security system detect the presence of unauthorized personnel, a security representative would be dispatched to the facility, and appropriate local authorities would be notified.

It is anticipated that maintenance of the facilities would require approximately three workers to perform visual inspections and minor repairs up to once daily. On intermittent occasions, the presence of ten to thirty workers may be required if repairs or replacement of equipment is required in addition to panel washing; however, due to the nature of the facilities, such actions would be anticipated to be infrequent. Overall, minimal maintenance requirements are anticipated, as the panels would operate on their own with little human involvement.

Well water from an existing well, or purchased water from the City of Avenal, would be used to allow for construction and ongoing maintenance of the solar panels. Additionally, construction of a new well may also be drilled on the project area to provide additional water for construction and operational purposes. It is anticipated that the solar PV panels would be washed approximately 0–4 times per year to remove dust particles and other buildup to ensure optimum solar absorption. As such, the project would result in a relatively low demand for water for which adequate water supplies are available. Approximately 800,000 gallons per year would be used to clean the panels on an infrequent basis.

Combustible vegetation or agricultural products on and around the project boundary would be actively managed by the project owner or its affiliates to minimize fire risk. Combustible products would be limited in height, or removed. Additionally, the project will include fire breaks around the project boundary in the form of roads.

The applicant is going to coordinate with the Kings County Fire Chief to provide photovoltaic training to fire responders, construction, operational, maintenance staff. The intent of this training would be to familiarize both responders and workers of the codes, regulations, associated hazards and mitigation processes related to solar electricity. This training will include techniques for fire suppression of PV systems.

Construction of the project would require temporary staging and storage areas for materials and equipment during the construction process. The materials staging and storage would take place within the project area in areas that would not be used for panels. All materials for project construction would be delivered by truck. Trucks would use 36th Avenue to access the project area. Approximately 40 construction vehicle trips per day are anticipated to take place during project construction, with up to 3,300 construction vehicle trips total anticipated to take place during the entire construction period. Project components (e.g., PV solar panels, support structures, and electrical interconnection equipment) would be brought to the site and assembled.
The project design would allow for continued agricultural production at the project site. The land will retain the ability to be dry farmed for grain, silage or other agricultural products. The dry farming techniques would continue to rely on rainfall for crop hydration. Approximately 63 acres of Prime Farmland would be permanently converted at the site due to the solar use (roads, transformer pads, substations, communication buildings, and a small area around each piling), while approximately 357 acres of Prime Farmland would retain the ability to be farmed using dry farming techniques. The land will also be fully available for agricultural use again at the end of the life of the project, estimated to be 25 years.

The entire site is currently under an established Agricultural Preserve. The States Williamson Act Program, as defined in the Government Code, lists “electrical facilities” as a compatible use under the Williamson Act Program as identified in Section 51238:

51238: (a) (1) Notwithstanding any determination of compatible uses by the county or city pursuant to this article, unless the board or council after notice and hearing makes a finding to the contrary, the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve.
(2) No land occupied by gas, electric, water, communication, or agricultural laborer housing facilities shall be excluded from an agricultural preserve by reason of that use.
b) The board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses in conformity with Section 51238.1, particularly public outdoor recreational uses.

The land uses listed in Section 51238, which include electric facilities, are the "deemed compatible uses" under the Williamson Act. They are "deemed compatible" because, under Section 51238, the Legislature says these uses are "hereby determined to be compatible," unless the board or council makes a finding to the contrary. A finding to the contrary has not been adopted by the Board. When the Legislature says something is "hereby determined" to be compatible, it is compatible by a matter of law. These uses are thus deemed to be compatible, even if they compromise or displace the agricultural use. Government Code Section 51201(e) reinforces this interpretation as stated in the following section:

51201(e) "Compatible use" is any use determined by the county or city administering the preserve pursuant to Section 51231, 51238, or 51238.1 or by this act to be compatible with the agricultural, recreational, or open-space use of land within the preserve and subject to contract. "Compatible use" includes agricultural use, recreational use or open-space use unless the board or council finds after notice and hearing that the use is not compatible with the agricultural, recreational or open-space use to which the land is restricted by contract pursuant to this chapter.

CURRENT USE OF SITE: Agricultural production on a five year cycle with oats dry farmed four years in a row followed by carrots farmed during the 5th year.

LAND USE SURROUNDING SITE: Agriculture uses and agricultural residences, City of Avenal, Highway 33, Avenal Sports Complex, Avenal Sewer Treatment Facility, and the Avenal State Prison
ENVIRONMENTAL REVIEW: On March 1, 2010, the environmental review period ended for this proposal. A review of this project in compliance with the California Environmental Quality Act (CEQA) indicates that there will not be significant adverse impacts to the environment. There is no evidence in the record that indicates that the project has potential for adverse effects on wildlife, resources or habitat for wildlife. A copy of the Initial Study is attached.

PROJECT REVIEW:

November 16, 2009 Application submitted
January 25, 2009 Application certified complete
January 28, 2010 Begin 30-day review period for environmental review
March 1, 2010 30 day environmental review period ends
March 15, 2010 Planning Commission hearing

STAFF ANALYSIS: In order to approve this permit, the Commission is first required to find that:

1. The use conforms with objectives of the ordinance and policies of the General Plan.
2. The use should not be detrimental to public health and safety, nor materially injurious to properties in the vicinity.
3. The use will comply with applicable provisions of the ordinance.

With regard to these required findings, staff comments that:

1. This proposal conforms with the objectives of the ordinance and policies of the Kings County General Plan, specifically:

   A. The proposed solar farm, as recommended for approval, is consistent with the policies of the Kings County General Plan, specifically: The applicable general plan policies are found in the 1993 Kings County General Plan.

      1) Figure 3, the “Kings County Land Use Map”, designates this site as General Agriculture (AG-40).
      2) Page LU-10, Section III A of the Land Use Element states that the physical development of agricultural properties is regulated and implemented by the zoning ordinance.
      3) Page RC-9, Section VI., Objective 21.1 of the “Resource Conservation Element” states that the County will promote the development of alternative energy sources, including solar energy.
2. The use should not be detrimental to public health and safety, nor materially injurious to properties in the vicinity. A Mitigated Negative Declaration has been recommended for this project. The proposed project may have a significant adverse impacts on the environment, however those impacts can be mitigated to an insignificant level by implementing the mitigation monitoring program attached to the Planning Commission Resolution for this project as Exhibit “A.” The Mitigated Negative Declaration reflect the Planning Commission’s independent judgment and analysis.

3. The use complies with the applicable provisions of the ordinance, specifically: The proposed PV solar farm, as recommended for approval, is consistent with the Kings County Zoning Ordinance.

A. Article 4, Section 405.D.20 of the General Agricultural (AG-40) Zone District lists wind and solar PV electrical generating facilities that commercially produce power for sale, and comply with all local, regional, state, and federal regulations as a conditional use subject to Kings County Planning Commission approval.

4. The project site is located within an established Agricultural Preserve. All four parcels belonging to the project site are currently under a Williamson Act Contract.

**Statement of Findings of Consistency:** California Land Conservation Act of 1965 (Williamson Act) consistency: The proposed project, as recommended for approval, is consistent with the Williamson Act.

A. Section 51238 of the California Government Code states in (a)(1) that electric facility’s “…are hereby determined to be compatible uses within any agricultural preserve”, unless the Board after notice and hearing makes a finding to the contrary. The Kings County Board of Supervisors has not made a finding to the contrary. Therefore, as stated in the Government Code Section 51238, electric facilities remain a compatible use in Kings County:

(1) Section 51238(a)(2) goes on to state that “No land occupied by gas, electric, water, communication or agricultural laborer housing facilities shall be excluded from an agricultural preserve by reason of that use.”

(2) Solar electric facilities are “electric facilities” within the meaning of Section 51238.

B. Section 51238.1 of the California Government Code establishes additional compatible land uses which have not been identified and “deemed compatible uses” in Section 51238:

(1) Section 51238.1 does not apply to uses that have already been determined by the Legislature to be compatible.

(a) Section 51201(e) reinforces this by defining three types of compatible uses:

1. Uses determined to by compatible by the County under Section 51238; or
2. Uses determined to be compatible by the County under Section 51238.1; or
3. Uses determined to by compatible “by this act.”
(b) “Electric facilities” are facilities deemed compatible “by this act and therefore are deemed compatible by operation of law.

C. The proposed project is consistent with the *Uniform Rules for Agricultural Preserves in Kings County*.

1. The *Uniform Rules for Agricultural Preserves in Kings County* does not address the construction of electrical facilities since Government Code Section 51238 has already deemed the use “compatible.” Any use that is determined to be compatible by the Williamson Act is presumed consistent with Kings County’s Uniform Rules for Agricultural Preserves.

2. To the extent that consistency with the *Uniform Rules for Agricultural Preserves in Kings County* is required beyond the above finding of compatibility by operation of law, the Uniform Rules state that during the term of a contract, the only uses permitted upon the land shall be Commercial Agricultural Uses and Compatible Uses.

(a) Of the 420 acres of prime farmland included in the project, 63 acres would be converted to non agricultural uses throughout the duration of the project. The remaining 357 acres would retain the ability to be farmed using dry farming techniques. If the CUP is not extended, the electrical facility will be removed from the site following the 25 year life of the project allowing the entire site to return to agricultural uses.

5. The site is located in a flood hazard area. The Southwestern portion of APN 038-290-009, and the Eastern half of APN’s 038-290-008, and 038-290-007 are all within the FEMA Flood Zone A (100 Year Flood Zone). The remainder of the site is designated as Other Areas Zone X as shown on the National Flood Insurance Program, Flood Insurance Rate Map (FIRM), Community-Panel No. 06031C0580C, dated June 16, 2009. Certain development restrictions exist for all construction in Flood Zone A, while no development restrictions are associated with Other Areas Zone X since these are areas determined to be outside the 500-year flood plain.

6. The project site is not located within the Kings County Enterprise Zone.

7. The project site is not located within Airport Compatibility Zone.

8. The project site is not located within an area requiring an engineered septic system.

**RECOMMENDATIONS:**

It is recommended that the Commission approve Conditional Use Permit No’s. 09-08 & 09-09 as described above and adopt Resolution No’s. 10-02 and 10-03. Approval of these Resolutions will:

1. Find that the proposed projects will not have a significant adverse impacts on the environment, and approves a *Mitigated Negative Declaration*. 
2. Find that the projects are consistent with the 1993 Kings County General Plan the Kings County Zoning Ordinance and the California Land Conservation Act of 1965 (Williamson Act).

3. Approve the project with specified conditions of approval.

This permit shall become effective upon the expiration of eight (8) days following the date on which the permit was granted unless the Board of Supervisors shall act to review the decision of the Planning Commission.

A Conditional Use Permit shall lapse and shall become null and void one (1) year following the date that the Conditional Use Permit became effective, unless prior to the expiration of one (1) year the proposed use has been established. A Conditional Use Permit involving construction shall lapse and shall become null and void one (1) year following the date that the Conditional Use Permit became effective, unless prior to the expiration of one (1) year a building permit is issued by the Building Official and construction is commenced and diligently pursued toward completion on the site that was subject of the Conditional Use Permit application. A Conditional Use Permit may be renewed for additional periods of time, if an application (by letter) for renewal of the Conditional Use Permit is filed with the Planning Commission prior to the permit’s expiration date.

For the information of the applicant, compliance with other adopted rules and regulations of any local or state regulatory agency shall be required by the Planning Commission. This includes but is not limited to the following:

COMMUNITY DEVELOPMENT AGENCY – PLANNING DIVISION (Contact Jeremy Kinney at the Kings County Community Development Agency - Planning Division at (559) 582-3211, Extension 2673, regarding the following requirements.)

1. All proposals of the applicant shall be conditions of approval if not mentioned herein.

2. No expansion of use, regardless of size, which would increase the projected scale of operations beyond the scope and nature described in this Conditional Use Permit application, will be allowed. Any expansion that is a substantial change from the conceptually approved site plan will require either an amendment to the approved Conditional Use Permit or a new zoning permit.

3. The development shall comply with all regulations of Zoning Ordinance No. 269, with particular reference to the AG-40 Zone District standards contained in Article 4.

4. Signs shall be permitted only as follows:
   a. Any sign(s) pertaining to the use and location on the site shall not exceed the total copy area of forty (40) square feet. The location of any such sign shall be submitted to the Zoning Administrator for approval prior to installation.
   b. Signs exceeding forty (40) square feet in structural area and up to one-hundred-fifty (150) square feet in structural area which are incidental and pertain to a permitted or conditional use may be permitted subject to a site plan review. Such signs may be located on the same parcel or an adjacent parcel used in conjunction with the permitted or conditional use. Signs exceeding forty (40) square feet in structural area may be illuminated and shall be thirty (30) feet from property lines adjacent to a road.
c. One non-illuminated on-site sign real estate sign or subdivision not exceeding thirty-two (32) square feet in structural area with copy on both sides pertaining to the sale, lease, rental or display of a structure or land per Section 1606.B.2.a.

d. Directional or information (other than advertising) signs not exceeding two hundred and forty (240) square feet in area located adjacent to a State Highway or a county road within an area limited by points not closer than one-fourth (¼) mile or further than three-fourths (¾) mile from a frontage road turnoff, listing commercial establishments accessible via the frontage road, and further provided that not more than four (4) such signs shall be permitted on each side of the highway or county road.

e. Signs not exceeding two hundred forty (240) square feet in area located adjacent to a State Highway or county road that is classified as an arterial or collector road (including such designations as urban or rural, major or minor) giving direction to or information about Kings County cities, communities, or rural service centers which are accessible by such state highways or county roads or direct routes consisting of combinations thereof, provided that such signs shall be limited to four (4) per city, community or rural service center regardless of the sign's location in this district, and further provided that such signs shall not contain information pertaining to a subdivision of land or private development, commercial establishments or quasi-public developments.

f. Non-illuminated temporary construction signs in accordance with Section 1606.B.2.c.

g. Political and campaign signs in accordance with Section 1606.B.3.

h. Public safety or hazard signs in accordance with Section 1606.B.4.

i. Placing a sign on property which is restricted by contract under the California Land Conservation “Williamson” Act shall be prohibited, except for temporary signs (pursuant to Section 1606.B.2.a, c, and d), political and campaign signs (pursuant to Section 1606.B.4), and must be consistent with the Uniform Rules for Agricultural Preserves in Kings County.

5. Exterior lighting shall be hooded so as to be directed only on site.

6. A minimum of six (6) off-street parking spaces shall be provided and that such parking shall be installed and maintained in accordance with Kings County Improvement Standards. (Note: Handicapped parking requirements are listed under Other Standards and Regulatory Requirements, Building Division Condition No. 8 and is required in addition to the parking spaces required by this section.)

7. Each parking space shall be not less than twenty (20) feet in length and nine (9) feet in width, exclusive of aisles and access drives. Except that compact car parking spaces, not less than seventeen (17) feet in length and eight (8) feet in width marked for compact cars, maybe provided for 25 percent of all parking spaces required for any use.

8. Parking spaces for the physically handicapped shall be located so as to minimize the travel distance to the use's primary entrances for handicapped access. Required off street parking spaces for the physically handicapped, and standards for those spaces, shall meet state standards.

9. All drive approaches and durable dustless surfaces shall be installed at the time of initial occupation of the site.

10. All parking areas, aisles, and driveways shall be surfaced and maintained so as to provide a durable, dustless surface. (Note: Handicapped parking requirements are listed under Other...
Standards and Regulatory Requirements, Building Division Condition No. 8 and is required to comply with all applicable *Americans with Disability’s Act (ADA)* requirements.)

11. All open and unlandscaped portions of the lot shall be maintained in good condition, free from weeds, dust, trash and debris.

12. The applicant shall comply with all adopted rules and regulations of the Kings County Public Works Department, Fire Department, and Department of Environmental Health Services, and all other local and state regulatory agencies.

12. Pursuant to Section 14-38(d) of the *Kings County Code of Ordinances*, a “Notice of Disclosure and Acknowledgment of Agricultural Land Use Protection and Right to Farm Policies of the County of Kings” shall be signed, notarized, and recorded.

13. Pursuant to Section 66020(d)(1) of the *California Government Code*, the owner is hereby notified that the 90-day approval period in which the applicant may protest the imposition of fees, dedications, reservations, or other exactions, begins on the date that this resolution is adopted.

14. Sales or use tax may apply to business activities on the site. The applicant may seek written advice regarding the application of tax to your particular business by writing to the nearest State Board of Equalization office. For general information, please call the Board of Equalization at 1-800-400-7115.

15. Within eight (8) days following the date of the decision of the Kings County Planning Commission, the decision may be appealed to the Kings County Board of Supervisors. The appeal shall be filed with the Clerk of the Board of Supervisors.

16. Conditional Use Permit No’s. 09-08 and 09-09 will expire twenty five (25) years from the date of approval. The Conditional Use Permit may be renewed for additional periods of time, if an application (by letter) for renewal of the Conditional Use Permit is filed with the Planning Commission prior to the permit’s expiration date.

17. Prior to the issuance of a building permit, the applicant shall submit a Soil Reclamation Plan for review and approval by planning staff. The plan shall contain an analysis of pre-project baseline soil conditions, and shall contain specific measures to restore the soil to its pre-project condition, including removal of all fixtures, equipment, non-agricultural roads, and restoration of compacted soil. Reclamation shall be completed within six months of the expiration of the use permit.

18. The applicant shall post a performance bond or similar instrument to ensure completion of the activities under the Reclamation Plan.

19. Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendation for protection of the San Joaquin kit fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan:

   A. Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit
foxes are most active. To the extent possible, night-time construction shall be minimized. Offroad traffic outside of designated project areas shall be prohibited.

B. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

C. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

D. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from the construction/project site.

E. No firearms shall be allowed on the project site.

F. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on project sites.

G. Use of rodenticides and herbicides in project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide shall be used because of proven lower risk to kit fox.

H. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS.

I. An employee education program shall be conducted for the project. The program shall consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program shall include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its
protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

J. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary” disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.

K. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS shall be contacted for advice.

L. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

M. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

OTHER STANDARDS AND REGULATIONS:

In addition to the above Zoning Ordinance requirements, other standards and regulations affecting this project are listed below. These requirements are not part of this zoning approval. However, compliance is required by the departments and agencies listed below. Appeals for relief of these standards and regulations must be made through that department’s or agency’s procedures, not through the Zoning Ordinance procedures.

KINGS COUNTY COMMUNITY DEVELOPMENT AGENCY - BUILDING DIVISION (Contact Darren Verdegaal at the Kings County Community Development Agency - Building Division at (559) 582-3211, Extension 2683, regarding the following requirements.)

1. Building permits must be obtained from the Building Division of the Kings County Community Development Agency for any structures, plumbing, electrical, or mechanical work.

2. Failure to obtain a building permit for any structure, prior to commencing construction, which requires a building permit, will result in the payment of a double fee. Payment of such double fee
shall not relieve any person from fully complying with the requirements of Kings County Code of Ordinances, Chapter 5 in the execution of the work or from any other penalties prescribed therein.

3. Provide structural calculations and drawings for the proposed 8 foot high chainlink fence.

4. A minimum of (2) sets of plans and calculations signed by an architect or engineer licensed to practice in the State of California shall be required for all structures.

5. The applicant is responsible for contacting the Building Division to request a final inspection of the structures prior to occupying the structures and prior to startup of the operation. No building or structure shall be used or occupied until the Building Division has issued a Certificate of Occupancy.

6. All drive approaches and durable dustless surfaces shall be installed prior to the final inspection and maintained as per County Standards.

7. If the facility will have employees on-site for maintenance of the system an accessible restroom shall be provided and shall comply with Section 1115B of the California Building Code. This may be accomplished by either construction of a permanent structure or use of a chemical toilet with a regular maintenance schedule.

8. Pursuant to Section 1129B of the California Building Code one (1) van accessible parking space, allowing room for individuals in wheelchairs, on braces or crutches to get in and out of an automobile onto a level surface, suitable for wheeling and walking shall be provided. The parking space shall be 9’ x 20’ with an 8’ wide loading and unloading aisle placed on the side opposite the driver’s side.

9. The development shall comply with all applicable Americans with Disability’s Act (ADA) requirements, especially Section 1127B of the California Building Code, which states that site development and grading shall be designed to provide access to all entrances and exterior ground-floor exits, and access to normal paths of travel. The accessible route of travel shall be the most practical direct route between accessible building entrances, accessible site facilities and the accessible entrance to the site, including but not limited to access from the accessible parking space to accessible building entrances.

10. A soils report, prepared by a qualified soils engineer, shall be provided to the Building Division prior to issuance of building permits.

11. The site is located within a Special Flood Hazard Area. The proposed development shall meet the requirements of the Kings County Code of Ordinances, Chapter 5A, Flood Damage Prevention and FEMA Floodplain Management Ordinance.

12. Pursuant to the Kings County Code of Ordinances, Chapter 5A, Flood Damage Prevention, a Floodplain Development Permit shall be obtained from the Kings County Community Development Agency prior to start of construction.

13. Built-up pads for structures shall be constructed to meet a minimum of 95% relative compaction.

**KINGS COUNTY PUBLIC WORKS DEPARTMENT:** (Contact Mike Hawkins of the Kings County Public Works Department at (559) 582-3211, Extension 2708 regarding the following requirements.)

1. All requirements required hereafter shall conform to the Kings County Improvement Standards.

2. That all other alternatives to Public Works requirements must be approved by the Kings County Public Works Department.

3. That access to the site from a public road must be provided, and must be approved by the Kings County Public Works Department.

4. The applicant shall obtain an encroachment permit from the Kings County Public Works Department.

5. Durable and dustless surfacing shall be constructed for all roads constructed on site.

6. The existing paved road shall remain paved or oil treated.

7. The fence shall be placed outside of the County right-of-way.

**KINGS COUNTY FIRE DEPARTMENT:** (Contact Mike Virden of the Kings County Fire Department at (559) 582-3211, Extension 2884 for the following requirements.)

1. Fire Department requires a Knox box to be installed to permit entry to the site.

2. All combustible vegetation shall be removed from the site and measures taken to prevent the accumulation of combustible vegetation that would create a fire hazard.

3. Access roads of an all-weather surface shall be provided so that no portions of the photovoltaic panels are farther than 155 feet from fire apparatus access.

4. Access roads shall be a minimum of 20 feet in width with 13 feet 6 inches of vertical clearance.

5. Rows of panels shall not exceed 310 feet in length with an access road between aisles of rows.

6. 20-foot north/south fire access roads shall be constructed at intervals of no greater than 310 feet.

7. Applicant shall be responsible for training fire personnel of facility operations, hazards and emergency procedures for shutting down the operation.

8. Facility shall be protected by an approved security fence to protect and prevent the public from hazards associated with the electrical energy.

**SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT** (Contact Debbie Johnson at SJVAPCD at (559) 230-5800, regarding the following requirements.)
1. Based on information provided to the District, project specific emissions of criteria pollutants are not expected to exceed District significance thresholds of 10 tons/year ROG, and 15 tons/year PM10. Therefore, the District concludes that project specific criteria pollutant emissions would have no significant adverse impact on air quality.

2. Based on information provided to the District, the proposed project would equal or exceed 25,000 square feet of light industrial space. Therefore, the District concludes that the proposed project is subject to District Rule 9510 (indirect Source Review).

District Rule 9510 is intended to mitigate a project’s impact on air quality through project design elements or by payment of applicable off-site mitigation fees. 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 discretionary approval, and to pay any applicable off-site mitigation fees before issuance of the first building permit. If approval of the subject project constitutes the last discretionary approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first building permit, be made a condition of project approval. Information about how to comply with District Rule 9510 can be found online at http://www.valleyair.org/ISR/ISRHome.htm.

3. 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 4001 (National Emission Standards for Hazardous Air Pollutants). The above 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.

4. The District recommends that a copy of the District’s comments be provided to the project proponent.

**PREPARATION:**

Prepared by the Kings County Community Development Agency (Jeremy Kinney) on February 26, 2010. Copies are available for review at the Kings County Community Development Department, Government Center, Hanford, California, or at the Kings County Clerk's Office, Government Center, Hanford, California.
Amended text for the Avenal Photovoltaic Solar Farm IS/MND is provided in this section by chapter. Clarifications to the IS/MND text are shown with underlining and text removed from the IS/MND is shown with strikethrough.

1.0 Background Information

Page 1-4, fifth full paragraph, last sentence has been revised as follows:

Conservatively, during the life of the project, approximately 63 acres of Prime Farmland would be temporarily converted at the site due to solar use (roads, transformers pads, substations, communication buildings, and a small area around each piling),…

Page 1-16, third full paragraph, first sentence has been revised as follows:

The maximum project footprint of the solar facilities would be approximately 420 acres and the maximum footprint of the project area would be approximately 420 acres, including staging areas.

3.1 Aesthetics

Page 3.1-1, fourth paragraph, second sentence has been revised as follows:

The Open Space Element lists the Kern Kings River in the northern part of the county as a scenic natural asset and the Coast Ranges (including the Chalk Buttes-Reef Ridge portion of the Kreyenhagen Hills, the Pyramid Hills, Cottonwood Pass, and Sunflower Valley) in the southwestern portion of the county as a scenic area (Kings County 1993).

Page 3.1-3, third paragraph has been revised as follows:

NO IMPACT. The project would not be located within the viewshed of any scenic vista. Kings County has two designated scenic areas: a portion of the Kern Kings River near the border with Kern County and the Coast Ranges area in southwestern Kings County (Kings County 1993). The project area would be located approximately 18 miles from the portion of Kern River that is designated as scenic and approximately 2.3 miles from the edge of the Coast Ranges scenic area; however, the Avenal State Prison facilities and State Highway 33 are located between the project area and the Coast Ranges scenic area. Because the project
would be located outside of the viewshed of the portion of the Kern Kings designated as scenic and because development between the project area and the Coast Ranges would obstruct any distance views of the project, the project would not have a significant impact on visual resources under this criterion.

Page 3.1-4, third paragraph has been revised as follows:

LESS THAN SIGNIFICANT IMPACT. The project would not create a new source of substantial light that would adversely affect day or nighttime views in the area. Low-level lighting would be installed throughout the project area for maintenance and operation procedures as well as at entrances and exits; however, the lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships. Additionally, the project would be located adjacent to approximately 1.5 miles from the Avenal State Prison, which is lit for security purposes. Because the project would use shielded and downward directed lighting and because the project would contribute to existing lighting in the area with unobstructed views of Avenal State Prison, rather than introducing a new source of lighting into an area otherwise characterized by natural dark, the proposed project would not create a new source of substantial light.

3.2 Agriculture and Forest Resources

Page 3.2-5, Table 3.2-3, second cell of first row has been revised as follows:

| Acres Permanent | Temporary Loss During Project Life, FMMP – Designated Prime Farmland |

Page 3.2-5, Impact 3.2.2 (a), has been revised as follows:

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION

Page 3.2-5, at the end of Impact 3.2.2(a), the following Mitigation Measure has been added:

**MM AG-1: Soil Reclamation Plan.** Prior to the issuance of a building permit, the applicant shall submit a Soil Reclamation Plan for review and approval by Planning Staff. The Plan shall contain specific measures to restore the soil to its pre-project condition, including removal of all fixtures, equipment, non-agricultural roads, and restoration of compacted soil. Reclamation shall be completed within 12 months of the expiration of the use permit.

Page 3.2-6, Impact 3.2.2 (e), first full sentence has been revised as follows:
As discussed above under a., the project would result in the long-term temporary use of approximately 63 acres of Prime Farmland ...

### 3.3 Air Quality

Page 3.3-7, Impact 3.3.2 (a) has been revised as follows:

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION**

Page 3.3-7, Impact 3.3.2 (a), the following Mitigation Measure has been added:

**MM AIR-1: Indirect Source Review and Fugitive Dust Control Plan.** The applicant will file an Indirect Source Review (District Rule 9510) with the SJVAPCD to determine potential mitigation, if any, for NO\textsubscript{x} and PM\textsubscript{10} emissions. Additionally, the applicant will submit a fugitive dust control plan to SJVAPCD prior to the initiation of construction.

### 3.4 Biological Resources

Page 3.4-2, Impact 3.4.2 (a), has been revised as follows:

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION**

Page 3.4-4, MM BIO-3 has been revised as follows:

**MM BIO-3: Wildlife-Friendly Fencing.** The applicant will design wildlife friendly fencing that will be installed around of the perimeter of the project area. Fence design, such as leaving six inch tall openings at the bottom of the fences, shall allow kit fox and other wildlife to move freely into and out of the site. Fence design shall either consist of:

i. the installation of 6-in minimum internal diameter piping, or similar opening, at 100 foot intervals or less along the entire bottom of the perimeter fence. Piping will be constructed of polyvinyl chloride (PVC), steel or other durable material, and shall be approximately 1 foot in length. Pipes will be placed on the top of the ground to allow animal movement into and out of the site, or

ii. perimeter fencing that leaves a six inch gap around the entire perimeter; or

iii. perimeter fencing of an alternative design approved by CDFG which allows kit foxes to freely move into and out of the site.

Page 3.4-7, Impact 3.4.2 (d), has been revised as follows:
3.8 **Hazards and Hazardous Materials**

Page 3.8-7, Impact 3.8.2 (h), third paragraph, first sentence has been revised as follows:

Though none of the materials used for the permanent portions of the project’s solar facilities are considered flammable (e.g., solar panels, anchors, etc.) …

3.9 **Hydrology and Water Quality**

Page 3.9-6, Impact 3.9.2 (e), first paragraph has been revised as follows:

*LESS THAN SIGNIFICANT IMPACT.* Construction of the project would have a minor effect on surface runoff through the introduction of less than one acre (approximately 40,000 square feet) of permanent temporary impervious surfaces in the project area, an amount less than 0.2 percent of the total project area.

3.18 **Mandatory Findings of Significance**

Page 3.18-3, last paragraph, first sentence has been revised as follows:

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION*

4.0 **Mitigation Monitoring and Reporting Plan**

Page 4-1, 4-2, and 4-4, MM AG-1 Soil Reclamation Plan and MM AIR-1: Indirect Source Review and Fugitive Dust Control Plan has been added and MM BIO-3 Wildlife Friendly Fencing has been revised and hereby incorporated into the Mitigation Monitoring and Reporting Plan.
CEQA Initial Study/
Mitigated Negative Declaration
for the
Avenal Photovoltaic Solar Farm
Kings County • California
January 2010

Submitted to:
KINGS COUNTY

Prepared by:
ecology and environment, inc.

On behalf of:
AVENAL SOLAR HOLDINGS LLC
and its subsidiaries,
Sun City Project LLC and Sand Drag LLC
Notice of Completion & Environmental Document Transmittal

Project Title: Avenal Photovoltaic Solar Farm

Project Location:
- County: Kings
- City/Nearest Community: Avenal
- Cross Streets: 36th Avenue and Salem Avenue alignment
- Longitude/Latitude (degrees, minutes and seconds): 38° 58' 55" N / 120° 06' 19" W
- Total Acres: 420

Document Type:
- CEQA: Mit Neg Dec
- NEPA: No Other

Local Action Type:
- General Plan Update
- Specific Plan
- Rezone
- Annexation
- General Plan Amendment
- Master Plan
- Prezone
- Redevelopment
- General Plan Element
- Planned Unit Development
- Use Permit
- Coastal Permit
- Community Plan
- Site Plan
- Land Division (Subdivision, etc.)
- Other:

Development Type:
- Residential: Units
- Office: Acres
- Commercial: Acres
- Industrial: Acres
- Educational: Acres
- Recreational: Acres
- Water Facilities: MGD

Project Issues Discussed in Document:
- Aesthetic/Visual
- Agricultural Land
- Air Quality
- Archeological/Historical
- Biological Resources
- Coastal Zone
- Drainage/Absorption
- Economic/Jobs
- Fiscal
- Flood Plain/Flooding
- Forest Land/Fire Hazard
- Geologic/Seismic
- Minerals
- Noise
- Population/Housing Balance
- Public Services/Facilities
- Recreation/Parks
- Schools/Universities
- Septic Systems
- Sewer Capacity
- Soil Erosion/Compaction/Grading
- Solid Waste
- Toxic/Hazardous
- Traffic/Circulation
- Vegetation
- Water Quality
- Water Supply/Groundwater
- Wetland/Riparian
- Growth Inducement
- Land Use
- Cumulative Effects
- Other:

Present Land Use/Zoning/General Plan Designation:
- General Agriculture GA-40

Project Description: (please use a separate page if necessary)
Avenal Solar Holdings LLC proposes to develop, own, and operate a 39 MW photovoltaic solar farm comprised of two project subareas to be located on 420 acres of leased agricultural lands in unincorporated Kings County, California. The project would provide renewable solar energy to the citizens of Avenal as well as the greater Kings County area in addition to furthering California’s 33% renewable portfolio standard by the year 2020.
Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

X  Air Resources Board
  Boating & Waterways, Department of
  California Highway Patrol
X  Caltrans District # 6
  Caltrans Division of Aeronautics
  Caltrans Planning
  Central Valley Flood Protection Board
  Coachella Valley Mtns. Conservancy
  Coastal Commission
  Colorado River Board
  Conservation, Department of
  Corrections, Department of
  Delta Protection Commission
  Education, Department of
  Energy Commission
X  Fish & Game Region # 4
  Forestry and Fire Protection, Department of
  General Services, Department of
  Health Services, Department of
  Housing & Community Development
  Integrated Waste Management Board
  Native American Heritage Commission

_____ Office of Emergency Services
_____ Office of Historic Preservation
_____ Office of Public School Construction
_____ Parks & Recreation, Department of
_____ Pesticide Regulation, Department of
X   Public Utilities Commission
_____ Regional WQCB #
_____ Resources Agency
_____ S.F. Bay Conservation & Development Comm.
_____ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
_____ San Joaquin River Conservancy
_____ Santa Monica Mtns. Conservancy
_____ State Lands Commission
_____ SWRCB: Clean Water Grants
_____ SWRCB: Water Quality
_____ SWRCB: Water Rights
_____ Tahoe Regional Planning Agency
_____ Toxic Substances Control, Department of
_____ Water Resources, Department of

X  Other: San Joaquin Air Pollution Control District

Local Public Review Period (to be filled in by lead agency)

Starting Date  January 29, 2010  Ending Date  February 7, 2010

Lead Agency (Complete if applicable):

Consulting Firm: Ecology & Environment, Inc.
Address: 130 Battery Street, Suite 400
City/State/Zip: San Francisco, CA, 94111
Contact: Nicolas Figone
Phone: 415-981-2811

Applicant: Aeval Solar Holdings LLC and its subsidiaries
Address: 4660 La Jolla Village Drive, #400
City/State/Zip: San Diego, CA, 92122
Phone: 425-747-7190

Signature of Lead Agency Representative: [Signature]
Date: 1/28/10

CEQA Initial Study/ Mitigated Negative Declaration
for the
Avenal Photovoltaic Solar Farm
Kings County • California
January 2010
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# Acronyms and Abbreviations

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<th>Description</th>
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<tbody>
<tr>
<td>µg/m³</td>
<td>micrograms per cubic meter</td>
</tr>
<tr>
<td>AB</td>
<td>Assembly Bill</td>
</tr>
<tr>
<td>AC</td>
<td>Alternating Current</td>
</tr>
<tr>
<td>AFY</td>
<td>acre feet per year</td>
</tr>
<tr>
<td>AST</td>
<td>Aboveground Storage Tank</td>
</tr>
<tr>
<td>BMP</td>
<td>best management practice</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act</td>
</tr>
<tr>
<td>CAAQS</td>
<td>California Ambient Air Quality Standards</td>
</tr>
<tr>
<td>Cal/OSHA</td>
<td>California Department of Industrial Relations, Occupational Safety and Health Regulations</td>
</tr>
<tr>
<td>CAL-FIRE</td>
<td>California Department of Forestry and Fire Protection</td>
</tr>
<tr>
<td>Caltrans</td>
<td>California Department of Transportation</td>
</tr>
<tr>
<td>CARB</td>
<td>California Air Resources Board</td>
</tr>
<tr>
<td>CBC</td>
<td>California Building Code</td>
</tr>
<tr>
<td>CDC</td>
<td>California Department of Conservation</td>
</tr>
<tr>
<td>CDFG</td>
<td>California Department of Fish and Game</td>
</tr>
<tr>
<td>CEQA</td>
<td>California Environmental Quality Act</td>
</tr>
<tr>
<td>CH₄</td>
<td>methane</td>
</tr>
<tr>
<td>CHRS</td>
<td>California Historical Resources Information System</td>
</tr>
<tr>
<td>CNDDB</td>
<td>California Natural Diversity Database</td>
</tr>
<tr>
<td>CNEL</td>
<td>community noise equivalent level</td>
</tr>
<tr>
<td>CNPS</td>
<td>California Native Plant Society</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CO₂</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>CO₂e</td>
<td>Carbon dioxide equivalency</td>
</tr>
<tr>
<td>c-Si</td>
<td>amorphous silicon</td>
</tr>
<tr>
<td>CUP</td>
<td>Conditional Use Permit</td>
</tr>
<tr>
<td>CVR</td>
<td>Central Valley Project</td>
</tr>
<tr>
<td>CVRWB</td>
<td>Central Valley Regional Water Quality Control Board</td>
</tr>
<tr>
<td>dB</td>
<td>decibel</td>
</tr>
<tr>
<td>dBA</td>
<td>A-weighted decibel</td>
</tr>
<tr>
<td>DC</td>
<td>Direct Current</td>
</tr>
<tr>
<td>DNL</td>
<td>day-night average sound level</td>
</tr>
<tr>
<td>DOF</td>
<td>California Department of Finance</td>
</tr>
<tr>
<td>DTSC</td>
<td>California Department of Toxic Substances Control</td>
</tr>
<tr>
<td>DWR</td>
<td>Department of Water Resources</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>ERNS</td>
<td>Emergency Response Notification System</td>
</tr>
<tr>
<td>FAA</td>
<td>Federal Aviation Administration</td>
</tr>
<tr>
<td>FAR</td>
<td>Federal Aviation Regulation</td>
</tr>
<tr>
<td>FMMP</td>
<td>Farmland Mapping and Monitoring Program</td>
</tr>
<tr>
<td>GA</td>
<td>General Agriculture</td>
</tr>
<tr>
<td>gpd</td>
<td>gallons per day</td>
</tr>
<tr>
<td>gpm</td>
<td>gallons per minute</td>
</tr>
<tr>
<td>GWP</td>
<td>Global Warming Potential</td>
</tr>
<tr>
<td>H₂S</td>
<td>hydrogen sulfide</td>
</tr>
<tr>
<td>HCP</td>
<td>Habitat Conservation Plan</td>
</tr>
<tr>
<td>HWCL</td>
<td>California Hazardous Waste Control Law</td>
</tr>
<tr>
<td>I-5</td>
<td>Interstate Highway 5</td>
</tr>
<tr>
<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
</tr>
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<td>--------------</td>
<td>------------</td>
</tr>
<tr>
<td>KART</td>
<td>Kings Area Rural Transit</td>
</tr>
<tr>
<td>kW</td>
<td>kilovolt</td>
</tr>
<tr>
<td>KWRA</td>
<td>Kings Waste and Recycling Authority</td>
</tr>
<tr>
<td>Ldn</td>
<td>day-night average sound level</td>
</tr>
<tr>
<td>Leq</td>
<td>equivalent sound pressure level</td>
</tr>
<tr>
<td>LOS</td>
<td>levels of service</td>
</tr>
<tr>
<td>LRA</td>
<td>Local Responsibility Area</td>
</tr>
<tr>
<td>M</td>
<td>Mercalli Index</td>
</tr>
<tr>
<td>MBTA</td>
<td>Migratory Bird Treaty Act</td>
</tr>
<tr>
<td>mgd</td>
<td>million gallons per day</td>
</tr>
<tr>
<td>mmg/m³</td>
<td>milligrams per cubic meter</td>
</tr>
<tr>
<td>MMT</td>
<td>million metric tons</td>
</tr>
<tr>
<td>MRZs</td>
<td>Mineral Resource Zones</td>
</tr>
<tr>
<td>MT</td>
<td>metric tons</td>
</tr>
<tr>
<td>MTCO₂e</td>
<td>metric tons CO₂ equivalent</td>
</tr>
<tr>
<td>MWh</td>
<td>megawatt hours</td>
</tr>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
</tr>
<tr>
<td>NAHC</td>
<td>Native American Heritage Commission’s</td>
</tr>
<tr>
<td>NEC</td>
<td>National Electrical Code</td>
</tr>
<tr>
<td>NFP A</td>
<td>National Fire Protection Association</td>
</tr>
<tr>
<td>NO₂</td>
<td>nitrogen dioxide</td>
</tr>
<tr>
<td>NO₃</td>
<td>oxides of nitrogen</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NPL</td>
<td>National Priority List</td>
</tr>
<tr>
<td>NRCS</td>
<td>Natural Resources Conservation Service</td>
</tr>
<tr>
<td>OPR</td>
<td>Office of Planning and Research</td>
</tr>
<tr>
<td>PDFs</td>
<td>project design features</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>particulate matter less than or equal to ten microns in diameter</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>particulate matter less than or equal to 2.5 microns in diameter</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>PV</td>
<td>photovoltaic</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>RCRIS</td>
<td>Resource Conservation and Recovery Act Information System</td>
</tr>
<tr>
<td>ROG</td>
<td>reactive organic gases</td>
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<tr>
<td>SF₆</td>
<td>sulfur hexafluoride</td>
</tr>
<tr>
<td>SJVAB</td>
<td>San Joaquin Valley Air Basin</td>
</tr>
<tr>
<td>SJVAPCD</td>
<td>San Joaquin Valley Air Pollution Control District</td>
</tr>
<tr>
<td>SLF</td>
<td>Sacred Land Files</td>
</tr>
<tr>
<td>SLIC</td>
<td>Spills, Leaks, Investigations and Cleanups</td>
</tr>
<tr>
<td>SO₂</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>SR</td>
<td>State Route</td>
</tr>
<tr>
<td>SSURGO</td>
<td>Soil Survey Geographic</td>
</tr>
<tr>
<td>SWPPP</td>
<td>Storm Water Pollution Prevention Plan</td>
</tr>
<tr>
<td>TACs</td>
<td>Toxic air contaminants</td>
</tr>
<tr>
<td>UBC</td>
<td>Uniform Building Code</td>
</tr>
<tr>
<td>USGS</td>
<td>U.S. Geological Survey</td>
</tr>
<tr>
<td>UST</td>
<td>Underground Storage Tank</td>
</tr>
<tr>
<td>VCP</td>
<td>Voluntary Cleanup Properties</td>
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</table>
1.0 Background Information

1.1 Project Title

Avenal Photovoltaic Solar Farm Project

1.2 Lead Agency Name and Address

Kings County Community Development Agency
Kings County Government Center
1400 West Lacey Boulevard
Hanford, CA 93230

1.3 Lead Agency Contact Person and Phone Number

Chuck Kinney, Planner
(559) 582-3211 Ext. 2674

1.4 Project Location

The project would be located in an unincorporated area of Kings County, California (Figure 1-1), adjacent to the eastern boundary of the City of Avenal (Figure 1-2). The project area is southeast of the intersection of 36th Avenue and the Salem Avenue alignment.

1.5 Project Sponsor’s Name and Address

Avenal Solar Holdings LLC and its subsidiaries,
Sun City Project LLC and Sand Drag LLC
4660 La Jolla Village Drive, #400
San Diego, CA 92122
Contact: David Tomlinson
Phone: (425) 747-7190
Mobile: (425) 463-6741
Dwtomlinson@comcast.net

1.6 General Plan Designation

The Kings County General Plan land use designation for the project area is General Agriculture. The project area is not located within the City of Avenal’s urban fringe areas (primary or secondary spheres of influence).

1.7 Zoning

The Kings County zoning designation for the project area is General Agriculture (AG) 40.
Figure 1-1  Project Vicinity Map
Figure 1-2  Project Site Map
1.8 Description of the Project

1.8.1 Project Overview

Avenal Solar Holdings LLC proposes to develop, own, and operate a photovoltaic (PV) solar farm comprised of two project subareas to be located on leased agricultural lands in unincorporated Kings County, California. It is anticipated that this project would require County approval of two Conditional Use Permits (CUPs) under the names of Sun City Project LLC and Sand Drag LLC to allow for the construction, operation, and maintenance of such facilities for the long-term generation of clean renewable energy from solar power, which would ultimately be sold to a public utility company and distributed for public consumption.

The project facilities would be located just south east of the community of Avenal, California (see Figures 1-1 and 1-2). The project area is approximately 5 miles west of Interstate 5 and can be accessed by traveling west on State Hwy 269/N and south following 36th Avenue, a County Road. The Avenal State Prison is approximately 1.5 miles southwest of the project facilities.

The City of Avenal is located approximately 65 miles southwest of Fresno with a population of 16,737 according to the 2000 census. Kings County and the City of Avenal have diversified economies based on oil, agriculture, and the service industry.

The project area is located in a valley on flat agricultural land between two ridgelines at an elevation of 750 feet, allowing for an abundant source of sunshine on an annual basis. The project area is considered Prime Farmland (Farmland Mapping and Monitoring Program (FMMP) designation) in production, with no remarkable elevation contours. The project subareas will be developed using four parcels of land. The project subareas and associated parcels are provided below in Table 1-1. Maps of the project location and parcels are provided in Figures 1-1 and 1-2.

Table 1-1 Project Element Names and Associated Parcels

<table>
<thead>
<tr>
<th>Project Element</th>
<th>APNs</th>
<th>Combined Parcel Size (Acres)</th>
<th>Approximate Electricity Generation (Megawatts)</th>
</tr>
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<tr>
<td>Sun City</td>
<td>038-290-009</td>
<td>180</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>038-290-011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand Drag</td>
<td>038-290-007</td>
<td>240</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>038-290-008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td>420</td>
<td>39</td>
</tr>
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</table>

The project design would allow for continued agricultural production on a substantial percentage of the 420 acre project site. The land will retain the ability to be dry farmed for grain, silage or other agricultural products. The dry farming techniques would continue to rely on rainfall for crop hydration. Conservatively, approximately 63 acres of Prime Farmland would be permanently converted at the site due to the solar use (roads, transformer pads, substations, communication buildings, and a small area around each piling), while approximately 357 acres of Prime Farmland would retain the ability to be farmed using dry farming techniques.

All construction and operation activities were designed to avoid the Arroyo Somero stream located northeast of the project. All project activities would avoid the jurisdictional area of any streams or water features.
1.8.2 Project Sponsor’s Purpose and Need

The project would provide renewable solar energy during periods of high demand to the citizens of Avenal as well as the greater Kings County area. In addition, the project would assist the State of California in complying with Executive Order S-21-09, which calls for 33 percent of all electricity sold in California to be generated from renewable sources by the year 2020. The project represents an additional clean source of electrical power that would supplement energy currently supplied by the existing power grid, thereby reducing the potential for power shortages to occur and decreasing demands on the capabilities of the existing distribution system as well as offsetting supplies from fossil fuel generating sources.

1.8.3 Project Objectives

The project sponsor is proposing to construct the project to meet the following objectives:

- Provide Kings County with a clean source of renewable energy.
- Stimulate the local economy through job creation.
- Support Kings County’s and California’s efforts to reduce GHG emissions consistent with the timeline established by California Assembly Bill 32, the Global Warming Solutions Act of 2006.
- Develop an economically feasible and commercially financeable project.

1.8.4 Project Facilities

The project would involve the construction of a solar energy electrical generation facility to provide electricity for public consumption. The facility would consist of an array of solar PV panels, supported on a galvanized metal racking system, as shown on Figure 1-3, Typical Solar PV Array, and Figure 1-4, Conditional Use Permit Plot Plan and Elevations/Details.

Photovoltaic Panels

The PV panels would be manufactured at an offsite location and transported to the project site. The panels would be made of either a poly crystalline or thin-film amorphous silicon material covering a glass pane, would be black in color, and would be highly absorptive.

The arrays would be oriented along an east-west axis with the panels facing generally to the south. The panels would be mounted on a galvanized steel rack, with one panel mounted above the second. The two panel configuration would measure approximately 9 feet, 4 inches in total combined length, and 3 feet, 4 inches in width; see Figure 1-4, Conditional Use Permit Plot Plan and Elevations/Details. The total height of the two-panel system measured from ground surface would be approximately 8 feet. The panels would be tilted at an approximate 20-30-degree angle or as otherwise determined necessary during final project design.
Figure 1-3   Typical Solar PV Array (Photo Courtesy of Sharp Electronics)
Figure 1-4  Conditional Use Permit Plot Plan and Elevations/Details
The length of each row of panels would be approximately 310 feet along the east/west axis. Spacing between each row along the vertical axis would be approximately 10.5 feet. A north-south running access road, of minimum 20 foot width and unsurfaced, would be provided every 310 feet between the horizontal rows.

**Racking**

Racking refers to the structure that holds the solar PV panels in the proper position for maximum capture of solar insulation. For the project, a combination of galvanized I-beam or tubular steel posts and channel steel would be used. The I-beams/tubular steel posts would be driven into the soil, using a pile/vibratory/rotary driving technique similar to that used to install freeway guardrails.

**Panel Interconnections, Inverters, Distributed Transformers, Combiner Boxes and Switch Gear**

Panels would be electrically connected into panel strings using wiring attached to the racking. Panel strings would be electrically connected to each other via underground wiring. Wire depths would be in accordance with local, State, and Federal codes or deeper if necessary to accommodate agricultural activities including tilling and harvesting. Gathering lines would connect individual panel strings to one or more inverters/transformers and combiner boxes distributed throughout the facility. Wiring from the panel strings are connected to combiner boxes. The electrical current is then transferred to the inverters, which convert the Direct Current (DC) produced by the PV panels into Alternating Current (AC). A pad-mounted transformer next to the inverter would increase the voltage.

Approximately 40 small-scale, aboveground structures would be located within the solar panel fields to weatherize inverter/distributor transformers and switching gear. These structures would be approximately 10 by 26 feet in size and 12 feet high at the roof apex. They would be constructed of concrete or steel and would be beige or neutral in color (Figure 1-5). Each structure would be constructed on a level concrete building pad; refer to Figure 1-4, Conditional Use Permit Plot Plan and Elevations/Details. Each structure would be designed to provide two feet of clearance above each inverter with screened ventilation provided on the roof to allow for the circulation of air for cooling purposes. The AC would then travel through underground gathering lines to the project substations.

**Project Substations**

Two project substations would be located on the west side of parcel APN 038-290-009, one substation for each subarea. The project substations would include transformers, breakers, switches, meters, and related equipment. Each substation would also contain a control room approximately 12 feet by 20 feet with an overall height of less than 15 feet (Figure 1-6). The overall footprint of each project substation would be approximately 150 feet by 90 feet each and up to 35 feet in height at the apex. (Figure 1-7 and 1-8).
Figure 1-5  PowerGate Plus 1 MW Solar PV Inverter

Figure 1-6  Typical Substation Control Room (Photo Courtesy of Intermountain Electric)
Figure 1-7 Substation Layout
Figure 1-8  Substation Design Cross Section
Project Transmission Interconnections

Both project substations would interconnect to the existing PG&E 70-kilovolt (kV) transmission line immediately west of the substations. The gen-tie lines would be less than 50 feet long and would be contained entirely on the project property. Each gen-tie line would connect to an existing pole location, but the current wood poles would be replaced with light-duty steel poles. In total, two wood poles would be replaced with two light-duty steel poles. Electricity would travel westwards approximately 300 feet to the Avenal Substation as well as northwards to the Kettleman Junction 70-kV Line and would be available for local consumption as well as regional distribution. All interconnections would be aboveground using an electrical tap or other technique as deemed suitable by PG&E (See Figure 1-8 and Figure 1-9).

![Figure 1-9 Conceptual Single-Line Diagram Source: PG&E](image)

Telecommunications

The project would require interconnection with the existing local telecommunication system at the southeast corner of the intersection of Salem and 36th Avenue. From this location, a fiber optic cable and/or 25-pair telephone line would be installed below ground southwards to proposed project substations in the southwest corner of Parcel no 038-290-009 (Figure 1-4). The underground route will follow existing utility easements on 36th Avenue, or if none exist, collocated with existing utility lines to local residential services on the southern portion of Parcel 038-290-003. The line may also be placed below ground beneath or adjacent to the northern access road.

The existing local telecommunication network may require upgrading from Salem and 36th Avenue to the AT&T office located at 813 S. 7th Avenue in Avenal. Upgrading of the local telecommunication line may require installation of additional fiber in existing conduit, or trenching and replacement of the existing line to a minimum depth of 24". This trenching and related work activities would be conducted.
within AT&T's existing ROW franchise. The existing cable would be replaced or augmented with additional fiber optic cable and/or 25 pair telephone cable in conduit. The trench would be compacted and filled. Surface pavement or other surface features would be restored to their preexisting condition. Alternatively, fiber optic cable and or 25 pair telephone cable will be collocated with existing above ground telephone/fiber optic lines along the same or similar routes. The approximate underground route is approximately 2.5 miles in length, north from Salem and 36th Avenue along Hydril Rd and then westwards to the ATT office along existing ATT franchise ROW. No significant environmental impacts would occur from this work.

**Meteorological Data Collection System**

The project would require approximately four meteorological data collection systems, two for each point of interconnection. The systems would include the following instruments, which would be mounted at various locations throughout the facility. The following meteorological data would be collected at the level of the solar panels or at approximately 8 feet above the ground:

- Global horizontal irradiance
- Global irradiance / plane of array
- Ambient temperature
- PV back-panel temperature
- Wind speed
- Wind direction
- Relative humidity
- Precipitation
- Barometric pressure
- Visibility

A picture of a typical meteorological station is presented as Figure 1-10.

**Grading and Compaction**

As stated above, the solar PV panels would be installed in an east-west orientation in rows (see Figure 1-3, Typical Solar PV Array). The land surface offered by the four parcels is flat, recently tilled, and would require minimal if any grading to allow for installation of the PV panels. For purposes of the environmental analysis, up to 32 acres of grading were assumed for inverter pads, substations roads, and other improvements. Access roads would be constructed by placing a minimum of 4 inches of decomposed granite or comparable material directly on the existing soil. Road grading would not be conducted. Soil compaction, if required, would be conducted for the inverter pads, substation, and control rooms and where the I-beam pilings would be installed. Roads and other work areas will be sprayed periodically with water to reduce dust. Roads and work areas may also be treated with County approved dust suppression chemicals.

**Lighting**

Project lighting would be installed to allow for ongoing maintenance and security. Low-level lighting would be installed at entry and egress gates (North Access Gate, South Access Gate, and Southwest Access Gate) and at strategic locations around the facility. All project lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships. All lighting
would conform to applicable Kings County and Avenal City outdoor lighting. Lighting would be used from dusk to dawn.

Figure 1-10  Typical Meteorological Station (Photo Courtesy of BEW Engineering)
**Signage**

Project signage is proposed to allow for the identification of the project owner and for safety and security purposes. Signage is proposed to be installed on the fence in the vicinity of the main entry gates. A ground mounted sign would be constructed at the north and south entrances to the facility. Signage would identify the project operator and owner and would provide emergency contact information. All signage would conform to Kings County signage requirements.

In addition, small-scale signage would be posted at the main entry gates, as well as intermittently along the perimeter fencing on all exterior parcel boundaries, to indicate “No Trespassing” and “Private Property” for security purposes.

**Landscaping**

Drought resistant vegetation would be planted along the western edge of the project on the west side of the perimeter fence.

**Access / Circulation**

Access to the parcels would be provided from 36th Avenue, also known as Avenue 36. 36th Avenue is a two-lane partially surfaced roadway that provides access to the east-west easement that borders the project area along the northern boundary. The easement would provide adequate access to the project site to support construction and ongoing maintenance activities.

Interior access would be provided by a 20-foot-wide perimeter road (measured inward from the property boundary) on all parcels. These roads would be surfaced with 4 inches of aggregate and would be maintained to provide a fire buffer as well as to facilitate onsite circulation for emergency vehicles. In addition, internal roadways, approximately 20 feet in width and unsurfaced, would be provided along the north-south access every 310 feet between the east-west running rows of PV panels.

**Operation, Security and Maintenance**

The facility would be monitored remotely by Avenal Solar Holdings LLC or an affiliated company. Once the solar panels were installed, the panels would operate during daylight seven days per week, 365 days per year. Security would be maintained through installation of an 8-foot-high chain-link fence, which would include one foot of three-strand concertina wire along the perimeter of the site. Infrared security cameras, motion detectors, and/or other similar technology would also be installed to allow for monitoring of the site through review of live 24/7 footage. A security patrol would also be contracted by the applicant for security purposes. Should the security system detect the presence of unauthorized personnel, a security representative would be dispatched to the facility, and appropriate local authorities would be notified.

It is anticipated that maintenance of the facilities would require approximately three workers to perform visual inspections and minor repairs up to once daily. On intermittent occasions, the presence of ten to thirty workers may be required if repairs or replacement of equipment is required in addition to panel washing; however, due to the nature of the facilities, such actions would be anticipated to be infrequent. Overall, minimal maintenance requirements are anticipated, as the panels would operate on their own with little human involvement.

Well water from an existing well, or purchased water from the City of Avenal, would be used to allow for construction and ongoing maintenance of the solar panels. Additionally, construction of a new well may also be drilled on the project area to provide additional water for construction and operational purposes. It is anticipated that the solar PV panels would be washed approximately 0–4 times per year to remove dust.
particles and other buildup to ensure optimum solar absorption. As such, the project would result in a relatively low demand for water for which adequate water supplies are available. Small amounts of water (approximately 800,000 gallons per year, or the equivalent of approximately 6.5 single-family homes) would be used to clean the panels on an infrequent basis. Due to the highly absorptive nature of the surface and underlying soils, water would run off the surface of the panels and absorb quickly into the ground surface, avoiding runoff and soil erosion.

**Fire Suppression & Safety**

Combustible vegetation or agricultural products on and around the project boundary would be actively managed by the project owner or its affiliates to minimize fire risk. Combustible products would be limited in height, or removed. Additionally, the project would include fire breaks around the project boundary in the form of roads subject to County standards.

The applicant would coordinate with the California Office of the State Fire Marshall to provide photovoltaic training to fire responders, construction, operational, maintenance staff. The intent of this training would be to familiarize both responders and workers of the codes, regulations, associated hazards and mitigation processes related to solar electricity. This training would include techniques for fire suppression of PV systems.

**1.8.5 Construction**

The maximum project footprint would be approximately 420 acres, including staging areas. Minimal site grading would be conducted over this entire area. Construction activities would include the following:

- **Civil Infrastructure**
  - Survey and project layout including road, panel, substations and support buildings
  - Installation of the chain link fence and gates
  - Road construction including placement of aggregate
  - Watering for dust control and soil compaction
  - Substation, inverter, control room pads would be brought to 2 feet above grade and compacted

- **Racking System Installation and Panel Assembly**
  - Installation of I-beam or tubular steel foundations through the use of a vibratory/pile driver system similar to what is used for the installation of highway guardrails
  - Placement of galvanized steel racking system on top of I-beam or tubular steel foundations
  - Placement of PV solar modules or racking system DC Collection System
  - Installation of wire harness, fuses, and wire grounding
  - Trenching for buried wires
  - Installation of buried wiring
  - Inverter/Transformer and Control Room Structures
  - Structure placement
  - Wiring and interconnection
    - AC Collection System
  - Trenching and installation of 21 or 34.5 kV cable from inverters/transformers to projects substations
  - Construction of project substations
  - Construction of interconnection to PG&E Transmission/Distribution System Telecommunication Installation
  - Connection to local fiber optic and telephone network
Installation of meteorological stations

**Construction Schedule**

Construction is planned to begin in April 2010, subsequent to completing CEQA review and receiving all necessary construction permits and meeting preconstruction CEQA conditions. Construction of the project is expected to be completed in early November 2010. A Preliminary Schedule is provided in Figure 1-11.

**Testing and Energizing**

Prior to energizing substation equipment, the solar PV panels would be tested. Upon completion of successful testing, the equipment would be energized.

**Stormwater Protection**

Because construction of the project would disturb a surface area greater than one acre, the applicant would be required to enroll under the state Construction General Permit. To enroll under this permit, the project sponsor would prepare a Storm Water Pollution Prevention Plan (SWPPP) that details project information; monitoring and reporting procedures; and Best Management Practices, such as dewatering procedures, stormwater runoff quality control measures, and concrete waste management, as necessary. The SWPPP would be based on final engineering design and would include all project components. If construction continues past July 1, the project will need to re-enroll under a newly adopted state Construction General Permit.

**Material Staging**

Construction of the project would require temporary staging and storage areas for materials and equipment during the construction process. The materials staging and storage would take place within the project area in areas that would not be used for panels. Additional staging and vehicle parking would be located at the southern terminus of the northern access road for the initial phases of the project. This area would be covered with panels near the conclusion of the project.

**Construction Access**

All materials for project construction would be delivered by truck. The majority of the truck traffic would occur on designated truck routes and major streets. Trucks would use 36th Avenue to access the project area. Traffic resulting from construction activities would be temporary and may occur along area roadways as workers and materials are transported to and from the project area. Approximately 40 construction vehicle trips per day are anticipated to take place during project construction, with up to 3,300 construction vehicle trips total anticipated to take place during the entire construction period. Project components (e.g., PV solar panels, support structures and electrical interconnection equipment) would be brought to the site and assembled. The project is not expected to cause a significant short-term increase in traffic volumes on area roads due to the nature and scope of the construction activities required (i.e., limited grading, delivery of pre-constructed panels to the sites, etc.).
<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Start</th>
<th>Finish</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction</td>
<td>Mon 4/5/10</td>
<td>Fri 11/26/10</td>
<td>170 days</td>
</tr>
<tr>
<td>2</td>
<td>Start Construction</td>
<td>Mon 4/5/10</td>
<td>Mon 4/5/10</td>
<td>0 days</td>
</tr>
<tr>
<td>3</td>
<td>Site Preparation &amp; Roads</td>
<td>Mon 4/5/10</td>
<td>Fri 7/30/10</td>
<td>85 days</td>
</tr>
<tr>
<td>4</td>
<td>Underground Collection</td>
<td>Mon 4/26/10</td>
<td>Fri 9/3/10</td>
<td>95 Days</td>
</tr>
<tr>
<td>5</td>
<td>Piers</td>
<td>Mon 5/17/10</td>
<td>Fri 9/17/10</td>
<td>90 days</td>
</tr>
<tr>
<td>6</td>
<td>Pier Caps</td>
<td>Mon 5/3/10</td>
<td>Fri 10/1/10</td>
<td>90 days</td>
</tr>
<tr>
<td>7</td>
<td>Tables</td>
<td>Mon 6/14/10</td>
<td>Fri 10/22/10</td>
<td>95 days</td>
</tr>
<tr>
<td>8</td>
<td>Panels</td>
<td>Mon 6/21/10</td>
<td>Fri 10/29/10</td>
<td>95 days</td>
</tr>
<tr>
<td>9</td>
<td>Branch Wiring</td>
<td>Mon 6/28/10</td>
<td>Fri 11/5/10</td>
<td>95 days</td>
</tr>
<tr>
<td>10</td>
<td>Inverter/Padmount Installation</td>
<td>Mon 8/16/10</td>
<td>Fri 11/12/10</td>
<td>65 days</td>
</tr>
<tr>
<td>11</td>
<td>Substation Construction</td>
<td>Mon 7/12/10</td>
<td>Fri 11/12/10</td>
<td>90 days</td>
</tr>
<tr>
<td>12</td>
<td>Transformer Installation</td>
<td>Mon 9/13/10</td>
<td>Fri 10/22/10</td>
<td>30 days</td>
</tr>
<tr>
<td>13</td>
<td>Commissioning</td>
<td>Mon 11/8/10</td>
<td>Fri 11/26/10</td>
<td>15 days</td>
</tr>
<tr>
<td>14</td>
<td>COD</td>
<td>Fri 11/26/10</td>
<td>Fri 11/26/10</td>
<td>0 days</td>
</tr>
</tbody>
</table>

**Figure 1-11 Preliminary Construction Schedule**
1.8.6 Project Schedule and Personnel Requirements

The project sponsor anticipates that construction and testing of the project would take approximately 8 months total to complete. The project elements would be completed in phases or concurrently: construction of Sun City is expected to be completed by the third quarter of 2010; construction of Sand Drag is expected to be completed by the fourth quarter of 2010. Crews typically work six 10-hour days per week. Depending on local permit requirements, Sunday, evening, and night work may also be required due to the scheduling of system outages and construction schedules. Construction would commence following Kings County approval of permits and other entitlements, final engineering, and procurement activities.

Up to 200 employees would be working onsite at the peak of construction. Local labor would be utilized to the extent practicable. It is estimated that approximately 30% of the labor force will be obtained locally.

1.8.7 Project Design Features

The project sponsor has incorporated into the project structural elements and practices called project design features (PDFs) to avoid and minimize potential impacts on environmental resources. These PDFs are part of the project and are distinguished from mitigation measures for potentially significant impacts under CEQA. PDFs have not been identified for all resource areas.

If the project is approved, Avenal Solar Holdings LLC, its subsidiaries or its affiliates would implement the PDFs listed in Table 1-3.

Table 1-3 Project Design Features Proposed by EE Avenal Land LLC

<table>
<thead>
<tr>
<th>PDF</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR-1</td>
<td>Implement best management practices to reduce construction tailpipe emissions. The Applicant would implement all applicable and feasible measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement would be incorporated into the construction contract for the project. Applicable and feasible measures include:</td>
</tr>
<tr>
<td></td>
<td>• Maximize use of diesel construction equipment meeting CARB’s 1996 or newer certification standard for off-road heavy-duty diesel engines.</td>
</tr>
<tr>
<td></td>
<td>• Use emission control devices at least as effective as the original factory-installed equipment.</td>
</tr>
<tr>
<td></td>
<td>• Substitute gasoline-powered for diesel-powered equipment when feasible.</td>
</tr>
<tr>
<td></td>
<td>• The primary contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.</td>
</tr>
<tr>
<td></td>
<td>• All equipment will use Tier 2 engines if available.</td>
</tr>
<tr>
<td>AIR-2</td>
<td>Project Design measures for construction fugitive dust emissions. The Applicant would implement all applicable and feasible fugitive dust control measures including those listed below. This requirement would be incorporated into the construction contract for the project. Applicable and feasible measures include:</td>
</tr>
<tr>
<td></td>
<td>• Watering all active construction sites at least twice daily in dry conditions, with the frequency of watering based on the type of operation, soil, and wind exposure.</td>
</tr>
<tr>
<td></td>
<td>• All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water or other approved substances.</td>
</tr>
</tbody>
</table>
### Table 1-3  Project Design Features Proposed by EE Avenal Land LLC

<table>
<thead>
<tr>
<th>PDF AIR-3</th>
<th><strong>Minimize greenhouse gas emissions during construction.</strong> The Applicant would incorporate the following measures into the construction contract to reduce greenhouse gas (and other air pollutant) emissions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Encourage construction workers to carpool.</td>
</tr>
<tr>
<td></td>
<td>• Encourage recycling or re-use of all construction waste.</td>
</tr>
</tbody>
</table>

| PDF CR-1 | **Historic and Archaeological Monitoring.** A qualified archaeologist would conduct full-time monitoring of all areas of the project where subsurface ground disturbing activities in excess of three feet would occur. The archaeological monitor will have a working knowledge of the project area and will be competent to identify the range of cultural resources known to exist in the vicinity of the project. The monitor will have the authority to temporarily relocate construction activities to inspect areas where ground disturbance has revealed potential cultural resources. The applicant will suspend construction activities in the area that would impact the resource until the archaeologist has inspected the discovery and determined any required or recommended treatment for the resource(s). |

| PDF CR-2: | **Stop work in immediate vicinity of find if previously unknown cultural resources are discovered.** In the event that subsurface historic resources or archaeological resources are encountered during construction, project activities would stop in the immediate vicinity of the find and a qualified archaeologist would be consulted to evaluate the significance of the resource. |

| PDF CR-3: | **Stop work in immediate vicinity of find if previously unknown paleontological resources are discovered.** If undisturbed sediments of the fossiliferous Tulare Formation are exposed during excavation of the site, a qualified professional vertebrate paleontologist would be retained to develop a program to reduce potentially significant impacts to paleontological resources. |

| PDF CR-4: | **Stop work in immediate vicinity of find if human remains are discovered.** If human remains are encountered, project activities would stop in the immediate vicinity of the discovered remains and the county coroner and a qualified archaeologist notified according to the provisions of California Public Resources Code (PRC) Sections 5097.98 and 5097.99. |

| PDF GEO-1: | **Geotechnical Investigation.** A site specific geotechnical investigation will be performed prior to project construction will provide the final design recommendations for above ground structures at the project area. |

| PDF GEO-2: | **Storm Water Pollution Prevention Plan.** A Storm Water Pollution Prevention Plan (SWPPP), designed to reduce potential impacts related to erosion and surface water quality during construction activities and through the life of the project will be prepared by a qualified engineer or erosion control specialist and implemented before construction. The SWPPP will include measures to address erosion, such as a construction period monitoring program to be implemented by the construction supervisor, and will include Best Management Practices (BMPs) to address erosion, such as watering for dust control and the construction of perimeter silt fences, as needed. The SWPPP will be submitted to Kings County for review and approval prior to issuance of any building or grading permits. Implementation of the SWPPP would |
Table 1-3 Project Design Features Proposed by EE Avenal Land LLC

<table>
<thead>
<tr>
<th>PDF HAZ-1:</th>
<th>Fire Prevention Training and Measures. The applicant will implement the following measures to address potential fire hazards in the project area:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Fire Prevention Training. The applicant will coordinate with the California Office of the State Fire Marshall to provide photovoltaic training to County fire responders, construction, operational, maintenance staff. The intent of this training will be to familiarize both responders and workers of the codes, regulations, associated hazards and mitigation processes related to solar electricity. This training will include techniques for proper system shutdown and fire suppression procedures for PV systems. The training will include procedures for coordination with local fire department, sheriff department, and emergency medical services.</td>
<td></td>
</tr>
<tr>
<td>- Fire Prevention Measures. The applicant will employ the following measures during project construction and operation:</td>
<td></td>
</tr>
<tr>
<td>- Any applicable Kings County Improvement Standards to ensure accessibility and ground clearance of emergency vehicles (i.e. fire engines).</td>
<td></td>
</tr>
<tr>
<td>- The applicant will develop safety measures in accordance with Cal OSHA safety and health regulations and guidance for construction, which will be reviewed by all project construction staff prior to the start of any work. Safety measures will include those that address potential electrical incidents and fire hazards.</td>
<td></td>
</tr>
<tr>
<td>- Agricultural vegetation will be maintained to reduce potential fire hazards in the project area.</td>
<td></td>
</tr>
<tr>
<td>- Work crews will be required to park vehicles away from flammable vegetation, such as dry grass and brush. At the end of each workday, heavy equipment should be parked over mineral soil, asphalt, or concrete, where available, to reduce the chance of fire.</td>
<td></td>
</tr>
<tr>
<td>- Fire suppression equipment (i.e., fire extinguishers) will be made available on the project site at all times. All heavy equipment will be required to include mechanisms for fire suppression, including spark arresters or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers.</td>
<td></td>
</tr>
<tr>
<td>- Smoking will be prohibited in the project area except in designated areas.</td>
<td></td>
</tr>
</tbody>
</table>

| PDF TT-1 | Minimize Street Use. Construction activities would be designed to minimize work on, or use of, local streets. The project would comply with San Joaquin Valley Air Pollution Control District (SJVAPCD) standards for unpaved roads, which include a requirement to keep vehicle speeds below 15 mph, and to have fewer than 150 trips per day per unpaved road (SJVAPCD 2002). |

| PDF TT-2 | Traffic Control. The applicant will consult with Kings County, and the City of Avenal prior to initiation of construction activities that may affect traffic (e.g., equipment and supply delivery necessitating lane closures, trenching, etc.), and will implement appropriate traffic controls in accordance with the California Vehicle Code and other state and local requirements to avoid or minimize impacts on traffic. Construction traffic would not block emergency equipment routes. |

1.9 Surrounding Land Uses and Setting

The project area is located southeast of the City of Avenal, in southwest unincorporated Kings County, in the southern portion of the San Joaquin Valley. This region is characterized by a history of farming, ranching, and oil exploration (Kings County Community Development Agency 2008). Residential development in the project area experienced some growth in past decades since the construction of the Avenal State Prison in 1987, but growth has slowed considerably in the past few years, especially since the onset of national and state economic recessions after 2008.
The project area is located on four parcels totaling approximately 420 acres, southeast of the intersection of 36th Avenue and the Salem Avenue alignment in Kings County. The area is bounded by 36th Avenue and the City of Avenal to the west and by unpaved roads to the north, east, and south. Lands developed with agricultural uses are directly adjacent to the north, south, east, and west. The Avenal State Prison is located approximately 1.5 miles southwest of the project area. The Avenal Sand Drag strip, an area used for recreational drag racing, is located approximately 0.25 miles west of the project area, at the location of a former airstrip. The Avenal Airport, a small, private airport that is the home of the Central California Soaring Club, a recreational glider organization, is located approximately 1.9 miles to the northwest of the project area. The project area parcels are under private ownership, are currently managed as row crops under dry farming practices, and are also used for cattle grazing. The area is relatively flat and located directly southwest of the Kettleman Hills.

1.10 Other Permits and Approvals that may be Required

The project sponsor has submitted an application for a CUP to the Kings County Community Development Agency for the project. The following required permits and approvals have been identified for the project. Additional permits and approvals may also be required.

- **Kings County, Grading Permit.** Kings County requires a Grading Permit for all construction activities requiring grading to ensure that soil is not stripped and removed, impacting aesthetic values within the County and leaving land susceptible to erosion, subsidence, faulty drainage, and sediment deposition. The Grading Permit requires submission and approval of an Erosion and Sediment Control Plan, a Soils Report, a SWPPP, and an onsite Construction Security Worksheet.

- **Kings County, Building Permit.** Prior to issuing the Building Permit, the Kings County Community Development Department will review and plan-check the project to ensure compliance with City codes, ordinances, and policies. As part of the review and plan-check process and prior to issuing the Building Permit, project design must be approved.

- **Kings County, Encroachment Permit.** Kings County requires an Encroachment Permit for utility trenching. As part of the application for the Encroachment Permit, the applicant must submit construction drawings and a traffic control plan for any work that would take place in public streets.

- **Central Valley Regional Water Quality Control Board, National Pollutant Discharge Permit.** Construction of the project and alternatives would disturb a surface area greater than 1 acre, so the project sponsor would be required to obtain a National Pollutant Discharge Elimination System Permit from the Central Valley Regional Water Quality Control Board. As part of this permit, a SWPPP would be developed and implemented.

- **SJVAPCD, Indirect Source Review.** An Indirect Source Review (District Rule 9510) will be filed with the SJVAPCD to determine potential mitigation, if any, for NOx and PM10 emissions.

**References**

2.0 Environmental Determination

2.1 Environmental Factors Potentially Affected

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

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

2.2 Determination

Determination: (To Be Completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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

Jeremy Kinney, Planner

Agency: Kings County Community Development Agency

Signature

Date 1/25/10
3.0 Evaluation of Environmental Impacts

3.1 Aesthetics

Table 3.1-1 Aesthetics Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Have a substantial adverse effect on a scenic vista?</td>
<td>☒</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>c. Substantially degrade the existing visual character or quality of the site and its surroundings?</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
</tbody>
</table>

3.1.1 Setting

Environmental Setting

The project would be located in southwestern Kings County near the City of Avenal on 420 acres of land.

The project area is located on the Kettleman Plain between the Kettleman Hills and the Kreyenhagen Hills at an elevation of approximately 750 feet. There are no lakes in the Kettleman Plain and Hills area, and streams, which consist primarily of runoff from the Kettleman Hills, are intermittent or ephemeral. Vegetative cover on the Kettleman Plain is primarily California native grasses (U.S. Department of Agriculture 1997). The project area is characterized as flat agricultural land with no remarkable elevation contours, geological features, or hydrological features.

The project area would be located approximately 5 miles from Interstate 5 and approximately 0.4 miles northeast of State Highway 33. The project area would be accessible via 36th Avenue, a county road that forms the western border of the project area. Development in the area includes the City of Avenal, just over a mile northwest of the project area; the Avenal State Prison, approximately a half a mile southwest of the project area; a sewage treatment plant and a rifle range associated with the prison located immediately southwest of the project area; and the Avenal Sports Complex, which includes soccer and softball facilities, as well as a sand drag racing strip, and is located on the parcel directly to the west of the project area.

The Kings County General Plan contains an Open Space Element that addresses scenic resources within the County. The Open Space Element lists the Kern River in the northern part of the county as a scenic natural asset and the Coast Ranges (including the Chalk Buttes-Reef Ridge portion of the Kreyenhagen Hills, the Pyramid Hills, Cottonwood Pass, and Sunflower Valley) in the southwestern portion of the county as a scenic area (Kings County 1993). The project area would be located approximately 18 miles southwest of the portion of the Kern River that is designated as scenic and approximately 2.3 miles.
northeast of the Coast Ranges scenic area. The Avenal State Prison is located between the project area and the Coast Ranges scenic area.

The Kings County General Plan’s Open Space Element contains goals, objectives, and policies to protect and preserve scenic resources and roadside landscapes within view of scenic highways (Kings County 1993). There are no designated scenic highways within Kings County; a portion of State Highway 41, from its intersection with State Highway 33 and proceeding to the San Luis Obispo County Line, is an eligible state scenic highway (Caltrans n.d.). The project area would be located approximately 7.25 miles northwest of State Highway 41 at its intersection with State Highway 33.

The scenic value of the project area is medium to low. While the Kettleman Plain area is largely undeveloped and characterized by rural and pastoral views with the visually distinct Kettleman Hills in background views, development immediately surrounding the project area, including the Avenal State Prison and associated facilities, lowers the scenic value significantly.

Public viewpoints are limited primarily to travelers along State Highway 33 and users of the Avenal Sports Complex. There are three residences within a half mile of the project area: one residence near the property’s western boundary and two residences to the northeast of the project area. One of the residences to the northeast belongs to the landowner contracting with the developer for construction of the project. Potential recreational viewers of the project area include glider pilots and users of the Avenal Sports Complex, including motorsport enthusiasts. The airport used by recreational gliders is located approximately 2 miles northwest of the project area, and the Avenal Sports Complex is located approximately 0.25 miles west of the project area.

**Project Design Features**

The project consists largely of rows of photovoltaic (PV) solar panels with associated infrastructure. The panels would be made of either a poly crystalline or thin-film amorphous silicon material covering a glass pane and would be black in color. The panels would be installed on galvanized steel racks and would be mounted in a two-panel system with one panel installed above the other. The racks would be supported above the ground by galvanized I-beam or tubular steel posts. When mounted on the racks, the panels would be approximately 9 feet and 4 inches wide and 8 feet high (Figure 1-3).

The panels would be arranged in rows along an east–west axis. Each row would extend the entire length of the project. Access roads, 20 feet in width and constructed of decomposed granite, would bisect the rows at 310-foot intervals. Each row of panels would be spaced at approximately 21-foot intervals, providing approximately 10.5 feet of open area between each row (Figure 1-4).

Inverter/Combiner/Transformer rooms would be located throughout the facility, one for each megawatt of generation capacity. The rooms would be fabricated off-site (Figure 1-5).

Two project substations will be constructed on the southwest corner of the project. The project substations will include transformers, switching gear, and other related equipment (Figure 1-7 through 1-9).

A control room, also constructed of concrete and fabricated off-site would be located within each of the two project substations (Figure 1-6).

Construction of the project would require the transportation to and storage of materials on the project site and the use of construction equipment. The project area is characterized as flat land that has been recently tilled. Construction of the project would require minimal or no grading.
For the purposes of screening the project area from viewers to the west, drought-resistant vegetation which will grow to the approximate height of the security fencing (i.e., 8 feet in height) or higher will be planted along the western edge of the project area, and maintained during the life of the project.

Operation of the project would require additional miscellaneous features for security, safety, and storage purposes. There would be an 8-foot-high chain-link fence, topped with one foot of three-strand concertina wire along the perimeter and mounted security cameras. Signs would be posted on the fence near the entry gates to identify the project owner. Project lighting would be installed to allow for ongoing maintenance and security at various locations within the facility, including entry and egress gates. All project lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships and operate from dusk to dawn hours.

### 3.1.2 Environmental Impacts and Mitigation Measures

**a. Would the project have a substantial adverse effect on a scenic vista?**

*NO IMPACT.* The project would not be located within the viewshed of any scenic vista. Kings County has two designated scenic areas: a portion of the Kern River near the border with Kern County and the Coast Ranges area in southwestern Kings County (Kings County 1993). The project area would be located approximately 18 miles from the portion of Kern River that is designated as scenic and approximately 2.3 miles from the edge of the Coast Ranges scenic area; however, the Avenal State Prison facilities and State Highway 33 are located between the project area and the Coast Ranges scenic area. Because the project would be located outside of the viewshed of the portion of the Kern River designated as scenic and because development between the project area and the Coast Ranges would obstruct any distance views of the project, the project would not have a significant impact on visual resources under this criterion.

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

*NO IMPACT.* The project area would not be located within the viewshed of any designated or eligible state scenic highways. There are no designated state scenic highways within Kings County, and the project area would be located approximately 7.25 miles northwest of State Highway 41, the only eligible state scenic highway within Kings County. Because the project area would not be visible from any designated or eligible state scenic highways, there would be no impact on scenic resources within view of a state scenic highway.

**c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?**

*LESS THAN SIGNIFICANT IMPACT.* The project would not substantially degrade the existing visual character or quality of the site and its surroundings. As described above, the scenic value of the project area is medium to low. The project would introduce temporary clutter during construction through the storage of equipment and materials. Additionally, operation of the project would require the conversion of land characterized by rural, agricultural appearances to land occupied by rows of solar panels and associated equipment. However, these visual intrusions would not result in a significant impact as surrounding areas have already been encroached upon by development, including the Avenal State Prison and associated facilities. Changes to the project area would be consistent with the existing visual setting, and the visual contrast introduced by the project would only incrementally contribute to existing visual intrusions on the landscape.
Additionally, the number of viewers of the project area is relatively low and limited primarily to motorists along Highway 33. Motorists would have fleeting views of the project area and have a low expectation of a view, particularly given existing development immediately adjacent to the site. There are also three single-family residences within a half mile of the site, including the landowner that is contracting with the developer for construction of the project. Residents and recreational enthusiasts would have a higher expectation of a view; however, impacts to these viewers would be less than significant because the project area would be screened from the adjacent Avenal Sports Complex by a vegetated buffer, and because the project would be located in an area with existing medium to low visual quality, adjacent to existing development.

The project would not substantially degrade the existing visual character or quality of the area and its surroundings. The proposed project’s impact under this criterion would be less than significant.

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

*LESS THAN SIGNIFICANT IMPACT.* The project would not create a new source of substantial light that would adversely affect day or nighttime views in the area. Low-level lighting would be installed throughout the project area for maintenance and operation procedures as well as at entrances and exists; however, the lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships. Additionally, the project would be located adjacent to the Avenal State Prison, which is lit for security purposes. Because the project would use shielded and downward directed lighting and because the project would contribute to existing lighting in the area rather than introducing a new source of lighting into an area otherwise characterized by natural dark, the proposed project would not create a new source of substantial light.

The project would not create a new source of substantial glare that would adversely affect day or nighttime views in the area. The solar panels are black in color and absorptive rather than reflective. Additionally, the poles on which the panels would be mounted are galvanized, so they would not reflect light. Because no equipment installed as part of the proposed project would be reflective, the project would not result in a significant impact under this criterion.

**References**


3.2 Agriculture and Forest Resources

Table 3.2-1 Agriculture and Forest Resources Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526)?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>d. Result in the loss of forest land or conversion of forest land to non-forest use?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
</tbody>
</table>

3.2.1 Setting

Environmental Setting

Agriculture is the predominant land use in Kings County, which ranked 8th in the State in 2007 for agricultural product value (Kings County Community Development Agency 2008a). As shown below in Table 3.2-2, about 94 percent of the total Kings County area comprises agricultural croplands and pasture. The agricultural industry remains an important component of the Kings County economy, and the preservation of agricultural lands is regarded as a high priority for local land use planning agencies in the region.

Table 3.2-2 Farmland in Project Regional Area

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Land Area (acres)</th>
<th>Designated Prime&lt;sup&gt;a&lt;/sup&gt; Farmland</th>
<th>Other&lt;sup&gt;b&lt;/sup&gt; Farmland</th>
<th>Total Farmland Area (% total)</th>
<th>Farmland Converted (acres), 2004 to 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Acres</td>
<td>% Total Land Area</td>
<td>Total Acres</td>
<td>% Total Land Area</td>
<td>Total Farmland Area (acres), 2004 to 2006</td>
</tr>
<tr>
<td>Kings County</td>
<td>890,784</td>
<td>139,212</td>
<td>16</td>
<td>698,455</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>% Total Land Area</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>698,455</td>
<td>78</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-2,987</td>
<td>-2,987</td>
<td>-2,987</td>
</tr>
</tbody>
</table>

Source: Kings County Department of Agriculture / Measurement Standards 2009, Kings County 2009
Notes: <sup>a</sup> = Includes Prime Farmland, per FMMP categories as of 2006
<sup>b</sup> = Includes Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land, per FMMP categories as of 2006

The Kings County General Plan land use designation for the project area is General Agriculture (AG), and the zoning designation is AG-40 (agricultural land with a nominal minimum site area of 40 acres)
Applicable Regulations, Plans, and Standards

**State of California**

Conservation of agricultural land in California is supported on the state level through the Division of Land Resource Protection and specifically through the FMMP and the California Land Conservation Act of 1965 (commonly referred to as the Williamson Act). For the FMMP, U.S. Department of Agriculture soils surveys and existing land use observations recorded during even-numbered years are used to determine the nature and quality of farmland in 10-acre minimum units across the state. FMMP mapping categories for the most important statewide farmland include Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Other classifications include Farmland of Local Importance and Grazing Land. FMMP data are used in elements of some county and city general plans and associated environmental documents as a way of assessing the impacts of development on farmland and in regional studies for assessing impacts due to agricultural land conversion.

The Williamson Act enables local governments to enter into rolling, 10-year contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or compatible uses. In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual, farming, and open space uses, as opposed to potential market value.

**County and City Plans, Regulations, and Consultation**

The Kings County General Plan and Zoning Ordinance include agriculture preservation policies and measures. Goals and policies for agriculture in the general plan and zoning ordinance address the preservation of agricultural land and farming uses; the promotion of growth and expansion of farmland; the establishment and maintenance of buffers between urban and agricultural uses; the restriction of non-agricultural uses in farmland areas; the maintenance of non-urban and open space uses in agricultural and rural areas in the County; and the importance of ensuring long-term protection of agricultural production (Kings County Planning Department 2004, Kings County Community Development Agency 2008).

Per the General Plan Land Use Element, agricultural areas in Kings County “may provide appropriate areas for certain predominantly open uses of land which are not injurious to agricultural uses but which may not be harmonious with the more densely populated urban areas and rural communities of the county. Such uses may include…solar photovoltaic electrical generating facilities, that commercially produce power for sale...” (Kings County Planning Department 2004). Also per the General Plan, and per the AG-40 zoning ordinance, solar photovoltaic electrical generating facilities are regulated in areas zoned AG-40 as conditional uses. Additionally, public utility and public service structures, including electric transmission and distribution substations, are permitted uses under this zoning designation. These facilities are allowed regardless of whether the land is Prime Farmland or some other designation.

As of 2006, as shown in Table 3.2-2, approximately 16 percent of all land in Kings County has been designated through the FMMP as Prime Farmland, and approximately 78 percent of land in Kings County had FMMP designations of Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, or Grazing Land. Approximately 92 percent of eligible farmland in Kings County (excluding the Naval Air Station Lemoore and the Santa Rosa Rancheria) is under a Williamson Act or Farmland Security Zone Contract (Kings County 2009).
Figure 3.2-1  FMMP Farmland Designations in Project Area
Figure 3.2-2  Williamson Act Contract in Project Area
In 1996, Kings County adopted a Right to Farm Ordinance to protect the rights of commercial farming operations while promoting a “good neighbor” policy between agricultural and other uses in the County. The intent of the ordinance is to protect agricultural uses from conflicting uses that may encroach on agricultural land and to advise non-agricultural developers in the County that certain inconveniences and discomforts associated with agricultural activities (such as noises and odors) could affect the use of their own property (Kings County 1996).

Project Design Features

There are no project design features (PDFs) incorporated into the project design to minimize or avoid impacts on agricultural resources. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

3.2.2 Environmental Impacts and Mitigation Measures

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

LESS THAN SIGNIFICANT IMPACT. As discussed in Chapter 1, the proposed solar use would allow continued use of the project area for agricultural production. As shown in Table 3.2-3, approximately 420 acres of FMMP-designated Prime Farmland on the project area would be temporarily disturbed by the project during the approximately 12-month construction period, including use as work areas during assembly and installation of solar panels. During this period, site grading and other activities associated with the installation of the solar photovoltaic panels would prevent all productive agricultural uses over the area; agricultural potential would be restored after the construction period. Up to 15 percent of the site area (or approximately 63 acres of Prime Farmland) would be devoted for the life of the project to the solar use, while approximately 357 acres of Prime Farmland would retain some ability to be dry farmed for grain crops, silage, grass feed, or other agricultural products. It is anticipated that after installation some dry-land farming can take place between and around rows of solar panels. The land will also be fully available for agricultural use again at the end of the life of the project, estimated to be 25 years.

<table>
<thead>
<tr>
<th>Acres Remaining In Agricultural Production</th>
<th>Acres Permanent Loss, FMMP-Designated Prime Farmland</th>
<th>Acres Temporary Disturbance, FMMP-Designated Prime Farmland</th>
</tr>
</thead>
<tbody>
<tr>
<td>357</td>
<td>63</td>
<td>420</td>
</tr>
</tbody>
</table>

The temporary removal of Prime Farmland on the project area from productive use represents a very small (0.3%) portion, and the long-term removal of Prime Farmland from productive use an even smaller (0.05%) portion, of the total designated Prime Farmland in the affected jurisdiction of Kings County. The total temporary and long-term use of this Prime Farmland for solar development would represent a very small portion of the overall, currently designated Prime Farmland in Kings County, and a substantial portion (approximately 85 percent) of the total project area would remain in agricultural production after project construction. In addition, and as discussed in Section 3.10, Land Use and Planning, the proposed solar facility is considered a compatible use under a Williamson Act contract, per state law and the Kings County General Plan, Zoning Ordinance, and Williamson Act Implementation Procedures. For these reasons, the temporary and long-term use of Prime Farmland on the project area for solar energy production would result in a less than significant impact.
b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

LESS THAN SIGNIFICANT IMPACT. As discussed above under a., and in Section 3.10, “Land Use and Planning,” the proposed solar use would be consistent with the existing AG-40 agricultural zoning designation, and the solar farm and associated elements proposed for the project area would be consistent with Kings County’s Williamson Act Implementation Procedures.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 1220(g)) or timberland (as defined in Public Resources Code section 4526)?

NO IMPACT. No forest or timber land is present in the project area, and no forest or timber land would be affected by the project.

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

NO IMPACT. As discussed above under c., no forest land is present in the project area, and no forest land would be affected by the project.

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

LESS THAN SIGNIFICANT IMPACT. As discussed above under a., the project would result in the long-term use of approximately 63 acres of Prime Farmland on the project area for solar energy development, during the life of the project. Agricultural uses would remain on approximately 85 percent, or 357 acres, of the project area. The co-located solar use is considered compatible with agricultural uses and consistent with the Kings County General Plan AG land use designation and AG-40 zoning designation. Although further solar and other development could take place in Kings County and in the general area of the project, it is unlikely that such development would take place at a scale that would result in significant conversion of farmland to non-agricultural use on a cumulative basis, given the County’s strong agricultural protection policies, particularly with respect to residential development and other development not deemed compatible with agricultural uses. Further solar development of this area could take place, but would not preclude at least the partial use of the same land for agricultural production; in addition, such solar development would be considered a use that is compatible with agricultural use, per Kings County plans, policies, and regulations under both state and local law. For these reasons, this impact would be less than significant, and the impacts to the project area would not be cumulatively considerable with respect to the loss of agricultural land in Kings County or the State of California.

References


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3.3 Air Quality

Table 3.3-1 Air Quality Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Conflict with or obstruct implementation of the applicable air quality plan?</td>
<td>✗</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</td>
<td>✗</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?</td>
<td>✗</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>d. Expose sensitive receptors to substantial pollutant concentrations?</td>
<td>✗</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>e. Create objectionable odors affecting a substantial number of people?</td>
<td>✗</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

3.3.1 Setting

Existing Air Quality

Project activity would be located in Kings County within the San Joaquin Valley Air Basin (SJVAB), which is approximately 250 miles long and averages 35 miles wide, and is the second largest air basin in the state. Air pollution is directly related to a region’s topographic features. According to the San Joaquin Valley Air Pollution Control District (SJVAPCD), the SJVAB is defined by the Sierra Nevada mountains in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation) (SJVAPCD 1998). The valley is basically flat with a slight downward gradient to the northwest. The valley opens to the sea at the Carquinez Straits where the San Joaquin-Sacramento Delta empties into San Francisco Bay. The San Joaquin Valley, thus, could be considered a “bowl” open only to the north.

These topographic features result in weak airflow, which becomes blocked vertically by high barometric pressure over the San Joaquin Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Local climatological effects, including wind speed and direction, temperature, inversion layers, and precipitation and fog can exacerbate the air quality problem in the SJVAB (SJVAPCD 1998)

Criteria Air Pollutants

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for criteria pollutants that are emitted from numerous and diverse sources considered harmful to public health and the environment. Primary NAAQS have been established to protect public health. Secondary NAAQS have been established to protect public welfare, including protection against visibility impairment, damage to animals, crops, vegetation, and buildings.
EPA has set NAAQS for seven criteria pollutants:

- carbon monoxide (CO);
- lead;
- nitrogen dioxide (NO₂);
- ozone;
- particulate matter less than or equal to ten microns in diameter (PM₁₀);
- particulate matter less than or equal to 2.5 microns in diameter (PM₂.₅); and
- sulfur dioxide (SO₂).

Ozone is not emitted directly from emission sources but is created at near-ground level by a chemical reaction between oxides of nitrogen (NOₓ) and reactive organic gases (ROG) in the presence of sunlight. As a result, NOₓ and ROG are often referred to as ozone precursors and are regulated as a means to prevent ground-level ozone formation.

The State of California has also established California Ambient Air Quality Standards (CAAQS) for these criteria pollutants, as well as ambient air quality standards for sulfates, hydrogen sulfide (H₂S), vinyl chloride, and visibility-reducing particles. NAAQS and CAAQS are summarized in Table 3.3-2.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National Ambient Air Quality Standards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ozone</td>
<td>8 Hour</td>
<td>0.075 ppm (147 µg/m³)³³</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>-----b</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>8 Hour</td>
<td>9 ppm (10 mg/m³)</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>35 ppm (40 mg/m³)</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Annual Arithmetic Mean</td>
<td>0.03 ppm (80 µg/m³)</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>24 Hour</td>
<td>0.14 ppm (365 µg/m³)</td>
</tr>
<tr>
<td>PM 10</td>
<td>Annual Arithmetic Mean</td>
<td>-----d</td>
</tr>
<tr>
<td></td>
<td>24 Hour</td>
<td>150 µg/m³</td>
</tr>
<tr>
<td>PM 2.5 (1997 Standard)⁶</td>
<td>Annual Arithmetic Mean</td>
<td>15 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24 Hour</td>
<td>65 µg/m³ (replaced)⁵</td>
</tr>
<tr>
<td>PM 2.5 (2006 Standard)⁷</td>
<td>Annual Arithmetic Mean</td>
<td>15 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24 Hour</td>
<td>35 µg/m³</td>
</tr>
<tr>
<td>Lead⁶</td>
<td>Rolling three-month period, evaluated over a three-year period</td>
<td>0.15 µg/m³</td>
</tr>
<tr>
<td><strong>California Ambient Air Quality Standards</strong>²⁹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ozone</td>
<td>8 Hour</td>
<td>0.070 ppm (137 µg/m³)</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>0.09 ppm (180 µg/m³)</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>8 Hour</td>
<td>9 ppm (10 mg/m³)</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>20 ppm (23 mg/m³)</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Annual Arithmetic Mean</td>
<td>0.030 ppm (56 µg/m³)</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>0.18 ppm (338 µg/m³)</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>24 Hour</td>
<td>0.04 ppm (105 µg/m³)</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>0.25 ppm (655 µg/m³)</td>
</tr>
<tr>
<td>PM 10</td>
<td>Annual Arithmetic Mean</td>
<td>20 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24 Hour</td>
<td>50 µg/m³</td>
</tr>
</tbody>
</table>
EPA compares ambient air criteria pollutant measurements with NAAQS to assess the status of air quality of regions within the states of the United States. Similarly, the California Air Resources Board (CARB) compares air pollutant measurements in California to CAAQS. Based on these comparisons, regions within the states of the United States and California are designated as one of the following categories:

- **Attainment.** A region is designated as attainment if monitoring shows ambient concentrations of a specific pollutant are less than or equal to NAAQS or CAAQS. In addition, areas that have been redesignated from nonattainment to attainment area are classified as a “maintenance area” for a 10-year period to ensure that the air quality improvements are sustained.

- **Nonattainment.** If the NAAQS or CAAQS is exceeded for a pollutant, then the region is designated as nonattainment for that pollutant.

- **Unclassifiable.** An area is designated as unclassifiable if the ambient air monitoring data are incomplete and do not support a designation of attainment or nonattainment.

The air quality designations of the SJVAPCD are summarized in Table 3.3-3 (SJVAPCD 2009).

### Table 3.3-2 National and California Ambient Air Quality Standards

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM 2.5</td>
<td>Annual Arithmetic Mean</td>
<td>12 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24 Hour</td>
<td>None</td>
</tr>
<tr>
<td>Sulfates</td>
<td>24 Hour</td>
<td>25 µg/m³</td>
</tr>
<tr>
<td>Lead</td>
<td>30 Day Average</td>
<td>1.5 µg/m³</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>1 Hour</td>
<td>0.03 ppm (42 µg/m³)</td>
</tr>
<tr>
<td>Vinyl Chloride (chloroethene)</td>
<td>24 Hour</td>
<td>0.010 ppm (26 µg/m³)</td>
</tr>
<tr>
<td>Visibility Reducing particles</td>
<td>8 Hour</td>
<td>see below b</td>
</tr>
</tbody>
</table>

ppm = parts per million  
mmg/m³ = milligrams per cubic meter  
µg/m³ = micrograms per cubic meter

a See [http://epa.gov/air/criteria.html](http://epa.gov/air/criteria.html)  
b 1-Hour ozone standard revoked effective June 15, 2005.  
c The 1997 PM 2.5 standards were replaced by the 2006 PM 2.5 standards, effective December 18, 2006. The 2008 PM 2.5 Plan due to EPA in April 2008 addresses attainment of the 1997 PM 2.5 standards. For this reason, the District continues to list the 1997 24-hour PM 2.5 standard.  
d Annual PM 10 standard revoked effective December 17, 2006.  
e EPA finalized the revised (2008) 8-hour ozone standard of 0.075 ppm on March 27, 2008. The 1997 8-hour ozone standard of 0.08 ppm has not been revoked.  
f On October 15, 2008, EPA strengthened the lead standard.  
g See [http://www.arb.ca.gov/research/aaqs/aaqs2.pdf](http://www.arb.ca.gov/research/aaqs/aaqs2.pdf)  
h Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

The air quality designations of the SJVAPCD are summarized in Table 3.3-3 (SJVAPCD 2009).

### Table 3.3-3 San Joaquin Valley Attainment Status

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Federal Standardsa</th>
<th>State Standardsb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone – 1 Hour</td>
<td>No Federal Standardf</td>
<td>Nonattainment/Severe</td>
</tr>
<tr>
<td>Ozone – 8 Hour</td>
<td>Nonattainment/Seriousg</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>PM 10</td>
<td>Attainmenth</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>PM 2.5</td>
<td>Nonattainmenti</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>Attainment/Unclassified</td>
<td>Attainment/Unclassified</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Attainment/Unclassified</td>
<td>Attainment</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>Attainment/Unclassified</td>
<td>Attainment</td>
</tr>
<tr>
<td>Lead (Particulate)</td>
<td>No Designation/Classification</td>
<td>Attainment</td>
</tr>
</tbody>
</table>
Table 3.3-3  San Joaquin Valley Attainment Status

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Designation/Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Sulfide</td>
<td>No Federal Standard</td>
</tr>
<tr>
<td>Sulfates</td>
<td>No Federal Standard</td>
</tr>
<tr>
<td>Visibility Reducing Particles</td>
<td>No Federal Standard</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>No Federal Standard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Federal Standards</th>
<th>State Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Sulfide</td>
<td>No</td>
<td>Unclassified</td>
</tr>
<tr>
<td>Sulfates</td>
<td>No</td>
<td>Attainment</td>
</tr>
<tr>
<td>Visibility Reducing Particles</td>
<td>No</td>
<td>Unclassified</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>No</td>
<td>Attainment</td>
</tr>
</tbody>
</table>

a See 40 CFR Part 81
b See CCR Title 17 Sections 60200-60210
c On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.
d The Valley is designated nonattainment for the 1997 federal PM2.5 standards. EPA released final designations for the 2006 PM2.5 standards in December 2008 (effective in 2009), designating the Valley as nonattainment for the 2006 PM2.5 standards.
e On April 30, 2007 the Governing Board of the San Joaquin Valley Air Pollution Control District voted to request EPA to reclassify the San Joaquin Valley Air Basin as extreme nonattainment for the federal 8-hour ozone standards. The California Air Resources Board, on June 14, 2007, approved this request. This request must be forwarded to EPA by the California Air Resources Board and would become effective upon EPA final rulemaking after a notice and comment process; it is not yet in effect.
f Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. However, EPA had previously classified the SJVAB as extreme nonattainment for this standard. Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants suspected or known to cause cancer, birth defects, neurological damage, or other-related issues. Except for lead, there are no established ambient air quality standards for TACs. Instead, the compounds are managed on a case-by-case basis depending on the quantity and type of emissions and proximity of potential receptors. Statewide and local programs identify industrial and commercial emitters of TACs and require reduction in these emissions. There are also federal programs that require control of certain categories of TACs. Diesel engines emit a complex mix of pollutants, the most visible of which are very small carbon particles or “soot,” known as diesel particulate matter.

Applicable Regulations, Plans, and Standards

Ambient air quality and air pollutant emissions from stationary and mobile sources are managed under a framework of federal, state, and local rules and regulations.

Federal

The EPA is the principal administrator responsible for overseeing enforcement of CAA statues and regulations. The EPA also oversees implementation of federal programs for permitting new and modified stationary sources, controlling toxic air contaminants, and reducing emissions from motor vehicles and other mobile sources. The sections of the CAA that are most applicable to the project include Title I (Air Pollution Prevention and Control) and Title II (Emission Standards for Mobile Sources).

State

The California Clean Air Act (California CAA) outlines a statewide air pollution control program in California. CARB is the primary administrator of California CAA while local air quality districts administer air rules and regulations at the regional level. CARB is responsible for establishing CAAQS, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and preparing the State Implementation Plan.
Kings County

Local air districts in California are responsible for issuing stationary source air permits, developing emissions inventories, maintaining air quality monitoring stations, and reviewing air quality environmental documents required by CEQA. The California CAA also designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The SJVAPCD is the administrator of air pollution rules and regulations within Kings County.

The SJVAPCD has adopted several attainment plans to achieve state and federal air quality standards to comply with California CAA and federal CAA requirements. The SJVAPCD must continuously monitor its progress in implementing attainment plans and must periodically report to the CARB and the EPA. It must also periodically revise its attainment plans to reflect new conditions and requirements in accordance with schedules mandated by the California CAA and federal CAA. The California CAA requires districts to adopt air quality attainment plans and to review and revise their plans to address deficiencies in interim measures of progress once every three years.

_SJVAPCD Regulation VIII (Fugitive PM10 Prohibitions)_

The purpose of SJVAPCD Regulation VIII (Fugitive PM10 Prohibitions) is to reduce ambient concentrations of PM10 by requiring actions to prevent, reduce or mitigate anthropogenic fugitive dust emissions. Regulation VIII consists of a series of rules designed to address sources of fugitive dust such as travel on unpaved roads, and construction practices. The rule most pertinent to the project is Rule 8021, which covers construction (among other activities) a summary of the control measures is presented below. This regulation also contains requirements for the preparation of a fugitive dust plan for some construction projects. (SJVAPCD 2004a and 2004b)

**Project Design Features**

The applicant has incorporated the following project design features (PDFs) into the project to minimize or avoid impacts on air quality. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

- **PDF AIR-1**: Implement Best Management Practices to Reduce Construction Tailpipe Emissions
- **PDF AIR-2**: Project Design Measures for Construction Fugitive Dust Emissions
- **PDF AIR-3**: Minimize Greenhouse Gas (GHG) Emissions During Construction

**3.3.2 Environmental Impacts and Mitigation Measures**

The project sponsor anticipates that construction of the project would take approximately 8 months to complete. The project elements would be completed in phases: construction of the project subarea known as Sun City would be expected to be completed by the third quarter of 2010; construction of subarea Sand Drag would be expected to be completed by the fourth quarter of 2010. Crews typically work five 10-hour days per week. Construction would be generally divided into 7 phases, some of which would happen concurrently:

1. Site clearing and Grading – During this phase, the site would be prepared by removing miscellaneous debris and grading about 32 acres (mostly for roads, substations, and inverter pads). Only minor clearing and grading would be expected as the site would be relatively flat and clear of large debris.
2. Fence construction – Simultaneous with phase 1, a perimeter fence would be erected for security as detailed in the project description.

3. Pile Installation – This phase would consist of the I-beams/tubular steel posts driven directly into the soil which would support the photovoltaic (PV) arrays (no concrete footings).

4. Trenching – Some of the supporting wires and cables would be entrenched to protect them and allow for continued agricultural use of the project site.

5. Racking Installation – This phase would consist of the assembly of the mounting racks and PV panels that would form the array.

6. Electrical Installation – Once the panels and racks were complete, electrical connections would be laid to connect all panels to the inverters, control building, and substation.

7. Inverter, Substation, and Control Building – the final phase would consist of completion of the buildings that would house the control and monitoring equipment, as well as connecting the array to the electric grid.

Low levels of temporary air pollutant emissions would be generated during the construction phase. Air pollutants would be emitted from engine exhaust of on-site construction equipment and on-road vehicles. On-site earthmoving activities and vehicle travel on local/access roads would also generate fugitive dust. After construction, there would be some minor operational emissions associated with periodic system inspection and maintenance (estimated 0–4 times per year washing of the PV panels). Panel cleaning would entail one or two water trucks, slowly driving through the project and spraying the accumulated dust off of PV panels in order to maintain efficient production of electricity.

Maximum daily and total air pollutant emissions were estimated for each construction phase using the URBEMIS2007 emissions model, published emission factors, and emission factors from EPA’s NONROAD model. The emission estimates reflect a conservative calculation of a project larger than the anticipated final engineering design. A summary of estimated emissions is presented in Table 3.3-4. Full calculations and assumptions are included in Appendix A.

<table>
<thead>
<tr>
<th>Emission Type</th>
<th>Source</th>
<th>ROG</th>
<th>CO</th>
<th>NOx</th>
<th>SO2</th>
<th>PM10</th>
<th>PM2.5</th>
<th>CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Emissions</td>
<td>Non Road Gasoline Equipment</td>
<td>1.7</td>
<td>47</td>
<td>2.3</td>
<td>0.1</td>
<td>0.035</td>
<td>0.035</td>
<td>345</td>
</tr>
<tr>
<td></td>
<td>Non Road Diesel Equipment</td>
<td>0.32</td>
<td>1.88</td>
<td>2.7</td>
<td>0.010</td>
<td>0.13</td>
<td>0.12</td>
<td>312</td>
</tr>
<tr>
<td></td>
<td>On Road Vehicles</td>
<td>0.38</td>
<td>3.2</td>
<td>1.3</td>
<td>0.004</td>
<td>0.06</td>
<td>0.05</td>
<td>395</td>
</tr>
<tr>
<td>Fugitive Dust Emissions</td>
<td>Construction Activities</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.7</td>
<td>0.10</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Roads (Site and Off-Site)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.8</td>
<td>0.30</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2.4</td>
<td>52</td>
<td>6.3</td>
<td>0.09</td>
<td>3.8</td>
<td>0.60</td>
<td>1,052</td>
</tr>
</tbody>
</table>

Table 3.3-4 Summary of Total Construction Emissions

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

LESS THAN SIGNIFICANT: The SJVAPCD’s primary means of implementing air quality plans is by adopting rules and regulations. Construction activities related to the project, as designed, would not conflict with or obstruct implementation of any SJVAPCD air quality plans, rules, or regulations that outline the long-term strategies designed to have regional air quality comply with NAAQS and CAAQS.
The emission inventory, as part of the plan, includes emissions from off-road equipment, such as construction equipment and fugitive dust. The emissions associated with project construction would be temporary and would only represent a very small fraction of the regional emission inventory included in the plan. Thus, project construction emissions are not expected to substantially contribute to the regional emissions. Project construction equipment would also be operated in compliance with applicable local, state, and federal regulations as outlined by the SJVAPCD, including applicable fugitive dust control measures per the Fugitive Dust Control Plan. The Fugitive Dust Control Plan would be submitted to the SJVAPCD prior to the initiation of construction.

Additionally, in 2007, the SJVAPCD adopted a “Fast-Track Action Plan” designed to improve the valley’s air quality sooner than the 2024 federal attainment deadline. The Fast-Track plan includes a comprehensive list of strategies and measures including “energy conservation and alternative energy” which encourage the use of electric, solar, hydrogen fuel cells and other low-emitting sources of energy. This project would further the goals of the Fast-Track plan by installing solar energy capacity within the SJVAPCD.

The project would not emit any significant levels of pollutants during operation as no new stationary sources would be generated. Therefore, no conflicts with the SJVAPCD plans would result from operation of the project. An Indirect Source Review (District Rule 9510) will be filed with the SJVAPCD to determine potential mitigation, if any, for NOx and PM10 emissions.

b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

LESS THAN SIGNIFICANT IMPACT. Emissions generated from construction activities are anticipated to cause temporary increases in ambient air pollutant concentrations. Given that construction activities would be transient and would impact specific locations for only limited durations, long-term impacts would not occur.

The project design incorporates a number of PDFs designed to minimize temporary impacts associated with the construction of the project including PDF-AIR 1, PDF AIR-2, and PDF-AIR 3, which would reduce emissions below SJVAPCD recommended thresholds for determining whether projects have significant adverse air quality impacts as defined by the California Environmental Quality Act (CEQA). The project does not exceed any of the SJVAPCD recommended screening level thresholds for determining whether projects have significant adverse air quality impacts as defined by CEQA. Therefore, a less than significant impact for this criterion would result from construction of the project.

Once operational, the project would not have any direct emissions, other than occasional inspection and maintenance vehicles for panel washing. Panel washing would occur 0–4 times per year with water trucks driving between the panel rows to spray. Operational emissions would be less than significant due to a diminimis increase in emissions from panel cleaning water trucks.

c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

LESS THAN SIGNIFICANT IMPACT. The project would occur in areas that are designated as nonattainment for ozone precursors, PM10, and PM2.5. As indicated above, the short-term impacts are considered to be less than significant with incorporation of PDFs. Implementation of PDFs AIR-1 through
AIR-3 would reduce air pollutant emissions resulting from construction activities, including reductions of emissions of ozone precursors (NO\textsubscript{x} and ROG) and PM\textsubscript{10}.

SJVAPCD has set Significance Screening Thresholds for NO\textsubscript{x} and ROG at 10 tons per year. This threshold applies to both yearly construction emissions as well as yearly operational emissions. The project has been calculated to emit 6.3 tons of NO\textsubscript{x}, and 2.4 tons of ROGs; and emissions are therefore below the threshold of significance.

Emissions of Particulate matter are also well below the applicable SJVAPCD thresholds complying with SJVAPCD Regulation VIII.

Because all project related emissions are below the identified thresholds, the project would therefore have a less than significant impact on air quality. A less than significant cumulatively considerable impact would result from these less than significant emissions.

**d. Would the project expose sensitive receptors to substantial pollutant concentrations?**

*LESS THAN SIGNIFICANT.* There are three residences adjacent to the project site that may experience temporary increases in pollutant concentrations, such as particulate matter during construction. However, due to the low levels of emissions, these are not considered “substantial pollutant concentrations.” Additionally, there are no other sensitive receptors such as schools, day cares, or nursing homes, located in the vicinity of the project. Minimal operational emissions from maintenance vehicles would have a less than significant impact on sensitive receptors.

**e. Would the project create objectionable odors affecting a substantial number of people?**

*NO IMPACT.* The project would not emit any objectionable odors.

**Air Quality References**


3.4 Biological Resources

Table 3.4-1 Biological Resources Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>

3.4.1 Setting

The project is located immediately south of the City of Avenal in Kings County, California. The project area consists exclusively of agricultural land in active cultivation for row crops and livestock grazing and contains some fallow segments. Agricultural fields are bordered by segments of ruderal vegetation. Native plants are sparse and native plant communities are absent. One group of small, ornamental palm trees are located at a farm gate along the western perimeter of the property and 36th Avenue. These are the only trees in the project area. A few small trees occur at some distance outside the project area. The Kettleman Hills border the project area to the east. From these hills, two small ephemeral drainages, Arroyo Mellado and Arroyo Chico, briefly intersect the northeast corner of the project before curving and draining off-site. These drainages only convey water immediately after significant precipitation events. No other water features exist on or near the site. The project slopes gently toward the southeast but contains no significant topography. Agricultural cultivation has left the area relatively flat. The property contains no buildings but is bordered by post and wire fencing. Site access is via 36th Avenue, a dirt road which forms the western border of the property. All access within the site is via dirt roads.
A natural gas pipeline bisects the northeast corner of the property running in a northwest to southeast alignment parallel to Kettleman Hills. No project facilities are planned in the project area northeast of this pipeline alignment. The project’s eastern boundary fence will be located a minimum of 30 feet west of this pipeline centerline, effectively removing this northeast corner of the project area from project impacts.

**Surveys Conducted**

The field component of the biological evaluation was conducted on two separate days. Robert Hansen (along with a biological field assistant) conducted the biological assessment of the property on August 7 and September 21, 2009. During those site visits, Mr. Hansen completed a systematic walking transect survey across all 4 parcels while searching for evidence of kit fox, burrowing owl, and other special status animal and plant species. The biologists also surveyed the entire perimeter of all 4 parcels on foot. Pedestrian survey transects, to look for burrowing owls, burrowing owl burrows, other Special Status animal Species (including kit fox dens and sign and any evidence of blunt-nosed leopard lizard), and Special Status plants were used to cover the entire project site. Walking transects were covered at 100-meter intervals. After reconnoitering the site, Mr. Hansen and his assistant walked transects in such a way that each observer scanned a narrow strip of ground approximately 50 meters on both sides of each transect that they walked. During transect surveys, each biologist searched for natural habitat areas, common plant and animal species, and for any evidence (including dead plants, dens, scats, tracks, prey remains, etc.) of Special Status plant and animal species. Habitat notes and a list of plant and animal species were recorded during these surveys. Complete field results are included in the Biological Technical Report (Appendix B).

**Literature Reviews**

A literature review of readily available public information was completed in July 2009 prior to the biological field survey. Complete field results are included in the Biological Technical Report (Appendix B).

**3.4.2 Environmental Impacts and Mitigation Measures**

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

*LESS THAN SIGNIFICANT IMPACT.* To determine potential impacts on rare, threatened, or endangered plants and animals, “species of concern,” or those listed on non-government “watch” lists (hereafter referred to collectively as “special status species”) a desktop search of databases and other reasonably-attainable information was conducted for the Kettleman Plain U.S. Geological Survey Quadrangle (on which the project would be located), and the surrounding 8 Quadrangles. The search included the California Natural Diversity Database (CNDDB 2009), maintained by the California Department of Fish and Game (CDFG). In addition, a search was conducted of the California Native Plant Society (CNPS), which, in cooperation with the CDFG (under a memorandum of understanding), maintains lists of rare, threatened, or endangered native plants (CNPS 2006). This search resulted in recorded occurrences for 27 special status species, including 9 plants and 18 animals. This list of special status species potentially occurring within the project area was used to plan surveys conducted at the project site.

Pedestrian site field surveys were conducted by Mr. Robert Hansen of Hansen Biological Consulting and an assistant on August 7, 2009 (Hansen 2009; Appendix B). During these surveys, two biologists walked transects across the entire project site using 100 meter intervals between transects. During transect
surveys, each biologist searched for natural habitat areas, common plant and animal species, and for any physical evidence of special status plants or animals. The survey also followed the protocols for an initial habitat assessment for the burrowing owl, a CDFG species of concern. Habitat notes and a list of plant and animal species observed were recorded.

**Special Status Plants**

No habitat for special status plants, protected or sensitive plant communities or other sensitive vegetation occurs on the proposed project site (Hansen 2009; Appendix B). The site has been used for agricultural production of row-crops and cattle grazing for decades. As such, the biological survey noted that there is no land on or adjacent to the project site that supports any undisturbed (i.e., uncultivated) vegetation or any natural plant communities. The list of plant species observed during the survey confirmed this lack of native vegetation and recorded only seven common native plant species.

**Special Status Wildlife**

During transect surveys, two biologists searched for natural habitat areas, common and special status animal species, and for any physical evidence (including skeletal remains, dens, excrement, tracks, prey remains, etc.) of special status wildlife species. Habitat notes and a list of plant and animal species observed were recorded while conducting the pedestrian survey. The site survey resulted in only one observation of the loggerhead shrike, a special status species.

**Loggerhead Shrike**

The loggerhead shrike (Lanius ludovicianus) is a species of concern in California and was observed during the survey. The project site constitutes potential foraging habitat; however, the habitat quality is extremely poor, and the lack of tree and shrub cover on and adjacent to the site do not provide suitable nesting or roosting habitat. Loggerhead shrikes select nest sites in trees or shrubs that provide a high level of cover (Yosef 1996). The only trees in the vicinity are a group of small palm trees at a ranch gate and a line of utility poles along the eastern border of the project at 36th Avenue. Given the poor habitat quality at this site, this species is only expected to forage in the area, and therefore, impacts on this species due to construction of the proposed project would be less than significant.

**Burrowing Owl**

The Western burrowing owl (Athene cunicularia) is a species of concern in California. Burrowing owls may occasionally pass through the project site while migrating or foraging, but the habitat is not suitable for nesting or roosting, given an absence of fossorial mammals and their burrows. No burrowing owl signs, including potential burrows, were observed during the August 2009 field survey. Surrounding lands are also in active cultivation and thus preclude burrowing on surrounding land. Due to the absence of suitable habitat on either the project site or surrounding lands, the species are not expected to den on the site, and the site does not provide intrinsic habitat values unique to the area for nesting burrowing owls. The 1993 Burrowing Owl Survey Protocol concludes that if habitat is not present, more intensive Phase II protocol burrow surveys are not necessary.

Given the lack of burrowing habitat and poor quality foraging habitat, burrowing owls are not expected to occupy the site and would therefore not be impacted by the project; however, to further ensure that impacts to burrowing owls are avoided, MM BIO-1 will be implemented by the project applicant:

**MM BIO-1: Pre-Construction Burrowing Owl Survey.** A pre-construction clearance survey for burrowing owl shall be performed by a qualified biologist, not more than 30 days prior to construction, to ensure avoidance of this species during construction. If burrowing owls are determined to be present, avoidance measures in accordance with the Burrowing Owl Survey...
Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) shall be implemented.

With the implementation of this mitigation measure, this impact would be less than significant.

**Raptors and Nesting Birds Protected under the MBTA**

All species of raptors (i.e., birds of prey, including hawks, eagles, owls, and falcons) and practically all nesting birds that could be encountered on and around the project site are protected under the Migratory Bird Treaty Act (MBTA). Most raptors are unlikely to occur in highly disturbed habitats; however, the Swainson’s hawk (*Buteo swainsoni*) is threatened in California but regularly inhabits and nests in and around agricultural and disturbed habitats when provided suitable trees and appropriate foraging vegetation. Swainson’s hawks and other raptors may use the site for foraging. However, the lack of trees in the vicinity prevents nesting and roosting for any raptor species.

Other nesting birds were not observed during the site survey, but this survey was conducted outside of the typical nesting season for most species. Habitat quality is poor for most nesting bird species. Therefore, it is unlikely that nesting birds would be found onsite even in the proper breeding season; however, special status species and birds protected under the MBTA still may occur in the project area. Implementation of MM BIO-2 would reduce potential impacts to these species to less than significant.

**MM BIO-2: Pre-Construction Nesting Bird Surveys.** Pre-construction surveys for nesting birds shall be conducted by a qualified biologist not more than 30 days prior to commencement of construction. Exclusion areas of 100 feet marked with stakes and colored flagging tape shall be maintained around all active nests until birds have fledged.

**San Joaquin Kit Fox**

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a State threatened and federally endangered species. Although this species was not recorded during the reconnaissance-level biological surveys conducted for the project, the project area is within an important movement corridor for this species (Single 2009). Implementation of MM BIO-3 and MM BIO-4 would reduce potential impacts to San Joaquin kit fox to less than significant.

**MM BIO-3: Wildlife-Friendly Fencing.** The applicant will design wildlife-friendly fencing that shall be installed around the perimeter of the project area. Fence design, such as leaving six inch tall openings in the bottom of the fence, shall allow kit fox and other wildlife to move freely into and out of the site.

**MM BIO-4: San Joaquin Kit Fox Protection Measures.** Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan:

1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled,
they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from the construction/project site.

5. No firearms shall be allowed on the project site.

6. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS.

9. An employee education program should be conducted for the project. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary”disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for advice.
12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

13. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard (Gambelia sila) is a State and federally endangered, State fully protected species. Although this species was not recorded during the reconnaissance-level biological surveys conducted for the project, the species is is known to occur on local Bureau of Land Management properties and may occur near the project area (Single 2009). Because project construction and operation would not disturb the area between the fenced project area and grasslands to the north and east, no significant impacts to this species would occur.

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

NO IMPACT. Construction and operation of the project would have no impact on riparian habitat or other sensitive communities identified in local or regional plans, policies, regulations, or by the CDFG or USFWS. Sensitive habitats include oak woodlands and riparian habitat. Neither these habitat types nor other sensitive habitat types occur onsite. The site is under active agricultural cultivation, which impedes the formation of natural vegetation. The closest water conveying features are segments of two ephemeral streams, Arroyo Mellado and Arroyo Chico, that do not support riparian vegetation. Therefore, construction and operation of the project would have no impact on sensitive natural communities or habitats.

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

NO IMPACT. Construction and operation of the project would have no adverse effects on federal and state protected wetlands as defined by Sections 404 of the Clean Water Act because jurisdictional waters do not occur in the project area. Jurisdictional waters are defined as including two of three parameters including hydrology, hydric soils, and hydrophytic vegetation. The CDFG uses the same parameters to delineate State waters but requires only the presence of hydrophytic vegetation. The August 2009 field survey completed by Hansen’s Biological concluded that no potentially jurisdictional water bodies, drainages, or wetlands occur on or near the project site (Hansen 2009).

The closest water features are segments of two ephemeral (and thus non-jurisdictional) streams, Arroyo Mellado and Arroyo Chico. Both of these streams flow from the Kettleman Hills to intersect the eastern boundary of the project area, but the channel is then directed to curve southeast and east of an existing natural gas pipeline alignment that crosses the northeast corner of the project (Hansen 2009). Because...
project facilities would not be placed east of this pipeline alignment, no project impacts would occur near these ephemeral stream channels.

Available data indicates that there are no federal or state projected waters or wetlands in the project area; therefore, construction and operation of the project would have no adverse impact on federal or state protected wetlands.

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

LESS THAN SIGNIFICANT IMPACT. With the implementation of Mitigation Measures BIO-3 and BIO-4 and as discussed above, construction and operation of the project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or native wildlife nursery sites. The proposed project areas are not in close proximity to conservation areas or wildlife nursery sites. The project area is fenced, under active cultivation for agriculture, does not support water bodies or perennial streams, and includes no natural vegetation. The security fencing planned for the perimeter of the project would include design features to allow kit fox and other wildlife movement in and out of the project area. Potential impacts to migratory fish or wildlife or to wildlife nurseries due to construction and operation of the project would be less than significant.

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

NO IMPACT. Construction and operation of the project would not conflict with any local policies or ordinances protecting biological resources. The local level authority for the project area is detailed in the provisions of the Kings County General Plan. The Counties Resource Conservation and Land Use Elements address the preservation of wetland and oak woodland habitats but do not have specific provisions for any other habitat types. In addition, no specific tree preservation ordinances exist for the project area (Kings County 2009). Activities associated with the operation and maintenance of the proposed facility would have no impact on sensitive biological resources protected by local ordinances.

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

NO IMPACT. Construction and operation of the project would not conflict with any local, regional, or state level habitat conservation plans. Kings County does not have an adopted Habitat Conservation Plan (HCP) as part of its General Plan.

References


Single, Jeffrey. 2009. Regional Manager, California Department of Fish and Game, Central Region. Letter to Chuck Kinney, Kings County Community Development Agency, Re: Conditional Use Permits 09-08 (Sun City) and 09-09 (Sand Drag) Draft Initial Study. January 4.


3.5 Cultural Resources

Table 3.5-1 Cultural Resources Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</td>
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<tr>
<td>d. Disturb any human remains, including those interred outside of formal cemeteries?</td>
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</tbody>
</table>

3.5.1 Setting

Historical Context

The project area is located near the margin of Tulare Lake in San Joaquin Valley, an area occupied by humans for more than 10,000 years (Kings County 2002). Ethnographically, the project area was occupied by the Tachi Yokut Tribe. Historic sites of local importance in Kings County include seven cemeteries and two churches located in Corcoran, Lemoore, Grangeville, and other rural areas in the northern County. Additional sites include the original site of Lemoore and the Avenal Ranch (southwest of the project area) (Kings County 2002).

Paleontological Setting

The project is located in the Kettleman Plain valley region of the San Joaquin Valley Physiographic Province along the base of the western slope of the Kettleman Hills. The Kettleman Hills contain surface exposures of Pliocene (about 4.5 to 2 million year-old) and Pleistocene (about 2 million to 12,000 year-old) fossil-bearing beds (Kings County 2002). The project area lies on quaternary alluvium that overlays the Tulare Formation that contains deposits of marine origin that typically outcrop in the Kettleman Hills valley margins.

Section 3.6, Geology and Soils, discusses the geological setting of the region.

Methods and Findings

**Cultural Resources Records Search and Literature Review**

A records search was conducted on behalf of the applicant at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System (CHRIS) on September 8, 2009, to determine the presence of known historical and archaeological resources in the project area. The CHRIS results indicated that there are no recorded cultural resources within the project area or within a one-mile radius. The CHRIS results also indicated that no cultural resource studies have been conducted within the project area.
**Native American Consultation**

A records search of the Native American Heritage Commission’s (NAHC) Sacred Land Files (SLF) was conducted on behalf of the applicant on September 9, 2009. The SLF search did not indicate the presence of Native American cultural resources in the immediate project area. A letter dated September 16, 2009, (Appendix C) was sent to all Native American contacts provided by the NAHC that may have knowledge of cultural resources in the project area. The letters contained basic project information and requested information about the cultural resources in or near the project area that could be affected by the project. No responses have been received as of November 6, 2009.

**Project Design Features**

The applicant has incorporated the following project design features (PDFs) into the project to minimize or avoid impacts on cultural resources. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

- **PDF CR-1:** Historic and Archaeological Monitoring
- **PDF CR-2:** Historical and Archaeological Resources Consultation
- **PDF CR-3:** Paleontological Resources Consultation
- **PDF CR-4:** Human Remains Consultation

PDFs were developed in compliance with California Public Resources Code 5097.98 and Health & Safety Code Section 7050.5 that provide for provisions for accidentally discovered archaeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a dedicated cemetery.

**3.5.2 Environmental Impacts and Mitigation Measures**

a. **Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?**

**LESS THAN SIGNIFICANT IMPACT.** Ground disturbing activities associated with the construction phase of the project have the potential to impact unknown historical resources. The CHRIS records search results indicated that there are no historical resources in the project area; however, the absence of previous studies in the project area precludes a proper determination of whether historic resources exist. Agricultural activities have disturbed the immediate ground surface; however, intact historical resources may be discovered below the agricultural layer in land subject to grading or other ground disturbing activities.

Implementation of PDF CR-1 would reduce potential impacts to historical resources resulting from subsurface construction disturbance by ensuring personnel would receive cultural resources awareness training. Additionally, PDF CR-1 would reduce potential impacts as work would stop in immediate vicinity if historical resources were discovered during construction.

Implementation of PDF CR-2 would reduce potential impacts to historical resources resulting from subsurface construction disturbance by ensuring a qualified archaeologist would be present for all grading activities exceeding three feet in depth.
b. **Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?**

**LESS THAN SIGNIFICANT IMPACT.** Ground disturbing activities associated with the construction phase of the project have the potential to impact unknown archaeological resources. The CHRIS records search results indicated that there are no archaeological resources in the project area; however, the absence of previous studies in the project area precludes a proper determination of whether archaeological resources exist. Agricultural activities have disturbed the immediate ground surface; however, intact archaeological resources may be discovered below the agricultural layer in land subject to grading or other ground disturbing activities.

Implementation of PDF CR-1 would reduce potential impacts to archaeological resources resulting from subsurface construction disturbance by ensuring personnel would receive cultural resources awareness training. Additionally, PDF CR-1 would reduce potential impacts if archaeological resources were discovered during construction as work in the immediate vicinity of the find would stop if significant resources were found and steps would be taken to avoid or mitigate impacts.

Implementation of PDF CR-2 would reduce potential impacts to archaeological resources resulting from subsurface construction disturbance by ensuring a qualified archaeologist would be present for all grading activities exceeding three feet in depth.

c. **Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

**LESS THAN SIGNIFICANT IMPACT.** Ground disturbing activities associated with the construction phase of the project have the potential to impact unknown paleontological resources. The project would be constructed on several feet of ground surface heavily disturbed by agricultural activities and alluvium overlaying the Tulare Formation. Arnold (1909) identified an important fossiliferous zone in the Tulare foundation called the *Anodonta* zone containing an abundance of freshwater mussels. This zone lies at the base of the Tulare foundation, thousands of feet below the project area; however, buried paleontological resources have the potential to occur within alluvium at shallow depths.

Implementation of PDF CR-3 would reduce potential impacts to paleontological resources discovered as a result of construction activities by ensuring all project personnel receive paleontological resources awareness training and would stop work in the immediate vicinity of the find if paleontological resources were discovered during ground disturbing activities.

d. **Would the project disturb any human remains, including those interred outside of formal cemeteries?**

**LESS THAN SIGNIFICANT IMPACT.** Ground disturbing activities associated with the construction phase of the project have the potential to damage or destroy human remains, including those interred outside of formal cemeteries. Such damage or destruction of human remains would constitute a significant impact under CEQA.

Implementation of PDF CR-4, which stops work in the immediate vicinity of the find if human remains are discovered, would reduce this impact to a less than significant level.
References

3.6 Geology and Soils

Table 3.6-1 Geology and Soils Checklist

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

3.6.1 Setting

The project would be located in Kings County, in the southern section of California’s Great Valley Geomorphic Province. The project area is located on a relatively flat plain along the western flank of the Kettleman Hills. The Great Valley (or Central Valley) is a large, asymmetrical, northwest-trending, structural trough formed between the California Coast Ranges to the west and the Sierra Nevada mountains to the east. The Great Valley is filled with up to six vertical miles of sediment (Norris and Webb 1990) that include marine, alluvial, and lacustrine (lake) deposits. Two of these sedimentary units, the Tulare and San Joaquin Formations, outcrop along the western margin of the Great Valley and form the Kettleman Hills. The project area surface is made up of alluvial sediment that has been eroded from the Kettleman Hills. The San Andreas Fault is the dominant active tectonic feature of the Coast Ranges and represents the boundary of the North American and Pacific plates. Seismic activity is well documented in Kings County and discussed in the following section.
Faulting and Seismicity

The primary hazard due to seismic activity in Kings County would come from ground shaking, the most widespread and damaging effect of an earthquake. The potential for extensive surface rupture is considered to be minimal because no major fault systems are known to exist in Kings County. Minor surface rupture could be expected in areas of minor faulting, primarily in mountainous portions of southwestern Kings County. No known active fault or potentially active fault crosses the project area.

The greatest potential for geologic disaster in Kings County is posed by the San Andreas Fault, which is located approximately four miles west of the Kings County boundary. The Nunez fault is located about 24.5 miles northwest of the project area. The Owens Valley fault group on the east side of the Sierra Nevada and the White Wolf fault to the south of Kings County pose smaller hazards.

Over the past 200 years, Kings County has not experienced any damaging earthquakes equal to or greater than a Mercalli Index (M) 6.0. However, several more significant earthquakes have occurred within close vicinity of the County’s boundary. The largest and most forceful earthquake was the 1857 Fort Tejon earthquake (M 7.9) with an epicenter that occurred in Monterey County, approximately seven miles west of the Kings County boundary in the community of Parkfield. During this event, the San Andreas Fault ruptured for a length of approximately 225 miles between Parkfield and San Bernardino. The largest earthquake in Southern California since the Fort Tejon earthquake was the 1952 Kern County earthquake (M 7.3), which occurred on the White Wolf fault. The epicenter occurred approximately 38 miles southeast of the Kings County boundary near Bakersfield and produced ground shaking felt over 200 miles away. The most recent earthquakes to impact Kings County occurred during the 1980s. The 1982 New Idria earthquake (M 5.4) and the 1983 Coalinga (M 6.5) earthquakes both occurred approximately 20 miles from the western border of Kings County. These two earthquakes were followed by the 1985 Kettleman Hills earthquake (M 6.1) with an epicenter located four miles west of the Kings County border, just north of the City of Avenal. All three of these earthquake incidents produced low level ground shaking and low local magnitude in Kings County (Kings County 2008).

Active faults (e.g., faults recognized by the State of California or Uniform Building Code (UBC)) located within a 25-mile radius of the project area include the San Andreas Fault, located approximately 18 miles west of the project area. The U.S. Geological Survey (USGS) produces seismic hazard maps of peak horizontal acceleration (ground shaking). Peak acceleration is the largest ground acceleration recorded by a particular station during an earthquake (USGS 2004). Seismic hazard maps prepared by the USGS are the basis for the International Building Code seismic design maps that have replaced the 1997 UBC maps. The project area would be subject to seismic hazards because of its proximity to active faults, fault systems, and fault complexes. The project area has a peak ground acceleration of 40 with a 10% probability of exceedance in 50 years (USGS and National Earthquake Information Service 2004).

The danger of secondary natural hazards such as liquefaction, settlement, landslides, and seiches, which result from the interaction of ground shaking with existing ground instabilities, is considered to be minimal for the project area (Kings County 2008). Tsunamis, or tidal waves, are not considered a threat because the Pacific Ocean lies at a considerable distance from Kings County. The danger of seiches and mudflows is also considered low for the project area, due to the great proximal distance to the nearest water bodies. There are no areas within Kings County in which a particular land use should be prohibited because of seismic conditions (Kings County 2008).
Soils

The soils in the project area have been mapped by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), and soils data were available from the Soil Survey Geographic (SSURGO) database (NRCS 2004) for the entire 420 acres of the project area.

The soil associations that occur on the project area are Panoche loam and Wasco sandy loam. These soils are deeply developed on alluvium and are well-drained to moderately well-drained. The surface soils are typically loam, sandy loam, sandy clay and clayey sand with the permeability being moderately slow to moderately rapid. Soil runoff potential is moderate, and the erosion hazard is also moderate. The shrink-swell potential of soils in the project area is considered to be variable, and may range from low to high.

Wind erosion is a problem on the west side of the Central Valley where the project area is located. Loss of topsoil as dust blown into the air contributes to the loss of crops; damage to public health, including the dissemination of spores causing Valley Fever; automobile accidents; and damage to public facilities. Most wind erosion occurs between March and June (Kings County 2008). Soil can be protected from wind erosion by maintaining adequate growing vegetation, depositing crop residues to cover the soil, and maintaining adequate soil moisture from irrigation and tillage to keep the soil stable.

Project Design Features

The applicant has incorporated the following project design features (PDFs) into the project to minimize or avoid impacts on geology and soils. See Section 1.0 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

PDF GEO-1: Geotechnical Investigation
PDF GEO-2: Storm Water Pollution Prevention Plan (SWPPP)

3.6.2 Environmental Impacts and Mitigation Measures

a. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

LESS THAN SIGNIFICANT IMPACT. The project area does not lie within an Alquist-Priolo Earthquake Fault Zone (CDC 2009). The purpose of the Alquist-Priolo Act is to regulate development near active faults to mitigate the hazard of surface rupture. Faults in an Alquist-Priolo Earthquake Fault Zone are typically active faults. The closest mapped fault, the San Andreas Fault, is a right lateral strike slip fault with three sections of the fault located within approximately 18 miles of the project area. Right-lateral strike-slip motion occurs along the San Andreas Fault at an average rate of 2.5 centimeters per year. The San Andreas Fault is divided into several segments in this region. The Parkfield segment is closest to the project area and is capable of a moment magnitude earthquake of 6.5.

The Cholame segment of the San Andreas Fault ruptured in 1857 (Fort Tejon Earthquake) with an estimated Richter magnitude 7.9. The Cholame segment has been assigned a maximum moment magnitude of 7.3, and the northern end of the segment extends to within about 20 miles southwest of
the project area. The Creeping Section portion of the San Andreas Fault is located 22.5 miles from the project area and has been assigned a maximum moment magnitude of 6.2.

The California Building Code (CBC) requires that project structures be designed with adequate strength to withstand the lateral dynamic displacements induced by the Design Basis Ground Motion, which the CBC defines as the earthquake ground motion that has 2 percent chance of being exceeded in 50 years. With the implementation of PDF GEO-1 (site specific geotechnical investigation) and proper geotechnical constraints, the potential impacts caused by the rupture of a known earthquake fault would be less than significant.

ii) **Strong seismic ground shaking?**

**LESS THAN SIGNIFICANT IMPACT.** Seismic activity may cause hazards that can cause damage and loss of life. Such hazards include ground shaking, landslides and rock falls, and surface faulting. The project area is located in a seismically active area given the proximity and number of potential seismic sources. A moderate or large earthquake on the San Andreas Fault could cause strong ground shaking at the project area and potentially damage associated project structures. Design requirements for photovoltaic solar panels, the inverters, transformers, and other electrical equipment and associated infrastructure are generally more stringent than those developed to address strong seismic ground shaking. With the implementation of PDF GEO-1 (site specific geotechnical investigation) and proper geotechnical constraints, potential impacts from strong seismic shaking would be less than significant.

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

**LESS THAN SIGNIFICANT IMPACT.** Severe ground shaking can trigger landslides, cause fissures and cracks to open in the ground, and cause loose, saturated materials to liquefy. Soil liquefaction occurs when increased water pressure results in the loss of friction between grains in a sandy deposit, causing them to lose strength and behave like a thick fluid (i.e., quicksand). Earthquakes are the cause of most documented cases of liquefaction (Dennen et al. 1986). Liquefaction can cause buildings to sink or tilt, slope failures, level ground to shift laterally, and ground cracking (USGS 2008).

Liquefaction appears to be restricted to geologic and hydrologic environments in which layers of loose to medium-dense sands, silts, and sandy soils are found over a high water table (within approximately 32 feet of the surface) (Dennen et al. 1986). The most susceptible soils are generally found along rivers, streams, and lake shorelines, as well as in some ancient river and lake deposits. Ground shaking must also be strong enough to cause susceptible soils to liquefy (USGS 2004).

Because the depth to groundwater at the project area is relatively deep, the potential for liquefaction across the project area is low. Seismic-induced ground failure has the potential to distress, displace, and/or destroy project components. However, use of site-specific seismic data for project design obtained through geotechnical investigation (PDF GEO-1) would reduce potential impacts of liquefaction and other types of seismic ground failure. Therefore, potential impacts caused by strong seismic shaking would be less than significant.

iv) **Landslides?**

**LESS THAN SIGNIFICANT IMPACT.** A landslide is the movement of soil, rock, or other earth material downhill in response to gravity (National Atlas 2009). Several natural events can precipitate landslides, including earthquakes, volcanic eruptions, and most commonly, rainfall or snowmelt. In addition, human activity can also cause landslides. The USGS National Landslide Hazards Program prepared an overview map of landslide incidence and susceptibility by evaluating the geologic map of
the U.S. and classifying the geologic units according to high, medium, or low landslide incidence (number of landslides) and high, medium, or low susceptibility to landslides.

The project area, which is relatively flat with a 0 to 5% slope, is located in an area of low landslide susceptibility (NRCS 2004). Because this area is defined as having low susceptibility to landslides, this impact would be less than significant.

b. Would the project result in substantial soil erosion or the loss of topsoil?

LESS THAN SIGNIFICANT IMPACT. Grading, excavation, removal of vegetation cover, and loading activities associated with construction activities could temporarily increase erosion, runoff, and sedimentation. Construction activities could also result in soil compaction and wind erosion effects that could adversely affect soils and reduce the re-vegetation potential at the construction sites and staging areas. The SWPPP that would be prepared for the project area (PDF GEO-2) will address these impacts and will include details of how sediment and erosion control PDFs would be implemented. In addition, relevant recommendations from the site-specific, design-level geotechnical investigations required under Kings County regulations would also minimize negative effects associated with erosion, runoff, and sedimentation. As a result, potential erosion impacts would be less than significant.

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

LESS THAN SIGNIFICANT IMPACT. The project would be located on near-surface materials that include alluvial silt and clay soils overlying the Tulare and San Joaquin Formations.

The project area, including routes for accessing the parcels in order to install the solar panels, is flat land for the most part, and excavation, grading, and fill operations associated with project construction would be relatively minor.

On- or Off-site Landsliding. As discussed above, the threat of landsliding across the project area and adjacent properties is considered low.

Lateral Spreading. Lateral spreading of the ground surface can occur within liquefiable beds during seismic events. Lateral spreading generally requires an abrupt change in slope—that is, a nearby steep hillside or deeply eroded stream bank, etc.—but can also occur on gentle slopes such as are present at the project site. Other factors such as distance from the epicenter, magnitude of the seismic event, and thickness and depth of liquefiable layers also affect the amount of lateral spreading. Because the project area is not subject to liquefaction, the potential for lateral spreading of the surface during seismic events is negligible.

Liquefaction. As discussed above, the threat of liquefaction is considered minimal across the project area and adjacent properties.

Collapse. No mines, karst topography, or other subsurface features are known to exist beneath the project area or adjacent properties (Kings County 2008). Therefore, the threat of ground subsurface collapse is considered minimal across the area.

With the implementation of PDF GEO-1 (site specific geotechnical investigation) and proper geotechnical constraints, the threat of on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would be less than significant.
d. **Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

*LESS THAN SIGNIFICANT IMPACT.* Soil expansiveness is also known as shrink-swell potential. Soils that contain a high percentage of expansive clay minerals are prone to expansion if subjected to an increase in water content. Expansive soils are usually measured with an index test such as the expansive index potential. In order for a soil to be a candidate for testing, the soil must have high clay content and the clay must have a high shrink-swell potential and a high plasticity index. 

Soils in the project area are expected to consist of a sandy loam, clayey sand, and sandy clay, which could potentially pose an expansive soil concern (NRCS 2004). The project geotechnical study would verify that expansive soils are or are not present, or provide recommendations to mitigate effects, if such soils are found. No change to the existing soil stability conditions, including expansive soil, due to implementation of the project would occur during construction and operation. With the implementation of PDF GEO-1 (site specific geotechnical investigation) and proper geotechnical constraints addressing the construction of above-ground structures, potential impacts would be less than significant.


e. **Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?**

*NO IMPACT.* The project does not involve the construction of septic tanks, the use of existing septic tanks, or an alternative wastewater disposal system during construction or operation; therefore, no impact would occur.

**References**


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3.7 Greenhouse Gas Emissions

Table 3.7-1 Greenhouse Gas Emissions Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

Note:
Significance criteria for GHG taken from Appendix G proposed revisions to the CEQA Guidelines (OPR 2009).

3.7.1 Setting

Climate change refers to any significant change in measures of climate (temperature, precipitation, or wind) that lasts for an extended period (e.g., decades or longer). Climate change may be affected by a number of factors including natural cycles (e.g., changes in the sun’s intensity or Earth’s orbit around the sun); natural processes within the climate system (e.g., changes in ocean circulation); and human activities that change the atmosphere’s composition (e.g., burning fossil fuels) or land surface (e.g., deforestation, reforestation, urbanization, and desertification). As defined in Assembly Bill (AB) 32, “greenhouse gas” or “greenhouse gases” (GHGs) include but are not limited to: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (NOₓ), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF₆). California is a substantial contributor to global GHG emissions as it is the second largest contributor in the U.S. and the sixteenth largest in the world (CARB 2009).

According to the Intergovernmental Panel on Climate Change (IPCC) 3rd assessment report, increased atmospheric levels of CO₂ are correlated with rising temperatures; concentrations of CO₂ have increased by 31 percent above pre-industrial levels since 1750. Climate models show that temperatures will probably...
increase by 1.4°C – 5.8°C between 1990 and 2100. Much of the uncertainty in this increase results from not knowing future CO₂ emissions, but there is also some uncertainty about the accuracy of climate models. Global warming potential (GWP) is a measure of how much a given mass of GHG is estimated to contribute to global warming and is devised to enable comparison of the warming effects of different gases. It is a relative scale which compares the gas in question to that of the same mass of carbon dioxide. Carbon dioxide equivalency (CO₂e) is a quantity that describes, for a given GHG, the amount of CO₂ that would have the same GWP, when measured over a specified timescale (generally, 100 years). The carbon dioxide equivalency for a gas is obtained by multiplying the mass and the GWP of the gas. For example, the GWP for CH₄ over 100 years is 25. This means that the emission of 1 million metric tons of methane is equivalent to the emission of 25 million metric tones of carbon dioxide.

In 2007, the California Senate passed Senate Bill 97, requiring the Governor’s Office of Planning and Research (OPR) to prepare, develop, and transmit guidelines for the feasible mitigation of GHG emissions or their effects, including, but not limited to, effects associated with transportation or energy consumption. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the state California Environmental Quality Act (CEQA) Guidelines for GHG emissions, as required by Senate Bill 97. These proposed CEQA Guideline amendments would provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The Natural Resources Agency is conducting formal rulemaking in 2009, prior to certifying and adopting the amendments, as required by Senate Bill 97 (OPR 2009). The amendments propose the addition of two questions related to GHG impacts in the CEQA Appendix G Checklist. Additional questions related to greenhouse gases have also been proposed that address forest loss, energy conservation, and increased vehicles trips. The guidelines must be certified and adopted by January 1, 2010.

On November 5, 2009, San Joaquin Valley Air Pollution Control District (SJVAPCD) published Final Draft Staff Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA. (SJVAPCD 2009) The proposed Guidance recommends that lead agencies require all new projects with increased GHG emissions to implement performance based standards or otherwise demonstrate that project-specific GHG emissions have been mitigated by at least 29 percent, as compared to business as usual. The SJVAPCD report also suggests a list of all approved Best Performance Standards to help in the determination as to whether a proposed project has reduced its GHG emissions by 29 percent. This Guidance is not applicable to the project because the project does not include any sources of stationary combustion, and the type of development and minor project-related operational vehicle miles travelled do not warrant implementation of Best Performance Standards. This information is included for informational purposes.

**Project Design Features**

The applicant has incorporated the following project design features (PDFs) into the project to minimize or avoid impacts on air quality. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

- **PDF AIR-1:** Implement Best Management Practices to Reduce Construction Tailpipe Emissions
- **PDF AIR-2:** Project Design Measures for Construction Fugitive Dust Emissions
- **PDF AIR-3:** Minimize Greenhouse Gas (GHG) Emissions During Construction
3.7.2 Environmental Impacts and Mitigation Measures

The project sponsor anticipates that construction of the project would take approximately 8 months to complete. The project elements would be completed in phases or concurrently: construction of the subarea of the project known as Sun City is expected to be completed by the third quarter of 2010; construction of the subarea of the project known as Sand Drag is expected to be completed by the fourth quarter of 2010. Crews typically work six 10-hour days per week. Construction is generally divided into 7 phases, some of which would happen concurrently:

1. Site clearing and Grading – During this phase, the site would be prepared by removing miscellaneous debris and grading about 32 acres (mostly for roads, substations, and inverter pads). Only minor clearing and grading would be expected as the site would be relatively flat and clear of large debris.

2. Fence construction – Simultaneous with phase 1, a perimeter fence would be erected for security as detailed in the project description.

3. Pile Installation – This phase would consist of the I-beams/tubular steel posts driven directly into the soil which would support the photovoltaic (PV) arrays (no concrete footings).

4. Trenching – Some of the supporting wires and cables would be entrenched to protect them and allow for continued agricultural use of the project site.

5. Racking Installation – This phase would consist of the assembly of the mounting racks and PV panels that would form the array.

6. Electrical Installation – Once the panels and racks were complete, electrical connections would be laid to connect all panels to the inverters, control building, and substation.

7. Inverter, Substation, and Control Building – the final phase would consist of completion of the buildings that would house the control and monitoring equipment, as well as connecting the array to the electric grid.

Low levels of temporary air pollutant emissions would be generated during the construction phase. Air pollutants would be emitted from engine exhaust of on-site construction equipment and on-road vehicles. On-site earthmoving activities and vehicle travel on local/access roads would also generate fugitive dust. After construction, there would be some minor operational emissions associated with periodic system inspection and maintenance (estimated 0–4 times per year washing of the PV panels). Panel cleaning would entail one or two water trucks, slowly driving through the project and spraying the accumulated dust off of PV panels in order to maintain efficient production of electricity.

Maximum daily and total air pollutant emissions were estimated for each construction phase using the URBEMIS2007 emissions model, published emission factors, and emission factors from EPA’s NONROAD model. A summary of estimated emissions is presented in Table 3.7-2. Full calculations and assumptions are included in Appendix A.
Table 3.7-2  Summary of Total Construction Emissions

<table>
<thead>
<tr>
<th>Emission Type</th>
<th>Source</th>
<th>ROG</th>
<th>CO</th>
<th>NOx</th>
<th>SO₂</th>
<th>PM₁₀</th>
<th>PM₂.₅</th>
<th>CO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Emissions</td>
<td>Non Road Gasoline Equipment</td>
<td>1.7</td>
<td>47</td>
<td>2.3</td>
<td>0.1</td>
<td>0.035</td>
<td>0.035</td>
<td>345</td>
</tr>
<tr>
<td></td>
<td>Non Road Diesel Equipment</td>
<td>0.32</td>
<td>1.88</td>
<td>2.7</td>
<td>0.010</td>
<td>0.13</td>
<td>0.12</td>
<td>312</td>
</tr>
<tr>
<td></td>
<td>On Road Vehicles</td>
<td>0.38</td>
<td>3.2</td>
<td>1.3</td>
<td>0.004</td>
<td>0.06</td>
<td>0.05</td>
<td>395</td>
</tr>
<tr>
<td>Fugitive Dust Emissions</td>
<td>Construction Activities</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.7</td>
<td>0.10</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Roads (Site and Off-Site)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.8</td>
<td>0.30</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2.4</td>
<td>52</td>
<td>6.3</td>
<td>0.09</td>
<td>3.8</td>
<td>0.60</td>
<td>1,052</td>
</tr>
</tbody>
</table>

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

LESS THAN SIGNIFICANT IMPACT. At this time, no mandatory GHG regulations or finalized agency thresholds of significance apply to the project. Although the project would cause a very small short-term increase in GHG emissions, the amount of emissions are negligible (less than 1,500 tones CO₂e). These emissions of GHG result from mobile sources associated with construction equipment. There are no stationary combustion sources associated with the construction or operation of the project. Additionally the project would be a long-term source of clean, renewable energy and as such would contribute towards statewide GHG reduction goals.

As with other individual small projects (e.g., projects that are not within the identified AB 32 mandatory GHG reporting sectors, or other stationary combustion sources that emit more than 25,000 metric tons (MT) CO₂ per year), the emissions increases that would result under the project would not be expected to individually have a significant impact on global climate change.

Construction of the project would result in emissions of GHGs from onsite construction equipment as well as from off-site worker and delivery truck trips as shown in Table 3.3-2. The most common GHGs associated with fuel combustion include CO₂ and CH₄. Over the entire construction phase of the proposed project, approximately 0.001 million metric tons (MMT) CO₂ would be emitted (approximately 1,050 metric tons CO₂ equivalent (MTCO₂e)).

Although construction of the project would cause a small, temporary increase in regional emissions of GHGs, the project would provide an emissions-free source of renewable electricity. Over the course of a year, the project’s estimated yearly average generation of 86 thousand megawatt hours (MWh) of electricity would avoid over 28,000 metric tones of GHGs by replacing grid average emissions associate with generation of electricity in our region. This simplified calculation illustrates the broad Climate Change benefits associated with this renewable energy project.

b. Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

NO IMPACT. The Climate Change Scoping Plan, approved by the CARB December 12, 2008, provides the outline for actions to reduce California’s GHG emissions (CARB 2008). The scoping plan now
requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. At this time, no mandatory GHG regulations or finalized agency guidelines would apply to this project.

On November 5, 2009, the SJVAPCD Governing Board published proposed Final Draft Staff Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA and adopted the Climate Change Action Plan in August 2008 that directs its staff to develop guidance documents for addressing GHG emissions in CEQA documents (SJVAPCD 2009). The proposed Guidance recommends that lead agencies require all new projects with increased GHG emissions to implement performance based standards or otherwise demonstrate that project-specific GHG emissions have been mitigated by at least 29 percent as compared to business as usual. The SJVAPCD guidance includes a list of all approved Best Performance Standards to help in the determination as to whether a proposed project has reduced its GHG emissions by 29 percent. This Guidance is not applicable to the project because the project would not include any sources of stationary combustion, and the type of development and minor project related operational vehicle miles travelled would not warrant implementation of Best Performance Standards.

Until a final document is accepted by the SJVAPCD Board, any other application of the proposed rules would be conjecture and thus has not been included in the analysis. It should be noted that the project would have no associated operational or stationary source GHG emissions other than those generated by infrequent inspection and maintenance; and overall project impacts on Climate Change are in alignment with the policies and regulations adopted for meeting GHG emissions reductions targets in the State of California.

**GHG References**


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3.8 Hazards and Hazardous Materials

Table 3.8-1 Hazards and Hazardous Materials Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>□</td>
</tr>
<tr>
<td>b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>□</td>
</tr>
<tr>
<td>c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>☒</td>
</tr>
<tr>
<td>d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>☒</td>
</tr>
<tr>
<td>e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>☒</td>
</tr>
<tr>
<td>f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>□</td>
</tr>
<tr>
<td>g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>□</td>
</tr>
<tr>
<td>h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?</td>
<td>□</td>
<td>□</td>
<td>☒</td>
<td>□</td>
</tr>
</tbody>
</table>

3.8.1 Setting

The project is located in the southwestern portion of Kings County in a predominantly agricultural area. Land uses within the project area that have the potential to create safety hazards and/or may contain hazardous materials include agricultural uses and some limited residential and industrial uses. The project area is situated between a gas pipeline to the east (shown in Figure 1-4), and a transmission line to the west that will ultimately receive electricity generated by the project.

The project area is located on flat agricultural land at an elevation of approximately 750 feet above mean sea level. Uses in Kings County located within one mile of the project area potentially associated with hazardous materials include agricultural lands, the Avenal State Prison, and the City of Avenal sewage treatment plant.
Hazardous Materials

Hazardous materials are classified as those that include solids, liquids, or gaseous materials that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, could pose a threat to human health or the environment. Hazardous materials are not directly used during solar photovoltaic (PV) system installation and operations but may be used in the manufacture of materials and in the equipment used during their assembly. These materials must be handled and used in accordance with federal and state regulations.

Crystalline and Amorphous Silicon (c-Si). Crystalline and amorphous silicon (c-Si) is a semiconductor used in solar cells to convert solar energy into electricity. Silicon-based solar PV cell production involves many of the same materials and hazards as those used in the microelectronics industry, with the highest toxicity levels found in production and disposal. Though c-Si material poses no significant hazard during the project construction phase, careful consideration should be made for the disposal or reuse of solar PV cells in accordance with applicable local, state, and federal regulations.

Routine Use of Other Materials During Construction and Operation. Relatively small quantities of hazardous and non-hazardous materials would be used during both construction and operation of the project. Hazardous materials and non-hazardous materials of concern that would be used during construction include: gasoline, diesel fuel, motor oil, hydraulic fluids and lubricants, paints, solvents, adhesives, magnesium chloride (as a dust suppressant), and cleaning chemicals. Transformers at the two substations would contain mineral oil for cooling.

Hazardous and non-hazardous wastes that are likely to be generated from project construction and operation include: waste motor oils, used transformers and transformer oil, waste hydraulic fluids, and waste solvents and adhesives. All wastes would be required to be handled, transported, and disposed of according to the appropriate state and federal regulations.

During construction or decommissioning activities, minor spills and leaks of hazardous materials from vehicles or equipment could occur, which could result in exposure to the public. During operation, leaks or spills could occur if the transformers at the substation were damaged from a seismic event, fire, or other unforeseen incident. However, leaks would likely be contained within the walls of the substation.

Hazardous Materials Sites On and Near the Project Area

A review of state and federal environmental databases was conducted to identify those sites known to be associated with releases of hazardous materials or wastes within the project area (California Department of Toxic Substance Control (DTSC) 2009). This research, which covered a one-mile radius centered on the project area, confirmed that the project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. In addition, no sites were listed within 0.5 miles of the project area. The following federal and state databases listed below were reviewed (DTSC 2009):

• **State of California**: HIST Cal-Sites, Bond Expenditure Plan, Cortese List, California SWRCY (list of recycling facilities), California SWF/LF (Landfill facilities), California LUST (leaks of hazardous substances from underground storage tanks), Facility Inventory Database (CA FID UST), Spills, Leaks, Investigations and Cleanups (SLIC), Underground Storage Tank (UST) List and HIST UST (historical UST sites), Aboveground Storage Tank (AST), SWEEPS UST (underground storage tank listing), Voluntary Cleanup Properties (VCP), RESPONSE (confirmed release sites), HAZNET (hazardous waste disposal sites), EMI (toxics and criteria pollutant emissions data), ENVIROSTOR (known or suspected contamination sites), and others.

**Airports**

The project’s proximity to airports near the project area and in Kings County is discussed in Section 3.16, “Transportation/Traffic.” The project would not be located within the influence area of any airports in Kings County (Kings County Board of Supervisors 1994).

**Fire Safety**

The project area is located in an area classified by the California Department of Forestry and Fire Protection (CAL FIRE) as a Local Responsibility Area (LRA, in which local jurisdictions rather than the State are responsible for emergency fire response), and is largely classified as Unzoned, meaning fire hazard severity has not been determined for this area; one small portion of the project area is classified as LRA Moderate, signifying a moderate fire hazard (CAL FIRE 2009). Areas surrounding the project area are classified as LRA High, Moderate, and Unzoned.

The Kings County General Plan describes somewhat sloping areas as at moderate risk for fire, and the more steeply sloped areas in the southwestern County as at extreme fire hazard risk (Kings County 2005). The General Plan also identifies areas of dry vegetation in rural areas of the County as at high fire hazard risk.

As described in Section 1.8, “Description of Project,” interior access to the project area would be provided by a 20-foot-wide perimeter road (measured inward from the property boundary) around the entire project area. This perimeter road would be surfaced with 4 inches of aggregate and would be maintained to provide a fire buffer as well as to facilitate onsite circulation for emergency vehicles. In addition, internal roadways, also approximately 20 feet in width and unsurfaced, would be provided along the north-south access every 310 feet between the east-west running rows of PV panels.

Local fire response would be provided by Kings County Fire Station 12 in the City of Avenal and Fire Station 9 in Kettleman City. Response time from Station 12 in the City of Avenal, is approximately 4 to 5 minutes for the project area; response time from Station 9 to the project area is estimated to be approximately 15 minutes. Fire emergency response to the project area would consist of vehicles with independent water supplies; no fire hydrants are located at the site and no hydrants would be installed at the site as part of the project (Virden 2009a).

**Regulatory Setting**

**California Department of Industrial Relations, Occupational Safety and Health Regulations (Cal/OSHA)**

Worker safety on construction projects is the responsibility of the California Department of Industrial Relations, Occupational Safety and Health Regulations (Cal/OSHA, California Code of Regulations, Title 8). Cal/OSHA establishes requirements for safe working conditions and safety-related reporting in the State, and for electrical safety (Electrical Safety Orders).
National Fire Protection Association (NFPA) 780, National Electrical Code (NEC)
With respect to electrical hazards, a thorough knowledge of the NEC is required to install any electrical power system, including PV systems. The NEC covers the installation of electrical conductors, equipment, and raceways; signaling and communications conductors and equipment and optical fiber cables for public and private premises. The activities of the project may require special permission for the Kings County authority having jurisdiction for the enforcement of this Code. Article 690 of the NEC specifically covers installation and operational requirements for solar PV systems.

Photovoltaic Product Disposal and End-of-life Regulation
Regulation of solar PV products’ end-of-life disposal is based on the federal Resource Conservation and Recovery Act (RCRA) and on the California Hazardous Waste Control Law (HWCL). If solar panels are determined to be hazardous waste by the regulatory authority (Kings County), the requirements of RCRA and HWCL would regulate their handling, recycling, reuse, storage, treatment, and disposal. Decommissioned or defective solar panels are currently considered hazardous waste by regulators if they do not meet the U.S. Environmental Protection Agency (EPA) Toxicity Characteristic Leaching Procedure standards (this determination varies depending on the technology used). Silicon-based panels typically last 20 to 25 years, and proactive recycling can eliminate health and environmental risks of water stream and water contamination for municipalities.

Kings County General Plan, Safety Element
The Kings County General Plan Safety Element consists of five parts: Geologic Hazards, Fire Hazards, Flood Hazards, Hazardous Materials, and Airport Safety. This element contains a comprehensive set of safety goals, objectives, and corresponding policies that are the framework for the determination of acceptable risk, response to disasters, and the development of policies for mitigating the effects of natural or manmade incidents. Geological and Flood Hazards in the region and project area are discussed in Section 3.6, “Geology and Soils,” and Section 3.9, “Hydrology and Water Quality,” of this document. Policies described in the Safety Element are intended to minimize personal injury and property damage.

The following Safety Element Fire Hazard objectives and policies are relevant to the project:

Objective 37.1: Regulate new development to reduce the risk of damage and injury due to fire.

Policy 37a: Refer proposed development and code revisions to the County Fire Department for review and comment.
Policy 38b: Use the Uniform Code for the Abatement of Dangerous Buildings, and the Uniform Housing Code, to further assure safe construction and rehabilitation.

Kings County Fire Department
The Kings County Fire Department requires certain elements for the project area, including installation of a Knox box (containing keys for the project facility) to permit Fire Department entry to the site; prevention of accumulation of combustible vegetation that would create a fire hazard; training by the project applicant of fire personnel of facility operations, hazards, and emergency procedures for shutting down the operation as needed; and installation of an approved security fence to protect and prevent the public from hazards associated with the electrical energy (Virden 2009b). Measures addressing these requirements have been included as project elements, as described in Section 1.8, Description of the Project.
Project Design Features
The applicant has incorporated the following project design feature (PDF) into the project to minimize or avoid impacts related to hazards and hazardous materials. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

**PDF HAZ-1: Fire Prevention Training and Measures**

### 3.8.2 Environmental Impacts and Mitigation Measures

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

**LESS THAN SIGNIFICANT IMPACT.** Hazardous and non-hazardous materials would be used during construction and operations. Any use or disposal of hazardous materials during construction activities will be conducted according to all applicable state, federal and local regulations. The circuitry and inverters of solar panels may contain hazardous materials at levels below those regulated by the State of California or the EPA, and emerging thin-film and nanotechnology-based cells pose unknown health and environmental dangers. To address any concerns that any project materials may result in toxicity, and in order to avoid contributing to the overall waste load on local landfills, the project applicant will recycle or reuse all solar panels after the project is decommissioned.

Other materials of concern that would be used during construction include gasoline, diesel fuel, motor oil, hydraulic fluids and lubricants, paints, solvents, adhesives, and cleaning chemicals. Transformers housed in the substations would contain oil for cooling. The design of the substations would provide containment and/or diversionary structures for equipment to prevent the discharge of oil. As part of regular maintenance, used transformer oil from substations would be pumped into a container. The container would be stored in a sealed area and disposed of by a waste oil recycling company.

Hazardous and non-hazardous wastes that may be generated include waste motor oils, used transformers and transformer oil, waste hydraulic fluids, and waste solvents and adhesives. The applicant or its contractor would follow construction best management practices (BMPs), including use of hazardous and non-hazardous materials according to manufacturer instructions and directions, proper containment and disposal of hazardous wastes at a permitted facility, and a construction personnel training program, to minimize the potential for and effects of spills of hazardous or non-hazardous contaminants during project construction. All hazardous wastes would be handled, transported, and disposed of according to the appropriate state and federal regulations.

During construction or decommissioning activities, minor spills and leaks of hazardous materials from vehicles or equipment could occur, which could result in exposure to the public. During operation, leaks or spills could occur if the transformers at the substations were damaged from a seismic event, fire, or other unforeseen incident. However, leaks would likely be contained within the walls of the substation. The project design, including grading for the area of the substations, would incorporate BMPs to help contain spills. The project applicant would also ensure that measures would be taken to address emergency spills or accidents, in coordination with local authorities as appropriate.

In addition, under PDF GEO-2, as described in Section 3.6, “Geology and Soils,” the applicant would prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). Among other measures, the SWPPP would discuss where hazardous materials may be stored during construction and the protective measures, notifications, and cleanup requirements for any accidental spills or other releases of hazardous materials that would be implemented.
With the implementation of this PDF, and with adherence to and compliance with local, state, and federal regulations addressing hazardous and non-hazardous waste, impacts would be reduced to a less than significant level.

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

LESS THAN SIGNIFICANT IMPACT. Refer to the discussion above, under a. With adherence to and compliance with local, state, and federal regulations addressing hazardous and non-hazardous waste, impacts would be reduced to a less than significant level.

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

NO IMPACT. No schools or proposed schools are located within 0.25 miles of the project area, and there would be no potential for the project to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste in the vicinity of an existing or proposed school; therefore, no impact would occur.

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

NO IMPACT. As discussed above under Setting, a review of state and federal databases confirmed that the project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The project therefore would not create an impact to the public or the environment through siting on a listed hazardous material site.

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

NO IMPACT. The project area is not located within two miles of a public airport or public use airport, nor is the project area within an airport influence area, as designated by the Kings County Airport Land Use Compatibility Plan, as discussed in Section 3.16, “Transportation/Traffic.” Consequently, the project would not result in a safety hazard for people residing or working in the project area as a result of being in the vicinity of an airport land use plan. No impact would occur.

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

NO IMPACT. As discussed in Section 3.16, “Transportation/Traffic,” the project’s proximity to a private airstrip would not result in a safety hazard for people residing or working in the project area. No impact would occur.
g. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

LESS THAN SIGNIFICANT IMPACT. The project would not interfere with implementation of or physically interfere with an adopted emergency response or evacuation plan. Emergency road access would be coordinated through consultation with local Kings County and City of Avenal Emergency Service Providers as part of the project conditions to prevent impacts to access related to construction activities. This impact would therefore be less than significant.

h. Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

LESS THAN SIGNIFICANT IMPACT. The solar facility may increase the potential for additional incidents related to fire and fire safety. With regard to potential fire safety risk, any existing dry weed vegetation in project area would be difficult to manage and control when fire is present. Fire hazards in southwestern Kings County area include those classified as High and Moderate; however, the isolation of the area in terms of vicinity to urban settlement pose a minimal risk to life and property. Use of the land on the project area underneath the solar PV panels would be actively managed to limit the height of combustible vegetation, crops, or silage. As a fire suppression technique, the applicant or its affiliates would also ensure that crops and other vegetation will be trimmed and harvested.

The applicant would construct the project in accordance with state and local standards and submit project designs and plans to the Kings County Fire Department for review and consultation with regards to fire risk and hazards, among other considerations. The applicant has also agreed to construct 20-foot breaker clearances around the east and west sides of the project area adjacent to the transmission and gas lines. The applicant would also consult the CAL FIRE Solar Photovoltaic Installation Guideline (CAL FIRE 2008) for additional consideration of state guidance for solar PV systems to include markings, access, pathways, smoke ventilation, location of DC conductors, and ground mounting.

Though none of the materials used for the permanent portions of the project are considered flammable (e.g., solar panels, anchors, etc.), electrical arcing and sparking from exposed wiring between panels or substation could result in a fire hazard. The applicant would reduce the risk of this impact by maximizing the quantity of connection wiring that would be undergrounded.

In addition to these measures, and the application of PDF HAZ-2, Fire Prevention Training and Measures, impacts related to the exposure of people or structures to wildland fires would be reduced to a less than significant level.

References


Virden, Mike. Kings County Fire Department, Assistant Chief / Fire Marshal. 2009a. Personal communication with Nick Figone, Ecology and Environment, Inc. September 8.

Virden, Mike. Kings County Fire Department, Assistant Chief / Fire Marshal. 2009b. Fire Department Comment Sheet (CUP 08-09 & 09-09). December 23.
3.9 Hydrology and Water Quality

Table 3.9-1 Hydrology and Water Quality Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Violate any water quality standards or waste discharge requirements?</td>
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<td>b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?</td>
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<td>c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?</td>
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<td>d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?</td>
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<tr>
<td>e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</td>
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<tr>
<td>f. Otherwise substantially degrade water quality?</td>
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<td>g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?</td>
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<tr>
<td>h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?</td>
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<td>i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?</td>
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<tr>
<td>j. Inundation by seiche, tsunami, or mudflow?</td>
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3.9.1 Setting

Kings County is composed of mainly level farmland crossed by the California Aqueduct and a number of other irrigation waterways. The project area is located near the City of Avenal along the southwestern flank of the Kettleman Hills. The project area and vicinity are characterized by a dry climate, and the area has no natural surface water except immediately following larger than average rainstorms.
The project area is located in the Tulare Lake Basin, which comprises the drainage area of the San Joaquin Valley south of the San Joaquin River, and covers approximately 10.5 million acres (Central Valley Regional Water Quality Control Board (CVRWQCB) 2004). The Tulare Lake Basin is bounded by the Diablo and Temblor Ranges to the west, the Sierra Nevada Mountains to the east and southeast, and the Tehachapi and San Emigdio Mountains to the south. For management purposes, the Department of Water Resources (DWR) has divided the Tulare Lake Hydrologic Region into 13 groundwater sub-basins. The project area is located in the Westside Groundwater Sub-basin (Westside Sub-basin), which occupies 640,000 acres (DWR 2003).

The aquifer system comprising the Westside Sub-basin consists of unconsolidated continental deposits of Tertiary and Quaternary age. These deposits form an unconfined to semi-confined upper aquifer and a confined lower aquifer, which are separated by the Corcoran Clay (E-Clay) Aquitard, a member of the Tulare Formation. The unconfined to semi-confined aquifer (upper zone) above the Corcoran Clay includes younger alluvium, older alluvium, and part of the Tulare Formation. These deposits consist of highly lenticular, variably mixed combinations of clay, silt, and sand, intercalated with occasional beds of well-sorted fine- to medium-grained sand. The depth to the top of the Corcoran Clay varies from approximately 500 to 850 feet. The confined aquifer (lower zone) consists of the lower part of the Tulare Formation and possibly the uppermost part of the San Joaquin Formation. This unit is also composed of lenticular beds of silty clay, clay, silt, and sand interbedded with occasional strata of well-sorted sand. Brackish or saline water underlies the usable groundwater in the lower zone. Groundwater wells in the Westside Sub-basin have average yields of 1,100 gallons per minute (gpm) (DWR 2003).

Prior to 1968, the San Joaquin Groundwater Basin was in a severe state of overdraft. With the beginning of the Central Valley Project (CVP) water deliveries, groundwater pumping was reduced and the groundwater surface rose steadily until reaching 89 feet above mean sea level in 1987, the highest average elevation of record dating back to the early 1940s. The only exception during this period was the increase in pumping and accompanying drop in the groundwater surface elevation due to the 1977 drought and reduced CVP water supply. During the 1990s, pumped groundwater quantities increased significantly because of the reduced CVP water supplies caused by the extended drought and regulatory actions related to the Central Valley Project Improvement Act, the Endangered Species Act, and measures to protect water quality in the San Francisco Bay/Sacramento Delta region. As a result, groundwater levels declined, resulting in an increase in subsidence in areas of the Central Valley. Portions of the Westside Sub-basin are currently in a state of overdraft (Kinney 2009).

Groundwater quality throughout the Sub-basin is generally suitable for most urban and agricultural uses (DWR 2003), although high salinity levels and the presence of other contaminants, including total dissolved solids, can impair groundwater use on a local level (DWR 2003, CVRWQCB 2004).

Runoff on the project area flows to the south and the southwest, and is received by offsite drainage systems. Several ephemeral and intermittent streams descend the Kettleman Hills to the east of the project area and one, the Arroyo Somero stream, terminates in the project vicinity just northwest of the project area. Portions of the project area (the southwest corner and the eastern edge) lie within a 100-year flood zone.

**Project Water Supply**

The project is estimated to require approximately 2.5 acre feet per year (AFY) (800,000 gallons per year, or the equivalent of approximately 6.5 single-family homes) of water for project operations, which would primarily include solar photovoltaic panel washing. Project construction would require approximately 22 AF, or 7.2 million gallons total, for activities such as dust control and grading compaction.
Water required for project construction would be supplied by one of three sources: either a City of Avenal-owned well located approximately 0.25 miles west of the project area, which was developed to provide non-potable water for dust suppression and general construction activities for projects located within the City boundary; one of two existing wells located on the project site; or a new well to be drilled and installed by the project applicant on the project site. Water for project operation (primarily solar panel washing) would be supplied by either one of the existing on-site wells, or from a new well drilled on the project site. In order to access water from the City of Avenal-owned well, the project applicant would be required to obtain approval by the Avenal City Council (Sopp 2009). The project applicant currently has an agreement with the project area property owner to access and use water from one of the existing wells on the project site. In order to drill a new well in the project area, the project applicant or their designated, licensed well driller contractor would submit an application for a well drilling permit to the Kings County Community Development Department. The Community Development Department approves such permits “over the counter,” or administratively, and no separate planning or Board of Supervisors approval is required (Leist 2009).

The City of Avenal has a contract with the Bureau of Reclamation that allocates 3,500 AFY to the City of Avenal (City of Avenal 2009). Major users of the City of Avenal’s allotment of water include the Avenal State Prison (prison) and the City of Avenal itself. The City of Avenal’s water use is roughly split between the prison and the City. While the City’s use is relatively predictable, the prison’s use is highly variable. The variability in the prison’s demand is directly connected to the substantial variation in the prison population.

**Regulatory Setting**

The Kings County General Plan includes goals, policies and objectives for water resource protection and conservation (Kings County Planning Department 1993). The City of Avenal does not have an adopted Urban Water Management Plan, and there are no water districts or irrigation districts that would have jurisdiction over the project area.

The project area is located within a Special Flood Hazard Zone Area as identified by the Federal Emergency Management Agency (FEMA). The project area is therefore subject to the requirements of the Kings County Code of Ordinances, Chapter 5A, Flood Damage Prevention and FEMA Floodplain Management Ordinance. Pursuant to this ordinance, a Floodplain Development Permit is required to be obtained from the Kings County Community Development Agency for the project.

Under the National Pollutant Discharge Elimination System (NPDES), the applicable Regional Water Quality Control Board (in the case of the proposed project, the CVRWQCB) requires an application under the Construction Activities Storm Water General Permit (Order 99-08-DWQ) for stormwater discharges associated with any construction activity including clearing, grading, and excavation that results in the disturbance of at least one acre of total land area. Since the project would disturb more than one acre, a NPDES permit and a Stormwater Pollution Prevention Plan (SWPPP) would be required. The project applicant would not be required to obtain a Clean Water Act Section 401 authorization or Waste Discharge Requirements from the CVRWQCB for the project (Harvey 2009).

The project may also require a permit or project review by the Central Valley Flood Protection Board.
Project Design Features

The applicant has incorporated the following project design feature (PDF) into the project to minimize or avoid impacts on hydrology and water quality. See Section 1.0 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

PDF GEO-2: Storm Water Pollution Prevention Plan

3.9.2 Environmental Impacts and Mitigation Measures

a. Would the project violate any water quality standards or waste discharge requirements?

LESS THAN SIGNIFICANT IMPACT. Construction activities that would disturb the ground surface, potentially resulting in soil erosion, include site grading (such as grading for new and existing access roads) and driving piles for solar panel supports.

The applicant or its contractor would follow construction best management practices (BMPs) to minimize the potential for and effects of spills of hazardous or non-hazardous contaminants during project construction. In addition, per PDF GEO-2, a SWPPP that describes erosion and sediment control measures would be prepared and implemented for the project. The SWPPP would also include BMPs to control erosion from disturbed areas and reduce runoff. In addition, vegetative cover would be established on the disturbed areas as soon as possible after disturbance.

Impacts related to water quality or waste discharge are not anticipated for operation or maintenance activities associated with the project. Implementation of the SWPPP and construction BMPs would reduce potentially significant impacts associated with construction-related erosion, sedimentation, and introduction of hazardous materials or toxic substances to a less than significant level. Therefore, impacts under this criterion would be less than significant.

b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

LESS THAN SIGNIFICANT IMPACT. Groundwater wells in the Westside Sub-basin are relatively productive, with an average yield of approximately 1,100 gpm, as described above under Setting. Up to 7.2 million gallons for construction could be withdrawn from a City of Avenal-owned well, one of two existing wells on the project area, or a new well drilled on the site for the project. Approximately 800,000 gallons per year of project operation could be withdrawn from one of two existing wells on the project area or a new well drilled on the site for the project. These volumes are relatively minor in terms of the overall regional context for groundwater extraction and use, and average well yields for the area and groundwater quality would support these project uses. This groundwater extraction would not be likely to deplete local groundwater supplies or interfere substantially with groundwater recharge, and therefore, this impact would be less than significant.
c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

LESS THAN SIGNIFICANT IMPACT. No streams or rivers would be affected by project construction. Site grading would be minimal during construction, and much of the land on the project area would be returned to agricultural use after project construction, as described in Section 1.

As described above under a., construction activities that could disturb the ground surface, potentially resulting in soil erosion, include grading, vibration/pile driving for installation of the supports for the solar panels, and construction material laydown. No concrete footings or pads would be installed for the solar panels, but the inverters, transformers, and other electrical equipment would be built on 2-foot concrete foundations. Project construction activities, including but not limited to the construction of the project substations, would increase the total impervious surface at the project area by less than one acre (approximately 40,000 square feet), an amount less than 0.2 percent of the total project area.

Implementation of the BMPs detailed in the SWPPP (per PDF GEO-2), particularly measures addressing erosion control, would minimize the potential for the project to substantially alter the existing drainage pattern in a manner that would result in substantial erosion or siltation on- or off-site.

In addition, Kings County planning and building department staff may require the applicant to prepare a drainage study for the project, and/or include additional drainage elements in the project design, as part of the Conditional Use Permit (CUP) application process. The applicant would comply with County requirements and conditions of the CUP for construction activities, including measures addressing drainage and the requirements of the County Flood Damage Prevention and FEMA Floodplain Management Ordinance (such as obtaining a floodplain development permit, as described above).

With the implementation of PDF GEO-2, impacts under this criterion would be less than significant.

d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

LESS THAN SIGNIFICANT IMPACT. No surface hydrologic features are located on the project area. The ephemeral Arroyo Somero stream lies to the northeast approximately 1,000 feet from the project area. Project construction activities would be set back an appropriate distance from the bed, bank and channel of this stream and any other water features that might be discovered at or near the project area.

As described under a., implementation of the BMPs detailed in the SWPPP (per PDF GEO-2), particularly measures addressing erosion control, would minimize the potential for the project to substantially alter the existing drainage pattern in a manner that would result in flooding on- or off-site. The applicant would comply with Kings County requirements and conditions of the CUP for construction activities, including measures addressing drainage and the requirements of the County Flood Damage Prevention and FEMA Floodplain Management Ordinance (such as obtaining a floodplain development permit, as described above).

With the implementation of this PDF and these measures, impacts under this criterion would be less than significant.
e. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

**LESS THAN SIGNIFICANT IMPACT.** Construction of the project would have a minor effect on surface runoff through the introduction of less than one acre (approximately 40,000 square feet) of permanent impervious surfaces in the project area, an amount less than 0.2 percent of the total project area. Implementation of the SWPPP (per PDF GEO-2) would further minimize impacts from stormwater runoff. BMPs will be employed to address erosion and sediment control to effectively prevent the offsite migration of stormwater.

In addition, Kings County planning and building department staff may require the applicant to prepare a drainage study for the project, and/or include additional drainage elements in the project design, as part of the CUP application process. The applicant would comply with County requirements and conditions of the CUP for construction activities, including measures addressing drainage and the requirements of the County Flood Damage Prevention and FEMA Floodplain Management Ordinance (such as obtaining a floodplain development permit, as described above). With the implementation of these measures, impacts under this criterion would be less than significant.

f. Would the project otherwise substantially degrade water quality?

**LESS THAN SIGNIFICANT IMPACT.** As described above under a., construction activities that would disturb the ground surface, potentially resulting in soil erosion, include grading and pile driving for installation of the supports for the solar panels. In addition, construction activities can introduce hydrocarbons, fluids, lubricants, and other contaminants from construction equipment into the surrounding environment.

With the implementation of the SWPPP (PDF GEO-2), potential impacts associated with erosion, sedimentation, and introduction of hazardous materials or toxic substances would be reduced to a less than significant level. Therefore, impacts under this criterion would be less than significant.

g. Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

**NO IMPACT.** No housing construction is proposed as part of the project. Therefore, construction and operation of the project would result in no impact under this criterion.

h. Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

**LESS THAN SIGNIFICANT IMPACT.** Some portions of the project area would be located within a Federal Emergency Management Agency-designated 100-year floodplain, and some of the solar panels would be installed in these areas. Project elements would be engineered to withstand stresses associated with their proximity to overland flow—for example, the inverters, transformers, and other electrical equipment would be built on 2-foot concrete foundations. The applicant would also comply with Kings County requirements and conditions of the CUP for construction activities, including the requirements of the County Flood Damage Prevention and FEMA Floodplain Management Ordinance, such as obtaining a floodplain development permit, as described above. Therefore, construction and operation of the project would result in a less than significant impact under this criterion.
i. *Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

**LESS THAN SIGNIFICANT IMPACT.** As discussed under h., above, some portions of the project area would be located within a 100-year flood hazard zone and could expose structures to flooding. Project elements would be engineered to withstand stresses associated with their proximity to overland flow—for example, the inverters, transformers, and control rooms shall be constructed to comply with the Kings County Flood Damage Prevention and FEMA Floodplain Management Ordinance. The applicant would also comply with Kings County requirements and conditions of the CUP for construction activities, including measures addressing drainage and construction in the 100-year floodplain. Any impact would therefore be less than significant under this criterion.

j. *Inundation by seiche, tsunami, or mudflow?*

**NO IMPACT.** People or structures would not be exposed to hazards associated with seiche, tsunami, or mudflow since no large bodies of water exist near the project area. The Pacific Ocean is approximately 80 miles from the project area, and separated from Kings County by the barrier of the Coast Range Mountains. No impacts would occur under this criterion.

**References**


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3.10 Land Use and Planning

Table 3.10-1 Land Use and Planning Checklist

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<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant Impact with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
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<td>a. Physically divide an established community?</td>
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<td>b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?</td>
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<tr>
<td>c. Conflict with any applicable habitat conservation plan or natural community conservation plan?</td>
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3.10.1 Setting

The project area is located southeast of the City of Avenal, in southwest unincorporated Kings County, in the southern portion of the Central Valley. This area is characterized by a history of farming, ranching, and oil exploration (Kings County Community Development Agency 2008a). Residential development in the region experienced some growth in past decades since the construction of the Avenal State Prison in 1987, but growth has slowed considerably in the past few years, especially since the onset of national and state economic recessions after 2008.

The project area is located on four parcels totaling approximately 420 acres, southeast of the intersection of 36th Avenue and the Salem Avenue alignment in Kings County. The area is bounded by 36th Avenue and the City of Avenal to the west and by paved and unpaved roads to the north, east, and south. Lands developed with agricultural uses are directly adjacent to the north, south, east, and west. The Avenal State Prison is located approximately 1.5 miles southwest of the project area. The Avenal Sports Complex (which includes soccer and softball fields as well as the Sand Drag strip, an area used for recreational drag racing) is located approximately 0.25 miles west of the project area, at the location of a former airstrip. The Avenal Airport, a small, private airport that is the home of the Central California Soaring Club, a recreational glider organization, is located approximately 1.9 miles to the northwest of the project area. The project area parcels are under private ownership and are currently managed as row crops under dry farming practices, and are also used for cattle grazing. The area is relatively flat and located directly southwest of the Kettleman Hills.

Telecommunication lines would be installed on the project area to connect the project to the local telecommunication system. Project telecommunication lines would be connected to the fiber optic cable located immediately west of and adjacent to the project site along 36th Avenue. The existing local telecommunication network may also require upgrading, as described in Section 1.8, Description of the Project.

Kings County General Plan

The Kings County General Plan land use designation for the project area is General Agriculture (AG). The zoning designation that applies to the project area is AG-40, defined as agricultural land with a (nominal) minimum site area of 40 acres (Kings County Community Development Agency 2008b). Some
industrial uses in the AG land use designation are considered appropriate, “depending on their connection
to agriculture, the potential for conflicts in land use, the scale and adaptability of the service and the
amount of land lost to farming” (Kings County Planning Department 2004). Per the General Plan Land
Use Element, agricultural areas in Kings County “may provide appropriate areas for certain
predominantly open uses of land which are not injurious to agricultural uses but which may not be
harmonious with the more densely populated urban areas and rural communities of the county. Such uses
may include….solar photovoltaic electrical generating facilities, that commercially produce power for
sale…” (Kings County Planning Department 2004). Also per the General Plan, and per the AG-40 zoning
ordinance, solar photovoltaic electrical generating facilities are regulated in areas zoned AG-40 as
conditional uses. Additionally, public utility and public service structures, including electric transmission
and distribution substations, are permitted uses under this zoning designation.

The Kings County General Plan includes goals, policies, and objectives that are relevant in terms of the
project and includes measures addressing the establishment and maintenance of buffers between urban
and agricultural uses; requiring developers to improve all access roads to the nearest County-maintained
road; addressing the provision of adequate industrial areas to promote cost-effective operations and to
create more local employment opportunities with minimal adverse effects; and for maintaining non-urban
and open space uses in agricultural and rural areas in the County (Kings County Planning Department
2004).

The four parcels that make up the project area are classified as Prime Farmland per the State of California
Department of Conservation’s Farmland Mapping and Monitoring Program (FMMP), and are under
California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) contracts
(Kings County 2009).

The project area is located adjacent to the City of Avenal but is not within the City’s 2008 urban fringe
areas (primary or secondary spheres of influence) (Sopp 2009).

Williamson Act

Prior to establishing an agricultural preserve for Williamson Act purposes, a local agency choosing to
participate in the Williamson Act program must adopt rules governing the administration of agricultural
preserves within its jurisdiction (California Code of Regulations § 51231). These rules must include
procedures for initiating, filing, and processing requests to establish agricultural preserves, as well as
procedures for disestablishing, enlarging, or diminishing previously established agricultural preserves. In
addition, for each agricultural preserve so established, the local agency must adopt rules governing those
land uses within the preserve that the agency determines to be compatible with the purposes of the
Williamson Act (i.e., uses that are compatible with the preservation of agricultural, recreational, and open
space land) and, therefore, are authorized to occur within the agricultural preserve.

The Williamson Act also sets forth a list of certain land uses that are deemed to be compatible with the
Williamson Act, notwithstanding the land use limitations that may be included in a local agency’s
compatible use rules, provided that the local agency has not determined otherwise (as discussed below).
Per section 51238(a) of the Williamson Act, “the erection, construction, alteration or maintenance of gas,
electric, water, communication, or agricultural labor housing facilities are hereby determined to be
compatible uses within any agricultural preserve … unless the [local agency] after notice and hearing
makes a finding to the contrary.” In Kings County’s Williamson Act Implementation Procedures, uses
that the County has determined are compatible on land under Williamson Act contracts are listed and
include “public utility and public service structures including electrical transmission and distribution
substations, gas regulator stations, communications equipment buildings, public service pumping stations
and reservoirs” (Kings County Community Development Agency 2009). The project, an electric facility,
is considered a compatible use under these categories.
Kings County Airport Land Use Compatibility Plan

The Kings County Airport Land Use Compatibility Plan addresses the impacts of development in the County on flight safety, both for the Corcoran Airport and Hanford Municipal Airport influence areas, and in terms of countywide impacts on flight safety regardless of whether these impacts occur within an airport influence area (Kings County Board of Supervisors 1994). Potential impacts identified in the plan include land use safety and general concerns related to aircraft overflights. Under this plan, individual development actions that may involve a question of compatibility with airport activities, as determined by the respective local planning agency, are reviewed by that agency (Kings County does not currently have an Airport Land Use Commission).

Project Design Features

There are no project design features (PDFs) incorporated into the project design to minimize or avoid impacts on land use. See Chapter 1 for a complete list and text of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

3.10.2 Environmental Impacts and Mitigation Measures

a. Would the project physically divide an established community?

LESS THAN SIGNIFICANT IMPACT. The project is proposed for an area currently in agricultural production in a region largely characterized by agricultural uses. The land will retain the ability to support agricultural activities such as tilling and harvesting, albeit in a more limited capacity (approximately 85%, or 357 acres, of agricultural uses would remain). The project may be characterized as a relatively low-profile use that is not, per se, agricultural, but one that is compatible with surrounding agricultural uses in terms of height and density of structures, intensity of use, and utilization of transportation and public service infrastructure. This is recognized in Kings County’s Zoning Ordinance language, which specifically identifies solar electrical generating facilities as a use that may be established in agricultural areas, because such a use may not be consistent with undeveloped rural areas nor densely populated urban areas but is not injurious to agricultural uses (Kings County Community Development Agency 2008b). As such, and in light of its location adjacent to the City of Avenal boundary, the solar farm would be consistent with the County’s goals to “prevent the intrusion of urban development into agricultural areas in such a manner as to make agricultural production uneconomical or impractical” (Kings County Planning Department 2004). The project would therefore not establish an inconsistent use in terms of its surroundings and would not represent a division or disruption of an established agricultural use and community.

As described in Chapter 1, “Project Description,” three residences are located within 0.5 miles of the project area, including the residence of the landowner contracting with the developer for the construction of the project. Although the project would introduce a new use into the area, the project would also represent a compatible, relatively low-profile use, and would not result in a disruption to existing circulation infrastructure in the area; therefore, the project would not result in the displacement or disruption of an established residential community.
b. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

LESS THAN SIGNIFICANT IMPACT. As discussed above under a., the project would not establish an inconsistent use in terms of its surroundings, and, as a conditionally permitted use in the AG-40 zone, would not conflict with the Kings County General Plan or Zoning Ordinance.

The four parcels that make up the project area are classified as Prime Farmland per the FMMP and are under active Williamson Act contracts. Agricultural uses would continue on the project area, and the project would not result in significant conversion of the project land from agricultural production, as discussed in Section 3.2, “Agriculture and Forest Resources.” In addition, as discussed in Section 3.2, the use is considered compatible under the Williamson Act as it is implemented in the County. The project would therefore not conflict with the project area’s agricultural use designations.

The project area is located approximately 1.9 miles southeast of the Avenal Airport, which is actively used by recreational glider groups. Per the Kings County Airport Land Use Compatibility Plan, individual development actions that may involve a question of compatibility with airport activities, as determined by the respective local planning agency, are reviewed by that agency. The solar farm would be low-profile, and the material composing the solar panels is not reflective; therefore, the project would not present a significant source of glare that could interfere with gliding activities or the flight activities or patterns of other pilots in the area, and the project would not conflict with the Kings County Airport Land Use Compatibility Plan.

c. Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

LESS THAN SIGNIFICANT IMPACT. The project area would not fall within the planning area for any applicable habitat conservation plans or natural community conservation plans.

References


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3.11 Mineral Resources

Table 3.11-1 Mineral Resources Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

3.11.1 Setting

Kings County has only one surface mining permit for a non-active gravel operation and two agricultural reclamation sites that have been fully reclaimed. Historical local mines that are now closed include an open pit gypsum mine and a mercury mine in southwestern Kings County (Kings County 2009).

Regulatory Setting

Under the California State Surface Mining and Reclamation Act of 1975, Mineral Resource Zones (MRZs) are classified by the State Geologist to classify land according to its level of significance as a mineral resource. MRZs are used to help identify and protect state mineral resources from urban expansion or other irreversible land uses that might preclude mineral extraction. The MRZ categories used to classify land include:

- SZ: Areas containing unique or rare occurrence of rocks, minerals, or fossils that are of outstanding scientific significance.
- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- MRZ-2a: Areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present.
- MRZ-2b: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.
- MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- MRZ-4: Areas where available information is inadequate for assignment to any other MRZ.
In Kings County, the State Geologist has not yet mapped mineral resources (California Department of Conservation (CDC) 2001). No MRZ designations have been identified within the County. The CDC, Division of Mines and Geology, has identified Kings County as a source of gypsum (CDC 2000); however, the only gypsum mine in Kings County is no longer in production.

**Project Design Features**

There are no project design features (PDFs) incorporated into the project design to minimize or avoid impacts on mineral resources. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

**3.11.2 Environmental Impacts and Mitigation Measures**

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

*NO IMPACT.* The proposed project would not result in the loss of availability of a known mineral resource as the project area has not been classified as an MRZ. No known mineral resources occur; therefore, no impact would result from construction and operation of the project.

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

*NO IMPACT.* The proposed project would not result in the loss of availability of a mineral resource recovery site, as the current land use is agriculture. The project is not located within an established MRZ, and no economically viable mineral deposits are known to be present. The project area is in proximity to producing oil and gas fields; however, these are located beneath the structural anticlines of the Kettleman and Gurjaral Hills to the west and northwest. The potential for oil or gas production from beneath the project area is considered to be low (CDC 2001). Oil and gas production in Kings County has diminished over the past 40 years and the trend continues (California Division of Oil, Gas, and Geothermal Resources 2009). Therefore, the proposed project would have no impact under this criterion.

**References**


3.12 Noise

Table 3.12-1 Noise Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

3.12.1 Setting

Community Noise Concepts

Noise is defined as “unwanted sound.” Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound becomes unwanted when it interferes with normal activities, when it causes physical harm, or when it has adverse effects on health.

Noise is measured on a logarithmic scale of sound pressure level known as decibel (dB). There are several ways to measure noise, depending on the source of the noise, the receiver, and the reason for the noise measurement. The most common metric is the overall A-weighted sound level measurement that has been adopted by regulatory bodies worldwide. The A-weighted decibel (dBA) scale measures sound as an approximate to how a person perceives or hears sound, thus, achieving very good correlation in terms of how to evaluate acceptable and unacceptable sound levels.

Human activities cause community noise levels to be widely variable over time. For simplicity, A-weighted sound levels are typically measured or presented as the equivalent sound pressure level ($L_{eq}$), which is defined as the average noise level, on an equal energy basis for a stated period of time, and is commonly used to measure steady state sound or noise that is usually dominant. Sound levels are usually best represented by an equivalent level over a given time period ($L_{eq}$) or by an average level occurring over a 24-hour day-night period ($L_{eq24}$).
During the evening and at night, exterior background noises are generally lower than daytime levels. However, most household noise also decreases at night and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the day-night average sound level (DNL) and community noise equivalent level (CNEL) were developed. The CNEL is a noise index that accounts for the greater annoyance of noise during both the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.). The DNL ($L_{dn}$) is equal to the 24-hour A-weighted equivalent sound level that accounts for the greater annoyance of noise during the nighttime hours (10:00 p.m. to 7:00 a.m.)

Examples of typical sound levels in the environment and industry are shown in Table 3.12-2.

### Table 3.12-2 Typical Sound Levels

<table>
<thead>
<tr>
<th>Sound Source</th>
<th>dB(A)</th>
<th>Response Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier Deck Jet Operation</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jet Takeoff (200 feet)</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Discotheque</td>
<td>130</td>
<td>Painfully Loud Limit Amplified Speech</td>
</tr>
<tr>
<td>Auto Horn (3 feet)</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Riveting Machine</td>
<td>110</td>
<td>Maximum Vocal Effort</td>
</tr>
<tr>
<td>Jet Takeoff (2000 feet)</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>shout (0.5 feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N.Y. Subway Station</td>
<td>90</td>
<td>Very Annoying, Hearing Damage (8 hours, continuous exposure)</td>
</tr>
<tr>
<td>Heavy Truck (50 feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumatic Drill (50 feet)</td>
<td>80</td>
<td>Annoying</td>
</tr>
<tr>
<td>Freight Train (50 feet)</td>
<td>70</td>
<td>Telephone Use Difficult Intrusive</td>
</tr>
<tr>
<td>Freeway Traffic (50 feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Conditioning Unit (20 feet)</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Light Auto Traffic (50 feet)</td>
<td>50</td>
<td>Quiet</td>
</tr>
<tr>
<td>Living Room</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Bedroom</td>
<td>30</td>
<td>Very Quiet</td>
</tr>
<tr>
<td>Library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft Whisper (15 feet)</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Broadcasting Studio</td>
<td>10</td>
<td>Just Audible</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Threshold of Hearing</td>
</tr>
</tbody>
</table>

Source: NYSDEC 2003
The general human response to changes in noise levels that are similar in frequency content (for example, comparing increases in continuous (L_{eq}) traffic noise levels) are summarized as follows:

- A 3-dB change in sound level is considered a barely noticeable difference.
- A 5-dB change in sound level will typically be noticeable.
- A 10-dB change is considered to be a doubling in loudness.

**Regulatory Setting**

*Kings County General Plan Noise Element*

Regulating environmental noise is the responsibility of local governments as outlined in the Kings County General Plan Noise Element. The Kings County General Plan Noise Element lists the following noise exposure allowances for each land use category included in Table 3.12-3 below (Kings County 1993). The allowances are the same for Agricultural, Commercial, and Industrial uses. The project is currently designated as Agricultural, which has a noise allowance up to 70 L_{dn} and the possibility of up to 75 L_{dn} with a conditional use.

<table>
<thead>
<tr>
<th>Land Use Receptors</th>
<th>Exterior Noise Exposure Allowances (in decibels (L_{dn}))</th>
<th>Interior Noise Exposure Allowances (in decibels (L_{dn}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRICULTURAL: Agricultural and Intensive Agricultural Uses</td>
<td>&lt; 70</td>
<td>&lt; 70</td>
</tr>
<tr>
<td></td>
<td>70 – 75</td>
<td>65 – 70</td>
</tr>
<tr>
<td></td>
<td>&gt; 75</td>
<td>&gt; 70</td>
</tr>
<tr>
<td>COMMERCIAL: Retail sales, Office buildings, Professional services, Commercial business</td>
<td>&lt; 70</td>
<td>&lt; 70</td>
</tr>
<tr>
<td></td>
<td>70 – 75</td>
<td>65 – 70</td>
</tr>
<tr>
<td></td>
<td>&gt; 75</td>
<td>&gt; 70</td>
</tr>
<tr>
<td>INDUSTRIAL: Industrial, Manufacturing, Utility, and Waste Disposal Facilities</td>
<td>&lt; 70</td>
<td>&lt; 70</td>
</tr>
<tr>
<td></td>
<td>70 – 75</td>
<td>65 – 70</td>
</tr>
<tr>
<td></td>
<td>&gt; 75</td>
<td>&gt; 70</td>
</tr>
<tr>
<td>INSTITUTIONAL - Noise sensitive: Schools, Hospitals, Nursing homes, Libraries Churches</td>
<td>&lt; 65</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>65 – 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 70</td>
</tr>
<tr>
<td>INSTITUTIONAL – NON-NOISE SENSITIVE: Auditoriums, Theaters</td>
<td>&lt; 70</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td>OUTDOOR ACTIVITIES: Golf courses, Riding stables, Water recreation, Cemeteries</td>
<td>&lt; 70</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td>OUTDOOR RECREATION: Playgrounds, Neighborhood parks</td>
<td>&lt; 70</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td>RECREATIONAL: Outdoor spectator sports activities, Sports arenas/stadiums</td>
<td>&lt; 65</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>65 – 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td>RESIDENTIAL – MULTIPLE FAMILY</td>
<td>&lt; 65</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>65 – 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td>RESIDENTIAL – SINGLE FAMILY</td>
<td>&lt; 60</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>60 – 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 45</td>
</tr>
</tbody>
</table>
Table 3.12-3 Compatibility of Land Uses to Noise Environments

<table>
<thead>
<tr>
<th>Land Use Receptors</th>
<th>Exterior Noise Exposure Allowances (in decibels (L_{dn}))</th>
<th>Interior Noise Exposure Allowances (in decibels (L_{dn}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDENTIAL – RURAL RESIDENTIAL</td>
<td>&lt; 65</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>65 – 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td>TRANSIENT LODGING – MOTELS, HOTELS, RV PARKS,</td>
<td>&lt; 65</td>
<td>&lt; 45</td>
</tr>
<tr>
<td></td>
<td>65 – 70</td>
<td>&gt; 45</td>
</tr>
<tr>
<td></td>
<td>&gt; 70</td>
<td>&gt; 45</td>
</tr>
</tbody>
</table>

Legend

- Acceptable
- Conditionally Acceptable
- Unacceptable
- < Less than
- > Greater than

Note: The above table applies both to encroachment on new land uses by existing noise sources, and to encroachment of new noise sources on existing land uses. When noise is measured in hourly $L_{eq}$, 50 $L_{eq}$ shall be the equivalent standard for 60 $L_{dn}$ or CNEL.

Kings County is in the process of updating their 1993 General Plan, which should be complete by Spring 2010 (Kinney 2009). The Noise Element of the Draft County of Kings 2035 General Plan (2008) recognizes that agricultural uses generate a large range of noises sources that vary according to use and that ambient noise levels also vary widely; and therefore, there are no proposed land use compatibility standards proposed for agriculturally zoned areas in the new draft general plan.

Federal guidance documents also address environmental noise and regulations for specific sources and are summarized in Table 3.12-4 (provided for informational purposes).

Table 3.12-4 Summary of Federal Guidelines/Regulations for Exterior Noise

<table>
<thead>
<tr>
<th>Agency</th>
<th>(dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Energy Regulatory Commissiona</td>
<td>55 $L_{dn}$</td>
</tr>
<tr>
<td>Federal Highway Administrationb</td>
<td>67$L_{eq}$</td>
</tr>
<tr>
<td>U.S. Environmental Protection Agency (EPA 1974)c</td>
<td>55 $L_{dn}$</td>
</tr>
<tr>
<td>U.S. Department of Housing and Urban Developmentd</td>
<td>65 $L_{dn}$</td>
</tr>
</tbody>
</table>

Sources:
- FERC
- FHWA 2006
- EPA 1974
- CFR Title 24 Part 51B

Existing Noise Environment

The project site is located on farmland in a rural area east of the City of Avenal, California, in southwestern Kings County. The ambient noise levels at the project site are mainly the result of weather conditions, farming activities, and traffic. Background noise levels are approximately 40 dBA in rural residential areas and 45 dBA in agricultural cropland with equipment operating (FERC 2002, EPA 1974). The project area is located approximately 1.9 miles from the Avenal Airport, a private use airport that consists of two dirt runways. The airport is used by single engine aircraft.
**Sensitive Receptors**

Noise-sensitive land uses generally are defined as locations where people reside or where the presence of unwanted sound could adversely affect the designated use of the land. Typically, noise-sensitive land uses include homes, hospitals, places of worship, libraries, and schools, as well as nature and wildlife preserves and parks. The nearest sensitive receptor to the project area is a farmhouse located near the site off of 36th Avenue at a distance of approximately 790 feet from the nearest site border. The closest residences in the City of Avenal are located approximately 5,000 feet from the nearest site border. The Tamarac Elementary School is located approximately 5,500 feet from the nearest site border, the Avenal Sports Complex is located approximately 0.25 miles to the west of the project area, and the Avenal State Prison is approximately 1.5 miles southwest of the proposed facilities.

**Noise from Project Construction**

Construction of the project would generate noise due to the use of heavy construction equipment. Table 3.12-5 presents typical construction equipment for this type of project, reference noise levels at 50 feet, associated equipment usage factors, and estimated noise levels at various distances. Maximum noise levels during construction are expected to generally be about 93 dBA at 50 feet. Noise levels decrease by about 6 dBA for each doubling of the distance between the fixed noise source and the receptor. The nearest residence is approximately 790 feet west of the site and may experience a maximum noise level of approximately 70 dBA during project construction. It is expected that the construction would be audible during daytime hours at this receptor for the short duration of construction in the vicinity of this residence. The use of impact/vibratory pile drivers for panel racking construction is anticipated to have the highest dBA value during construction. Pile driving would occur for approximately eight total weeks over the construction phases. General construction activities would be limited to 10 hours on weekdays and Saturday; pile driving construction would be limited to the hours of 8:00 a.m. to 5:00 p.m. on weekdays with no work on weekends (except under exceptional conditions).

**Table 3.12-5 Typical Construction Equipment Noise Levels**

<table>
<thead>
<tr>
<th>Construction Equipment</th>
<th>Quantity</th>
<th>Usage Factor %</th>
<th>SPL @ 50 Feet (dBA)</th>
<th>Adjusted SPL @ 50 Feet (dBA)</th>
<th>SPL @ 250 Feet (dBA)</th>
<th>SPL @ 500 Feet (dBA)</th>
<th>SPL @ 1000 Feet (dBA)</th>
<th>SPL @ 2500 Feet (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backhoe</td>
<td>1</td>
<td>40</td>
<td>80</td>
<td>76</td>
<td>62</td>
<td>56</td>
<td>50</td>
<td>42</td>
</tr>
<tr>
<td>Impact Pile Driver</td>
<td>1</td>
<td>20</td>
<td>95</td>
<td>88</td>
<td>74</td>
<td>68</td>
<td>62</td>
<td>54</td>
</tr>
<tr>
<td>Compressor</td>
<td>1</td>
<td>40</td>
<td>70</td>
<td>66</td>
<td>52</td>
<td>46</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td>Concrete Mixer</td>
<td>1</td>
<td>40</td>
<td>85</td>
<td>81</td>
<td>67</td>
<td>61</td>
<td>55</td>
<td>47</td>
</tr>
<tr>
<td>Concrete Vibrator</td>
<td>1</td>
<td>20</td>
<td>80</td>
<td>73</td>
<td>59</td>
<td>53</td>
<td>47</td>
<td>39</td>
</tr>
<tr>
<td>Dozer</td>
<td>1</td>
<td>40</td>
<td>85</td>
<td>81</td>
<td>67</td>
<td>61</td>
<td>55</td>
<td>47</td>
</tr>
<tr>
<td>Front End Loader</td>
<td>1</td>
<td>40</td>
<td>80</td>
<td>76</td>
<td>62</td>
<td>56</td>
<td>50</td>
<td>42</td>
</tr>
<tr>
<td>Generator</td>
<td>1</td>
<td>50</td>
<td>82</td>
<td>79</td>
<td>65</td>
<td>59</td>
<td>53</td>
<td>45</td>
</tr>
<tr>
<td>Pneumatic Tools</td>
<td>4</td>
<td>50</td>
<td>85</td>
<td>88</td>
<td>74</td>
<td>68</td>
<td>62</td>
<td>54</td>
</tr>
<tr>
<td>Truck (dump, delivery)</td>
<td>1</td>
<td>40</td>
<td>84</td>
<td>80</td>
<td>66</td>
<td>60</td>
<td>54</td>
<td>46</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>93</td>
<td>79</td>
<td>73</td>
<td>67</td>
<td>59</td>
<td></td>
</tr>
</tbody>
</table>

Construction of the proposed project is anticipated to begin in spring 2010 and be completed within 8 months by the end of 2010.
Project Design Features
There are no project design features (PDFs) incorporated into the project design to minimize or avoid impacts on noise. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

3.12.2 Environmental Impacts and Mitigation Measures

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

LESS THAN SIGNIFICANT IMPACT. The nearest residence is approximately 790 feet west of the site and may experience a maximum noise level of approximately 70 dBA during project construction in the vicinity. This noise level is considered conditionally acceptable for outside noise exposure levels for rural residences and for areas zoned as Agricultural as outlined in the 1993 Kings County General Plan Noise Element. It is expected that the construction would be audible for a short duration during daytime hours of project construction in the vicinity of this residence. Due to the fact that this noise exposure is consistent with land use compatibility standards in the 1993 General Plan and that the exposure would be short term in nature, it would not be considered significant. The use of impact/vibratory pile drivers for panel racking construction is anticipated to have the highest dBA value during construction. However, pile driving would only occur for a short duration in proximity to the residence.

Approximately 40 small-scale inverter/distributor transformers would be located within the solar panel fields on the project area. The inverter equipment identified for the project generates low noise emissions (less than 65 dBA at the source). However, noise from fixed sources such as the inverter/distributor transformers decreases at a rate of 6 dBA for every doubling of the distance (not accounting for intervening topography or vegetation, which would further decrease the noise level). In addition, this equipment would be housed in structures approximately 20 feet by 30 feet in size constructed on a level concrete building pad, with non-flammable wall and roof materials (i.e., concrete), which would further reduce any noise emissions to levels below the Kings County standards.

The project includes the operation of two substations, both of which would house 70-kilovolt (kV) transformers. Transformers of this size typically generate noise levels ranging from 45 dBA to 55 dBA at the source. The substations would be located at the southwest corner of the project area boundary approximately 0.5 miles from the nearest resident. The transformer noise levels would decrease to levels less than significant due to sound being dampened by the walls of the substation structure and the distance to the nearest receptors.

The inverter/distributor transformers and substations would operate only during daytime hours when the project is generating power. Therefore, there would be no noise during the evening and nighttime hours when receptors are more sensitive. A less than significant impact during operation would result from the project.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

LESS THAN SIGNIFICANT IMPACT. The project would involve temporary sources of noise that could be perceptible in the immediate vicinity during construction due to operation of heavy equipment and I-beam driving. It is expected that the construction would be audible for a short duration during daytime hours of project construction in the vicinity of the nearby residence. Due to the fact that this noise exposure is consistent with land use compatibility standards in the 1993 General Plan and that the
exposure would be short term in nature, it would not be considered significant. The use of impact/vibratory pile drivers for panel racking construction is anticipated to have the highest dBA value during construction. However, pile driving would only occur for a short duration in proximity to the residence. Therefore, the impact from construction-related groundborne vibration and groundborne noise would be less than significant.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

LESS THAN SIGNIFICANT IMPACT. Approximately 40 small-scale inverter/distributer transformers would be located within the solar panel fields on the project area. The inverter equipment identified for the project generates low noise emissions (less than 65 dBA at the source). However, noise from fixed sources such as the inverter/distributer transformers decreases at a rate of 6 dBA for every doubling of the distance (not accounting for intervening topography or vegetation, which would further decrease the noise level). In addition, this equipment would be housed in structures approximately 20 feet by 30 feet in size constructed on a level concrete building pad, with non-flammable wall materials (i.e., steel) and a metal roof, which would further reduce any noise emissions to less than significant levels.

The project includes the operation of two substations on the project area, each housing a 70-kV transformer. Transformers of this size typically generate noise levels ranging from 45 dBA to 55 dBA at the source. The transformer noise levels would decrease to less than significant levels due to the distance of the transformers from the nearest receptors and the dampening of the sound as it passes through the walls of the substation structures.

In addition, the inverter/distributer transformers and substations would operate only during daytime hours when the project is generating power and background noise is typically greater. Therefore, there would be no noise during the evening and nighttime hours when receptors are more sensitive.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

LESS THAN SIGNIFICANT IMPACT. During construction, the project would involve temporary, localized sources of groundborne vibration and groundborne noise from the operation of heavy equipment and I-beam driving at the project area that could be perceptible in the immediate vicinity of the construction area. The nearest residence is approximately 790 feet west of the site and may experience a maximum noise level of approximately 70 dBA during project construction in the vicinity. This noise level is considered conditionally acceptable for outside noise exposure levels for rural residences and for areas zoned as Agricultural as outlined in the 1993 Kings County General Plan Noise Element. It is expected that the construction would be audible for a short duration during daytime hours of project construction in the vicinity of this residence. Due to the fact that this noise exposure is consistent with land use compatibility standards in the 1993 General Plan and that the exposure would be short term in nature, it would not be considered significant. The use of impact/vibratory pile drivers for panel racking construction would be anticipated to have the highest dBA value during construction. However, pile driving would only occur for a short duration in proximity to the residence.

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

NO IMPACT. There is no public airport located within 2 miles of the project.
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

**NO IMPACT.** The Avenal Airport is located 1.9 miles from the project area. It is a private use airport with limited operations involving single engine aircraft and would contribute little to the noise levels in the vicinity of the project. Therefore, there would be no impact under this criterion.

**References**


3.13 Population and Housing

Table 3.13-1 Population and Housing Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

3.13.1 Setting

Population

The project area is located approximately 5 miles west of Interstate 5 near the City of Avenal, adjacent to State Highway 33 and west of State Highway 269/N. The region and area is presently experiencing population and housing increases as a result of a regional transition from agricultural use to residential and commercial development. As a result, the region has experienced an increasing rate of population growth. The population for Kings County was 129,461 and the population for the City of Avenal was 14,674 in 2000 (U.S. Census 2000). Projections from the California Department of Finance (DOF) forecast that current growth will continue at an increasing rate based on national and state data.

The Kings County regional economy is diversified and based on oil, agriculture, and the service industries (Kings County Planning Department 2004). As the largest single employer in the Avenal area, the Avenal State Prison also contributes to the economic stability of this rural area. Of the 890,784 total acres of agricultural land in the County, 837,667 are zoned as farmland and grazing land, contributing significant cultural and economic value to the local economy (Kings County Department of Agriculture / Measurement Standards 2008). Historical and projected growth of population and housing in this area is summarized below in Table 3.13-2. A 27.1 percent increase in population has been projected for the County for the period between 2000 and 2010, and a 10.1 percent increase in population has been projected for the City of Avenal for the same period. By 2030, the population of Kings County is projected to increase to approximately 250,516. The projected increase in housing needs for the region is expected to correlate to the projected increase in population.
Table 3.13-2 Regional Population Trends

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Kings County</td>
<td>129,461</td>
<td>164,535</td>
<td>35,074</td>
<td>27.1%</td>
<td>205,707</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25.0%</td>
</tr>
<tr>
<td>Avenal</td>
<td>14,674</td>
<td>16,161</td>
<td>1487</td>
<td>10.1%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>


The Kings County General Plan, Housing Element 2003–2008 (Housing Element), includes policies that address housing, employment, and growth management, as well as the adequate provision of resources, facilities, and services (Kings County and Cities of Avenal, Corcoran, Hanford and Lemoore 2004). The Housing Element contains a number of goals and policies to encourage continuous analysis and evaluation of population trends and housing needs to allow for the development of sites and facilities that sustain population growth in the County; encourage development in existing communities; and acknowledge the governmental, environmental, infrastructure, and land use constraints to residential development in the County. Energy conservation opportunities are highlighted in the General Plan as a factor affecting building and population growth, while goals preserving agricultural lands from premature urbanization are also prioritized. The Housing Element includes a framework of goals for the County designed to ensure the preservation and improvement of housing and neighborhoods, promotion of diversity in housing, assistance in the provision of affordable housing, removal or mitigation of constraints to housing investment, and the promotion of equal housing opportunities. These goals and objectives are put into action through the implementation of municipal-level programs.

Policies and goals of the Kings County General Plan (Kings County Planning Department 2004) include those that encourage growth in Kings County to occur in the more urbanized areas of the county, as well as those that encourage preservation of agricultural uses and industries.

The applicant estimates a maximum labor force of 200 construction workers for the full phased construction period of approximately 8 months. The applicant will hire construction workers from the local labor pool at an estimated 30–40 percent. The remainder of the labor force will consist of union labor for specific skills sets, such as electrical tradesmen. Worker relocation and permanent housing options are not expected to be required.

Housing

As of 2009, Kings County has approximately 42,484 total housing units with a vacancy rate of 5.7 percent. Of the total housing units, approximately 77 percent are single-family structures, 7 percent are 2-to 4-unit structures, and the remaining structures are 5-unit or more structures. The City of Avenal has a comparatively higher vacancy rate and a comparatively lower median home value than Kings County, as shown in Table 3.13-3.

Employment

Table 3.13-4 presents U.S. Census information on labor statistics, total employment, and major industry-specific employment in the project area.
Table 3.13-3 Project Area Housing

<table>
<thead>
<tr>
<th>Location</th>
<th>Housing Units, 2000&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Housing Units, 2009&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Units</td>
<td>Vacancy Rates</td>
</tr>
<tr>
<td>Kings County</td>
<td>36,563</td>
<td>5.9%</td>
</tr>
<tr>
<td>City of Avenal</td>
<td>2,061</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

Source: a = U.S. Census 2000, b = DOF 2009

Table 3.13-4 Project Area Employment

<table>
<thead>
<tr>
<th>Location</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Employed</td>
</tr>
<tr>
<td>Kings County</td>
<td>49,044</td>
</tr>
<tr>
<td>City of Avenal</td>
<td>3,368</td>
</tr>
</tbody>
</table>

Source: California Employment Development Department 2009, U.S. Census 2000

Temporary Housing

In 2002, Kings County had twelve hotels available for temporary lodging, of which two are located in the City of Avenal.

Project Design Features

There are no project design features (PDFs) incorporated into the project to minimize or avoid impacts on population and housing. See Chapter 1 for a complete list and texts of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

3.13.2 Environmental Impacts and Mitigation Measures

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

LESS THAN SIGNIFICANT IMPACT. The intent of the project is to increase the availability of renewable resources to the regional energy generation pool and to accommodate existing and planned growth projected for Kings County. The availability of electrical capacity does not normally ensure or encourage growth, and the project would not induce population growth in the region but rather would accommodate projected future growth. Other factors such as economic conditions, population trends, and increased availability of public services like water and sewer have a more direct effect on growth in a region. Consequently, growth is not anticipated to be induced by the project.

Both construction and operation activities associated with the project would be considered short-term and temporary. Construction of the photovoltaic panels, support structures, and electrical interconnection equipment would require up to 200 construction workers over the full phased construction period of approximately 8 months. Construction work is intended to provide short-term employment to the present population base. Project operation would require three to five employees to visit the site for visual inspections and minor repairs up to once daily, and between ten and thirty employees to visit the site up to four times a year for panel washing and larger repairs intermittently; it is not anticipated that local labor would be used for these operational functions. During the construction phase, there may be some need for temporary housing accommodations, but these would be met within the project area. Therefore, construction of the project is not anticipated to induce substantial population growth in the area either directly or indirectly.
As shown in Table 3.13-3, a considerably large construction workforce is available within the project region. Most project construction workers are expected to originate from the regional labor pool and would not generate a permanent increase in population level or result in a decrease in permanent housing availability. Implementation of the project is not expected to result in a significant increase to the local population or housing market and would not indirectly induce growth by creating new opportunities for local industry. Therefore, a less than significant impact would result from construction and operation of the project.

b. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

*NO IMPACT.* Only two residences are located within 0.25 miles of the project area, including the landowner contracting with the developer for construction of the project. The project area would be located on existing parcels of farmland used for agricultural purposes, and project construction would take place entirely within existing and/or acquired rights-of-way. Neither construction nor operation would result in the displacement of existing housing or necessitate the construction of any replacement housing; therefore, no impacts would result under this criterion.

c. Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

*NO IMPACT.* As previously stated, the project would not result in the displacement of any housing or businesses because there are no substantial populations currently located within the project area. Construction and operation of the project would not result in the displacement of people, nor would it necessitate the construction of replacement housing elsewhere; therefore, no impact would result under this criterion.

References


3.14 Public Services

Table 3.14-1 Public Services Checklist

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

3.14.1 Setting

This section discusses public services in the project area, including fire protection, police protection, schools, parks, and other public facilities, which are provided and maintained by local and county entities. The environmental setting and evaluation of impacts to park and recreational facilities are discussed in Section 3.15, “Recreation.” Details related to the various jurisdictions are outlined below.

Fire Protection

The Kings County Fire Department currently operates 12 fire stations, primarily in the rural areas of Kings County, and provides contracted services to the cities of Avenal and Corcoran (Kings County Fire Department 2006a). The project area would be served by Avenal Station 12. Station 12 is located at 516 East Fresno Street in the City of Avenal. The station is manned by one captain and one engineer (Kings County Fire Department 2006b), and is located approximately 1.4 miles northwest of the project area. The Kettleman City station 9 would also provide fire protection to the project. Station 9 is located at 85 Brown Street in Kettleman City.

Police Protection Service

The Kings County Sheriff’s Headquarters are located in the City of Hanford, California, and six police stations are also located throughout Kings County (Kings County Sheriff’s Department 2006). The project would be served by the Avenal Police Substation located at 501 East Kings Street in the City of Avenal. The station is approximately 1.4 miles northwest of the project area.

Schools

The project area is served by the Reef-Sunset Unified School District, which operates the Avenal Elementary School and the Avenal High School. The Avenal Elementary School teaches grades K–5 and is located 1.7 miles from the project area. The Avenal High School teaches grades 9–12 and is located 1.6 miles from the project area.
**Project Design Features**

The applicant has incorporated the following project design feature (PDF) into the project to minimize or avoid impacts on public services. See Chapter 1 for a complete list and text of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

**PDF HAZ-1: Fire Prevention Training and Measures**

### 3.14.2 Environmental Impacts and Mitigation Measures

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

a. **Fire protection?**

*LESS THAN SIGNIFICANT IMPACT.* Construction and operation of the project is not expected to increase the demand for fire protection services in the project area. During construction of the project, emergencies could occur at the project area; however, PDF HAZ-1 has been incorporated into the project for the purposes of fire prevention and suppression.

During project operation, the applicant will continue to implement the fire prevention measures outlined in PDF HAZ-1 and continue to employ a maintenance crew to provide ongoing inspection of the facilities. The maintenance crew will look for any vandalism, safety, security, maintenance, and reliability issues at the project area. The incorporation of PDF HAZ-1 will also reduce the demand for fire emergency services during construction and operation, and this impact would be less than significant.

b. **Police protection?**

*LESS THAN SIGNIFICANT IMPACT.* Construction activities associated with the project are not anticipated to increase the demand for police protection services at the project area. During both the project construction and operation periods, the solar facility and associated components will be fenced and locked to prevent unauthorized entry. The facility will be monitored remotely by the applicant, and a security patrol will also be contracted by the applicant to ensure project security. Should the security system detect the presence of unauthorized personnel, a security representative will be dispatched to the facility, and appropriate local authorities will be notified. Any impact would therefore be less than significant.

b. **Schools?**

*NO IMPACT.* Construction of the project would require up to 200 workers during peak construction activity. These construction personnel would commute from within Kings County and nearby counties and would not create a permanent change in local population. A small, local workforce including security personnel and maintenance technicians would be required during project operation. The use of local or regionally originating labor is anticipated for these positions, which negates the possibility of labor migration. The project would not result in a substantial increase in population during or after construction and therefore would not increase the demand for school services.


d. Parks?

NO IMPACT. Park facilities in the project area are described in Section 3.15, “Recreation.” The project could temporarily increase population in Kings County during project construction causing a temporary increase in demand on existing parks. A small, local workforce including security personnel and maintenance technicians would be required during project operation. The use of local or regionally originating labor is anticipated for these positions, which negates the possibility of labor migration. The project would not result in a substantial increase in population during or after construction and therefore would not increase the demand for parks.

e. Other public facilities?

NO IMPACT. The project would not result in an increase in population during or after construction and therefore would not affect other government services or public facilities.

References


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3.15 Recreation

Table 3.15-1 Recreation Checklist

<table>
<thead>
<tr>
<th>Item</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

3.15.1 Setting

The City of Avenal is home to several recreational facilities and recreational organizations, including the Avenal Sports Complex, Floyd D Rice Park, the Avenal Sand Drags, and the Central California Soaring Club, as described here:

- The Avenal Sports Complex, located 0.25 miles to the west of the proposed project area. The park comprises sports fields, including a soccer field and softball diamond, a sand drag racing strip, and an open grass area (Sopp 2009).
- The Avenal Sand Drags, located 0.25 miles to the west of the project area in the Avenal Sports Complex, is an organization that hosts sand drag racing in the spring and fall of each year (Avenal Sand Drags 2009).
- Floyd D Rice Park, located 1.4 miles to the northwest of the proposed project area, is a community park that is open to the public year-round. The park is comprised of a baseball field, a basketball court, and an open grass area.
- The Central California Soaring Club is an organization of glider enthusiasts from the Central California area. The club’s base of operation is an airstrip located 2.0 miles to the southwest of the proposed project area (Central California Soaring Club 2009).

3.15.2 Plans and Policies

City of Avenal

The City of Avenal has outlined the following objectives regarding recreation (City of Avenal 2005):

- Develop a high quality public park and recreation system that is convenient, accessible, and affordable to all residents and visitors.
- Provide a range of leisure, recreation, and cultural programs and facilities that are accessible and affordable to all segments of the community.
Kings County

Goal 25 of the Kings County General Plan Open Space Element outlines the following objective and policy to maintain the existing County park system (Kings County 1993):

- **Objective 25.1:** Provide parks in locations that are convenient to urban areas and as near as feasible to the Kings River, in order to meet the outdoor recreation needs of the population.

- **Policy 25a:** Apply the “Outdoor Recreation,” “Agriculture,” or “Public/Quasi-Public” land use designation to County parks.

Project Design Features

There are no project design features (PDFs) incorporated into the project design to minimize or avoid impacts on recreational resources. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

3.15.2 Environmental Impacts and Mitigation Measures

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

*LESS THAN SIGNIFICANT IMPACT.* Project construction could temporarily increase the use of existing neighborhood and regional parks or recreational facilities in Kings County as construction will involve up to 200 workers, a small number of whom could potentially relocate to Kings County for the construction period; however, upon completion of project construction, the solar farm will be monitored remotely and maintained by up to five workers under contract to the applicant to perform visual inspections and minor repairs up to once daily. The few number of workers required during operation would not contribute significantly to the use of existing neighborhood and regional parks or other recreational facilities as a result of the project.

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

*NO IMPACT.* The proposed project does not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

References


3.16 Transportation/Traffic

Table 3.16-1 Transportation/Traffic Checklist

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>e. Result in inadequate emergency access?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>f. Result in inadequate parking capacity?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
</tbody>
</table>

3.16-1 Setting

The area of effect for Transportation and Traffic is defined as the immediate project area, an area within a 0.5-mile radius of the project area, and the larger region (including state and interstate highways).

Transportation facilities in the project area and region include Interstate Highway 5 (I-5); State Route (SR) 33; SR 269; local access roads; bus, pedestrian and bicycle routes; and aviation facilities. Approximately 67 miles of rail lines traverse Kings County, including the Amtrak “San Joaquin” corridor route (Kings County 2008b).

Highways and Roads: State and Local Routes

Approximately 1,350 miles of surfaced roads are located in Kings County and are maintained by the State of California, Kings County, and the cities within Kings County (Kings County 2008a). State highways play an important role in the Kings County’s transportation system, and highway traffic in the County is generally composed of farm-to-market, commuter, and business trips.

The project area is located in the vicinity of I-5, a principal interstate highway that serves the high-volume corridors that connect major traffic generators throughout the state of California; SR 33, a minor arterial highway running from Fresno County to 36th Avenue (also known as Avenue 36); SR 269/Avenal Cutoff Road, running between I-5 and SR 33 (Kings County 2007) and 36th Avenue running between SR 33 to the south and Hydril Road in the City of Avenal to the north. The California Department of
Transportation (Caltrans) is the agency responsible for funding and maintaining the State and interstate highway system, including I-5 and SR 33. SR 269/Avenal Cutoff Road is a County-maintained regional route. 36th Avenue is a regional route maintained by the City of Avenal (Kings County 2007).

Access to the project area would be provided via I-5, SR 33, and SR 269, as well as the following collector and secondary roadways: Hydril Road and 36th Avenue.

I-5 is a four-lane freeway traversing 27 miles across the southwestern portion of Kings County. Most of its users are traveling through or out of the county, and this is not an important route of travel for local commuters.

SR 33 runs for 19 miles through the extreme southwestern portion of Kings County in a northwest to southeast direction. Its main importance to Kings County is that it links the City of Avenal with the City of Coalinga in Fresno County.

SR 269/Avenal Cutoff Road runs for 18 miles between the SR 269/I-5 Interchange and SR 198. This route provides direct access between north Kings County, I-5, and the City of Avenal.

Hydril Road is considered a regionally significant urban area road (Kings County 2007) connecting SR 269/Avenal Cutoff to 36th Avenue.

36th Avenue runs through southeastern Avenal just short of SR 33 and bounds the project area to the west; about half of this route is paved, and the other half is a dirt road.

Salem Avenue Alignment The Salem Avenue Alignment, which bounds the project area to the north, exists on paper only, but shows a one-lane road, between 36th Avenue and the Kettleman Hills.

Table 3.16-2 provides roadway descriptions, traffic volume data, and existing levels of service (LOS) information for local and regional roadways that would be used during construction and operation of the project.

Waterways and Railroads
The Kettleman Hills border the project area to the east. From these hills, two small ephemeral drainages, Arroyo Mellado and Arroyo Chico, briefly intersect the northeast corner of the parcel directly northeast of the project area before curving and draining off-site. These drainages only convey water immediately after significant precipitation events. No other water features exist on or near the project area.

The project area does not cross any railroads.

Aviation
The majority of aircraft in Kings County are based at the Hanford Municipal Airport and Corcoran Airport, followed by a number of privately owned airstrips. Most aviation facilities are smaller landing strips used by crop dusters and several are for the sole use of personal aircraft. These facilities range in size from 1,000-foot unnamed and unpaved landing strips, to somewhat larger airfields with asphalt and lighted runways. There is no commercial air passenger service within Kings County (Kings County 2007).
Table 3.16-2 Regional Roadway Characteristics

<table>
<thead>
<tr>
<th>Highway/Roadway</th>
<th>Description</th>
<th>Jurisdiction</th>
<th>Average Daily Traffic Volume (vehicles/day)</th>
<th>Existing Level of Service (LOS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydril Road (State Route 269 to Avenue 36)</td>
<td>2-lane secondary</td>
<td>City of Avenal</td>
<td>NA</td>
<td>Unknown</td>
</tr>
<tr>
<td>36th Avenue (Hydril Road to Salem Avenue)</td>
<td>2-lane collector</td>
<td>City of Avenal</td>
<td>NA</td>
<td>Unknown</td>
</tr>
<tr>
<td>I-5</td>
<td>4-lane interstate highway</td>
<td>Caltrans, District 6/Federal Highway Administration</td>
<td>27,000a</td>
<td>B</td>
</tr>
<tr>
<td>SR-33</td>
<td>2-lane state highway</td>
<td>Caltrans, District 6</td>
<td>3,900b</td>
<td>A</td>
</tr>
<tr>
<td>SR-269</td>
<td>2-lane state highway</td>
<td>Kings County</td>
<td>5,000c</td>
<td>A</td>
</tr>
</tbody>
</table>

Sources: Caltrans 2007, Kings County 2008b, Kings County 2007
Notes:

a Measured at junction with SR 41
b Measured at 7th Avenue interchange
c Measured at Avenal Cutoff

The Avenal airport is located approximately 1.9 miles northwest of the project area, off of SR 33 and adjacent to the City of Avenal. Two planes are based at this private airport as well as several gliders owned by members of the Central California Soaring Club. The Corcoran Airport and Hanford Municipal Airport are located about 38 and 34 miles from the project area, respectively. The Corcoran Airport is a private facility used almost exclusively by agricultural aircraft. The Hanford Municipal Airport is a public-use facility owned and operated by the City of Hanford (Kings County 2007).

Alternate Modes of Transportation

There is a range of alternate modes of transportation in the project area. In addition to rail and air travel, there are local transit services and infrastructure for pedestrians and bicycles.

The Kings Area Rural Transit (KART) system, the primary public transit operator in Kings County, presently uses a fleet of vehicles ranging in size from a 9-passenger van to a 33-passenger bus to provide transit services. Demand/response service is available daily in Avenal. There is daily Hanford-Avenal fixed-route service, along with commuter service from Hanford to Visalia and Hanford to Corcoran State Prison, which also includes a fixed route within Corcoran (Kings County 2007).

Bicycle riding may occur on existing streets as “shared-use” facilities in the City of Avenal. Most bicycle riding within the city occurs by school-age children riding to schools, parks, and shopping centers. Less than one percent of existing workers commute via bicycle. The greatest bicycle usage occurs on residential and collector streets (Kings County 2005). Locations that generate the most bicycle-related travel in the project area are shown in Table 3.15-3.

Table 3.16-3 Bicycle-Related Travel Areas in the Project Area

<table>
<thead>
<tr>
<th>Highway/Roadway</th>
<th>Location</th>
<th>Distance from Projecta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avenal Elementary School</td>
<td>400 S 1st Ave, Avenal</td>
<td>1.69 miles</td>
</tr>
<tr>
<td>Reef (Sunset) Middle School</td>
<td>608 N 1st Ave, Avenal</td>
<td>1.97 miles</td>
</tr>
<tr>
<td>Avenal High School</td>
<td>601 E Mariposa St., Avenal</td>
<td>1.49 miles</td>
</tr>
</tbody>
</table>
**Table 3.16-3 Bicycle-Related Travel Areas in the Project Area**

<table>
<thead>
<tr>
<th>Highway/Roadway</th>
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<th>Distance from Projecta</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Reef (Sunset) Middle School</td>
<td>608 N 1st Ave, Avenal</td>
<td>1.97 miles</td>
</tr>
<tr>
<td>The downtown commercial/civic area</td>
<td>Measured from south Avenal city limits at S Union Ave and E Kern St, Avenal</td>
<td>.88 mile</td>
</tr>
<tr>
<td>The Little League fields (on Monterey/Park)</td>
<td>E Monterey and N Park Ave, Avenal</td>
<td>1.32 miles</td>
</tr>
<tr>
<td>Avenal State Prison</td>
<td>SR 33 and Kings Way, Avenal</td>
<td>1.28 miles (.35 miles)b</td>
</tr>
</tbody>
</table>

Source: Kings County 2005.

- Approximate distance from northwest project boundary
- From SR 33 and Kings Way to southwest project boundary

**Project Design Features**

The applicant has incorporated the following project design features (PDFs) into the project to minimize or avoid impacts on transportation and traffic. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

**PDF TT-1**: Minimize Street Use

**PDF TT-3**: Traffic Control

**3.16.2 Environmental Impacts and Mitigation Measures**

*a. Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?*

**LESS THAN SIGNIFICANT IMPACT.** Traffic resulting from construction activities would be temporary and may occur along area roadways as workers and materials are transported to and from the project area. Approximately 30 construction vehicle trips per day are anticipated to take place during project construction, with up to 3,300 construction vehicle trips total anticipated to take place during the entire construction period. Project components (e.g., photovoltaic (PV) solar panels, support structures, and electrical interconnection equipment) would be brought to the project area and assembled. The project is not expected to cause a significant short-term increase in traffic volumes on area roads, due to the nature and scope of the construction activities required (i.e. limited grading, delivery of pre-constructed panels to the sites, etc.).

Long-term operation of the project would require minimal use of transportation corridors in the area. It is anticipated that maintenance of the facilities at the project area would require the presence of up to five workers to perform visual inspections and minor repairs up to once daily, in addition to workers traveling to the site from 0–4 times per year to clean the PV panels. On intermittent occasions, the presence of ten to thirty workers may be required if repairs or replacement of equipment is required; however, due to the nature of the facilities, such actions are anticipated to be infrequent.

Implementation of PDF TT-1 would ensure that project construction vehicle use is minimized. PDF TT-2 would be implemented in the event project activities could increase the traffic capacity ratio on roads or congestion at intersections, through the implementation of appropriate traffic controls and scheduling planned in accordance with Kings County, the City of Avenal, and Caltrans, as applicable. With the application of these PDFs, these impacts would be less than significant.
b. **Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?**

**LESS THAN SIGNIFICANT IMPACT.** The LOS denotes a road’s efficiency in handling its average and peak-hour demands. LOS evaluations express the effects of road geometrics and traffic volumes on the driver’s speed, safety, convenience, comfort, and economy (Kings County 2007).

**I-5:** I-5 is assigned an LOS of B, indicating the highway maintains a stable flow of traffic and operating speeds and maneuverability is only slightly restricted by traffic and/or road conditions. Vehicle use associated with project construction would not significantly directly or indirectly impact the LOS established for I-5. Use of I-5 would be minimal and intermittent during usual operation of the project.

**SR 33:** SR 33 is assigned an LOS of A, indicating that the highway maintains a free flow of traffic, with low traffic volumes and high speeds and few, if any, restrictions in maneuverability. Vehicles associated with project construction would not have a significant direct or indirect impact on the LOS established for SR 33 during the construction phase, and use of this route would be minimal and intermittent during usual operation of the project.

**SR 269/Avenal Cutoff:** SR 269/Avenal Cutoff is assigned an LOS of A, indicating the highway maintains a free flow of traffic, with low traffic volumes and high speeds and few, if any, restrictions in maneuverability. The project would not significantly directly or indirectly impact the LOS established for SR 269/Avenal Cutoff during the construction phase, and use of this route would be minimal and intermittent during usual operation of the project.

**36th Avenue:** The LOS for 36th Avenue is unknown; however, this route is expected to become a regionally significant route in the Avenal area connecting areas of new growth in the southeastern quadrant of the city, along with Hydril Road and SR 33 (Kings County 2007).

**Hydril Road:** The LOS for Hydril Road is unknown; however, this route is expected to become a regionally significant route in the Avenal area.

Access to the project area would be provided from 36th Avenue, which provides access to the east-west easement that borders the project area along the northern boundary. The easement would provide access to the project area to support construction and operation activities. Interior access to the project area would be provided by a 20-foot-wide perimeter road (measured inward from the property boundary) on all parcels. The perimeter road would be surfaced with 4 inches of aggregate and would be maintained to provide a fire buffer as well as to facilitate onsite circulation for emergency vehicles. In addition, internal roadways, approximately 20 feet in width and unsurfaced, would be provided along the north–south access every 310 feet between the east–west running rows of PV panels.

The LOS levels for 36th Avenue and Hydril Road are unknown; therefore, a determination of whether the project would exceed an established LOS cannot be made and a finding of no impact cannot be established. However, use of these routes by construction vehicles would be temporary and relatively low in number. Use of these routes during normal operation of the project would be minimal and intermittent. It is anticipated that maintenance of the project facilities would require the presence of up to five workers to perform visual inspections and minor repairs up to once daily; in addition, workers accompanied by vehicles would travel to the project area 0–4 times per year to clean the PV panels—these uses of roads in the project area during project operation would essentially result in no change to any LOS, levels of efficiency, or safety for roads in the vicinity of the project area. The presence of ten to
thirty workers, accompanied by vehicles, may be required if repairs or replacement of equipment is required; however, due to the nature of the facilities, such actions are anticipated to be infrequent.

In addition, implementation of PDFs TT-1 and TT-2 would also help ensure the project would not exceed, either individually or cumulatively, an LOS standard established by the county congestion management agency for designated roads or highways. These impacts would therefore be less than significant.

c. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

NO IMPACT. The Avenal airport is located approximately 1.9 miles northwest of the project area; the Corcoran Airport and Hanford Municipal Airport are located approximately 38 and 34 miles from the project area, respectively. Height standards for defining obstructions to air navigation are established by the Federal Aviation Administration (FAA) and are defined in Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace. In order to make a determination whether a project constitutes a hazard to air navigation, FAR Part 77 requires that notice be given to the FAA if any kind of proposed construction or alteration is (1) more than 200 feet in height above the ground level at its site or (2) of a greater height than an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from all edges of the runway surface if the runway is more than 3,200 feet in length.

The project is not located in the vicinity of an airport influence area identified by Kings County or the City of Avenal; in addition, the project would not include design elements that would exceed the height standards established by the FAA.

The project would not impact any nearby or regional airports and would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks, and the project would therefore result in no impact.

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

NO IMPACT. The project does not include design features that would increase hazards or incompatible uses, because it would not include the construction of any streets or roads beyond access roads that would be included on the project area, and site construction and operation vehicles would be consistent with agricultural and other vehicles currently using roads affected by the project; therefore, no impact would result.

e. Would the project result in inadequate emergency access?

LESS THAN SIGNIFICANT IMPACT. The Public Safety Element of the Kings County General Plan (1993) identifies two primary evacuation routes, I-5 and State Highway 41; and one secondary evacuation route, SR 33, in the vicinity of the project area. The project area is located approximately 5 miles from Interstate 5 and can be accessed by traveling west on State Hwy 369/N and then southwards following 36th Avenue. The project is located within the 5-mile service area served by the Avenal Fire Department (Kings County 1993) located at 516 E Fresno Street in Avenal, approximately one mile northwest of the project area north of SR 269.

Access to the interior of the project area would be provided by a 20-foot-wide perimeter road (measured inward from the property boundary) on all parcels. The perimeter road would be surfaced with 4 inches of aggregate and would be maintained to provide a fire buffer as well as to facilitate onsite circulation for
emergency vehicles. In addition, internal roadways, approximately 20 feet in width and unsurfaced, would be provided along the north–south access areas every 310 feet between the east–west running rows of PV panels.

Implementation of PDF TT-1 would ensure that Kings County and the City of Avenal are provided with advance notice of all project activities that would involve the use of roads outside the project area. With the implementation of this PDF, any impacts would be reduced to a less than significant level.

f. Would the project result in inadequate parking capacity?

_NO IMPACT._ The project area would include parking areas to accommodate project construction and operation vehicles; roads in the project area interior would provide additional parking areas to support construction. Additional staging and vehicle parking would be located at the southern terminus of the northern access road for the initial phases of the project. This area would be covered with panels near the conclusion of construction. Parking of construction or project operation vehicles outside the project area would not occur; therefore, the project would not result in inadequate parking capacity, resulting in no impact.

g. Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

_NO IMPACT._ The project represents a land use that would require limited use of local public services and/or infrastructure, including alternative transportation, during both construction and operation. The project would not conflict with any applicable land use plan, policy, or regulation supporting alternative transportation of an agency with jurisdiction over the project.

References


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3.17 Utilities and Service Systems

Table 3.17-1 Utilities and Service Systems Significance Criteria

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation Incorporation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>f. Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>g. Comply with federal, state, and local statutes and regulations related to solid waste?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>

3.17.1 Setting

Wastewater

In rural areas in Kings County, sewer services are not provided and development relies on individual septic tank systems. The existing Avenal treatment plant was constructed in 1987 along with the State Prison. The Avenal treatment plant, which services the prison and urbanized areas only, is adjacent to the project.

Based on 2003 flows at the plant, 0.701 million gallons per day (mgd) of the plant’s capacity is currently unused. Approximately 0.35 mgd of this available capacity is allocated to the prison, while the remaining 0.35 mgd of the unused capacity is reserved for the City. Based on the 2003 average sewage generation rate of 34.4 gallons per day (gpd) per person, the treatment plant’s reserve capacity for the City of Avenal is sufficient to accommodate approximately 11,995 additional people or 3,528 new single-family residential units (at an occupancy rate of 3.4 persons per unit). At the projected annual population growth rate, the City’s portion of the treatment plant’s reserve capacity will not be utilized until beyond the year 2025 under average flow conditions (City of Avenal 2009).
Potable Water and Water Service
In unincorporated, non-community service district areas in Kings County, water services are generally provided by onsite or nearby water delivery systems operated by private entities, and a large number of residences and agricultural facilities rely on water pumped from private wells. The City of Avenal’s water treatment facility obtains untreated surface water from the adjacent San Luis Canal, operated by the Central Valley Project on behalf of the Bureau of Reclamation (Bureau of Reclamation 2009, City of Avenal 2009). The City of Avenal’s contract with the Bureau of Reclamation allocates 3,500 acre feet per year (AFY) to the City and the Avenal State Prison (City of Avenal 2009).

Stormwater Drainage
The Kings County Public Works Department maintains storm drainage facilities throughout the unincorporated areas of the County. Infrastructure and services such as curbs, gutters, and storm drainage, however, are limited (Kings County 2009). County roads are designed at an elevation so that stormwater drains onto adjacent property. This is compatible with the primarily agricultural land uses of rural areas (Kings County 1994).

Solid Waste/Landfills
The Kings Waste and Recycling Authority (KWRA) receives solid waste, including recyclable materials, for all County unincorporated areas (Kings County 2009). The KWRA has an Integrated Waste Management Plan (1995) that contains the mandatory elements of a Source Reduction and Recycling Element and a Household Hazardous Waste Element.

The nearest permitted solid waste landfill is the Avenal Regional Landfill. The Avenal Regional Landfill is permitted through the year 2020 and has a remaining capacity of 26,000,000 cubic yards (California Integrated Waste Management Board 2009).

Project Design Features
The applicant has incorporated the following project design features (PDFs) into the project to minimize or avoid impacts on utilities. See Chapter 1 for a complete list of PDFs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

PDF GEO-2: Stormwater Pollution Prevention Plan

3.17.2 Environmental Impacts and Mitigation Measures

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

LESS THAN SIGNIFICANT IMPACT. Water usage during construction would be minimal and limited to dust control activities and crewmember consumption. Refer to Section 3.9, “Hydrology and Water Quality,” for a discussion of water usage for construction and operation of the project. There are no population growth impacts associated with the project; therefore, wastewater treatment and other utility and service systems along the project route would not be affected. Project construction would negligibly affect wastewater because construction crews would use portable toilets; however, no changes to wastewater treatment facilities would be required due to the small amount of waste generated during operation. Therefore, it would not generate substantial amounts of wastewater, and a less than significant impact would occur.
Water usage during operation would be limited to water necessary for washing the solar panels. Refer to Section 3.9, “Hydrology and Water Quality,” for a discussion of water usage and quantification. Due to the highly absorptive nature of the surface and underlying soils, water would run off the surface of the panels and absorb quickly into the ground surface, avoiding runoff and soil erosion. Additionally, the grain crops, silage, grass, or other vegetation would absorb water runoff from panel washing further reducing impacts. This is compatible with the primarily agricultural land uses of the surrounding area. Water used for washing the solar panels would not impact wastewater treatment operations and would not result in exceeding wastewater requirements of the Central Valley Regional Water Quality Control Board (CVRWQCB). The project would not discharge pollutants into surface water requiring a National Pollutant Discharge Elimination System permit from the CVRWQCB. Similarly, Waste Discharge Requirements issued by the CVRWQCB would not be required as waste discharges to land are not anticipated. Therefore, a less than significant impact to wastewater treatment facilities would result during operation of the project.

b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

NO IMPACT. The water supply and wastewater treatment aspects of the project would be designed such that the project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. The amount and source of water needed for construction would be small amounts primarily used for dust control and fire protection during construction. Water would be obtained from onsite wells or municipal water supply and would be absorbed into the ground following usage. Portable restrooms would be used and maintained during construction and removed after the completion of project construction. No impact to local sewer systems would result from the project, and no new water or expanded wastewater treatment facilities would be required. Construction would not require new water or wastewater treatment facilities or the expansion of existing facilities.

During project operation, water would be required for washing the solar panels. Well water from an existing well, new construction well, or purchased water from the City of Avenal would be used to allow for ongoing maintenance of the solar panels. Construction of a new well may be drilled on the project site to provide additional water for operational purposes. It is anticipated that the solar PV panels would be washed approximately 0–4 times per year to remove dust particles and other buildup to ensure optimum solar absorption. As such, the project would result in a relatively low demand for water for which adequate water supplies are available. Small amounts of water (approximately 800,000 gallons per year, or the equivalent of approximately 6.5 single-family homes) would be used to clean the panels on an infrequent basis. Due to the highly absorptive nature of the surface and underlying soils, water would run off the surface of the panels and absorb quickly into the ground surface. No impact to local sewer systems would result from the project, and no new water or expanded wastewater treatment facilities would be required. Therefore, no impact would occur.

c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

LESS THAN SIGNIFICANT IMPACT. The project would be located in a rural, unincorporated area of Kings County with little existing storm water drainage infrastructure. The project would be adjacent to county roads, which are designed at an elevated height to allow for stormwater drainage onto adjacent, mainly agricultural properties. Therefore, the project would not result in a need for new stormwater drainage facilities nor substantially alter existing facilities.

A Storm Water Pollution Prevention Plan (SWPPP) would be written for the entire project, and workers would receive instruction about the plan. The SWPPP would be designed to achieve the goals and
objectives pertaining to the protection of water quality from the general plans for Kings County. Existing stormwater management procedures would also apply, but the project would not require or result in the need for new stormwater drainage facilities or the expansion of existing facilities.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

LESS THAN SIGNIFICANT IMPACT. The amount and source of water needed for construction would be small amounts primarily used for dust control and fire protection during construction. Water would be obtained from onsite wells or purchased from the City of Avenal and, due to the highly absorptive nature of the surface and underlying soils in the area, would be absorbed into the ground following usage. Construction of the project would therefore not require new or expanded water entitlements.

During project operation, water would be obtained from an existing well or purchased from the City of Avenal to allow for ongoing maintenance of the solar panels. Additionally, construction of a new well may be drilled on the project site to provide additional water for operation purposes. It is anticipated that the solar PV panels would be washed approximately 0–4 times per year to remove dust particles and other buildup to ensure optimum solar absorption. As such, the project would result in a relatively low demand for water for which adequate water supplies are available. Small amounts of water (approximately 800,000 gallons per year, or the equivalent of approximately 6.5 single-family homes) would be used to clean the panels on an infrequent basis. Operation of the project would likely not require any expansions of existing water facilities and at most would require the construction of one additional well onsite; therefore, the project would result in a less than significant impact under this criterion. Refer to Section 3.9, “Hydrology and Water Quality,” for further information regarding water use and quantification.

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

NO IMPACT. The project would not be served by a wastewater treatment provider. During project construction, portable restrooms would be used. Additionally, water use would be minimal and limited to dust control activities and crew consumption. Operation and maintenance of the project would require water for occasional washing of the solar panels, which would be washed from 0–4 times per year to remove dust particles. Small amounts of water (approximately 800,000 gallons per year, or the equivalent of approximately 6.5 single-family homes) would be used to clean the panels on an infrequent basis. Due to the highly absorptive nature of the surface and underlying soils, water would run off the surface of the panels and absorb quickly into the ground surface, and therefore, the project would not require a wastewater treatment provider. The project would cause no impacts on wastewater treatment providers or their capacities.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?

LESS THAN SIGNIFICANT IMPACT. The nearest landfill to the project site is the Avenal Regional Landfill. The Avenal Regional Landfill is permitted through the year 2020 and has a remaining capacity of 26,000,000 cubic yards.

Solid waste would be generated by the project primarily during construction and would consist of unused materials and byproducts of construction activities. The project would have a less than significant effect on landfills because it would generate a small amount of construction waste that would easily be accommodated by the existing landfills within the area. In addition, construction waste would be recycled.

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to the maximum extent possible. This disposal activity would have a minimal impact on the capacity of existing landfills and would not require the development of new or expanded landfills. As a result, impacts would be less than significant under this criterion.

g. **Comply with federal, state, and local statutes and regulations related to solid waste?**

*NO IMPACT.* The project would comply with the California Integrated Waste Management Act of 1989 (AB 939), which requires each city and county in California to prepare, adopt, and implement a Source Reduction and Recycling Element. The Kings County Countywide Integrated Waste Management Plan (1995) contains the mandatory elements of a Source Reduction and Recycling Element as required by AB 939 and a Household Hazardous Waste Element.

Solid waste generated by the proposed project would be limited to small amounts during construction. These materials would be disposed of at the Avenal Regional Landfill, which is permitted by Kings County and inspected monthly. Construction waste will be recycled to the maximum extent possible. Any hazardous materials and wastes would be recycled, treated, and disposed of in accordance with federal, state, and local laws.

The project would be in compliance with all state, federal, and local statutes and regulations related to solid waste; therefore, there would be no impact under this criterion.

**References**


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3.18 Mandatory Findings of Significance

Table 3.18-1 Mandatory Findings of Significance Checklist

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

The project sponsor has incorporated into the project structural elements and practices called project design features (PDFs) to avoid and minimize potential impacts on environmental resources. These PDFs are part of the project and are distinguished from mitigation measures for potentially significant impacts under CEQA. PDFs have not been identified for all resource areas.

PDF AIR-1: Implement best management practices to reduce construction tailpipe emissions.
PDF AIR-2: Implement mitigation measures for construction fugitive dust emissions
PDF AIR-3: Minimize greenhouse gas emissions during construction
PDF CR-1: Historic and Archaeological Monitoring
PDF CR-2: Stop work in immediate vicinity of find if previously unknown cultural resources are discovered.
PDF CR-3: Stop work in immediate vicinity of find if previously unknown paleontological resources are discovered
PDF CR-4: Stop work in immediate vicinity of find if human remains are discovered
PDF GEO-1: Geotechnical Investigation
PDF GEO-2: Storm Water Pollution Prevention Plan
PDF HAZ-1: Fire Prevention Training and Measures
PDF TT-1: Minimize Street Use
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

LESS THAN SIGNIFICANT WITH MITIGATION. No special-status wildlife or plants have been identified that may be significantly impacted by construction of the project. Implementation of the PDFs and MM BIO-1 and MM BIO-2 discussed in Section 3.4, “Biological Resources,” would be sufficient to protect these species and their habitat. The PDFs and MMs would also be sufficient to protect other fish and wildlife found in the project area and would reduce potential impacts to less than significant levels with mitigation.

Though the project would not be located in areas of high paleontological sensitivity, implementation of the PDFs discussed in Section 3.5, “Cultural Resources,” to protect potential historical, archaeological, and paleontological findings during construction of the project, would be sufficient to reduce impacts to less than significant levels. Therefore, potential impacts under this criterion would be reduced to less than significant levels with mitigation.

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

LESS THAN SIGNIFICANT. Development of the proposed project and other projects in the region, such as new housing and electricity generation projects (including other solar PV developments), would contribute to cumulative impacts with regards to greenhouse gases, biological resources, and water resources, as described below.

Greenhouse Gases. The project involves the construction of a solar farm and associated elements. Implementation of the PDFs discussed in Section 3.3, “Air Quality,” and Section 3.7, “Greenhouse Gases,” would be sufficient to mitigate construction and operational air quality impacts. Potential cumulative impacts could occur with regard to air pollutants or greenhouse gases (GHGs). These impacts are addressed in Section 3.7, “Greenhouse Gases.” GHG emissions and their contribution to the global effect known as Climate Change are an inherently cumulative impact. However, the emissions associated with this project are minor as compared to baseline emissions levels. In 2006 (most recent year that data is available), State-wide emissions of GHGs were estimated by CARB to be approximately 485 million metric tons of CO$_2$e. Of this total, the project emissions account for about 0.000006% of statewide GHG emissions.

Biological Resources. The project may contribute to a cumulative impact to biological resources, such as San Joaquin kit fox, in the project area, as described in Section 3.4, Biological Resources. With the implementation of Mitigation Measures BIO-3, Wildlife-Friendly Fencing, and BIO-4, San Joaquin Kit
Fox Protection Measures, these impacts would be reduced to less than significant, and the project’s contribution to this cumulative impact would be less than considerable.

**Hydrology and Water Resources.** Potential cumulative impacts to water resources could occur due to the overdraft status of the Westside Sub-basin. The small quantity of water required for operational panel cleaning (approximately 800,000 gallons per year, or the equivalent of approximately 6.5 single-family homes) would result in a less than significant cumulative impact, when compared to the assumptive (water usage statistics are not available for the basin) high volumes of water used for agricultural production in Kings County.

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

*LESS THAN SIGNIFICANT WITH MITIGATION.* Implementation of the PDFs discussed in Section 3.8, “Hazards and Hazardous Materials,” for hazardous materials, substance and waste handling, and wildfire prevention would reduce potential impacts to human beings, either directly or indirectly, to less than significant levels. Therefore, potential impacts under this criterion would be reduced to less than significant levels.
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4.0 Mitigation Monitoring and Reporting Plan

The purpose of this Mitigation Monitoring and Reporting Plan (MMRP) is to ensure effective implementation of the project design features (PDFs) and mitigation measures required by the Kings County Community Development Agency and that Avenal Solar Holdings LLC and its subsidiaries, Sun City Project LLC and Sand Drag LLC (Applicant) has agreed to implement as part of the Avenal Photovoltaic Solar Farm (the project). The MMRP, which is outlined in Table 4-1, includes the:

- PDFs and mitigation measures that the applicant is required to implement as part of the project;
- California Environmental Quality Act (CEQA) checklist questions to which the PDFs and mitigation measures apply;
- Responsibility for Compliance; and
- Timing for implementation of the PDFs and mitigation measures.

Table 4-1 Mitigation Monitoring and Reporting Plan

<table>
<thead>
<tr>
<th>CEQA Checklist Questions</th>
<th>Project Design Features (PDFs) and Mitigation Measures (MMs)</th>
<th>Responsibility for Compliance</th>
<th>Timing</th>
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<tr>
<td>3.1 Aesthetics</td>
<td>No applicable PDFs or mitigation measures.</td>
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<td>3.2 Agriculture and Forest Resources</td>
<td>No applicable PDFs or mitigation measures.</td>
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</table>
| 3.3 Air Quality          | **b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?** | PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions. The Applicant would implement all applicable and feasible measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement would be incorporated into the construction contract for the project. Applicable and feasible measures include:  
  - Maximize use of diesel construction | Applicant | Prior to and during construction |

Applicant
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|                          | equipment meeting CARB’s 1996 or newer certification standard for off-road heavy-duty diesel engines.  
  • Use emission control devices at least as effective as the original factory-installed equipment.  
  • Substitute gasoline-powered for diesel-powered equipment when feasible.  
  • The primary contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.  
  • All equipment will use Tier 2 engines if available.  
  **PDF AIR-2 Project Design measures for construction fugitive dust emissions.** The Applicant would implement all applicable and feasible fugitive dust control measures including those listed below. This requirement would be incorporated into the construction contract for the project. Applicable and feasible measures include:  
  • Watering all active construction sites at least twice daily in dry conditions, with the frequency of watering based on the type of operation, soil, and wind exposure.  
  • All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust | Applicant | Prior to and during construction |
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<td>emissions using water or other approved substances.</td>
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<td>• Prohibit all grading activities during periods of high wind (over 20 miles per hour).</td>
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<td>• On-site vehicles limited to a speed that minimizes dust emissions on unpaved roads (15 mph).</td>
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<td>• Cover all trucks hauling dirt, sand, or loose materials.</td>
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<td></td>
<td>• Cover inactive storage piles.</td>
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<td></td>
<td>• Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person would respond and take corrective action within 48 hours. The phone number of the SJVAPCD also would be visible to ensure compliance with SJVAPCD rules regarding nuisance and fugitive dust emissions.</td>
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<td>• Limit the area under construction at any one time.</td>
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<td>PDF AIR-3 Minimize greenhouse gas emissions during construction.</td>
<td>The Applicant would incorporate the following measures into the construction contract to reduce greenhouse gas (and other air pollutant) emissions:</td>
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<td>During construction</td>
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<td>• Encourage construction workers to carpool.</td>
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<td>• Encourage recycling or re-use of all construction waste.</td>
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| c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions.  
PDF AIR-2 Project Design measures for construction fugitive dust emissions.  
PDF AIR-3 Minimize greenhouse gas emissions during construction.                     | Applicant                     | Prior to and during construction   |
| 3.4 Biological Resources                                                                  | MM BIO-1: Pre-Construction Burrowing Owl Survey. A pre-construction clearance survey for burrowing owl shall be performed by a qualified biologist, not more than 30 days prior to construction, to ensure avoidance of this species during construction. If burrowing owls are determined to be present, avoidance measures in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) shall be implemented.  
MM BIO-2: Pre-Construction Nesting Bird Surveys. Pre-construction surveys for nesting birds shall be conducted by a qualified biologist not more than 30 days prior to commencement of construction. Exclusion areas of 100 feet marked with stakes and colored flagging tape shall be maintained around all active nests until birds have fledged.  
MM BIO-3: Wildlife-Friendly Fencing. The applicant will design wildlife-friendly fencing that shall be installed around the perimeter of the project area. Fence design, such as leaving six inch tall openings in the bottom of the fence, shall | Applicant                     | Not more than 30 days prior to construction |
|                                                                                         |                                                                                                                             | Applicant                     | Prior to construction              |
Table 4-1 Mitigation Monitoring and Reporting Plan

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<td>allow kit fox and other wildlife to move freely into and out of the site. MM BIO-4: San Joaquin Kit Fox Protection Measures. Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan: 1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited. 2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the</td>
<td>Applicant</td>
<td>Prior, during, and post-construction</td>
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<td>procedures under number 13 of this section must be followed.</td>
<td>3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.</td>
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<td>4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from the construction/project site.</td>
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<td>5. No firearms shall be allowed on the project site.</td>
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<td>6. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.</td>
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<td>7. Use of rodenticides and herbicides in</td>
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<td>CEQA Checklist Questions</td>
<td>Project Design Features (PDFs) and Mitigation Measures (MMs)</td>
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<td>project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.</td>
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<td>8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative’s name and telephone number shall be provided to the USFWS.</td>
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<td>9. An employee education program should be conducted for the project. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency</td>
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<td>personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site. 10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to &quot;temporary&quot;disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.</td>
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<td>11.</td>
<td>In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for advice.</td>
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<td>12.</td>
<td>Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.</td>
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<td>13.</td>
<td>The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.</td>
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<tbody>
<tr>
<td>d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</td>
<td>MM BIO-3: Wildlife-Friendly Fencing.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td></td>
<td>MM BIO-4: San Joaquin Kit Fox Protection Measures.</td>
<td>Applicant</td>
<td>Prior, during, and post-construction</td>
</tr>
<tr>
<td>3.5 Cultural Resources</td>
<td>PDF CR-1: Historic and Archaeological Monitoring. A qualified archaeologist would conduct full-time monitoring of all areas of the project where subsurface ground disturbing activities in excess of three feet would occur. The archaeological monitor will have a working knowledge of the project area and will be competent to identify the range of cultural resources known to exist in the vicinity of the project. The monitor will have the authority to temporarily relocate construction activities to inspect areas where ground disturbance has revealed potential cultural resources. The applicant will suspend construction activities in the area that would impact the resource until the archaeologist has inspected the discovery and determined any required or recommended treatment for the resource(s).</td>
<td>Applicant</td>
<td>During construction</td>
</tr>
<tr>
<td>a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?</td>
<td>PDF CR-2: Historical and Archaeological Resources Stop Work. In the event that subsurface historic resources or archaeological resources are encountered during construction, project activities would stop in the immediate vicinity of the find and a qualified archaeologist would be consulted to evaluate the significance of the resource.</td>
<td>Applicant</td>
<td>During construction</td>
</tr>
</tbody>
</table>

Avenal Photovoltaic Solar Farm Project

January 2010
<table>
<thead>
<tr>
<th>CEQA Checklist Questions</th>
<th>Project Design Features (PDFs) and Mitigation Measures (MMs)</th>
<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
</table>
| b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 | PDF CR-1: Historic and Archaeological Monitoring.  
PDF CR-2: Historical and Archaeological Resources Stop Work.                                                               | Applicant                     | During construction  |
| c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | PDF CR-3: Paleontological Resources Stop Work. If undisturbed sediments of the fossiliferous Tulare Formation are exposed during excavation of the site, a qualified professional vertebrate paleontologist would be retained to develop a program to reduce potentially significant impacts to paleontological resources. | Applicant                     | During construction  |
| d. Would the project disturb any human remains, including those interred outside of formal cemeteries? | PDF CR-4: Human Remains Stop Work. If human remains are encountered, project activities would stop in the immediate vicinity of the discovered remains and the county coroner and a qualified archaeologist notified according to the provisions of California Public Resources Code (PRC) Sections 5097.98 and 5097.99. | Applicant                     | During construction  |

### 3.6 Geology and Soils

| a. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:  
   i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to | PDF GEO-1: Geotechnical Investigation. A site specific geotechnical investigation will be performed prior to project construction and the submittal of the conditional use permit application to Kings County, and will provide the final design recommendations for above ground structures at the project area. | Applicant                     | Prior to construction |

**Table 4-1 Mitigation Monitoring and Reporting Plan**
### Table 4-1 Mitigation Monitoring and Reporting Plan

<table>
<thead>
<tr>
<th>CEQA Checklist Questions</th>
<th>Project Design Features (PDFs) and Mitigation Measures (MMs)</th>
<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Division of Mines and Geology Special Publication 42.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) <strong>Strong seismic ground shaking?</strong></td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td>iii) <strong>Seismic-related ground failure, including liquefaction?</strong></td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td><strong>b. Would the project result in substantial soil erosion or the loss of topsoil?</strong></td>
<td><strong>PDF GEO-2: Storm Water Pollution Prevention Plan.</strong> A Storm Water Pollution Prevention Plan (SWPPP), designed to reduce potential impacts related to erosion and surface water quality during construction activities and through the life of the project will be prepared by a qualified engineer or erosion control specialist and implemented before construction. The SWPPP will include measures to address erosion, such as a construction period monitoring program to be implemented by the construction supervisor, and will include Best Management Practices (BMPs) to address erosion, such as watering for dust control and the construction of perimeter silt fences, as needed. The SWPPP will be submitted to Kings County for review and approval prior to issuance of any building or grading permits. Implementation of the SWPPP would comply with state and federal water quality regulations.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td><strong>c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?</strong></td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
</tbody>
</table>
### Table 4-1 Mitigation Monitoring and Reporting Plan

<table>
<thead>
<tr>
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<th>Project Design Features (PDFs) and Mitigation Measures (MMs)</th>
<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>d.</strong> Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?</td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td><strong>3.7 Greenhouse Gas Emissions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>a.</strong> Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</td>
<td>PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
</tr>
<tr>
<td></td>
<td>PDF AIR-2 Project Design measures for construction fugitive dust emissions.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
</tr>
<tr>
<td></td>
<td>PDF AIR-3 Minimize greenhouse gas emissions during construction.</td>
<td>Applicant</td>
<td>During construction</td>
</tr>
<tr>
<td><strong>3.8 Hazards and Hazardous Materials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>a.</strong> Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td><strong>h.</strong> Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?</td>
<td>PDF HAZ-1: Fire Prevention Training and Measures. The applicant will implement the following measures to address potential fire hazards in the project area:</td>
<td>Applicant</td>
<td>Prior, during, and post construction</td>
</tr>
<tr>
<td></td>
<td>• Fire Prevention Training. The applicant will coordinate with the California Office of the State Fire Marshall to provide photovoltaic training to County fire responders, construction, operational, maintenance staff. The intent of this training will be to familiarize both responders and workers of the codes, regulations, associated hazards and mitigation processes related to solar energy.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4-1 Mitigation Monitoring and Reporting Plan

<table>
<thead>
<tr>
<th>CEQA Checklist Questions</th>
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<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>electricity. This training will include techniques for proper system shutdown and fire suppression procedures for PV systems. The training will include procedures for coordination with local fire department, sheriff department, and emergency medical services.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fire Prevention Measures. The applicant will employ the following measures during project construction and operation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Any applicable Kings County Improvement Standards to ensure accessibility and ground clearance of emergency vehicles (i.e. fire engines).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The applicant will develop safety measures in accordance with Cal OSHA safety and health regulations and guidance for construction, which will be reviewed by all project construction staff prior to the start of any work. Safety measures will include those that address potential electrical incidents and fire hazards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Agricultural vegetation will be maintained to reduce potential fire hazards in the project area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Work crews will be required to park vehicles away from flammable vegetation, such as dry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Fire Prevention Measures. The applicant will employ the following measures during project construction and operation:

- Any applicable Kings County Improvement Standards to ensure accessibility and ground clearance of emergency vehicles (i.e. fire engines).

- The applicant will develop safety measures in accordance with Cal OSHA safety and health regulations and guidance for construction, which will be reviewed by all project construction staff prior to the start of any work. Safety measures will include those that address potential electrical incidents and fire hazards.

- Agricultural vegetation will be maintained to reduce potential fire hazards in the project area.

- Work crews will be required to park vehicles away from flammable vegetation, such as dry
### Table 4-1 Mitigation Monitoring and Reporting Plan

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<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>grass and brush. At the end of each workday, heavy equipment should be parked over mineral soil, asphalt, or concrete, where available, to reduce the chance of fire.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Fire suppression equipment (i.e., fire extinguishers) will be made available on the project site at all times. All heavy equipment will be required to include mechanisms for fire suppression, including spark arresters or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Smoking will be prohibited in the project area except in designated areas.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.9 Hydrology and Water Quality

<table>
<thead>
<tr>
<th>a. Would the project violate any water quality standards or waste discharge requirements?</th>
<th>pdf GEO-2: Storm Water Pollution Prevention Plan.</th>
<th>Applicant</th>
<th>Prior to construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?</td>
<td>pdf GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
</tbody>
</table>
### Table 4-1 Mitigation Monitoring and Reporting Plan

<table>
<thead>
<tr>
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<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>d.  Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td>e.  Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td>f.  Would the project otherwise substantially degrade water quality?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
</tbody>
</table>

3.10 Land Use and Planning

No applicable PDFs or mitigation measures.

3.11 Mineral Resources

No applicable PDFs or mitigation measures.

3.12 Noise

No applicable PDFs or mitigation measures.

3.13 Population and Housing

No applicable PDFs or mitigation measures.
Table 4-1 Mitigation Monitoring and Reporting Plan

<table>
<thead>
<tr>
<th>CEQA Checklist Questions</th>
<th>Project Design Features (PDFs) and Mitigation Measures (MMs)</th>
<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.14 Public Services</td>
<td>Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</td>
<td>PDF HAZ-1: Fire Prevention Training and Measures.</td>
<td>Applicant</td>
</tr>
<tr>
<td>a. Fire protection?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.15 Recreation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No applicable PDFs or mitigation measures.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.16 Transportation/Traffic</td>
<td>Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?</td>
<td>PDF TT-1 Minimize Street Use. Construction activities would be designed to minimize work on, or use of, local streets. The project would comply with San Joaquin Valley Air Pollution Control District (SJVAPCD) standards for unpaved roads, which include a requirement to keep vehicle speeds below 15 mph, and to have fewer than 150 trips per day per unpaved road (SJVAPCD 2002).</td>
<td>Applicant</td>
</tr>
<tr>
<td>a.</td>
<td>PDF TT-2 Traffic Control. The applicant will consult with Kings County, and the City of Avenal prior to initiation of construction activities that may affect traffic (e.g., equipment and supply delivery necessitating lane closures, trenching, etc.), and will implement appropriate traffic controls in accordance with the California Vehicle Code and</td>
<td>Applicant</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4-1  Mitigation Monitoring and Reporting Plan

<table>
<thead>
<tr>
<th>CEQA Checklist Questions</th>
<th>Project Design Features (PDFs) and Mitigation Measures (MMs)</th>
<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?</td>
<td>Other state and local requirements to avoid or minimize impacts on traffic. Construction traffic would not block emergency equipment routes.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
</tr>
<tr>
<td>PDF TT-1 Minimize Street Use.</td>
<td></td>
<td>Applicant</td>
<td>Prior to and during construction</td>
</tr>
<tr>
<td>PDF TT-2 Traffic Control.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Would the project result in inadequate emergency access?</td>
<td>PDF TT-1 Minimize Street Use.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
</tr>
<tr>
<td>3.17 Utilities and Service Systems</td>
<td>No applicable PDFs or mitigation measures.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.18 Mandatory Findings of Significance</td>
<td>No PDFs or mitigation measures in addition to those described in the preceding sections.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix A
Air Quality - Construction Emissions Calculations
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### Table 1

**Summary of Total Construction Emissions**

<table>
<thead>
<tr>
<th>Emission Type</th>
<th>Source</th>
<th>ROG</th>
<th>CO</th>
<th>NO</th>
<th>SO₂</th>
<th>PM₁₀</th>
<th>PM₂.₅</th>
<th>CO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exhaust Emissions</strong></td>
<td>Non Road Gasoline Equipment</td>
<td>1.7</td>
<td>47</td>
<td>2.3</td>
<td>0.1</td>
<td>0.035</td>
<td>0.035</td>
<td>345</td>
</tr>
<tr>
<td></td>
<td>Non Road Diesel Equipment</td>
<td>0.32</td>
<td>1.88</td>
<td>2.7</td>
<td>0.010</td>
<td>0.13</td>
<td>0.12</td>
<td>312</td>
</tr>
<tr>
<td></td>
<td>On Road Vehicles</td>
<td>0.38</td>
<td>3.2</td>
<td>1.3</td>
<td>0.004</td>
<td>0.06</td>
<td>0.05</td>
<td>395</td>
</tr>
<tr>
<td><strong>Fugitive Dust Emissions</strong></td>
<td>Construction Activities</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.7</td>
<td>0.10</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Roads (Site and Off-Site)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.8</td>
<td>0.30</td>
<td>-</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td>2.4</td>
<td>52</td>
<td>6.3</td>
<td>0.09</td>
<td>3.8</td>
<td>0.60</td>
<td>1,052</td>
</tr>
</tbody>
</table>
Table 2
Non-Road Gasoline Equipment Exhaust Emission Factors

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Maximum Operating Range (hp)</th>
<th>Emission Factors (g/hp-hr)</th>
<th>ROG</th>
<th>CO</th>
<th>NOX</th>
<th>SOX</th>
<th>PM</th>
<th>CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Compressors</td>
<td>25</td>
<td></td>
<td>7.4450</td>
<td>336.6560</td>
<td>3.2580</td>
<td>0.2150</td>
<td>0.1170</td>
<td>1044.8</td>
</tr>
<tr>
<td>Rough Terrain Forklifts</td>
<td>100</td>
<td></td>
<td>3.7830</td>
<td>96.8370</td>
<td>5.4120</td>
<td>0.1580</td>
<td>0.0690</td>
<td>768.0</td>
</tr>
<tr>
<td>Generator Sets&lt;sup&gt;a&lt;/sup&gt;</td>
<td>50</td>
<td></td>
<td>2.2430</td>
<td>54.3960</td>
<td>4.1560</td>
<td>0.1550</td>
<td>0.0690</td>
<td>750.9</td>
</tr>
<tr>
<td>Rammers</td>
<td>11</td>
<td></td>
<td>7.3300</td>
<td>340.3200</td>
<td>3.2830</td>
<td>0.2160</td>
<td>0.1150</td>
<td>1047.5</td>
</tr>
<tr>
<td>Loaders&lt;sup&gt;b&lt;/sup&gt;</td>
<td>100</td>
<td></td>
<td>2.0390</td>
<td>59.0490</td>
<td>3.1900</td>
<td>0.1500</td>
<td>0.0700</td>
<td>726.6</td>
</tr>
<tr>
<td>Trenchers</td>
<td>40</td>
<td></td>
<td>1.9680</td>
<td>40.1680</td>
<td>2.1680</td>
<td>0.1460</td>
<td>0.0700</td>
<td>709.7</td>
</tr>
</tbody>
</table>

Notes:
- a. Emission factors not available for 50-75 hp generators, used emission factors for 50-75 pumps.
- b. Emission factors used for bobcats.
<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Construction Phase</th>
<th>No. of Units</th>
<th>Equipment Load (%)</th>
<th>Engine Size (hp)</th>
<th>Total Daily Operation of All Units (hr/day)</th>
<th>Total Daily Operation of All Units (days)</th>
<th>Total Daily Operation of All Units (tons)</th>
<th>Total Emissions (metric tons)</th>
<th>CO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough Terrain Forklift</td>
<td>Site Clearing and Grading</td>
<td>1</td>
<td>60%</td>
<td>8</td>
<td>160</td>
<td>20</td>
<td>0.040</td>
<td>1.025</td>
<td>0.057</td>
</tr>
<tr>
<td>Rammers</td>
<td>Fence Installation</td>
<td>4</td>
<td>40%</td>
<td>4</td>
<td>320</td>
<td>20</td>
<td>0.010</td>
<td>0.480</td>
<td>0.006</td>
</tr>
<tr>
<td>Generator</td>
<td>Equipment Delivery</td>
<td>1</td>
<td>57%</td>
<td>4</td>
<td>80</td>
<td>20</td>
<td>0.006</td>
<td>0.137</td>
<td>0.010</td>
</tr>
<tr>
<td>Rough Terrain Forklift</td>
<td>Pile Installation</td>
<td>1</td>
<td>40%</td>
<td>6</td>
<td>240</td>
<td>40</td>
<td>0.040</td>
<td>1.025</td>
<td>0.057</td>
</tr>
<tr>
<td>Generator</td>
<td>Racking Installation</td>
<td>10</td>
<td>57%</td>
<td>6</td>
<td>5,400</td>
<td>90</td>
<td>0.267</td>
<td>6.476</td>
<td>0.495</td>
</tr>
<tr>
<td>Rough Terrain Forklift</td>
<td>Electrical Installation</td>
<td>3</td>
<td>40%</td>
<td>6</td>
<td>1,710</td>
<td>95</td>
<td>0.285</td>
<td>7.301</td>
<td>0.408</td>
</tr>
<tr>
<td>Generator</td>
<td>Air Compressor</td>
<td>4</td>
<td>40%</td>
<td>6</td>
<td>2,280</td>
<td>95</td>
<td>0.187</td>
<td>8.461</td>
<td>0.082</td>
</tr>
<tr>
<td>Air Compressor</td>
<td>Inverter Substation</td>
<td>1</td>
<td>40%</td>
<td>8</td>
<td>520</td>
<td>65</td>
<td>0.043</td>
<td>1.930</td>
<td>0.019</td>
</tr>
<tr>
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### Table 4

Emissions for Diesel Non-Road Equipment

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<th>Total Emissions (tons)</th>
<th>Total Emissions (metric tons)</th>
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<tr>
<td></td>
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*DATA FROM URBEMIS*
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<th>No. of Units</th>
<th>Unpaved Rd. Daily VMT (VMT/day)</th>
<th>Paved Rd. Daily VMT (VMT/day)</th>
<th>Total Overall VMT of All Units (VMT)</th>
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<tr>
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<td>Site Clearing and Grading</td>
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<td>2</td>
<td>120</td>
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**Table 5**

On-Road Vehicle Usage

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<th>Vehicle Type</th>
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<th>Vehicle Description</th>
<th>No. of Units</th>
<th>Unpaved Rd. Daily VMT (VMT/day)</th>
<th>Paved Rd. Daily VMT (VMT/day)</th>
<th>Total Overall VMT of All Units (VMT)</th>
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<tr>
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<td>CO</td>
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<td>SOx</td>
<td>PM10</td>
<td>PM2.5</td>
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<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
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<td>0.001831</td>
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Notes:

a. Emission factors for trucks and vehicles from SCAQMD file "onroadEF07_26.xls".

b. Emission factors for ATVs from EPA's NONROAD model.
<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Total Overall Miles (VMT)</th>
<th>ROG</th>
<th>CO</th>
<th>NO</th>
<th>SO₂</th>
<th>PM10</th>
<th>PM2.5</th>
<th>CO₂</th>
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<td>Heavy Duty Diesel Trucks</td>
<td>35,690</td>
<td>0.05</td>
<td>0.21</td>
<td>0.68</td>
<td>0.0074</td>
<td>0.033</td>
<td>0.029</td>
<td>68.2</td>
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<td>Light Duty Trucks</td>
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<td>1.0</td>
<td>0.1</td>
<td>0.0014</td>
<td>0.04</td>
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### Table 8
**Fugitive Dust Emissions - Construction Sites**

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<th>Construction Activity</th>
<th>Area (acres)</th>
<th>Duration (months)</th>
<th>Emission Factora</th>
<th>Emissions (tons)</th>
<th>PM10 (ton/acre/month)</th>
<th>PM2.5 (ton/acre/month)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.45</td>
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<td>0.090</td>
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<td>0.04</td>
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<td>-</td>
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<td></td>
<td>0.72</td>
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</table>

Notes:
- a. See emission factor derivation table below.
- b. Pipeline construction area based on all concurrent work on a total surface area of a 200-ft wide corridor with a length of one half mile.
- c. Pipeline construction area based on all concurrent work on a total surface area of a 100-ft wide corridor with a length of one quarter mile.

#### Emission Factor Derivation Table

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>TSP1</th>
<th>PM102</th>
<th>PM2.53</th>
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<td>ton/acre/month</td>
<td>0.2</td>
<td>0.15</td>
<td>0.021</td>
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<td>Controlled Emission Factorb</td>
<td>ton/acre/month</td>
<td>0.12</td>
<td>0.090</td>
<td>0.0126</td>
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Notes:
- 1. Emission factor from AP-42 Section 13.2.3 for TSP.
- 2. PM10 emission factor calculated by multiplying TSP emission factor by 0.75 (AP-42 Section 11.9, Table 11.9-1)
- 3. PM2.5 emission factor calculated by multiplying TSP emission factor by 0.105 (AP-42 Section 11.9, Table 11.9-1)
- 4. Calculated by multiplying 30-day emission factor by 0.8 (24 days/30 days).
- 5. Assume dust 40% duct control factor based on as-needed watering. Does not include any control for winter conditions (frozen ground).

- **PM10**
- **PM2.5**
- **TSP**
Table 9

Fugitive Dust Emission Factors - Roads

Unpaved Roads - Emission Factor Derivation

\[ E = k \left( \frac{s}{12} \right)^a \left( \frac{W}{3} \right)^b \]

where:

- \( E \) = particulate emission factor (lb/VMT)
- \( k, a, b \) = empirical constants for industrial roads
- \( s \) = surface material silt content (%)
- \( W \) = average vehicle weight (tons)

<table>
<thead>
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<th>Units</th>
<th>PM$_{10}$</th>
<th>PM$_{2.5}$</th>
<th>Reference</th>
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<td>lb/VMT</td>
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<td>Table 13.2.2-2 (worst case)</td>
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<td>Constant, a</td>
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<td>0.9</td>
<td>Table 13.2.2-2 (worst case)</td>
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<td>0.45</td>
<td>Table 13.2.2-2 (worst case)</td>
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<td>8.5</td>
<td>Table 13.2.2-1 (construction sites)</td>
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Uncontrolled Emission factor, \( E \) lb/VMT

<table>
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<th>Mean Vehicle Weight</th>
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<th>3</th>
<th>Assumption</th>
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<tbody>
<tr>
<td>E = (k(sL/2)^0.65(W/3)^1.5-C)</td>
<td></td>
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</table>

where:

- \( E \) = particulate emission factor (lb/VMT)
- \( k \) = particle size multiplier
- \( sL \) = road surface silt loading (g/m$^2$)
- \( W \) = average vehicle weight (tons)
- \( C \) = emission factor for 1980's vehicle fleet exhaust, break wear and tire wear

<table>
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<tr>
<th>Parameter</th>
<th>Units</th>
<th>PM$_{10}$</th>
<th>PM$_{2.5}$</th>
<th>Reference</th>
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Control Efficiency for Watering %

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Controlled Emission factor, \( E \) lb/VMT

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</table>

where:

- \( E \) = particulate emission factor (lb/VMT)
- \( k \) = particle size multiplier
- \( sL \) = road surface silt loading (g/m$^2$)
- \( W \) = average vehicle weight (tons)
- \( C \) = emission factor for 1980's vehicle fleet exhaust, break wear and tire wear
## Table 10
Fugitive Dust Emissions from Road Sites and Off-Site

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<th>Fuel Type</th>
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<td>PM10 PM2.5</td>
<td>PM10 PM2.5</td>
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<tr>
<td>Heavy Duty Diesel Trucks</td>
<td>290 35,400</td>
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<td>Light Duty Trucks</td>
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<td>Passenger Vehicles</td>
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### CONSTRUCTION EMISSION ESTIMATES

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<th>SO2</th>
<th>PM10 Dust</th>
<th>PM10 Exhaust</th>
<th>PM10</th>
<th>PM2.5 Dust</th>
<th>PM2.5 Exhaust</th>
<th>PM2.5</th>
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<tbody>
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<td>2010 TOTALS (lbs/day unmitigated)</td>
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<td>82.51</td>
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<td>20.08</td>
<td>4.85</td>
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<tr>
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<td>82.51</td>
<td>55.50</td>
<td>0.02</td>
<td>11.39</td>
<td>4.85</td>
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### AREA SOURCE EMISSION ESTIMATES

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### OPERATIONAL (VEHICLE) EMISSION ESTIMATES

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<td>0.03</td>
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### SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

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Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\krupinskyh\Application Data\Urbemis\Version9a\Projects\Sun King v2.urb924
Project Name: Sun King V2
Project Location: San Joaquin Valley APCD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007
## Summary Report:

### Construction Emission Estimates

<table>
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<th>PM2.5 Exhaust</th>
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<tbody>
<tr>
<td>2010 TOTALS (tons/year unmitigated)</td>
<td>0.32</td>
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### Area Source Emission Estimates

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### Operational (Vehicle) Emission Estimates

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### Sum of Area Source and Operational Emission Estimates

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### Construction Unmitigated Detail Report:

**CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated**

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</table>
## Phase Assumptions

**Phase: Fine Grading 4/26/2010 - 5/21/2010 - Site Clearing and Site Grading**

Total Acres Disturbed: 32

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:
- 2 Dumpers/Tenders (350 hp) operating at a 0.57 load factor for 2 hours per day
- 1 Generator Sets (50 hp) operating at a 0.74 load factor for 2 hours per day
- 2 Graders (175 hp) operating at a 0.75 load factor for 6 hours per day
- 2 Skid Steer Loaders (300 hp) operating at a 0.6 load factor for 6 hours per day
- 2 Tractors/Loaders/Backhoes (150 hp) operating at a 0.55 load factor for 6 hours per day

### Building Worker Trips

<table>
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<th>Building Vendor Trips</th>
<th>Building Worker Trips</th>
<th>Building 06/21/2010-10/29/2010</th>
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<th>Building Vendor Trips</th>
<th>Building Worker Trips</th>
<th>Building 08/02/2010-10/29/2010</th>
<th>Building Off Road Diesel</th>
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<th>Building 06/14/2010-10/15/2010</th>
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Off-Road Equipment:
3 Tractors/Loaders/Backhoes (150 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day

Off-Road Equipment:
1 Off Highway Trucks (350 hp) operating at a 0.35 load factor for 2 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 4 hours per day

Off-Road Equipment:
1 Water Trucks (189 hp) operating at a 0.5 load factor for 4 hours per day

Off-Road Equipment:
4 Other General Industrial Equipment (170 hp) operating at a 0.5 load factor for 6 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 4 hours per day

Phase: Building Construction 6/14/2010 - 10/15/2010 - Racking Installation
Off-Road Equipment:
1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day

Off-Road Equipment:
1 Water Trucks (189 hp) operating at a 0.5 load factor for 4 hours per day

Off-Road Equipment:
2 Cranes (350 hp) operating at a 0.43 load factor for 1.5 hours per day
**Construction Mitigated Detail Report:**

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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1 Off Highway Trucks (350 hp) operating at a 0.57 load factor for 2 hours per day
1 Tractors/Loaders/Backhoes (150 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 4 hours per day
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For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55%
PM25: 55%

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 4/26/2010 - 5/21/2010 - Site Clearing and Site Grading

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55%
PM25: 55%
Appendix B
Biological Evaluation
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BIOLOGICAL EVALUATION
OF POTENTIAL IMPACTS TO SPECIAL STATUS SPECIES
(ENDERGERED, THREATENED, AND CANDIDATE SPECIES
AND SPECIES OF SPECIAL CONCERN)
AND NATURAL HABITAT AREAS
AT THE “AVENAL PARK, SUN CITY, SAND DRAG” SITE (APPROXIMATELY
468 ACRES PROPOSED FOR DEVELOPMENT AS A PHOTOVOLTAIC SOLAR
FARM) ON THE EAST SIDE OF 36TH AVENUE, SOUTH OF THE SALEM
AVENUE ALIGNMENT,
ONE MILE SOUTHEAST OF AVENAL, KINGS COUNTY, CALIFORNIA

Prepared for:

David Tomlinson, Project Development Consultant
EE Avenal Land LLC
4660 La Jolla Village Drive, #400
San Diego, California 92122

Prepared by:

Robert B. Hansen
HANSEN'S BIOLOGICAL CONSULTING
5448 W. Sunnyview Avenue
Visalia, California 93291

September 28, 2009
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FIGURES

Figure 1. Project Regional Map

Figure 2. Location of the Proposed Avenal Photovoltaic Solar Farms Project Site

Figure 3. Google Earth™ Satellite Photograph of Section 26, T22S, R17E (the Section is outlined)

Figure 4. Project Site and Parcel map.

Figure 5. September 30, 2003 Google Earth™ Satellite Photograph of Section 26, T22S, R17E (the Section is outlined) showing alluvial fans of Arroyo Mellado and Arroyo Chico

Figure 6. Photograph of a fossil clam on the Project Site.

Figure 7. Photograph of sprinkler irrigated organic carrots growing along the western edge of Parcel 007.

Figure 8. Photograph of 300 acres in the southern half of Section 26 (Parcels 008 and 009) that were planted with winter wheat. Some wheat was harvested in May and June; some was left for the cattle to graze.

Figure 9. Photograph of heifers, cows, and steers using the wheat stubble as pasture.

Figure 10. Photograph of Russian thistle (Salsola tragus), aka “tumbleweeds” in Parcel 009.

Figure 11. December 30, 2005 Google Earth™ Satellite Photograph of Section 26, T22S, R17E (the Section is outlined)

Figure 12. Photograph of irrigation runoff (from the carrot crop that was being sprinkler-irrigated in Parcel 007 supporting ruderal vegetation.

Figure 13. Photograph viewing east along the dirt ranch road that separates Parcel 007 from Parcel 006.

Figure 14. Photograph viewing north-northwest from Parcel 009. This neighboring land was fallow at this season.

Figure 15. Photograph viewing east towards the Kettleman Hills from the east edge of Parcel 007. No green vegetation, animals, or animal burrows could be seen.

Figure 16. Photograph viewing south along the east edge of Parcel 011. The scattered patches of sparse ruderal annual grasses and forbs are typical of a fallowed post-harvest site (carrots were harvested here earlier in the year).
Figure 17. Photograph of Robert Hansen’s biological field assistant conducting a walking transect survey on Parcel 008.

Figure 18. The Kettleman Plain Quad (where the Project Site is located) and the surrounding 8 Quads: Avenal, Avenal Gap, Garza Peak, Kettleman City, La Cima, Los Viejos, Pyramid Hills, Tent Hills (listed here alphabetically).

Figure 19. Soils map of Section 26, T22S, R17E.

Figure 20. May 14, 1911 photograph of California Annual Grassland (with components of Great Valley Allscale Scrub) in Avenal Gap.

Figure 21. May 14, 1911 photograph of an abandoned school house in an expanse of Great Valley Allscale Scrub (with components of California Annual Grassland) on the southern portion of the Kettleman Plain (Section 23, Township 24 South, Range 18 East).

Figure 22. May 14, 1911 photograph of cattle grazing an expanse of California Annual Grassland at Light’s Ranch in Avenal Gap (Section 17, Township 24 South, Range 19 East). This view provides a dramatic illustration of how early (by 1911) the original cover of Great Valley Allscale Scrub had already been type-converted to Non-native Grassland by unregulated livestock browsing.

Figure 23. Photograph viewing south from the east half of Parcel 009 (“Sun City”). This post-harvest wheat stubble, where cattle graze from May/June to November shows a moderate cover of ruderal Russian thistle.

Figure 24. Photograph viewing west along the north edge of Parcel 009 (“Sun City”) showing irrigation runoff. Native forbs are most vigorous and abundant along and adjacent to such runoff “channels” on fallowed ground.

Figure 25. Photograph viewing south from the south edge of the Project Site where Parcels 008 and 009 meet. No green vegetation, animals, or animal burrows could be seen.

Figure 26. Photograph viewing south towards Parcel 011 on August 7, 2009. While viewing through binoculars across this fallow, previously cultivated parcel, no green vegetation could be seen but several prominent (about 12 inches tall) Botta’s pocket gopher mounds were visible along the north edge of the parcel.

*Note: All photographs were taken on August 7, 2009.

TABLES

Table 1. Parcels Proposed for Acquisition and Development as the Avenal Photovoltaic Solar Farms (Project Site)
APPENDICES

APPENDIX A: A Nine Quad Printout of the September 27, 2009 CNDDDB “Rarefind” Special Status Species Occurrence information from the following 7.5 Minute Series U.S.G.S. Quadrangle Maps: Kettleman Plain Quadrangle (where the Project Site is located) and the Eight Adjacent Quadrangle Maps (Avenal, Avenal Gap, Garza Peak, Kettleman City, La Cima, Los Viejos, Pyramid Hills, and Tent Hills).

APPENDIX B: A Four Quad Printout of the September 27, 2009 CNDDDB “Rarefind” Special Status Species Occurrence Information for 38 Element Occurrence Records for 7 Plant Species and 10 Animal Species from Within a Five-Mile Radius of the Project Site. This Area Includes Portions of the Following 7.5 Minute Series U.S.G.S. Quadrangle Maps: the Kettleman Plain Quadrangle (Where the Project Site is Located) and Three Adjacent Quadrangle Maps (Avenal, Garza Peak, and La Cima)

APPENDIX C: Annotated Checklist of Native and Introduced Vascular Plants Seen at the Project Site

APPENDIX D: Annotated Checklist of Native and Introduced Vertebrate Animals Seen at the Project Site

APPENDIX E: *Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium 1991)

APPENDIX F: *Standardized Recommendations for Protection of the San Joaquin kit fox Prior to or During Ground Disturbance* United States Fish and Wildlife Service (June 1999)
EE Avenal Land LLC (Applicant) has proposed the Avenal Photovoltaic Solar Farms (hereinafter referred to as Solar Farms or the Solar Farms Project Site) on approximately 420 acres located on 4 separate parcels in Section 26, Township 22 South, Range 17 East approximately one mile southeast of Avenal, in southwestern Kings County, California (Figure 1). The Solar Farms site is located on the east side of 36th Avenue (dirt), south of the Salem Avenue alignment (dirt) just under ½ mile east of State Highway 33 (Figure 2). The Solar Farms property, currently under private ownership, is now managed as irrigated, cultivated row crop (carrots), grain (winter wheat), and as cattle grazing land (with some segments of seasonally fallowed land). This agricultural practice is expected to be suspended during construction but continued after project implementation.

Because the proposed Solar Farms Project Site is within the range of blunt-nosed leopard lizard (Gambelia sila), burrowing owl (Athene cunicularia), San Joaquin kit fox (Vulpes macrotis mutica), and other Special Status (listed and proposed) Species, the Applicant requested that Hansen's Biological Consulting (HBC) conduct a biological evaluation to satisfy CEQA requirements for the proposed Project in this portion of southwestern Kings County. On Projects like this in this part of Kings County, United States Department of Interior, Fish and Wildlife Service (USFWS) routinely recommends that a "trained biologist, familiar with the habitat requirements of listed and proposed species, should determine whether these species or habitats suitable for these species may be affected by the proposed action prior to the environmental review process."

California Department of Fish and Game (CDFG) routinely recommends that applicants conduct a biological assessment for Special Status Species including blunt-nosed leopard lizard, burrowing owl, and San Joaquin kit fox prior to construction. In its role as a trustee agency, CDFG works with Project applicants to avoid or minimize adverse effects on fish, wildlife, and native plants.

The field component of the biological evaluation was conducted on two separate days. Robert Hansen (along with a biological field assistant) conducted the biological assessment of the property on August 7 and September 21, 2009. During those site visits, Mr. Hansen completed a systematic walking transect survey across all 4 parcels while searching for evidence of kit fox, burrowing owl, and other special status animal and plant species. The biologists also surveyed the entire perimeter of all 4 parcels on foot. Pedestrian survey transects, to look for Special Status animal Species (including burrowing owl burrows and sign, kit fox dens and sign, and any evidence of blunt-nosed leopard lizard) and Special Status plants were used to cover the entire proposed Project Site. Walking transects were covered at 100-meter intervals. After reconnoitering the site, Mr. Hansen and his assistant walked transects in such a way that each observer scanned a narrow strip of ground approximately 50 meters on both sides of each transect that they walked. During transect surveys, each biologist searched for natural habitat areas, common plant and animal species, and for any evidence (including dead plants, dens, scats, tracks, prey remains, etc.) of Special Status plant and animal species. Habitat notes and a list of plant and animal species were recorded while conducting the walking transect surveys. A list of native and non-native flora (Appendix C) and fauna (Appendix D) found on the proposed Project Site was prepared.
ENVIRONMENTAL CHECKLIST FORM: BIOLOGICAL RESOURCES

Will the proposed Avenal Photovoltaic, Solar Farms Project:

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

X

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

X

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

X

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

X

e) Conflict with any local policies or ordinances protecting biological resources, such as tree  

X
Will the proposed Avenal Photovoltaic, Solar Farms Project:

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

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g) Reduce substantially the habitat of a fish or Wildlife species, including causing a fish or wildlife population to drop below self-sustaining levels or threaten to eliminate an animal community?

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h) Result in the degradation of water quality in seasonal creeks, reservoirs, and downstream waters?

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i) Disturb any active raptor nests during project implementation or construction activities?

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Individual loggerhead shrikes (*Lanius ludovicianus*), a California Species of Special Concern, were seen at several locations on the Project Site on both field days. Even though no other special status animal species were observed on the Solar Farms Project Site during the field survey portion (2 days during August and September, 2009) of this biological evaluation, Section J.4 (Special Status Birds) of this report documents the presence of three (3) other special status bird species (sandhill crane, mountain plover and long-billed curlew) which have been observed by the current land owner/farmer on the property during winter months. While Mr. Hansen did not personally observe any sandhill cranes (*Grus canadensis*), mountain plovers (*Charadrius montanus*), or long-billed curlews (*Numenius americanus*) during the August and September field survey, these Special Status Species occur regularly in small numbers during winter months (late-September to mid-March for the cranes and plovers and July to June for the curlews) on such land in the Kettleman Plain.

Section J.4 (Special Status Birds) and Section J.5 (Special Status Mammals) of this report documents how (in addition to loggerhead shrike, sandhill crane, mountain plover, and long-billed curlew), seven (7) other Special Status bird and mammal Species could make short stopovers on the proposed Solar Farms Project Site during migration or while foraging on the site from time to time. San Joaquin whipsnake (*Masticophis flagellum ruddocki*), Swainson’s hawk (*Buteo swainsoni*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), burrowing owl, San Joaquin kit fox, and American badger (*Taxidea taxus*) could make short stopovers on the proposed Solar Farms Project Site during migration or
while foraging on the site from time to time. Development of the proposed Project will have little or no
effect on regional populations of loggerhead shrike, sandhill crane, mountain plover, and long-billed
curlew, or the 7 species mentioned in this paragraph. The proposed Solar Farms Project Site does not
provide important intrinsic habitat values unique to this site for any one of these ten species (and one
additional subspecies). Similar habitats, or better, are available to regional wildlife populations on other
nearby property and on federally-owned, state-owned, or private lands. Project construction is not likely
to prevent these species from passing through or foraging over the proposed Solar Farms Project Site in
the future.

Special Status Plant and Animal Species Avoidance and Minimization Measures

Even though no positive sign of San Joaquin kit fox was found during this biological evaluation, CDFG
recommends that kit fox avoidance be performed prior to and during construction as a standard practice
to help avoid or minimize impacts to this wide-ranging species. In the event that kit fox dens are
established on the proposed Solar Farms Project Site subsequent to this biological evaluation (September
21 , 2009) or during Project-related construction work, then appropriate sections of United States Fish
and Wildlife Service's Standardized Recommendations for Protection of the San Joaquin Kit Fox, June
1999 (Appendix F) should be followed. Applicant should conduct kit fox avoidance prior to and during
construction.

This prudent course of action (this is the responsibility of the applicant), routinely advocated by both
USFWS and CDFG, is recommended to avoid impacts to any kit foxes that might disperse onto the
proposed Solar Farms Project Site and establish a den(s) between this biological evaluation (September
21, 2009) and the commencement of actual construction. Specific avoidance, impact minimization, and
compensation (mitigation), guidelines for San Joaquin kit fox are included in Appendix F.

Burrowing owl is listed as a California State Species of Special Concern with potential to occur in the
Project area. However, the lack of suitable habitat on-site minimizes the likelihood of occurrence. As
per recommendations specified in Section 1(Burrowing Owl Survey Protocol) of the 1993 Burrowing
Owl Consortium Burrowing Owl Survey Protocol and Mitigation Guidelines (Appendix E), if burrowing
owl habitat is not present on the project site and buffer zone, the Phase II burrow survey is not necessary.

Special Status Plant and Animal Species Compensation

If subsequent Project Site surveys document the presence of federally listed species, then consultation
with USFWS may direct the Applicant to pursue compensation measures for these federally listed
species. If subsequent field work or surveys determine that any listed species inhabit these properties
(and if the existing habitats are adversely affected by Project construction), this would be considered a
significant environmental impact. If any listed species are impacted by this Project, consultation with
USFWS will be required. The USFWS will require Section 7 take authorization or a Section 10(a)(1)(B)
permit (authorizing incidental take of a listed species). It would be much more cost effective and timely
to secure a Section 7 take authorization than to pursue a Section 10(a)(1)(B) incidental take permit. In
order to secure a Section 7 take authorization for this Project, a federal nexus must exist. In addition, a
biological assessment must be prepared for the Project and National Environmental Policy Act (NEPA)
compliance would be required.

Incidental take permits under the state and federal Endangered Species Acts are typically issued on the
condition that the applicant provide compensatory mitigation. Options for such compensatory mitigation
include: 1) protection of existing similar habitat on-site in perpetuity, 2) purchase of existing similar habitat off-site (and protection in perpetuity), 3) creation, construction, or restoration of similar habitat on previously damaged or degraded habitat, or 4) the purchase of credits in a conversation or mitigation bank, should one be available in the Project vicinity and should the bank sell credits appropriate for the impact.

Potential CEQA-related impacts to biotic resources at the proposed Solar Farms Project Site are discussed in detail in Section K (Environmental Impact Analysis and Compensation) of this report.
A. PROJECT DESCRIPTION, BACKGROUND, AND AGENCY INVOLVEMENT

A.1 Applicant and Project Description

EE Avenal Land LLC (Applicant) has proposed the Avenal Photovoltaic Solar Farms (hereinafter referred to as the Project Site) on approximately 420 acres located on 4 separate parcels in Section 26, T22S, R17E approximately one mile southeast of Avenal, in southwestern Kings County, California (Figure 1). The Solar Farms Project Site is located on the east side of 36th Avenue (dirt), south of the Salem Avenue alignment (dirt) just under ½ mile east of State Highway 33 (Figure 2). As recently as September 21, 2009 the Project Site (Figure 3), currently under private ownership, was still being managed as irrigated, cultivated row crop (carrots), grain (winter wheat), and as cattle grazing land (with some segments of seasonally fallowed land). This agricultural practice is expected to be suspended during construction but continued after project implementation.

EE Avenal Land LLC proposes to develop, own and operate three photovoltaic (PV) solar farms to be located on 4 parcels of agricultural land (Figure 4) in unincorporated Kings County, near the town of Avenal, California. It is anticipated that these Projects would require County approval of a Conditional Use Permit (CUP) to allow for the construction, operation, and maintenance of such facilities for the long-term generation of clean renewable energy from solar power, which would ultimately be sold to a public utility company and distributed for public consumption.

The Projects will be developed using 4 parcels of land. The Project names and associated parcels are provided below. A map of the Project location and parcels is provided in Figure 4.

Table 1. Parcels Proposed for Acquisition and Development as the Avenal Photovoltaic Solar Farms (Project Site)

<table>
<thead>
<tr>
<th>APN</th>
<th>Parcel Size (Ac.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>38-290-007</td>
<td>80</td>
</tr>
<tr>
<td>38-290-008</td>
<td>160</td>
</tr>
<tr>
<td>38-290-009</td>
<td>140</td>
</tr>
<tr>
<td>38-290-011</td>
<td>40</td>
</tr>
<tr>
<td>TOTALS</td>
<td>420</td>
</tr>
</tbody>
</table>

The City of Avenal is located 65 miles southwest of Fresno with population of 16,737 people according to the 2000 census. The Avenal State Prison is approximately 1.5 miles southwest of the proposed facilities. Avenal has a diversified economy based on oil, agriculture, and the service industry. The Project Site is located at the eastern edge of the Kettleman Plain (a narrow valley in the Coast Ranges approximately 2 miles wide) on gently sloping agricultural land between the Kettleman Hills (east of the Project Site) and the Kreyenhagen Hills (west of the Project Site) at an elevation of approximately 700 to 800 feet. There are no remarkable topographic features on the Project Site. The parcels under consideration for acquisition and development as part of the proposed solar farm are considered prime farmland and are currently in production of organic carrots, wheat, and beef.
Figure 1. Project Regional Map. The proposed Avenal Photovoltaic Solar Farms Project Site is located approximately one mile southeast of Avenal, in southwestern Kings County, California. The City of Avenal is located 65 miles southwest of Fresno. The Avenal State Prison is approximately 1.5 miles southwest of the proposed facilities. The Project Site is located at the eastern edge of the Kettleman Plain (a narrow valley located in the Coast Ranges between the Kettleman Hills and the Kreyenhagen Hills.)
Figure 2. Location of the Proposed Avenal Photovoltaic Solar Farms Project Site on a portion of the Kettleman Plain USGS Quad Map (the green polygon indicates Parcel 009 for reference). The property covered by this reconnaissance level biological evaluation is located on approximately 420 acres located on 4 separate parcels in Section 26, T22S, R17E, Mount Diablo Base and Meridian approximately one mile southeast of Avenal, in southwestern Kings County, California. The Solar Farms Project Site is located on the east side of 36th Avenue (dirt), south of the Salem Ave. alignment (dirt) just under ½ mile east of State Highway 33.
Figure 3. Google Earth™ Satellite Photograph of Section 26, T22S, R17E (bounded by the white square). Approximately 420 acres located on 4 separate parcels in this Section are the site of the proposed Avenal hotovoltaic Solar Farms Project. A natural gas pipeline (buried) runs diagonally from northwest to southeast across the northeastern portion of this Section. All of the land within this project “footprint” is cultivated and has been in active irrigated agricultural production for years.
Figure 4. Project Site and Parcel Map. Included in the development proposal for the Avenal Photovoltaic Solar Farms Project Site are these 4 component parcels. A natural gas pipeline (buried) alignment is indicated by the dashed line that runs diagonally from northwest to southeast across the northeastern portion of this Section. Only those portions of Parcels 007 and 008 that are located west and south of this gas pipeline are under consideration for operation as part of this proposed Project. The project’s eastern boundary fence will be located a minimum of 30 feet west of the pipeline centerline.
The proposed facilities, about 5 miles from Interstate 5, can be accessed by traveling south from Interstate 5 on State Hwy 269 (Skyline Boulevard) and then turning southeast on Hydril Road (at the northeast entrance to Avenal) and then following 36th Avenue (a paved and unimproved County Road) south to the western edge of the Project Site.

It should be noted that the Project location offers optimal conditions for the type of Project being proposed. Located on a gently sloping southern exposure at an elevation slightly above the floor of the Tulare Basin (located just east of the Kettleman Hills), these 4 parcels on Section 26 are located in an area with a high number of cloud-free days on an annual basis (Kettleman Plain is less prone to winter tule fogs than the Tulare Basin), thereby providing an ideal site for sustainable, renewable, reliable solar energy production.

The Project will involve the construction of a solar energy electrical generation facility to provide electricity for public consumption. The facility will consist of an array of solar PV panels, supported on a galvanized metal racking system.

**Photovoltaic Panels**
The photovoltaic panels will be manufactured at an offsite location and transported to the Project Site. The panels will be made of either a poly crystalline or thin-film amorphous silicon material covering a glass pane and will be black in color and highly absorptive. The arrays will be oriented along an east-west axis with the panels facing generally to the south. The panels will be racks, mounted in a two-panel system (one panel pole-mounted above a second panel), measuring approximately 9’4” in total combined width. As designed, the total height of the two-panel system measured from ground surface will be approximately 7’10”. The panels will be tilted at an approximate 21-degree angle, or as otherwise determined necessary during final Project design. The length of each row of panels will be approximately 150 feet along the east/west axis. Spacing between each row along the vertical axis will be approximately 10.5 feet. An unsurfaced north-south access road, of minimum 20 foot width, will be provided every 300 feet between the horizontal rows (150 feet to either side).

**Racking**
Racking refers to the structure that holds the solar PV panels in the proper position for maximum capture of solar insolation. For the Project, a combination of galvanized I-beam steel posts and tubular steel will be used. The I-beams will be driven into the soil, using a pile driving technique similar to that used to install freeway guardrails.

**Panel Interconnections, Inverters, Distributed Transformers and Switch Gear**
Panels will be electrically connected into panel strings using wiring inside conduit attached to the racking. Panel strings will be electrically connected to each other via underground wiring. Wire depths will be in accordance with local, State, and Federal codes or deeper if necessary to accommodate agricultural activities including tilling and harvesting. Gathering lines will connect individual panel strings to one or more inverters/transformers and switching gear distributed throughout the facility. The inverters will convert the Direct Current (DC) produced by the PV panels into Alternating Current (AC). A pad-mounted transformer next to the inverter will increase the voltage.
Approximately 50 small-scale, aboveground structures will be constructed within the solar panel fields to weatherize inverter/distributor transformers and switching gear. These structures will be approximately 20 feet by 30 feet in size and constructed on a level concrete building pad. The structures will be constructed of non-flammable materials (i.e. steel) with a metal roof. Each structure will be designed to provide two feet of clearance above each inverter with screened ventilation provided on the roof to allow for the circulation of air for cooling purposes. The AC will then travel through underground gathering lines to the Project substation.

**Project Substations**
One Project substations will be located in the southwest corner of Parcel APN 38-290-009 for each Project. The Project substations will include transformers, breakers, switches, meters, and related equipment. The footprint of the Project substations will be approximately 160 feet by 90 feet each.

**Project Transmission Interconnections**
One substation will interconnect with a 70Kv transmission line and the second substation will interconnect with a 21Kv line (Figure 4). All interconnections will be less than 75 feet and above ground using an electrical tap, or other technique as deemed suitable to PG&E. Electricity placed on the 70Kv line will be transmitted for sale to outside markets, while electricity placed on the 21kV line will be available for local consumption. A telecommunication line will be installed to connect to the local telecommunication system. The precise locations of the tap points will depend on engineering and technical studies and on pending contractual agreements for sale of the power.

**Grading**
As stated above, the solar PV panels will be installed in rows in an east-west orientation. The land surface offered by the 4 parcels has a gentle southern exposure, is recently tilled, and will require minimal, if any, grading to allow for installation of the PV panels.

**Lighting**
Project lighting will be installed to allow for ongoing maintenance and security. Low-level lighting will be installed at entry and egress gates and at strategic locations around the facility. All Project lighting will be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships. All lighting will conform to applicable Kings County and Avenal City outdoor lighting requirements.

**Signage**
Minimal Project signage is proposed to allow for the identification of the Project owner and for safety and security purposes. Signage is proposed to be installed on the fence in the vicinity of the main entry gates. Signage will identify the Project operator and owner as EE Avenal Land, LLC and will provide emergency contact information. All signage will conform to Kings County signage requirements for the applicable zone. In addition, small-scale signage will be posted at the main entry gates, as well as intermittently along the perimeter fencing on all exterior parcel boundaries, to indicate “No Trespassing” and “Private Property” for security purposes.

**Access / Circulation**
Access to the three parcels will be provided from Avenue 36. The easement will provide adequate access to the Project Site. The easement will provide adequate access to the parcels to support construction and ongoing maintenance activities. Avenue 36 is a two-lane partially surfaced roadway and provides access to the east-west easement that borders the Substation site just north of the northern boundary.
Interior access will be provided by a 24-foot wide perimeter road (measured inward from the property boundary) on all parcels. These roads will be surfaced with 4 inches of aggregate and will be maintained to provide a fire buffer as well as to facilitate on-site circulation for emergency vehicles. In addition, internal roadways, approximately 20 feet in width and unsurfaced, will be provided along the north-south access every 300 feet between the east-west running rows of PV panels (150 feet to either side).

**Operation, Security and Maintenance**

The facilities will be monitored remotely by EE Avenal Land LLC. Once the solar panels are installed, the panels will operate during daylight seven days per week, 365 days per year. Security will be maintained through installation of an 8-foot high chain-link fence, which will include one foot of three-strand concertina wire, along the perimeter. Infrared security cameras, and/or other similar technology, will also be installed to allow for monitoring of the site through review of live 24/7 footage. A security patrol will also be contracted by EE Avenal Land, LLC, for security purposes. Should the security system detect the presence of unauthorized personnel, a security representative will be dispatched to the facility, and appropriate local authorities will be notified.

It is anticipated that maintenance of the facilities will require the presence of one or two workers under contract to EE Avenal Land, LLC, to perform visual inspections and minor repairs once per week, on average. On intermittent occasions, the presence of several workers may be required if repairs or replacement of equipment is required; however, due to the nature of the facilities, such actions are anticipated to be infrequent. Overall, minimal maintenance requirements are anticipated, as the panels will operate on their own with little human involvement required. One storage shed, approximately 20 by 30 feet in size, will be constructed for each Project to allow for the on-site storage of maintenance equipment and supplies.

Well water from an existing well, or purchased water from the City of Avenal will be used to allow for ongoing maintenance of the solar panels. It is anticipated that the solar PV panels will be washed approximately 0-2 times per year to remove dust particles and other buildup to ensure optimum solar absorption. As designed, the Project will generate a minimal demand for water. An adequate water supply is available. Minimal amounts of water (less than 800,000 gallons per year or the equivalent of six single-family homes) will be used to clean the panels on an infrequent basis. Due to the highly absorptive nature of the surface and underlying soils, water will run off the surface of the panels and absorb quickly into the ground surface, avoiding runoff and soil erosion.

**Schedule**

Construction of both Avenal Projects are anticipated to begin in spring, 2010. The Projects will be completed in phases. Sun City (APN 009 and 011), is expected to be on-line by the 4th quarter of 2010. Sand Drag (APN 007 and 008) is expected to be on-line at the end of 2010.

**Purpose and Need**

The Project is intended to allow for the installation and operation of a photovoltaic electrical generation facility. The Project represents an opportunity to provide the residents of Avenal and Kings County with a source of clean energy from renewable sources. The energy generated by the Project will be provided directly to 70kv transmission lines which exist on the western edge of the property. The electricity on the 70 kV line will be transmitted westward approximately 300 yards to the Avenal Substation and northward approximately 7 miles to the nearest existing substation.
The Project represents an additional clean source of electrical power that will supplement energy currently supplied by the existing power grid, thereby reducing the potential for power shortages to occur and decreasing demands on the capabilities of the existing distribution system.

**Consistency with California Global Warming Solutions Act of 2006 (Assembly Bill 32)**

The Project will be consistent with and implement the goals and mandates of Assembly Bill 32 (AB 32), referred to as the California Global Warming Solutions Act of 2006, adopted by the California State Legislature in September 2006. AB 32 recognizes that California is the source of a substantial amount of greenhouse gas (GHG) emissions, and further acknowledges that global climate change may potentially result, causing adverse impacts on water supply, air quality, fire hazards, sea level rise (flooding), and/or an increase in human health-related problems. GHGs as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 establishes a State goal of reducing GHG emissions to 1990 levels by the year 2020. In addition, the long-range reduction goal is reflected in Executive Order S-3-05, which requires GHGs to be reduced to 80 percent below 1990 levels by 2050.

In December 2008, the California Air Resources Board (CARB) adopted the AB 32 Scoping Plan which contains the main strategies California will use to reduce GHGs that cause climate change. The Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms (such as a cap-and-trade system), and a cost of implementation fee regulation to fund the AB 32 program. The Plan utilizes SB 375 as the mechanism to achieve land use and vehicle mile travel reduction goals and proposes full deployment of the California Solar Initiative, high-speed rail, water-related energy efficiency measures, and a range of regulations to reduce emissions from trucks and from ships docked in California ports.

The Project will provide a source of clean energy from renewable resources, thereby reducing dependence on energy generated from non-renewable sources or through methods that require environmental disturbance. It is estimated that the use of solar power will substantially offset approximately 0.5 tons of carbon dioxide (CO₂) per Mega Watt hour (MWh), as compared to that of electricity generated by the processing of fossil fuels.¹ As such, the Project will be consistent with AB 32, producing clean energy while avoiding the generation and/or emission of compounds that will further contribute to global climate change or adverse atmospheric effects. As such, the Project will support County efforts to achieve the required overall reduction in GHG production, consistent with the timeline established by AB 32.

**Merits of the Project**

With exception of limited noise generated during the construction phase by operation of construction vehicles and equipment, the Project will not create a substantial new source of noise in the area, either from ongoing operation of equipment or human activity (i.e., maintenance). In addition, sensitive receptors (i.e., residential uses) are not adjacent to any of the affected parcels, and therefore, will not be disturbed by construction or operation of the proposed facilities.

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¹ Average CO₂ emissions in CA from traditional fuels = 1,100 lbs. CO₂/MWh or .55 tons CO₂/MWh. Source CPUC: ftp://ftp.cpuc.ca.gov/puc/070319_renewengystory0107.pdf
The Project also represents a land use that will require limited use of local public services and/or utilities, either during construction or operation. Project components (i.e., PV solar panels, support structures, and electrical interconnection equipment) will be brought to the site and assembled. Long-term operation of the Project will require minimal use of public utilities, and use a limited amount of water for maintenance purposes (washing of the solar PV panels 0-2 times per year). Therefore, the Project will not create a significant new demand on local resources, such as water, that will be required if the affected parcels were otherwise developed with alternative land uses, such as single-family residential or agricultural uses.

In addition, Project-generated traffic will be generally limited to one employee trip per week for maintenance purposes. Therefore, the Project is not anticipated to contribute to a significant increase in traffic along area roadways above existing conditions. A temporary minor increase in traffic may occur along area roadways during the construction phase as workers and materials are transported to and from the affected sites; however, the Project is not expected to cause a significant short-term increase in traffic volumes on area roads, due to the nature and scope of the construction activities required (i.e. limited grading, delivery of pre-constructed panels to the sites, etc.).

**Anticipated Permits and Agency Approvals Required**

Kings County will act as the Lead Agency under the requirements of the California Environmental Quality Act (CEQA). Approval from Kings County will be required for grading and construction permits, as well as for right-of-way encroachment permits, if applicable, prior to commencement of ground-disturbing activities. EE Avenal LLC will also work closely with the City of Avenal to ensure that the proposed Project is compatible with City laws and ordinances.

**A.2 Federal Agency Interaction on Biological Resource Issues**

Because the proposed Solar Farms Project Site is within the range of blunt-nosed leopard lizard, burrowing owl, San Joaquin kit fox, and other Special Status (listed and proposed) Species, Applicant requested that Hansen's Biological Consulting (HBC) conduct a biological evaluation to satisfy CEQA requirements for the proposed Project in this portion of southwestern Kings County. On projects like this in this part of Kings County, United States Department of Interior, Fish and Wildlife Service (USFWS) routinely recommends that a "trained biologist, familiar with the habitat requirements of listed and proposed species, should determine whether these species or habitats suitable for these species may be affected by the proposed action...prior to the environmental review process."

In a 1 April 1996 letter from USFWS to an applicant for a separate Project in Tulare County, USFWS stated:

> If a Federal agency is involved with the permitting, funding, or carrying out of this Project, then initiation of formal consultation between the agency and the Service pursuant to Section 7 of the [Endangered Species] Act is required if it is determined that the proposed Project may affect a federally listed species.

In situations where the project has no federal nexus, consultation between the Applicant (EE Avenal Land, LLC) and USFWS pursuant to Section 10 of the [Endangered Species] Act is required if it is determined that the proposed Project may affect a federally listed species.
A.3 State Agency Interaction on Biological Resource Issues
California Department of Fish and Game (CDFG) routinely recommends that applicants conduct a biological assessment for Special Status Species and, in particular, blunt-nosed leopard lizard and San Joaquin kit fox surveys and avoidance prior to construction. Since the proposed Solar Farms Project Site is also within the range of burrowing owl, CDFG also routinely recommends that applicant conduct a burrowing owl survey prior to construction. In its role as a trustee agency, CDFG works with Project applicants to avoid or minimize adverse effects on fish, wildlife (including raptors, like burrowing owl), or native plants.

A.4 Project-Related Mitigation Guidelines
USFWS and CDFG work to avoid land use decisions that might restrict the range or reduce the numbers of rare or endangered species. Under the Endangered Species Act, if it is determined that listed species will be adversely affected (or if a Project impact is likely to have an adverse effect on listed species), such impacts can not be mitigated. Under these circumstances, Applicant should initiate informal consultation with USFWS to determine whether a Section 7 consultation is indicated.

Under CEQA, once a threshold for significance has been established (e.g. significant impacts to a natural community, to Special Status Species, or to common wildlife species), applicant can address a range of mitigation options. In view of CEQA guidelines, CDFG has traditionally encouraged Project proponents (such as Applicant and the County of Kings) to take the following hierarchical approach to mitigate for any human impacts to natural communities and wildlife:

1. Ideally, any proposed Project should be designed to avoid impacts to high quality habitat and sensitive species (e.g. blunt-nosed leopard lizard, burrowing owl, or San Joaquin kit fox).
2. If avoidance is not possible, CDFG encourages Project proponent to minimize loss of natural habitat and habitat quality. Habitat improvements, including revegetation with native species or enhancement of degraded habitat (including removal of non-native species), either on-site or off-site may be used as mitigation (McCauley and Single 1995).
3. Another important component of effective mitigation includes efforts aimed at reducing human disturbance by controlling access to sensitive areas or devising plans for coexistence.
4. Short-term mitigation may be recommended during construction. Construction and maintenance personnel are instructed on “take” avoidance. Native vegetation may be replanted, and protection recommended on the Project Site for habitat features critical to endangered and threatened species. Individual plants or animals may be relocated off-site by a qualified biologist (Giusti and Tinnin 1993).
5. Long-term mitigation may include control of alien and wild predators and invasive plant species, or encouraging growth of forage plants for native animal species (Giusti and Tinnin 1993).

A. 5. Project Background
David Tomlinson, Project Development Consultant for the Applicant (EE Avenal Land LLC) contacted Robert B. Hansen, principal biologist at Hansen’s Biological Consulting (HBC), on June 1, 2009 to request that HBC conduct a biological evaluation of the Project Site and prepare a report of his findings.
Mr. Hansen met with Mr. Tomlinson in Hanford on July 23, 2009 to discuss Applicant’s proposed project. At the end of that meeting, Mr. Hansen submitted to David Tomlinson a proposal to conduct the biological evaluation (to determine potential impacts to Special Status Species and natural habitat areas) component of the CEQA environmental review. An agreement between Applicant and HBC was signed on July 31, 2009 and Mr. Hansen subsequently visited the Project Site to conduct the field portion of the biological evaluation on August 7 and September 21, 2009. It is agreed that the report of findings produced upon the conclusion of this reconnaissance level biological survey will be used in the following manner ONLY: for consideration during any necessary NEPA/CEQA review of these proposed Projects by local, state, and/or federal agencies. It is understood that Hansen's Biological Consulting (HBC) does NOT make recommendations for approval or denial of the Project.

B. LOCATION OF SUBJECT PROPERTY

Applicant proposes to develop, own and operate two photovoltaic (PV) solar farms on approximately 420 acres located on 4 separate parcels on unincorporated agricultural land approximately one mile southeast of Avenal, in southwestern Kings County, California (Figure 1). The proposed Project lands are located on the east side of 36th Avenue (dirt), south of the Salem Avenue alignment (dirt) just under ½ mile east of State Highway 33 (Figure 2) on the Kettleman Plain, California 7.5 minute series USGS Quad map. The Solar Farms Project Site is located in Section 26, Township 22 South, Range 17 East, Mount Diablo Base and Meridian (MDB&M).

The Project Site is located at the eastern edge of the Kettleman Plain on gently sloping agricultural land. The Kettleman Plain is a narrow (approximately 2 miles wide at this point) valley in the Coast Ranges between the Kettleman Hills (east of the Project Site) and the Kreyenhagen Hills (west of the Project Site). Unlike the trough of the Tulare Basin (southern San Joaquin Valley) which has an elevation gradient that trends from southeast to northwest, the Kettleman Plain (which sits about 500 feet higher than the west edge of the Tulare Basin) slopes gently from northwest to southeast. While the Kettleman Plain is separated from the Tulare Basin by the Kettleman Hills, it is hydrologically connected to the Tulare Basin by drainage through Avenal Gap (between the Middle Dome and the South Dome of the Kettleman Hills) which flows down-gradient to the northeast towards where Dudley Ridge juts east like a small peninsula into the southwestern shore of the historic Tulare Lake.

The elevation of the Solar Farms Project Site varies from a high near 760 feet National Geodetic Vertical Datum (NGVD) near the northeast corner of Parcel 011 to a low of approximately 700 feet NGVD near the southeast corner of Parcel 008 (Figure 4). The land in this part of Kings County has a gently sloping gradient of approximately 100 feet per mile toward the south and west.

While the Project Site supports no remarkable topographic features, winter storm events in the Kettleman Hills are apparently common enough and intense enough that the alluvial fans of Arroyo Mellado and Arroyo Chico intermittently convey flood waters onto portions of the plain near the proposed project site (Figure 5). Arroyo Mellado drains southwest from the western slopes of the Kettleman Hills into the northeast corner of Section 26. This stream does not pose a threat to the parcels under consideration for this Project (because its channel now curves south and east to carry flood flows and irrigation runoff to the southeast and east of the pipeline alignment east of the proposed project. the alluvial fan of Arroyo Mellado historically traversed the east half of Section 26 in a southerly and south-southwesterly direction through what are now Parcels 007 and 008 (Figure 5).
Similarly, Arroyo Chico, which drains south from the western slopes of the Kettleman Hills along the west edge of Section 23 (just ½ mile north of Section 26) has an alluvial fan that historically spread south across the eastern edges of what is now Parcel 011 (Figure 5). Fossil mollusks (presumably from formations upslope in the Kettleman Hills) are common on the Project Site, especially on the historical alluvial fan of Arroyo Mellado in the west half of Parcel 008 (Figure 6). These fossil bivalves are probably *Mya dickersoni*, one of the representative species of the Middle Pliocene San Joaquin Formation. These sedimentary deposits (2.5 to 3.6 million years ago) are common in portions of the Kettleman Hills. Reef Ridge, a prominent landscape feature visible 4 miles southwest of the Project Site, contains an approximately 300-foot thick layer of uplifted Miocene sedimentary rock (even more ancient than Pliocene formations) that contains a rich, assemblage of fossil bivalves, sand dollars, and other marine invertebrates.

C. CURRENT LAND USE

The entire acreage (420 acres located on 4 separate parcels) at the proposed Avenal Photovoltaic Solar Farms Project Site, still under private ownership, is currently managed (and has been for many years) as irrigated, cultivated row crop (carrots), grain (winter wheat), and as cattle grazing land. The carrots (Figure 7), wheat (Figure 8), and beef cattle are all under organic production. The size and location of the 4 parcels (all contained within one square mile of land – Section 26, Township 22 South, Range 17 East) is indicated on Figure 4 and the adjusted acreage of all the parcels (only those portions that will be acquired and developed as part of the proposed solar energy electrical generation facility) is indicated in Table 1 on page 13.

At the time of the field surveys (August 7 and September 21, 2009), all the land on the Project Site was being irrigated as row crops (carrots), had been harvested (winter wheat), was being grazed by cattle, or was fallow (Figure 9, 10, 14, 15, and 16). During 2009, 300 acres in the southern half of Section 26 (Parcels 008 and 009) were planted with winter wheat (dryland farmed) that was harvested in May and June. Since the harvest, a small number of heifers, cows, and steers have grazed on the wheat stubble (Figure 9). On August 7, 2009 Parcel 011 was fallow but had been planted earlier in carrots which were harvested in spring (probably April) 2009. The current land owner typically plants two different “cohorts” of carrots. One crop is planted in November and is harvested in April/May. The other crop is planted in spring (April/May) and is harvested in September. In order to maintain as much soil moisture as possible in this arid farmland, the owner is in the habit of plowing into the soil all the carrot biomass that remains after harvest. This ground, which is then fallowed for 6-8 months (approximately May to November), is next planted in November/December with winter wheat which is typically harvested in May/June.
Figure 5. September 30, 2003 Google Earth™ Satellite Photograph of Section 26, T22S, R17E bounded by the white square). The alluvial fan of Arroyo Mellado enters the northeast corner of this Section and historically traversed the east half of Section 26 in a southerly and south-southwesterly direction through what are now Parcels 007 and 008. Similarly, Arroyo Chico, which drains south from the western slopes of the Kettleman Hills along the west edge of Section 23 (just ½ mile north of Section 26) has an alluvial fan that historically spread south across the eastern edges of what is now Parcel 011.
Figure 6. Fossil Clams. Fossil clams, such as this specimen, were widespread on the Project Site and were most commonly found at the soil surface during walking transects across Parcels 008 and 009. Presumably, these specimens were washed from Pliocene fossil deposits up in the Kettleman Hills out onto the floor of the Kettleman Plain during winter storm events when numerous arroyos create intermittent alluvial fans. The grain heads in this photo are red wheat from the previous season’s harvest.

Figure 7. Sprinkler irrigated organic carrots near the end of the “spring/summer cohort” growing season (photographed on August 7, 2009). This is a view to the north along the western edge of Parcel 007. The Kettleman Hills are in the background. Soils in this portion (the very center) of Section 26 are Wasco sandy loam, 0 to 5 percent slopes.
During 2009, 300 acres in the southern half of Section 26 (Parcels 008 and 009) were planted with winter wheat. In this view to the north, the portion of that wheat crop in Parcel 008 (on the right side of the photograph) was harvested in May and June; the portion in Parcel 009 (on the left side of the photograph) was left for the cattle to graze.

During an August 7, 2009 conversation, the current land owner stated that the cultural practices and crop/grazing rotation used this year (as detailed in the previous paragraph) have been in practice for ten years (Figure 11) on all of the land under consideration for acquisition and development as part of the proposed solar energy electrical generation facility (Douglas Morris, pers. comm.).

A few small ornamental palms grow at a ranch gate located on the east side of 36th Avenue, there is a line of tall utility poles that extends north-south along the east side of 36th Avenue, a barbed wire fence encloses nearly the entire Section, and there is a cattle corral with shade and a water trough located ¼ mile west of the southeast corner of Parcel 008. Along those fence lines and wherever else tractor-drawn implements can’t reach, the land on the Project Site typically supports very sparse annual grasses and forbs of a more ruderal nature (consisting mostly of opportunistic “weedy” species). Because of the arid nature of the Project Site, such ruderal vegetation is relatively limited in extent except where irrigation runoff provides adequate moisture for weeds to germinate but even here, they only persist until the next diskimg treatment. It is noteworthy that irrigation runoff today (Figure 12) still flows in a southerly and south-southwesterly direction through Parcels 007 and 008, mirroring the route of the historical alluvial fan of Arroyo Mellado (Figure 5).

There are no residences or other structures on the Project Site. Dirt ranch roads (each approximately 20 feet wide) border the perimeter of most parcels (Figure 13). Except for the Avenal Prison’s waste water treatment ponds, located diagonally southwest of the southwest corner of Parcel 008 (and a few residences located on private land west of Parcel 011). There are no residences or other structures on the Project Site. Dirt ranch roads (each approximately 20 feet wide) border the perimeter of most parcels (Figure 13). Except for the Avenal Prison’s waste water treatment ponds, located diagonally southwest of the southwest corner of Parcel 008, there is no land on or adjacent to the Project Site that supports any undisturbed (uncultivated) vegetation or any natural plant communities.
Figure 9. After Winter Wheat. After winter wheat is harvested (May/June), a small number of heifers, cows, and steers use the wheat stubble as pasture. On ground such as this, fallen grain seeds volunteer and are allowed to grow until spring (February/March). Then, once cattle are moved off the wheat stubble, the green cover crop and the cattle manure are incorporated into the soil so that the green biomass can help to maximize retention of soil moisture.

Figure 10. South-Southeast View. This is a view south-southeast in Parcel 009 on August 7, 2009. When Russian thistle (*Salsola tragus*), aka “tumbleweeds” becomes a problem), the current land owner disks once then uses two follow-up treatments with a tractor-drawn weed knife to sever the weeds’ roots 3 inches beneath the soil surface.
Figure 11. December 30, 2005 Google Earth™ Satellite Photograph of Section 26, T22S, R17E (bounded by the white square). When compared with the most recent satellite photograph of the Project Site (Figure 3), this image provides [photo]graphic archival evidence that the agricultural practices and crop/grazing rotation used in 2009 (as detailed in the paragraph on page 27) have (as affirmed by the current land owner/farmer) been in practice for many years (certainly for 3 ½ years) on all of the land under consideration for acquisition and development as part of the proposed solar energy electrical generation facility (Douglas Morris, pers. comm.).
Figure 12. This is a view “uphill” on August 7, 2009 showing irrigation runoff from the carrot crop that was being sprinkler-irrigated in Parcel 007 that day. Because of the arid nature of the Project Site, such ruderal vegetation (Russian thistle) is most vigorous and abundant along and adjacent to such runoff “channels”. It is noteworthy that irrigation runoff today still flows in a southerly and south-southwesterly direction through Parcels 007 and 008 (this photo is a view north along the boundary between these two parcels), mirroring the route of the historical alluvial fan of Arroyo Mellado (see Figure 5 above).

Figure 13. This is a view east along the [very muddy and rutted] dirt ranch road (approximately 20 feet wide) that forms the northern boundary of Parcel 007. Carrots were growing on Parcel 007 when this photograph was taken on August 7, 2009. Residential structures are located on private land just west of Parcel 011, all other lands surrounding the Project Site (including silhouette target shooting property owned and managed by the Avenal Gun Club just north of Section 26) are managed as grain, row crop, or grazing land (Figures 14, 15, 25 and 26). At any given season, some of those lands may be fallowed.
D. SURVEY DATES AND SURVEY PERSONNEL

The field component of the biological evaluation was conducted on two separate days. Robert Hansen (along with a biological field assistant) conducted the biological assessment of the 4 numbered parcels (Parcels 007, 008, 009, and 011) between 8:10 am and 1:10 pm and between 2:15 and 7:15 pm on August 7, 2009 (Figure 17 and 19). This initial site visit included a thorough interview of the current land owner/farmer (Douglas Morris) to become familiar with his past and ongoing agricultural practices and the details of his crop/grazing rotation. Mr. Morris also provided anecdotal information about a variety of recent and historical wildlife observations he has made on and near the Project Site during his lifetime. Robert Hansen returned to the Project Site between 5:25 and 6:55 pm on September 21, 2009 and conducted a follow-up perimeter reconnaissance of lands along the west and north sides of the Project Site. During both the August and the September site visits, Mr. Hansen and his field assistant completed a systematic walking transect survey across all 4 parcels while searching for evidence of kit fox, burrowing owl, and other special status animal and plant species. The biologists also surveyed the entire perimeter of all 4 parcels on foot. Pedestrian survey transects, to look for burrowing owls, burrowing owl burrows, other Special Status animal Species (including kit fox dens and sign and any evidence of blunt-nosed leopard lizard), and Special Status plant Species were used to cover the entire proposed Project Site. Walking transects were covered at 100-meter intervals. After reconnoitering the site, Mr. Hansen and his assistant walked transects in such a way that that each observer scanned a narrow strip of ground approximately 50 meters on both sides of each transect that they walked. During transect surveys, each biologist searched for natural habitat areas, common plant and animal species, and for any evidence (including dead plants, dens, scats, tracks, prey remains, etc.) of Special Status plant and animal Species. Habitat notes and a list of plant and animal species were recorded while conducting the walking transect surveys. A list of native and non-native flora (Appendix C) and fauna (Appendix D) found on the proposed Project Site was prepared.

E. STUDIES REQUIRED TO SATISFY ENDANGERED SPECIES LAWS

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered “rare” and are vulnerable to extirpation as the state’s human population grows and the habitats these species occupy are converted to agricultural and urban uses. State and federal laws have provided CDFG and the USFWS with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. Many native plant and animal species have been formally designated as Threatened or Endangered under State and federal endangered species legislation. Other species have been designated as “Species of Special Concern” by CDFG. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened or endangered (CNPS 2008). Collectively, these plants and animals are referred to as “Special Status Species”.

Figure 14. This is a view north-northwest from Parcel 009 on August 7, 2009. As noted above, this neighboring land (like nearly all the properties surrounding the Project Site) is managed as grain, row crop, or grazing land and that much of the neighboring property is idled or fallow at any given season. This neighboring property was fallowed on this date. The distant building on the right is a small airplane hangar at the north end of a small private airstrip.

Figure 15. This is a view east towards the Kettleman Hills from the east edge of Parcel 007. While viewing through binoculars across this fallow, previously cultivated neighboring land, there was not a single visible blade of green vegetation and no animals or animal burrows could be seen.
Figure 16. This is a view south towards Reef Ridge and the Kreyenhagen Hills along the east edge of Parcel 011 on August 7, 2009. While a carrot crop was harvested on this parcel earlier in the year, the scattered patches of sparse annual grasses and forbs of a more ruderal nature (consisting mostly of opportunistic “weedy” species) are typical of such fallowed post-harvest sites.

Figure 17. Walking a transect survey. Robert Hansen and a biological field assistant (wearing a white shirt behind a distant shrub) conducted systematic walking transect survey of the 4 numbered parcels on August 7, 2009. Transects (at 100-meter intervals) were conducted in such a way that each observer scanned a narrow strip of ground approximately 50 meters on both sides of each transect that they walked. During the survey, each biologist searched for natural habitat areas, common plant and animal species, and for any evidence of Special Status plant and animal species.
A California Natural Diversity Data Base (CNDDDB) “Rarefind” printout for September 27, 2009 was consulted to generate a list of all Element Occurrences (occurrences of all Special Status Species in the CNDDDB files) on the Kettleman Plain Quad (where the Project Site is located) and the surrounding 8 Quads (Figure 19): Avenal, Avenal Gap, Garza Peak, Kettleman City, La Cima, Los Viejos, Pyramid Hills, Tent Hills (listed here alphabetically). A total of 27 species (9 plants and 18 animals) were listed on this CNDDDB printout (Appendix A). An additional 6 taxa: Swainson’s hawk (*Buteo swainsoni*), golden eagle (*Aquila chrysaetos*), lesser sandhill crane (*Grus canadensis canadensis*), greater sandhill crane (*Grus canadensis tabida*), mountain plover (*Charadrius montanus*), and long-billed curlew (*Numenius americanus*), were added to the report from records found in other sources and because they are included on the American Bird Conservancy’s United States Watch List of Birds of Conservation Concern (http://www.abcbirds.org/abcprograms/science/watchlist/WatchList.pdf) for a total of 31 Special Status Species (and one additional subspecies). These additional records come primarily from personal field notes generated by Robert Hansen during 28 years of field work in this part of the Tulare Basin. The entire list of 32 taxa includes 9 plants, 3 insects, 1 amphibian, 2 reptiles, 9 birds, and 8 mammals.

Figure 18. California Natural Diversity Data Base Printout. A California Natural Diversity Data Base (CNDDDB) “Rarefind” printout for September 27, 2009 was consulted to generate a list of all Element Occurrences (occurrences of all Special Status Species in the CNDDDB files) on the Kettleman Plain Quad (where the Project Site is located) and the surrounding 8 Quads: Avenal, Avenal Gap, Garza Peak, Kettleman City, La Cima, Los Viejos, Pyramid Hills, Tent Hills (listed here alphabetically). A total of 27 species (9 plants and 18 animals) were listed on this CNDDDB printout (Appendix A).

While considering only those 27 Special Status Species which are tracked by CNDDDB, Garza Peak and Tent Hills are the two Quads tied for first place in terms of the highest richness of Special Status Species with 11 each, followed by the Avenal Gap, Kettleman Plain, La Cima, and Los Viejos Quads with 10 species each, and the lastly the Avenal, Kettleman City, and Pyramid Hills Quads with 8 species each.
The 4 species with the highest percentage of Quad detection for any of the Special Status Species are San Joaquin kit fox, which has a total of 37 Element Occurrences (EOs) reported on 7 Quads, San Joaquin woollythreads (*Monolopia congdonii*), which has a total of 30 EOs reported on 4 Quads, blunt-nosed leopard lizard (*Gambelia sila*), which has a total of 27 EOs reported on 6 Quads, and burrowing owl, which has a total of 20 EOs reported on 6 Quads.

The detection rate pattern for Special Status Species is related to the actual distribution of the species and to how rare and important each species is perceived to be by biologists who have worked in an area. The rarest species such as the blunt-nosed leopard lizard and San Joaquin kit fox are reported to CNDDB nearly every time they are detected, while more common Special Status Species such as the breeding loggerhead shrike are ignored (or less routinely reported to the CNDDB). This gives the erroneous impression that the most common Special Status Species are rare and the rarest Special Status Species are common. All 32 of the taxa addressed in this report are listed below with their legal status codes.

- **oval-leaved snapdragon**, *Antirrhinum ovatum*  CNPS 4.2, G3
- **round-leaved filaree**, *California macrophylla* CNPS 1B.1, G3
- **California jewel-flower**, *Caulanthus californicus*  FE, SE, CNPS 1B.1, G1
- **Lemmon's jewelflower**, *Caulanthus coulteri* var. *lemmonii* CNPS 1B.2, G4
- **recurved larkspur**, *Delphinium recurvatum* CNPS 1B.2, G2
- Temblor buckwheat, *Eriogonum temblorense* CNPS 1B.2, G2
- **pale-yellow layia**, *Layia heterotricha* CNPS 1B.1, G2
- **showy golden madia**, *Madia radiata* CNPS 1B.1, G2
- **San Joaquin woollythreads**, *Monolopia congdonii*  FE, CNPS 1B.2, G3
- **San Joaquin dune beetle**  *Coelus gracilis*  G1
- molestan blister beetle, *Lytta molesta*  G2
- Doyen's trigonoscuta dune weevil, *Trigonoscuta* sp.  G1
- California red-legged frog, *Rana draytonii*  FT, SSC, G4
- **blunt-nosed leopard lizard**, *Gambelia sila*  FE, SE, SFP, G1
- **San Joaquin whipsnake**, *Masticophis flagellum ruddocki*  SSC, G5
- **Swainson's hawk**, *Buteo swainsoni* (nesting) ST, WL, G5
- **golden eagle**, *Aquila chrysaetos*  SFP , G5
- **praire falcon**, *Falco mexicanus*  WL, G5
- **lesser sandhill crane**, *Grus canadensis canadensis*  SSC (non-breeding/wintering), G5
- **greater sandhill crane**, *G. c. tabida*  ST (nesting & non-breeding/wintering), SFP, G5
- **mountain plover**, *Charadrius montanus*  SSC (non-breeding/wintering), WL, G2
- **long-billed curlew**, *Numenius americanus*  WL, G5
- **burrowing owl**, *Athene cunicularia*  SSC (nesting), G4
- **loggerhead shrike**, *Lanius ludovicianus*  SSC, G4
- tricolored blackbird, *Agelaius tricolor*  SSC (nesting colony), WL, G2
- **Nelson's antelope squirrel**, *Ammospermophilus nelsoni*  ST, G2
- short-nosed kangaroo rat, *Dipodomys nitratus brevinasus*  SSC, G3
- Tipton kangaroo rat, *Dipodomys nitratus nitratus*  FE, SE, G3
- giant kangaroo rat, *Dipodomys ingens*  FE, SE, G2
- **San Joaquin pocket mouse**, *Perognathus inornatus inornatus*  G4
- **Tulare grasshopper mouse**, *Onychomys torridus tularensis*  SSC, G5
- **San Joaquin kit fox**, *Vulpes macrotis mutica*  FE, ST, G4
- **American badger**, *Taxidea taxus*  SSC, G5

FE Listed as Endangered by the Federal Government
FT  Listed as Threatened by the Federal Government*
SE  Listed as Endangered in the State of California
ST  Listed as Threatened in the State of California
SFP  Fully Protected Species in the State of California
SSC  California State Species of Special Concern
WL  American Bird Conservancy’s United States Watch List of Birds of Conservation Concern (http://www.abcbirds.org/abcprograms/science/watchlist/WatchList.pdf)
CNPS 1B.1 California Native Plant Society List 1B.1 (Plants Rare, Threatened, or Endangered in California and Elsewhere; seriously threatened in California)
CNPS 1B.2 California Native Plant Society List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere; fairly threatened in California)
CNPS 4.2 California Native Plant Society List 4.2 (Plants of Limited Distribution; fairly threatened in California). This is a Watch List). The plants in this category are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears relatively low at this time.
G1  Critically Imperiled - At very high risk of extinction due to extreme rarity very steep declines, or other factors. Less than 6 viable occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres.
G2  Imperiled - At high risk of extinction due to very restricted range, very few populations, steep declines, or other factors. 6-20 Element Occurrences OR 1,000-3,000 individuals OR 2,000-10,000 acres.
G3  21-100 Element Occurrences OR 3,000-10,000 individuals OR 10,000-50,000 acres.
G4  Apparently secure, this rank is clearly lower than G3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat.
G5  Population or stand demonstrably secure to ineradicable due to being commonly found in the world.
SA  Special Animal is a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of “species at risk” or “Special Status Species”. The Department of Fish and Game considers the taxa on this list to be those of greatest conservation need. The species on this list were used in the development of California’s Wildlife Action Plan (available at: http://www.dfg.ca.gov/wildlife/WAP). The species on this list generally fall into one or more of the following categories:
• Officially listed or proposed for listing under the State and/or Federal Endangered Species Acts.
• State or Federal candidate for possible listing.
• Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines. (More information on CEQA is available at http://ceres.ca.gov/topic/env_law/ceqa/guidelines/
• Taxa considered by the Department to be a Species of Special Concern (SSC)
• Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring.
• Populations in California that may be on the periphery of a taxon’s range, but are threatened with extirpation in California.
• Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, vernal pools, etc.)
• Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO).

This study was designed to assess the status of the 24 taxa typed in bold font in the list above. These 23 species (and possibly one additional subspecies) have been reported on the Project Site or within a 5-mile radius of the Project Site (Appendix B). Information on Special Status Species known or expected to occur within the Project area was derived from the scientific literature, field notes, CNDDB files, and six unpublished reports: 1) Biological Assessment of Sensitive Species Status for the City of Avenal Proposed Off-Highway Vehicle Park, Kings County (Hansen 1989); 2) Biological Assessment for Five Special Status Species on the Site of the Proposed Contel Cellular Communication Tower Facility Southeast of Coalinga, Fresno County (Hansen 1990); 3) Preliminary Biological Assessment of Natural Habitat Areas and Sensitive Species Status on the Site of a Proposed Cellular Radiotelephone Equipment Facility (Turn-Key Telecommunications Site) Near Kettleman City, Kings County (Hansen 1991); 4) Addendum to the Biological Assessment of Sensitive Species Status for the City of Avenal Proposed Off-Highway Vehicle Park, Kings County (Hansen 1989) for the Avenal General Plan Update/EIR (Hansen 1992); 5) Preliminary Biological Assessment of Natural Habitat Areas and Sensitive Species Status and Determination of Need for Additional Biota Surveys on the Site of the Proposed Interstate-5 Industrial Park with More Specific Analysis of the 25± Acre Site to be Known as the Western Drum Site Near Avenal, Kings County (Hansen 1993); and 6) Biological Assessment of Site Proposed for Avenal Elementary School, Kings County, California (Hansen 1999).

Some of these species are represented by one or more occurrences on CNDDDB data printouts for the Kettleman Plain, California 7.5 minute series U.S.G.S. Quadrangle map, the eight adjacent U.S.G.S. Quadrangle maps, or else the soils and habitat are appropriate and their occurrence is likely.

F. STUDY METHODOLOGY

F.1. Literature Review
See Literature Cited section.

F.2. Consult California Natural Diversity Data Base
A September 27, 2009 printout of CNDDDB “Rarefind” information (Appendix A) from the following 7.5 minute series U.S.G.S. quadrangle maps was used to compile the Special Status Species list: this list of U.S.G.S. maps includes the Kettleman Plain Quad (where the Project Site is located) and the surrounding 8 Quads (Figure 18): Avenal, Avenal Gap, Garza Peak, Kettleman City, La Cima, Los Viejos, Pyramid Hills, Tent Hills (listed here alphabetically).
Special Status Species records in the CNDDB report from within a five-mile radius of the Project Site (Appendix B) were consulted in order to help generate historical records (called "element occurrences"). The current status of the 24 taxa known from within this 5-mile radius and the likelihood of their occurrence within the Project impact area are evaluated in Section J (below).

**F.3. Consultation with Experts on Species**

I have contacted the following researchers concerning the ecology and local distribution of these 23 Special Status Species (and possibly one additional subspecies). Each expert is listed with their official affiliation at the time of my most recent communication:

Anderson, Richard L.  Biologist (Herpetology, Ornithology, Mammalogy), California Energy Commission, Sacramento, CA

Cypher, Dr. Brian L.  Research Ecologist, coordinates several research Projects on San Joaquin kit fox for the Endangered Species Recovery Program's, Bakersfield, CA.

Cypher, Dr. Ellen.  Plant Ecologist, California Department of Fish and Game, Bakersfield, CA.

Dr. F. Thomas.  Senior Ecologist (specializing in restoration of native plant communities of California’s Central Valley), with River Partners, Chico, CA

Haines, Dennis.  Botanist/Entomologist, Tulare County Agricultural Commissioner's Office, Visalia, CA

Hansen, Robert W.  Herpetologist (specializing in *Batrachoseps* and herpetological general ecology, taxonomy, conservation, and management), Editor, Herpetological Review, Clovis, CA

Hartesveldt, David.  Principal Biologist/Botanist/Wetland Ecologist, Live Oak Associates, Oakhurst, CA

Kelly, Dr. Patrick.  Biologist (specializing in mammalian ecology and conservation and recovery of endangered mammals in California) and Director, Endangered Species Recovery Program, Fresno, CA

Laymon, Steven.  Natural Resources Specialist on the Atwell Island Restoration Project, Bureau of Land Management, Alpaugh, CA

Mitchell, Dr. Diane.  Native Plant Botanist/Ecological Restoration Consultant, Bakersfield, CA

Olsen, Rodney.  Biologist (conducted burrowing owl studies at Colonel Allensworth State Historic Park), Fresno City College, Fresno, CA


Speigel, Linda.  Biologist, California Energy Commission, Sacramento, CA

Stebbins, John.  Native Plant Botanist/retired Herbarium Curator, CSU, Fresno, Fresno, CA

**F.4. Survey Methods**
During the site visits on August 7 and September 21, 2009, the two biologists completed a systematic walking transect survey across all 4 parcels while searching for evidence of kit fox, burrowing owl, and other special status animal and plant species. The biologists also surveyed the entire perimeter of all 4 parcels on foot. Pedestrian survey transects, to look for burrowing owls, burrowing owl burrows, other Special Status animal Species (including kit fox dens and sign and any evidence of blunt-nosed leopard lizard), and Special Status plants were used to cover the entire proposed Project Site. Walking transects were covered at 100-meter intervals. After reconnoitering the site on August 7, 2009 Mr. Hansen and his assistant walked transects in such a way that that each observer scanned a narrow strip of ground approximately 50 meters on both sides of each transect that they walked. During transect surveys, each biologist searched for natural habitat areas, common plant and animal species, and for any evidence (including dead plants, dens, scats, tracks, prey remains, etc.) of Special Status plant and animal species. Habitat notes and a list of all vascular plant and vertebrate animal species were recorded while conducting the walking transect surveys. A list of native and non-native flora (Appendix C) and fauna (Appendix D) found on the proposed Project Site was prepared.

Since there is no land on or adjacent to the Project Site that supports any undisturbed (uncultivated) vegetation or any natural plant communities, survey methodologies employed for blunt-nosed leopard lizard, burrowing owl, and San Joaquin kit fox during this biological evaluation were less intensive than investigations which are required to satisfy guidelines recommended by USFWS and CDFG for comprehensive biotic assessments in natural habitat areas (during this evaluation, protocol surveys for blunt-nosed leopard lizard were not conducted, protocol level burrowing owl surveys were not conducted, and no trapping, scent station surveys, or spotlighting surveys for San Joaquin kit fox were conducted).

G. SOILS PRESENT ON THE PROJECT SITE

The United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey Geographic Database and the USDA Soil Survey of Kings County, California listed four soil types that are present on Section 26 (Figure 19) but of those four soil types, only two occur on land under consideration for acquisition and development as part of the proposed solar energy electrical generation facility. The two soil types present on the 4 parcels at the Project Site are:

- Panoche loam (Map Unit Symbol 150)
- Wasco sandy loam, 0 to 5 percent slopes (Map Unit Symbol 174)

These soil mapping units, verified on the NRCS Web Soil Survey (http://websoilsurvey.nrcs.usda.gov), include:

- **Panoche loam (Map Unit Symbol 150).** This is a very deep, well-drained soil on alluvium fans. Slope is 0 to 2 percent. This soil meets the criteria for farmland of statewide importance as outlined in the USDA Land Inventory and Monitoring (LIM) Project for the Soil Survey of Kings County, California. Panoche loam soil covers 204 acres (32%) of Section 26 (most of Parcel 009 and a portion of Parcels 007 and 008.
Figure 19. Soils map of Section 26, T22S, R17E. Only two soil types occur on land under consideration for acquisition and development as part of the proposed solar energy electrical generation facility. The two soil types present on the 4 parcels at the Project Site are: Wasco sandy loam, 0 to 5 percent slopes (Map Unit Symbol 174) and Panoche loam (Map Unit Symbol 150). The two other soil types on this section (Kettleman loam, 5 to 15 percent slopes and Kettleman-Cantua complex, 30 to 50 percent slopes) are only present on 10 acres in the northeast corner of Section 26. This area is east of the natural gas pipeline alignment and outside of the proposed Project area.
**Wasco sandy loam, 0 to 5 percent slopes (Map Unit Symbol 174).** This is a very deep, well-drained soil on alluvium fans. It formed in alluvium derived dominantly from sandstone. Slope is 0 to 5 percent. This soil meets the criteria for farmland of statewide importance as outlined in the USDA Land Inventory and Monitoring (LIM) Project for the Soil Survey of Kings County, California. Wasco sandy loam soil, 0 to 5 percent slopes covers 422 acres (66.3%) of Section 26 (all of Parcel 011 and most of Parcels 007, and 008).

**H. VEGETATION ON THE PROJECT SITE**

**H.1. Natural Communities**

Associations of plant species that grow in assemblages under similar ecological conditions are called native plant communities (also known as natural communities or biotic communities). Generally, they are named for the dominant species found in the association. Definition of plant communities is important not only because it identifies types of plants that are present, but also because it indicates habitat types and animal species which may be found in the community. In this section, common names and scientific (Latin binomial) names of plants will both be given the first time they are mentioned; thereafter only common names will be used.

**H.1.1 - Original Native Plant Communities**

Two plant series/habitats (frequently referred to as natural communities) as described by Sawyer-Keeler-Wolf (1995), Holland (1986), or which are listed in the CA DF&G Wildlife Habitat Data Analysis Branch (WHDAB) in its *List of California Terrestrial Natural Communities* (Sept 2003), occurred historically (or are present today) in the part of Kings County where the eastern edge of the Kettleman Plain meets the western toe of the Kettleman Hills (where the Project Site is located). This total of 2 habitats does not include agricultural plant communities such as orchards, pasture, alfalfa, and annual crops (grain and row crops). The numbering system for plant communities is from this on-line document: CA DF&G-WHDAB - *List of California Terrestrial Natural Communities*, Sept 2003. Much of the text in the following descriptions of these plant communities includes edited material from Holland’s Preliminary Descriptions of the Terrestrial Natural Communities of California (1986). Many of the regional biological surveys conducted in the Tulare Basin (southern San Joaquin Valley) and adjacent Coast Range valleys still refer to the plant community classification system developed by Holland. Element Codes used in Holland (1986) follow the numbering system used by the California Natural Diversity Data Base (CNDDB).

**Grassland Habitats.** One upland grassland habitat (a type of ecosystem dominated by herbaceous plants) still occurs on uncultivated portions of the Kettleman Plain and in the Kettleman Hills east of the Project Site:

California Annual Grassland Series (Sawyer & Keeler-Wolf 1995 p. 4; 42.040.00) which is also known as Non-native Grassland (CNDDB Element Code 42200).

**Desert Scrub habitats.** One habitat dominated by desert shrubs still occurs on the Kettleman Plain a short distance north of the Project Site and in the Kettleman Hills east of the Project Site:
Great Valley Allscale Scrub (Sawyer & Keeler-Wolf 1995 p. 98; 36.341.00) which is also known as Valley Saltbush Scrub (CNDDB Element Code 36220) or Interior Coast Range Saltbush Scrub (CNDDB Element Code 36320).

The Great Valley Allscale Scrub habitat is listed as rare and is tracked by CNDDB. California Annual Grassland Series is not tracked by CNDDB.

H.1.1.a – California Annual Grassland Series

California Annual Grassland Series (Sawyer & Keeler-Wolf 1995 p. 4; 42.040.00). This habitat is frequently referred to as Non-native Grassland (CNDDB Element Code 42200). Found throughout most of California primarily below 3,000 feet in elevation, California Annual Grassland is an upland habitat dominated by exotic (non-native) annual grasses in association with many species of showy-flowered native and exotic annual herbs (wildflowers), especially in years of favorable rainfall. Characteristic non-native species in this plant community are red brome (*Bromus madritensis ssp. rubens*), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum murinum ssp. leporinum*), slender oats (*Avena barbata*), wild oats (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), foxtail fescue (*Vulpia myuros var. hirsuta*), broadleaf filaree (*Erodium botrys*), and bur-clover (*Medicago polymorpha*). Native plant species found in the non-native grassland include few-flowered fescue (*Vulpia microstachys*), fiddleneck (*Amsinckia*) species, California poppy (*Eschscholzia californica*), California goldfields (*Lasthenia californica*), other goldfields (*Lasthenia*) species, peppergrass species, tarweed (*Centromadia*) species, lupine (*Lupinus*) species, gilia (*Gilia*) species, purple owls-clover (*Castilleja exserta*) and other owls clover (*Orthocarpus* and *Castilleja*) species. Grasses are less than 1 m in height and the canopy is continuous to open.

Originally, all the grassland species in the Tulare Basin and adjacent Coast Range valleys, including wildflowers and other broadleaf forbs, were natives (Figure 22). Today, non-native grasses and forbs (mostly species of Mediterranean origin) are the dominant species and, together with occasional clumps of native bunchgrasses, they comprise the annual grassland areas of the Valley. These grasses and flowers germinate with the onset of late fall and winter rains. Growth, flowering, and seed-set occur from winter through spring. Most plants in this community die by summer yet these annual species persist as seeds until the winter rains return. Non-native grassland occurs primarily on fine-textured, usually clay soils, moist or even waterlogged during the winter rainy season and very dry during the summer and fall.

Now the most widespread plant community on the Valley floor and westside hills of Kings County, California Annual Grassland, is dominated today by introduced, annual Mediterranean grasses and native forbs. On most sites, native perennial species have been largely or entirely supplanted by introductions of Mediterranean annuals. With the arrival of settlers, valley grasslands dominated by native species underwent such rapid modification because of changes in the dynamics of grazing (nomadic native ungulates, such as tule elk and pronghorn, were replaced by cattle and sheep that often grazed in fenced pastures or for longer seasons which did not allow for regeneration of perennials) and the proliferation of invasive non-native Mediterranean annual grasses and forbs that their former condition will always be open to debate (Wester 1981).
Most experts agree that dry interior valleys like the Tulare Basin and Kettleman Plain, had only scattered perennial grasses including bunchgrasses. Holland (1986) classifies this modified community as Non-native Grassland. This habitat still covers most of the uncultivated ground on the Kettleman Plain (chiefly grazing land) and those portions of the Kettleman Hills which are not dominated by shrubs. Its condition varies from site to site, with some having a substantial proportion of native vegetation and others with almost no native vegetation. This annual habitat is relatively easy to re-establish through restoration. The degraded quality of most local California Annual Grassland habitat can be improved for blunt-nosed leopard lizard, California horned lizard, mountain plover, burrowing owl, kangaroo rats, San Joaquin kit fox (and other arid land wildlife adapted to short-grass alkaline grasslands) by using a combination of rotational grazing and prescribed burning treatments (as has been done in grassland areas at Sequoia Riverlands Trust’s Kaweah Oaks Preserve and Herbert Wetland Prairie Preserve in Tulare County).

H.1.1.b – Great Valley Allscale Scrub

**Great Valley Allscale Scrub** (Sawyer & Keeler-Wolf 1995 p. 98; 36.341.00). This habitat is frequently referred to as **Valley Saltbush Scrub** (CNNDDB Element Code 36220) or **Interior Coast Range Saltbush Scrub** (CNNDDB Element Code 36320). These sites are dominated by valley saltbush (*Atriplex polycarpa*), bladderpod (*Isomeris arborea*), paleleaf goldenbush (*Isocoma acredendia*), and saltgrass (*Distichlis spicata*). Shrubs are less than 3 m in height and have a continuous to open canopy.
This is an upland habitat on old beach and lake deposits, alluvial fans, and rolling hills; the soil is carbonate-rich or sandy. Great Valley Allscale Scrub (36.341.00) is a rare habitat that is tracked by the CNDDB. This habitat is relatively easily restored, and restoration techniques have been developed that succeed under most conditions. Examples of restoration stands are present on BLM’s Atwell Island Project in southwestern Tulare County. Those portions of Great Valley Allscale Scrub referred to as Interior Coast Range Saltbush Scrub are found only along the base of the inner south Coast Ranges of California up to approximately 2,000 feet in elevation (Figure 21). This community type occurs in areas without winter tule fog. Interior Coast Range Saltbush Scrub community is characterized by moderate to dense cover of valley saltbush and other saltbush species (*Atriplex* spp.), California matchweed (*Gutierrezia californica*), and locoweed (*Astragalus* spp.). An understory of annual grasses, primarily bromes (*Bromus* spp.) is often found in this community. Holland (1986) was one of the first authors to voice concern about this rare natural community. He noted that its rarity (while related to its limited geographic range) is exacerbated by extensive type-conversion to Non-native Grassland by unregulated livestock browsing (Figure 22) and by purposefully set grass fires at the end of the local sheep-grazing season as flocks are moved on to new pastures. Many examples of this type-conversion can be seen in the oil-producing regions in the Kettleman Hills where there are few remaining *Atriplex* shrubs (or none) and a high percent of those that do remain are dead or show serious damage from fire or livestock browsing.

**Figure 21. Photograph of abandoned school house.** May 14, 1911 photograph of an abandoned school house in an expanse of Great Valley Allscale Scrub (with components of California Annual Grassland) on the southern portion of the Kettleman Plain (Section 23, Township 24 South, Range 18 East), approximately 13 miles south-southeast of the Project Site. This was early enough in the 20th century that much of the structure and species composition of the original desert scrub/grassland complex was still relatively intact in these uncultivated portions of the Kettleman Plain. Photograph courtesy of the Online Archive of California at The Bancroft Library, University of California, Berkeley.
Figure 22. May 14, 1911 photograph of cattle grazing an expanse of California Annual Grassland at Light’s Ranch in Avenal Gap (Section 17, Township 24 South, Range 19 East), approximately 14 miles south-southeast of the Project Site. This is a view northeast towards Section 9 in the center distance. Prior to settlement, these arid westside grasslands were adapted to a grazing regime that involved nomadic native ungulates (chiefly pronghorn and tule elk) that grazed for relatively short periods before moving on to higher elevation pastures with greener feed. With the arrival of domestic livestock in the 19th century, settlers often grazed their sheep and cattle on [now fenced] pastures for lengthy seasons which did not allow for regeneration of perennial grasses. A comparison of the appearance of the range in Figure 20 (located within about a mile of Light’s ranch) and Figure 21 (approximately 3 miles west-southwest of Light’s ranch) with the shrub-free grassland in this photograph (all three photographs were taken on the same day) provides a dramatic illustration of how early (by 1911) the original cover of Great Valley Allscale Scrub had already been type-converted to Non-native Grassland by unregulated livestock browsing. Photograph courtesy of the Online Archive of California at The Bancroft Library, University of California, Berkeley.

H.1.2 - Current Native Plant Communities on the Project Site

There is no land on or adjacent to the Project Site that supports any undisturbed (uncultivated) vegetation or any natural plant communities.

The closest examples of Non-native Grassland to the Project Site are located about 740 feet (approximately 0.14 mile) east of the natural gas pipeline along the north edge of Parcel 007 along the banks of Arroyo Mellado (where it crosses the northeast portion of Section 26) and on disturbed, formerly irrigated land where farm equipment is stored on a small terrace between Arroyo Mellado and the edge of the Kettleman Hills. Extending from that point east, northwest, and southeast up into the Kettleman Hills, nearly all those portions of the Kettleman Hills visible from the Project Site have been type-converted from the original cover of Great Valley Allscale Scrub to Non-native Grassland (compare the 1911 appearance of the Kettleman Hills in the background of Figure 20 with their appearance in 2009 in Figure 15).

Most of the remaining saltbush scrub communities in the North Dome of the Kettleman Hills are small
remnant patches that can be found on slopes too steep for livestock or along drainage channels in arroyo bottoms.

H.2. Plant Species Composition on the Project Site
The three historical photographs on pages 43 (Figure 20), 44 (Figure 21), and 45 (Figure 22) document livestock grazing as the first agricultural use (extensive agriculture) of the Kettleman Plain. The first cultivated farming (intensive agriculture) on Section 26 (the Project Site) was small scale dryland cultivation of grain using horse-drawn equipment (Douglas Morris, pers. comm.). Beginning in 1948, the use of tractors made it possible to plant and harvest larger acreages. The advent of diesel pumps made irrigation with pumped well water possible. Early irrigated crops on Section 26 included cotton and garbanzo beans but the cultural practices and crop/grazing rotation used this year (as detailed in the paragraph on page 27) have been in practice for ten years on all of the land under consideration for acquisition and development as part of the proposed solar energy electrical generation facility (Douglas Morris, pers. comm.).

Except for irrigated row crops (carrots) and dryland farmed winter wheat, the only plant cover on the Project Site comprises ruderal vegetation. The term “ruderal” refers to highly disturbed areas supporting predominantly non-native vegetation or areas where most plants once native to grassland and other natural communities are now absent. This association of plant species is not among those listed by Sawyer-Keeler-Wolf (1995) or Holland (1986) as a native plant community but is a recognizable assemblage of plants that occurs on vacant ground and similar areas where the soil surface has been altered due to clearing by bulldozing, diskng, herbicide application, grazing or any other physical process. Unlike mowing or burning where the soil and its seed bank are not seriously altered, these forms of physical disturbance tend to create conditions where opportunistic colonizers (“weeds”) become established and continue to flourish because of frequent disturbance. Relatively few native plants are found in ruderal habitat.

The Project Site supports a flora of only 33 species (Appendix C), two of which (carrots and wheat) are cultivated agricultural crops. Only 14 of the remaining 31 species (45% of the species richness) are native species. Grasses encountered on the Project Site include non-native watergrass (Echinochloa crus-galli) and crabgrass (Digitaria sanguinalis), scattered patches of native saltgrass (the only perennial species on the property), and Mexican sprangletop (Leptochloa uninerva) and witchgrass (Panicum capillare) – both native annuals.

Dominant non-native forbs observed on the Project Site include: Russian thistle (Figure 9, Figure 10, Figure 12, and Figure 23) - by far the most abundant ruderal “weed”, London rocket (Sisymbrium irio), cheeseweed (Malva parviflora), common knotweed (Polygonum arenastrum), prickly lettuce (Lactuca serriola), and bindweed (Convolvulus arvensis).
When compared with Figure 8 and Figure 10, this post-harvest wheat stubble, where cattle graze from May/June to November (and in some areas from May/June to the following April/May) shows a moderate cover of ruderal Russian thistle.

The two most widespread native forbs found on the Project Site are dove weed (*Eremocarpus setigerus*) and Western jimson weed (*Amaranthus blitoides*), and common fiddleneck (*Amsinckia menziesii*) round out the top five native forbs found growing in ruderal portions of the Project Site. Other, less common native forbs growing on the 4 parcels on Section 26 include alkali heliotrope (*Heliotropium curassavicum*), annual bur-sage (*Ambrosia acanthicarpa*), wild sunflower (*Helianthus annuus*), small wirelettuce (*Stephanomeria exigua*), and vinegar weed (*Trichostema lanceolatum*).

The most ruderal portions of the Project Site occur wherever irrigation runoff provides supplemental water (Figure 12 and Figure 23) and underneath fence lines (where tractor-drawn disks cannot reach).

As noted previously, there is no land on the Project Site that supports any undisturbed (uncultivated) vegetation or any natural plant communities. Depending on the season and the particular stage of crop rotation, plant cover on any given portion of the Project Site either looks like: 1) Figure 7 and Figure 13 from November to April/May and April/May to September (an irrigated carrot crop); 2) a dryland farmed winter wheat crop from November/December to May/June; 3) cattle grazing on post- harvest wheat stubble from May/June to November (and in some areas from May/June to the following April/May) with a greater (Figure 10 and Figure 23) or lesser (Figure 8 and Figure 9) component of scattered ruderal vegetation; 4) Figures 14, 15, 25, and 26 (freshly fallowed ground right after harvest completely devoid of plant cover); or 5) Figure 16 and Figure 24 (fallowed ground where scattered patches of ruderal vegetation have grown and flourish for a few weeks or months until the next round of weed disking or the next rotational crop planting).
Figure 24. This is a view west along the north edge of Parcel 009 toward the Kreyenhagen Hills and “downhill” on August 7, 2009 showing irrigation runoff from the carrot crop that was being sprinkler-irrigated in Parcel 007 that day. Because of the arid nature of the Project Site, native forbs such as dove weed (left of center) and Western Jimson weed (with white blooms growing just left of the water) are most vigorous and abundant along and adjacent to such runoff “channels” on fallowed ground.

There is also no land adjacent to the Project Site that supports any undisturbed (uncultivated) vegetation or any natural plant communities. Figure 25 below (and Figures 14, 15, and 26) provide [photo]graphic documentation of the observation made on pages 27 and 31:

Except for the Avenal Prison’s waste water treatment ponds, located diagonally southwest of the southwest corner of Parcel 008 (and a few residential structures located on private land just west of Parcel 011), all other lands surrounding the Project Site are managed as grain, row crop, or grazing land. At any given season, some of those lands may be fallowed.

The closest examples of Non-native Grassland to the Project Site are located about 740 feet (approximately 0.14 mile) east of the natural gas pipeline along the north edge of Parcel 007 along the banks of Arroyo Mellado (where it crosses the northeast portion of Section 26) and extending from that point east, northwest, and southeast up into the Kettleman Hills. The closest example of Great Valley Allscale Scrub to the Project Site is a small patch of this native scrub vegetation on an undeveloped parcel east of 36th Avenue less than a mile north of the Project Site (Section 26) in southeastern Avenal.
I. VERTEBRATE ANIMALS ON THE PROJECT SITE

29 vertebrate species (2 reptile species, 21 bird species, and 6 mammal species) were recorded on (or near) the Project Site (Appendix D). In this section, only common names of these animals will be used. Scientific (Latin binomial) names of all 29 species of vertebrate animals can be found in Appendix D.

Figure 25. This is a view south towards the Kreyenhagen Hills from the south edge of the Project Site where Parcels 008 and 009 meet. While viewing through binoculars across this fallow, previously cultivated neighboring land, there was not a single visible blade of green vegetation and no animals or animal burrows could be seen.

Even though annual rainfall totals on the Kettleman Plain and the Kettleman Hills qualify these grassland and scrub communities as desert ecosystems, they historically supported tremendous species richness of both flora and fauna (Figure 22 and Figure 23) before the days of livestock grazing and cultivated agriculture. The 420 acres that comprise the Project Site (all those portions of the 4 parcels that will be acquired and developed as part of the proposed solar energy electrical generation facility) today exhibit very low species richness of vertebrate animals due to the following combination of factors:

- the property is highly disturbed by cultivated irrigated agriculture, disking, and road maintenance (all of which deter or exclude burrow-dwelling species) and cattle grazing,
- there is great soil homogeneity (there are only two different soil types on the Project Site),
- there is very little topographic relief on the site (only about 100 feel of elevation change from the northeast to the southwest corner of Section 26),
- except for one small cattle watering trough at the south edge of Parcel 008, there are no permanent water sources on the property,
- there are no woody perennial plants on the Project Site,
- most of the annual plant cover is very short, sparse, offers very little in the way of wildlife cover or nesting substrate for birds, and is disked two or more times each year,
California ground squirrels are very uncommon on the property (local ranchers put out poisoned bait to control ground squirrel numbers). Most of the squirrels observed on the Project site were seen along the southern fence line of Parcels 008 and 009 and along the western fence line of Parcel 009. Since the squirrel population on the Project Site is so small, this means that there are also very few squirrel burrows available to provide refugia for: 1) Special Status Species like blunt-nosed leopard lizards or burrowing owls, or 2) raptor prey species like lizards and Tenebrionid beetles (e.g. *Eleodes* spp.).

except for the Avenal Prison’s waste water treatment ponds, located diagonally southwest of the southwest corner of Parcel 008 (and a few residential structures located on private land just west of Parcel 011), all of the lands surrounding the Project Site are managed as grain, row crop, or grazing land (Figures 14, 15, 25, and 26) and at any given season, many of those surrounding lands are fallowed. This means that many of the same disturbances and habitat shortcomings that contribute to low species richness on the Project Site also affect the surrounding lands and minimize the ability of native plant and animal species to disperse onto the Project Site.

there are very small numbers of prey animals (ground squirrels, pocket gophers, lizards, small birds, beetles, and grasshoppers) on the Project Site to attract ground predators (snakes, foxes, coyotes, badgers and weasels) or raptors (kites, harriers, hawks, eagles, falcons, and owls). California ground squirrels, present only along a few fence lines, and Botta’s pocket gophers (most noticeable at the edges of fields along perimeter dirt ranch roads and in an adjoining parcel directly north of the proposed Project site) are both very uncommon on the property. Similarly, fewer than ten side-blotched lizards were seen during the field surveys, always near California ground squirrel burrows (used as escape cover by these small lizards). The only numerous small birds on the Project Site were honed larks. There is nearly no suitable cover to attract wintering flocks of sparrows, finches, and goldfinches. Very few grasshoppers were seen on the Project Site (grasshoppers flourish in areas where annual grasses grow and there are nearly no patches of undisked annual grass anywhere on the Project Site) and no Tenebrionid (darkling) beetles (common in most years in this part of Kings County wherever small mammal burrows are present) were seen during transect surveys on any of the 4 parcels.

I.1. Reptiles on the Project Site
Approximately 5 side-blotched lizards were seen on August 7, 2009 along fence lines that border the southern half of the Project Site (the southern fence line of Parcels 008 and 009 and the western fence line of Parcel 009. In all cases, side-blotched lizards were seen near California ground squirrel burrows which these common small lizards use as escape cover (American kestrels and loggerhead shrikes are potential lizard predators that were seen during the field survey along the fence lines). None of these side-blotched lizards were seen any farther than 10 feet inside the perimeter fence line anywhere on the Project Site. No blunt-nosed leopard lizards (or any large lizards of any kind) were seen during any of the approximately 14 miles of transect surveys. The only other evidence of reptile presence on the Project Site was the shed skin of a glossy snake found on August 7, 2009 on the muddy ranch road just north of the carrot crop that was being irrigated on Parcel 007 that day (see Figure 13).

I.2. Birds (Including Special Status Bird Species) on the Project Site
Individuals of 21 bird species were seen (or heard) on (or near) the Project Site during the 2 field survey days. **Only one of the 21 bird species seen on (or in flight over) the Project Site (loggerhead shrike) is a Special Status Species.** After each of the seasonal bird status categories is introduced below, details are provided for the most noteworthy species observations.
Resident birds are species that may be seen in an area year-round but are not necessarily breeding in the area (or on the subject property). 16 species of resident birds were observed on (or from) the Project Site during the 2 field survey days. Resident birds observed during the biological evaluation include: red-tailed hawk, American kestrel, killdeer, mourning dove, Say’s phoebe, loggerhead shrike, American crow, common raven, horned lark, the non-native European starling, lark-sparrow, red-winged blackbird, Western meadowlark, Brewer’s blackbird, and the non-native house sparrow. Details about the status of the species in boldface type (loggerhead shrike) will be discussed in Section J (Results of Biological Evaluation) below. A pair of adult red-tailed hawks was seen during the survey on both field survey days perched on utility poles along the west edge of Section 26 and in the vicinity of large trees at a residence located just west of Parcel 011 and just east of 36th Avenue. It is likely that this pair nests in those trees. 2-3 American kestrels were seen on the Project Site, primarily perched on the perimeter fences and in flight over the property. On August 7, 2009, as many as 25 killdeer were seen together where shallow water had puddled along irrigation lines along the north edge of the Parcel 007 carrot field. Small numbers of mourning doves were seen on both field survey days. A single Say’s phoebe (a flycatcher species which nests in small numbers along the west side of the Tulare Basin) was seen on August 7, 2009 just east of Parcel 007 (in the vicinity of the equipment storage yard east of the natural gas pipeline). At least four loggerhead shrikes (possibly as many as 8 individuals) were seen on the Project Site on August 7, 2009. The shrikes seen on August 7 included one that hovered while foraging near the center of Section 26, one on the south fence 0.2 mile east of the southwest corner of Section 26, one on the south fence 0.4 mile west of the southeast corner of Section 26, one on the south fence 0.1 mile west of the southeast corner of Section 26, one on the fence just south of the south end of the private airstrip located on the 40-acre private land in the northwest ¼ of the southwest ¼ of Section 26, one that flew north from the southwest corner of Section 26 to the 5th utility pole north of the southwest corner of Parcel 009, and one that was seen just east of Parcel 007 (at two different locations in the vicinity of the equipment storage yard east of the natural gas pipeline). At least one loggerhead shrike was seen just north of the Project Site at 6:38 pm on September 21, 2009 where it perched on carrot harvesting equipment that was parked 0.1 mile north of the northwest corner of Parcel 007. Additional details about this special status bird species (including comments about local status) are included in Section J (Results of Biological Evaluation) below. Only a single American crow and small numbers of common ravens (mostly pairs seen late in the afternoon heading for their roost) were seen on or over the Project Site. Horned lark was once an abundant breeding bird on the Kettleman Plain when grasslands were the dominant plant cover. They are still common there today; over 100 horned larks (including many young of the year) were seen on August 7, 2009, especially in the most sparsely vegetated open ground (with little or no Russian thistle) along the edges of irrigation runoff from the carrot crop that was being sprinkler-irrigated in Parcel 007 that day (Figure 12). On August 7, 2009, small numbers (fewer than 10 individuals each) of European starlings, red-winged blackbirds, Brewer’s blackbirds, and house sparrows were most often seen in the vicinity of the cattle watering trough at the south edge of Parcel 008. 2 lark sparrows and 10 Western meadowlarks (both resident bird species) were seen in the Parcel 007 carrot field that was being sprinkler irrigated on August 7, 2009.
Summer visitors are bird species that may be seen in the Tulare Basin and adjacent Coast Range valleys between February and October (chiefly April through August) but do not necessarily breed in the area (Hansen 1976). Four species of summer visitors were observed on (or from) the Project Site on August 7, 2009 including: 1) turkey vulture (a few individuals seen soaring over the property); 2) western kingbird (about 5 were seen perched along and foraging from the southern fence line of Parcels 008 and 009 and along the western fence line of Parcel 009; another 5 were seen just east of Parcel 007 in the vicinity of the equipment storage yard east of the natural gas pipeline); 3) one cliff swallow (a “flyover” that was seen just past noon); and 4) about five barn swallows (foraging over the Project Site).

Transients are bird species that migrate through the Tulare Basin and adjacent Coast Range valleys in spring (February to May) or fall (July to October) but they do not spend either summer or winter in this area (Hansen 1976). The only transient bird species observed during the biological evaluation was violet-green swallow (one or two individuals were seen in flight as they foraged for flying insects over the property on August 7, 2009).

I.3. Mammals on the Project Site
California ground squirrels, normally the most numerous small diurnal mammals in this part of Kings County, are very uncommon on the Project Site. The only ground squirrels (and their burrows) observed during the field survey were seen on August 7, 2009 along the southern fence line of Parcels 008 and 009 and along the western fence line of Parcel 009. No ground squirrels were seen any farther than 50 feet inside the perimeter fence line anywhere on the Project Site. All squirrel burrows were located immediately beneath fence lines, especially in the vicinity of ruderal vegetation (chiefly Russian thistle). All mammal burrows were examined to see if they were large enough for San Joaquin kit fox but none of the squirrel burrows on the southern and western border of the Project Site were large enough, of typical kit fox shape, or had soil aprons at the entrance as kit fox dens often do.

Other mammals (or their sign) observed on the Project Site included: 1) desert cottontail (most of the 5-10 that were seen were in the vicinity of the cattle watering trough at the south edge of Parcel 008); 2) two (or possibly 3) black-tailed jackrabbits (they were seen among Russian thistle shrubs in the grain stubble in Parcels 008 and 009); 3) soil mounds of Botta's pocket gopher (most noticeable in areas immediately north of Parcel 11); 4) domestic dog tracks along a dirt ranch road near the northwest corner of Parcel 011); and 5) coyote tracks along the natural gas pipeline right-of-way on August 7, 2009. Some of the pocket gopher mounds noted north of Parcel 011 (Figure 26), while few in number, were large (up to 12 inches high). Most of the gopher mounds noted were located approximately ¼ mile north of the Project boundary.
Figure 26. This is a view south towards the Kreyenhagen Hills from approximately ¼ mile north of Parcel 011 on August 7, 2009. While viewing through binoculars across this fallow, previously cultivated parcel, there was not a single visible blade of green vegetation. The only mammal burrows that were noted were several prominent (about 12 inches tall) Botta’s pocket gopher mounds like those depicted in this photo.

Based on the number of pocket gopher mounds observed on the Project Site, it appears that the local Botta’s pocket gopher population (while nowhere abundant) is more numerous than the local California ground squirrel population and that gophers (in spite of decades of active cultivation, disking, and irrigation) are better able to thrive anywhere on the Project Site (including interior portions of the property) than are California ground squirrels.

No evidence of San Joaquin kit fox denning activity was found anywhere on the Project Site on either of the field survey days during this biological evaluation. No known kit fox dens or den sign were detected on any of the transect surveys. There was also no evidence of kit fox tracks, kit fox scat, or bones (or other remains) from potential kit fox prey species anywhere on the Project Site. In addition to these limiting factors, there appears to be quite a limited kit fox prey base on site (no antelope squirrels, kangaroo rats, or kangaroo rat burrows were detected anywhere on the Project Site and only very small numbers of cottontails and jackrabbits (nocturnal lagomorphs) and California ground squirrels (diurnal rodents) were seen on either of the 2 field survey days. Based on soils, vegetation, cover, and suitable prey, coyote is the wild Canid more likely to occur on this agricultural land in this part of Kings County (and only limited sign of even this ubiquitous California predator was seen during this biological evaluation). On September 21, 2009, dog tracks were visible along a dirt ranch road near the northwest corner of Parcel 011. The dogs may have wandered toward the Project Site from the residential property located just west of Parcel 11 or one of the workers involved in a recent carrot harvest may have brought a dog onto the property in his/her vehicle.

Even though the Project Site does not support any natural habitat (and there appears to be quite a limited kit fox prey base on site) San Joaquin kit fox still occurs in this part of the Tulare Basin and adjacent Coast Range valleys and could certainly make short stopovers on the proposed Solar Farms Project Site while foraging in the vicinity from time to time.
I.4. Additional Wildlife Observations Made by the Current Land Owner/Farmer

In addition to the 29 vertebrate species seen during this biological evaluation, the current land owner/farmer (who resides near the northeast corner of Section 26 where the Kettleman Hills meet the Kettleman Plain at the mouth of Arroyo Mellado) provided anecdotal information about recent and historical wildlife records of 21 different animal species he has observed during his lifetime on and in the vicinity of the Project Site (Douglas Morris, pers. comm.). This list (below) includes 5 species highlighted in bold font which would be additions to the inventory of vertebrate species already observed on the Project Site during this biological evaluation (Appendix D):

1. western toad – he has seen a few in the vicinity of the Project Site over the years.
2. blunt-nosed leopard lizard – he has not seen any in the area in a long time.
3. California horned lizard – this species was once found on lands south of the Project Site.
4. gopher snake – he has seen an individual over 6 feet long at his residence.
5. western rattlesnake – he has seen a few in the vicinity of the Project Site over the years.
6. ring-necked pheasant – a population of this introduced (from Asia) game bird was found here in previous years when weedy hedgerows were present.
7. California quail – these game birds seek shelter in an oleander hedge at his residence. There was a brood of 8 earlier in 2009; 5 were still present on August 7, 2009. Robert Hansen saw some of these quail at his home, a little over 0.25 mile northeast of the Project Site’s eastern boundary, on September 21, 2009.
8. sandhill crane - he hears and sees them annually, southbound in the fall months and northbound in spring months. They have only landed to forage in the grain stubble a few times.
9. mountain plover – When 500 – 800 acres of the Project Site are being worked by tractors during winter months, Mr. Morris mentioned that he has seen up to 25 “golden” plovers (a local term for mountain plover), a California State Species of Special Concern that is most often seen foraging in small flocks 1) in short-grass arid grasslands; and 2) in [usually fallow] agricultural fields being cultivated by tractors during winter months (late-September to mid-March) in this part of Central California.
10. long-billed curlew – although Mr. Morris has seen curlew flocks on the Project Site during winter months (July to June), he stated that they “seem to appear less often and that there are fewer nowadays”.
11. barn owl – he has seen this species on the Project Site.
12. western kingbird – he mentioned seeing this species (he refers to them by their colloquial name, “bee martins”) at his residence and on the Project Site.
13. loggerhead shrike – he mentioned seeing this species on the Project Site.
14. California ground squirrel – he mentioned that local ranchers put out poisoned bait to control ground squirrel numbers.
15. red fox – he said that he has not seen any red foxes in this area.
16. San Joaquin kit fox – he mentioned that he has seen kit fox in past years in the Kettleman Hills along a fence line north of his residence and that the last one he saw was at the residence of another rancher (Mr. Hewitson) in the Kettleman Plain.
17. coyote – he stated that coyotes often pursue the cats at his residence.
18. American badger – he stated that he has only seen a few badgers in the area and that those sightings were from approximately 25 years ago.
19. feral cat – Mr. Morris said that he has cats that live around his residence.
20. bobcat - he stated that he has only seen a few bobcats in the area and that those sightings were from approximately 25 years ago.

Another noteworthy mammal species that occurs in the vicinity on the subject property from time to time...
is pronghorn (*Antilocapra americana*). Although this is not a Special Status Species, its presence in this part of Kings County is still worth mentioning and warrants some explanation. Prior to the arrival of European settlers, herds of pronghorn once roamed the extensive grasslands and desert scrub habitats (see Figure 19 and Figure 20) of the Tulare Basin and adjacent Coast Range valleys including Coalinga/Pleasant Valley and the Kettleman Plain. Most of these animals were killed by market hunters shortly after the California Gold Rush but small bands persisted in the sparsely settled westside into the twentieth century. The last record of wild pronghorns in this area, before they were completely extirpated from the San Joaquin Valley, was an isolated report of two individuals seen in western Fresno County in 1954 (Ingles 1965). In the 1980s, CDFG captured pronghorn in northeastern California and made releases of these relocated animals in various parts of their historic range in Fresno, Kern, and San Luis Obispo Counties. On July 21, 1990, Robert Hansen observed a pronghorn doe with two young heading northwest towards Coalinga across a disked grain field at the north end of the Kettleman Plain. This family group was 1.8 miles south of Alpine Avenue on the west side of Highway 33. A rancher in that part of the Kettleman Plain mentioned that one newborn pronghorn survived a close encounter with a harvester that unknowingly drove right over the cowering youngster in a local grain field in late May or early June of 1990. Mr. Morris indicated that he has seen pronghorn in the vicinity of the Project Site.

**J. RESULTS OF BIOLOGICAL EVALUATION**

This section of the report summarizes the potential for Special Status Species occurrence in the Project impact area based on this biological evaluation. This is done by synthesizing status data for Special Status Species as recognized by the Federal Government, State of California, active field biologists in the proposed Project impact area, and the results of the biotic survey conducted for this biological evaluation.

A number of sources were consulted while compiling these accounts of seven plant species, one invertebrate species, two species of reptiles, eight bird species (plus one additional bird subspecies), and five species of mammals for the proposed Project impact area. Complete reference information for each of these data sources is provided in the Literature Cited section at the end of this report. The presentation on historical status of Special Status Species is the result of an analysis of readily available data (including printouts of CNDDB “Rarefind” occurrence reports) but does not represent a critical, thorough review of all literature.

Special Status Species information is organized in the following format: Each entry includes the common name and the scientific binomial (*Genus species*) name. Subspecific (*Genus species subspecies*) names of races which are of local concern, when the species in total is not of concern, are also listed. The protected status lists the species’ Federal or State status for protection. For explanations of species status codes, see Section F (legal status codes) of this report. Special Status Species accounts may include species descriptions, information about natural history, habitat affinities (general habitat types or habitat preference in the proposed Project impact area), and historical occurrence (a summary of occurrence records of the species from the vicinity -- within a radius of approximately 5 miles -- of the proposed Project impact area.

Each species entry will conclude with comments that summarize the species’ potential for occurrence in the Project impact area based on this biological evaluation; was current evidence of the species found* or not?

- A Reminder: Species not recorded for a given area may nonetheless be present, especially when and where favorable climatic and edaphic conditions occur.
Environmental, biological, and ecological conditions will often vary from those encountered at the times and specific locations where data are obtained during a biological evaluation (field survey). It is possible that a biological evaluation may fail to reveal the presence of some or all of the Special Status Species which may, in fact, inhabit a proposed Project Site; this does not necessarily indicate that the species in question is absent from the proposed Project impact area…”absence of evidence does not constitute evidence of absence”. This is especially true for rare and localized species.

Similarly, a site which in fact is currently not inhabited by Special Status Species at the time of a field survey may later, due to natural phenomena (e.g. animal movements and seed dispersal), become inhabited by these species. For example, as has been found elsewhere on old-fields (Williams and Tordoff 1988), Special Status Species have the capability of repopulating previously disturbed property which is still accessible to nearby parcels of relatively undisturbed habitat.

J.1 Special Status Plant Species

J.1.a - round-leaved filaree, *California macrophylla*  CNPS 1B.1, G3
To view a species profile for round-leaved filaree, see the CNPS online Web URL: [http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi](http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi) and enter *California macrophylla* in the “Search” window.

On the 4 Quad September 27, 2009 printout, round-leaved filaree EO Number 25 on the Garza Peak Quad refers to a March 23, 1940 record by Hoover from the southeast ¼ of Section 4, Township 23 South, Range 17 East near Big Tar Canyon in the vicinity of Reef Ridge in the Kreyenhagen Hills. This occurrence is from an elevation of approximately 1,000 feet from 2.5 miles southwest of the Project Site.

- No round-leaved filaree was found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for round-leaved filaree. Even the non-cultivated portions of the Project Site are not ideal habitat for round-leaved filaree because these are not friable clay soils (the species preferred soil type). Round-leaved filaree grows in grasslands on friable clay soils, primarily at foothill locations between 200 and 2,000 feet elevation. The few remnants of suitable habitat for recurved larkspur in this part of Kings County are located on clay soils, primarily in hilly terrain or on uncultivated ground.

J.1.b - California jewel-flower, *Caulanthus californicus*  FE, SE, CNPS 1B.1, G1
To view a species profile for California jewel-flower, see the CNPS online Web URL: [http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi](http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi) and enter *Caulanthus californicus* in the “Search” window.
This CNPS species profile mentions records of California jewel-flower on the Garza Peak, Tent Hills, Pyramid Hills, and Avenal Quads. On the 4 Quad September 27, 2009 printout, California jewel-flower EO Number 5 on the Garza Peak Quad refers to a March 23, 1940 record by Hoover from the southeast ¼ of Section 4, Township 23 South, Range 17 East near Big Tar Canyon in the vicinity of Reef Ridge in the Kreyenhagen Hills. This occurrence is from an elevation of approximately 1,000 feet from 2.5 miles southwest of the Project Site. California jewel-flower EO Number 78 on the Garza Peak Quad refers to a March 24, 1941 record from by Hoover from Section 32, Township 22 South, Range 17 East near Big Tar Canyon along the road from the Kettleman Plain to the Kreyenhagen Hills. This occurrence is from an elevation of approximately 900 feet from 2.5 miles west-southwest of the Project Site.

- No California jewel-flower was found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for California jewel-flower. California jewel-flower grows in valley and foothill grasslands on sandy soils, primarily at locations between 230 and 328 feet elevation. The few remnants of suitable habitat for California jewel-flower in this part of Kings County are located on sandy soils, primarily in hilly terrain or on uncultivated ground.

J.1.c - Lemmon's jewelflower, *Caulanthus coulteri* var. *lemmonii* CNPS 1B.2, G4
To view a species profile for Lemmon's jewelflower, see the CNPS online Web URL: [http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi](http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi) and enter *Caulanthus coulteri* var. *lemmonii* in the “Search” window.

This CNPS species profile mentions records of Lemmon's jewelflower on the Garza Peak and Tent Hills Quads. On the 4 Quad September 27, 2009 printout, Lemmon's jewelflower EO Number 27 on the Garza Peak Quad refers to a March 23, 1940 record by Constance and Beetle from Section 18, Township 23 South, Range 17 East near Tar Canyon in the Kreyenhagen Hills. This occurrence is from an elevation of approximately 1,500 feet from 5 miles southwest of the Project Site.

- No Lemmon's jewelflower was found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for Lemmon's jewelflower. Lemmon's jewelflower grows in valley and foothill grasslands, primarily at locations between 262 and 2,625 feet elevation. The few remnants of suitable habitat for Lemmon's jewelflower in this part of Kings County are located primarily in hilly terrain or on uncultivated ground.

J.1.d - recurved larkspur, *Delphinium recurvatum* CNPS list 1B.2
To view a species profile for recurved larkspur, see the CNPS online Web URL: [http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi](http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi) and enter *Delphinium recurvatum* in the “Search” window.

This CNPS species profile mentions records of recurved larkspur on the Avenal Gap, Garza Peak, and Pyramid Hills Quads. On the 4 Quad September 27, 2009 printout, recurved larkspur EO Number 5 on the Garza Peak Quad refers to a February 4, 1955 record from Section 18, Township 23 South, Range 17 East near Tar Canyon in the Kreyenhagen Hills. This occurrence is from an elevation of approximately 900 feet from 2.5 miles west-southwest of the Project Site.
No recurved larkspur was found on the Project Site. The repeatedly disked (annual disking tends to eliminate such perennial forbs), cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for recurved larkspur. Even the non-cultivated portions of the Project Site are not suitable habitat for recurved larkspur because these are not alkaline soils. Recurved larkspur grows in Chenopod scrub, cismontane woodland, and in alkaline substrate in valley and foothill grassland (California Grassland is the category of “valley” grassland community that occurs on the Project Site). The few remnants of suitable habitat for recurved larkspur in this part of Kings County are located in alkali grassland habitat, primarily in hilly terrain or on uncultivated ground.

J.1.e - pale-yellow layia, Layia heterotricha  CNPS 1B.1, G2
To view a species profile for pale-yellow layia, see the CNPS online Web URL: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi and enter Layia heterotricha in the “Search” window.

This CNPS species profile mentions records of pale-yellow layia on the Garza Peak and Tent Hills Quads. On the 4 Quad September 27, 2009 printout, pale-yellow layia EO Number 13 on the Garza Peak Quad refers to a March 24, 1941 record from by Hoover from Section 32, Township 22 South, Range 17 East from along Tar Canyon Road near Tar Canyon in the Kreyenhagen Hills. This occurrence is from an elevation of approximately 900 feet from 2.5 miles west-southwest of the Project Site.

No pale-yellow layia was found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for pale-yellow layia. Even the non-cultivated portions of the Project Site are not suitable habitat for pale-yellow layia because these are not alkaline or clay soils. Pale-yellow layia grows in alkaline or clay substrate in valley and foothill grasslands, primarily at locations between 984 and 5,249 feet elevation. The few remnants of suitable habitat for pale-yellow layia in this part of Kings County are located primarily in hilly terrain or on uncultivated ground.

J.1.f - showy golden madia, Madia radiata  CNPS 1B.1, G2
To view a species profile for showy golden madia, see the CNPS online Web URL: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi and enter Madia radiata in the “Search” window.

On the 4 Quad September 27, 2009 printout, showy golden madia EO Number 13 on the Garza Peak Quad refers to an April 9, 1992 record by Yadon from the north ½ of Section 20, Township 23 South, Range 17 East near Tar Canyon in the vicinity of Reef Ridge in the Kreyenhagen Hills. This occurrence is from an elevation of approximately 1,600 feet from 5 miles south-southwest of the Project Site.

No showy golden madia was found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for showy golden madia. Even the non-cultivated portions of the Project Site are not suitable habitat for showy golden madia because these are not adobe clay soils. Showy golden madia grows in adobe clay substrate in grasslands, primarily at locations between 82 and 3,691 feet elevation.
The few remnants of suitable habitat for showy golden madia in this part of Kings County are located primarily in hilly terrain or on uncultivated ground.

**J.1.g - San Joaquin woollythreads, Monolopia congdonii**  FE, CNPS 1B.2, G3

To view a species information profile for San Joaquin woollythreads, see the CNPS online Web URL: [http://www.cal.net/~levinel/cgi-bin/cnps/sensinv.cgi](http://www.cal.net/~levinel/cgi-bin/cnps/sensinv.cgi) and enter *Monolopia congdonii* in the “Search” window. To view a more detailed species profile for San Joaquin woollythreads, see the Endangered Species Recovery Program (ESRP) online Web URL: [http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=leco](http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=leco)

The ESRP text states:

San Joaquin woolly-threads occurs in Non-native Grassland, Valley Saltbush Scrub, Interior Coast Range Saltbush Scrub, and Upper Sonoran Subshrub Scrub. This species typically occupies microhabitats with less than 10% shrub cover, although herbaceous cover may be either sparse or dense. Plant species that often occur with San Joaquin woolly-threads include red brome, red-stemmed filaree (*Erodium cicutarium*), goldfields (*Lasthenia* spp.), Arabian grass (*Schismus* spp.), and mouse-tail fescue (*Vulpia myuros*). Hoover's woolly-star (*Eriastrum hooveri*) often occurs in populations of San Joaquin woolly-threads, although the reverse is not true. This species occurs on sandy, sandy loam, or silty soils with neutral to subalkaline pH that were deposited in geologic times by flowing water. Occurrences have been reported at elevations ranging from approximately 60 to 800 m (197 to 2,625 ft).

The ESRP species profile expands on this information:

Historically, San Joaquin woolly-threads occurred primarily in the San Joaquin Valley, with a few occurrences in the hills to the west and in the Cuyama Valley of San Luis Obispo and Santa Barbara counties. Many new occurrences of San Joaquin woolly-threads have been discovered since 1986, primarily in the hills and plateaus west of the San Joaquin Valley. These constitute four metapopulations (scattered groups of plants that may function as a single population due to occasional interbreeding) and several small, isolated populations. The largest extant metapopulation occurs on the Carrizo Plain Natural Area in San Luis Obispo County. Much smaller metapopulations are found in Kern County near Lost Hills, in the Kettleman Hills of Fresno and Kings Counties, and in the Jacalitos Hills of Fresno County. The isolated occurrences are known from the Panoche Hills in Fresno and San Benito counties, the Bakersfield vicinity in Kern County, and the Cuyama Valley. Habitat loss was responsible for the decline of San Joaquin woolly-threads. The majority of the occurrences in the San Joaquin and Cuyama valleys were extirpated by intensive agriculture. In addition, several sites in and around Bakersfield were eliminated by urban and intensive oilfield development. Current threats to San Joaquin woolly-threads include commercial and agricultural development, increased intensity of land use in oilfields or pastures, and competition from introduced plants.
This CNPS species profile mentions records of San Joaquin woollythreads on the Los Viejos, Avenal Gap, Kettleman Plain, Garza Peak, Kettleman City, Avenal, and La Cima Quads. On the 4 Quad September 27, 2009 printout, there are 4 San Joaquin woollythreads EOs on the Garza Peak Quad (April 12 - 18, 1991) on BLM and oil company lands in the Kettleman Plain and in the Kettleman Hills at elevations of approximately 775 - 1,100 feet from 3.5 miles northwest to 4.5 miles north-northwest of the Project Site. On the same printout, there are 2 San Joaquin woollythreads EOs on the Garza Peak Quad (March 25, 1925 and March 25, 1962) from the Kettleman Plain at elevations of approximately 600 - 700 feet from 3.5 miles south-southeast to 5 miles southeast of the Project Site. On the same printout, there are also 3 San Joaquin woollythreads EOs on the La Cima Quad (March 27, 1992, April 5, 1993, and April 17, 1991) from the Kettleman Hills at elevations of approximately 740 – 1,060 feet from 2.5 miles north-northwest to 4 miles northeast of the Project Site.

- No San Joaquin woollythreads was found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for San Joaquin woollythreads. San Joaquin woollythreads grows in sandy substrate in valley and foothill grasslands, primarily at locations between 197 and 2,625 feet elevation. The few remnants of suitable habitat for San Joaquin woollythreads in this part of Kings County are located primarily in hilly terrain or on uncultivated ground.

J.2 Special Status Invertebrates

J.2.a - San Joaquin dune beetle, *Coelus gracilis* G1

To view a species profile for San Joaquin dune beetle, see the Endangered Species Recovery Program (ESRP) online Web URL: [http://esrp.csustan.edu/speciesprofiles/profile.php?sp=cogr](http://esrp.csustan.edu/speciesprofiles/profile.php?sp=cogr). In the edited ESRP text on San Joaquin dune beetle below, passages most pertinent to the Project Site are highlighted in **bold** type:

Little information exists on the feeding habits of San Joaquin dune beetles, though they are **probably detritivores**, feeding on decomposing vegetation buried in the sand. Some other related beetles feed mostly on dung. Nothing is known about the mating system or breeding season of San Joaquin dune beetles. The presence of immature dune beetles and larvae is evident throughout the year, which suggests that oviposition occurs over a long period of time. The **larvae develop and pupate exclusively in the sand.** Pupae have been found in the wild only in late spring and early summer. The hot summer climate of the San Joaquin Valley prevents a majority of beetles from emerging from the sand, so active periods range from about November through April. Activity also coincides with the growth period of the winter ephemeral plants under which San Joaquin dune beetles reside. Adult dune beetles spend a majority of their time in sandy soils, whereas larval forms are found exclusively in loose sands. **Adults typically are found 5 to 10 centimeters (2.0 - 3.9 inches) underground under a canopy of vegetation, and less often under ground with a bare surface.**
Historically, the range of the San Joaquin dune beetle extended from Antioch, Contra Costa County, in the north to the Kettleman Hills, Kings County in the south. They inhabited inland sand dunes within this range. Currently, this beetle is restricted to small isolated sand dunes (250 - 10,000 m²) along the western edge of the San Joaquin Valley. The population located near Antioch, Contra Costa County, apparently has been extirpated. Although no direct evidence exists of a population decline of San Joaquin dune beetles, it is inferred from the widespread loss of sand dune communities in the Valley and apparent disappearance from near Antioch, Contra Costa County, California. A recent threat was ORV (off-road vehicle) use on dune habitats near Kettleman City and Monocline Ridge, Fresno County, but ORV use apparently is now controlled or eliminated in those areas.

On the 4 Quad September 27, 2009 printout, San Joaquin dune beetle EO Number 8 on the Avenal Quad refers to an April 17, 1980 collection record by Shanks from Section 32, Township 21 South, Range 17 East in the North Dome of the Kettleman Hills. This occurrence is from an elevation of approximately 1,100 feet from 5 miles northwest of the Project Site.

No San Joaquin dune beetles were found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for San Joaquin dune beetle. Even the non-cultivated portions of the Project Site are not suitable habitat for showy golden madia because there are no dune soils on the floor of the Kettleman Plain. The few remnants of suitable habitat for San Joaquin dune beetle in this part of Kings County are located primarily on uncultivated hilly terrain in the Kettleman Hills.

J.3  Special Status Reptiles

J.3.a - blunt-nosed leopard lizard, Gambelia sila  FE, SE, SFP, G1
To view a species profile for blunt-nosed leopard lizard, see the Endangered Species Recovery Program (ESRP) online Web URL: http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=gasi. In the edited ESRP text on blunt-nosed leopard lizard below, passages most pertinent to the Project Site are highlighted in bold type in the indented text:

Blunt-nosed leopard lizards live in the San Joaquin Valley region in expansive, arid areas with scattered vegetation. Today they inhabit non-native grassland and alkali sink scrub communities of the Valley floor marked by poorly drained, alkaline, and saline soils, mainly because remaining natural land is of this type….They are absent from areas of steep slopes and dense vegetation, and areas subject to seasonal flooding ….Blunt-nosed leopard lizards use small mammal burrows for permanent shelter and dormancy. Typically these include abandoned ground squirrel tunnels and occupied and abandoned kangaroo rat tunnels…..Seasonal activity above ground depends on weather conditions, especially temperature. The optimum activity period occurs when air temperatures are between 25-35°C (77-95°F) and soil temperatures are between 30-50°C (86-122°F). On hotter days, they are active in the early morning and late afternoon. They spend the colder months of the year underground in a state of dormancy.
They emerge in March or April and adults continue surface activity until the end of June or July, whereas juveniles hatch in August and are active above ground into September or October. The breeding season is initiated in April and lasts into or through June. The former range of the blunt-nosed leopard lizard encompassed the floor of the San Joaquin Valley and Sierra foothills from Stanislaus County southward to the Tehachapi Mountains in Kern County. Loss of habitat to cultivation, petroleum and mineral extraction, ORV use, and construction of transportation, communications, and irrigation infrastructures has resulted in the endangerment of blunt-nosed leopard lizard populations. The main loss was due to farming. Collectively, development of former habitat has reduced and isolated the species into many small populations, scattered throughout portions of their historical geographic range. Existing threats to remaining populations include habitat disturbance, destruction, and fragmentation.

The nine Quad printout of the September 27, 2009 CNDDDB “Rarefind” Special Status Species occurrence information (Appendix A) includes 27 records of blunt-nosed leopard lizard from the following six U.S.G.S. Quadrangle Maps: the Kettleman Plain Quadrangle (where the Project Site is located) and the Avenal, Avenal Gap, La Cima, Los Viejos, and Pyramid Hills Quads.

On the 4 Quad printout of the September 27, 2009 CNDDDB “Rarefind” Element Occurrence Records (Appendix B), there are 4 blunt-nosed leopard lizard EOs from within a five-mile radius of the Project Site, the closest being a 1979 record by Lee Jones from an elevation of about 1,200 feet in the Kettleman Hills approximately 0.5 mile northeast of the Project Site.

- No blunt-nosed leopard lizards were found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for blunt nosed leopard lizard. Even the non-cultivated portions of the Project Site are only marginally suitable habitat for blunt-nosed leopard lizards because there are so few small mammal burrows available for escape refugia and because there is so little in the way of leopard lizard prey on the property. The few remnants of suitable habitat for blunt-nosed leopard lizard in this part of Kings County are located primarily in arroyo bottoms in the hilly terrain in the Kettleman Hills and on uncultivated ground with some component of native shrub cover on more level terrain.

J.3.b - San Joaquin whipsnake, *Masticophis flagellum ruddocki* SSC, G5
To view a species profile for San Joaquin whipsnake, see the CaliforniaHerps.com online Web URL: [http://www.californiaherps.com/snakes/pages/m.f.ruddocki.html](http://www.californiaherps.com/snakes/pages/m.f.ruddocki.html). Passages most pertinent to the Project Site are highlighted in bold type in the indented text:

The San Joaquin whipsnake is a slender fast-moving snake with smooth scales, a large head and eyes, and a thin neck. The braided appearance of scales on the tail (like a whip) gives this snake its common name. Very little is known about the natural history of this subspecies. *M. flagellum* is diurnal and crawls with the head held high above the ground while hunting. These snakes may be seen: 1) moving quickly even on hot sunny days; 2) basking on roads in early morning, or 3) resting underneath boards or other surface objects.
These snakes eat small mammals including bats, nestling and adult birds, bird eggs, lizards, snakes, amphibians, and carrion. Hatchlings and juveniles will eat large invertebrates.

**San Joaquin whipsnakes occur in open, dry, treeless areas,** including grassland and saltbush scrub at elevations of 66 to around 2,953 feet (often taking refuge in rodent burrows, under shaded vegetation, and under surface objects). **This subspecies is endemic to California,** ranging from the Sacramento Valley in Colusa County southward to the Grapevine in the Kern County portion of the San Joaquin Valley and westward into the inner South Coast Ranges.

This snake has been designated a species of special concern by CDFG due to extensive land use changes in its restricted range, including conversion of large areas of suitable habitat to row crops in the San Joaquin Valley and urban development in areas of the inner Coast Ranges, both of which eliminate the snake's food base and the mammal burrows it uses for refuge.

The nine Quad printout of the September 27, 2009 CNDDB “Rarefind” Special Status Species occurrence information (Appendix A) includes 3 records of San Joaquin whipsnake from the following three U.S.G.S. Quadrangle Maps: Kettleman Plain Quadrangle (where the Project Site is located) and the Garza Peak and Los Viejos Quads.

On the 4 Quad printout of the September 27, 2009 CNDDB “Rarefind” Element Occurrence Records (Appendix B), there is only 1 San Joaquin whipsnake EO from within a five-mile radius of the Project Site. This May 26, 1985 record of an adult collected by Ford and Hutchins at an elevation of about 750 feet near Highway 33 is from approximately 0.5 mile west of the Project Site.

- **No San Joaquin whipsnakes were found on the Project Site.** The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for San Joaquin dune beetle. Even the non-cultivated portions of the Project Site are only marginally suitable habitat for San Joaquin whipsnakes because there are so few small mammal burrows available for escape refugia and because there is so little in the way of whipsnake prey on the property. Remnants of suitable habitat for San Joaquin whipsnake in this part of Kings County are located primarily in areas of uncultivated ground.

**J.4 Special Status Birds**

**J.4.a - wainson's hawk, Buteo swainsoni (nesting)** ST, WL, G5

To view a species profile for Swainson’s hawk, see the Endangered Species Recovery Program (ESRP) online Web URL: [http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=busw](http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=busw). In the edited ESRP text on Swainson’s hawk below, passages most pertinent to the Project Site are highlighted in **bold type** in the indented text:
Swainson's hawks prefer open habitats. These include: mixed and short grass grasslands with scattered trees or shrubs for perching; dry grasslands; irrigated meadows; and edges between two habitat types (ecotones). Within California, Swainson's hawks favor agricultural areas, (particularly alfalfa fields), juniper-sage flats, riparian areas, and oak savannas. Over 95% of the nesting sites for this species are estimated to be on private lands. In the summer months, Swainson's hawks primarily eat insects, birds, and small mammals, occasionally taking reptiles, amphibians, and other invertebrates. During migration and in the winter, the hawk's diet consists mainly of insects. The hawks appear to exploit the abundance of prey made available due to the effects of certain farming activities. This is most noticeable during migration when large flocks of Swainson's and other migrating hawks can be seen [foraging over alfalfa while it is being mowed or] within fields being plowed. The birds will perch on the ground and wait for the tractor to pass by and then pounce on prey stirred up by the tractor. They will also follow the tractor diving down on the prey that the tractor stirs up. Within California, Swainson's hawks begin nesting in late March and the young usually leave the nest (fledge) by July. Nests of sticks, bark, and fresh leaves are constructed in trees, shrubs, or on utility poles at heights of 4 to 100 ft. (1.2 to 30.5 m) above the ground. In the Central Valley they [typically] nest in riparian areas. This association with riparian habitat is most likely due to the lack of trees in intensively cultivated and industrially-developed areas [. . . .]. The young will leave the nest between 33 and 37 days after hatching and begin to kill insects and snakes on their own. The populations of Swainson's hawks have declined by 90% since the 1940's due to the loss of nesting habitat. In the 1980's there was an estimated 375 pairs within California, but not all pairs nested . . . .] Swainson's hawks breed in local areas in western North America, including east-central Alaska, southwest Canada, eastern Washington and Oregon, and in the Central Valley of California. The majority of the birds migrate south to the La Pampas region in Argentina for the winter months. Many juveniles form pre-migration flocks one or two months prior to migrating; however, there are a few groups of juveniles that do not migrate their first winter. When migrating and during the winter, this species forms large flocks of 20 to 100 birds that roost and forage together. Migration of Swainson's hawks south begins in August and lasts through October. In the spring, they begin returning north to California in March. The populations that nest within the Central Valley arrive and depart earlier than those populations in northern California. The intensity of the summer heat in the Valley is thought to be the trigger for these earlier dates.

In Kings and Tulare County, the documented local range of this State threatened species is a 625 square mile region bounded by Traver (along Highway 99), 14½ Avenue just north of Nevada Avenue, Corcoran, Angiola, Alpaugh, Pixley National Wildlife Refuge, Tipton, and Inside Creek (at Highway 137). Swainson's hawks also nested during two years since 2000 (possibly as early as 1998) during those years when alfalfa was grown in the vicinity of a eucalyptus groove north of Utica Avenue just east of Interstate 5 in a part of Kings County (southeast of Kettleman City) 20 miles from the nearest Swainson’s hawk nest (Hansen 2005). Of the 34 Swainson’s hawk nests that have been located and documented in Kings and Tulare Counties, the nest records have been located in isolated trees or small groves of eucalyptus, Fremont cottonwood, valley oak, willow, and palm.
These nest trees stand at the edge of open row crop land, along a channel of Cross Creek, and at the edge of cattle pasture. Foraging habitat surrounding the nest trees is chiefly alfalfa or other row crops but also includes expanses of grassland habitat. In the past two years, adult Swainson’s hawks have been seen in Kettleman City during this species’ breeding season (but no nests have been located there). It is possible that those birds were associated with a nest in the eucalyptus grove along Utica Avenue noted above. If Swainson’s hawks have established a nest (or nests) in Kettleman City, this location would be less than ten miles from the Project Site*.

*Based on the documented foraging radius of Swainson’s hawks, CDFG has determined that impacts to Swainson’s hawk foraging habitat should be mitigated if a Project Site is located within a 10-mile radius of any Swainson’s hawk nests (where Project-related impacts to Swainson’s hawk foraging can be documented). Current management strategies for Swainson's hawks in the Central Valley are focused on mitigation of habitat losses at known hawk territories (CDFG Mitigation guidelines), and habitat conservation under the USFWS Habitat Conservation Planning (HCP) process. Under CDFG draft mitigation guidelines, losses of suitable foraging habitats within 10 miles of a Swainson's hawk nest site must be mitigated by protection or creation of equally suitable foraging habitat elsewhere within the territory's 10-mile radius.

The ratio of loss/replaced habitat changes from 1:1 within 1 mile of a nest, to 1:.5 over 5 miles from the nest. These guidelines have been thoroughly reviewed by the Swainson's Hawk Technical Advisory Committee (SWTAC), an independent group of agency and private biologists with experience with Swainson's hawks (Woodbridge 1998).

- No Swainson’s hawks were found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable nesting habitat for Swainson’s hawk. Even the non-cultivated portions of the Project Site are only marginally suitable foraging habitat for Swainson’s hawk because there is so little in the way of Swainson’s hawk prey on the property. In some years, southbound flocks of fall migrant Swainson’s hawks may stop briefly to forage from time to time on the grain stubble on the Project Site or in grassland areas located east of the property up in the Kettleman Hills.

- Even though the large trees present at a private residence on property located just west of Parcel 011 and just east of 36th Avenue are suitable Swainson’s hawk nest trees, it is highly unlikely that Swainson’s hawk would nest on or near the Project Site: 1) because of the presence of a (probable) nesting pair of resident red-tailed hawks (a pair of adult red-tailed hawks was seen on both field survey days perched on utility poles along the west edge of Section 26 and in the vicinity of the large trees at the residence. It is likely that this pair nests in those trees) which have presumably staked out regular local territory and 2) there is very limited suitable foraging habitat on or near the Project Site. The Project Site does not provide important intrinsic habitat values unique to the area for this state-listed Threatened species because: 1) no alfalfa pasture or large expanses of short-grass, native-dominated valley grassland or scrub habitat is present either on or adjacent to the Project Site (where annual vegetation is present on this site it is too sparse to provide habitat for the prey species that attract foraging Swainson’s hawks) and 2) there is a scarcity of suitable Swainson’s hawk prey on the site; no Microtus (meadow mice)...their preferred local prey species...were seen anywhere on the Project Site.
J.4.b- golden eagle, *Aquila chrysaetos* (nesting & wintering) SFP, G5

In California, golden eagle is classified as a Species of Special Concern (both nesting and wintering populations). Golden eagle is also a Fully Protected Species in the State of California. In Central California, where golden eagles are permanent residents, breeding takes place chiefly in foothills and mountains. For foraging habitat, golden eagles require large tracts of open country with high prey density. Some breeding pairs of golden eagles with nests in the nearby Coast Range foothills have foraging territories that even extend out to the Kettleman Plain, Kettleman Hills, and onto the floor of the Tulare Basin. Birds that breed in this part of the state are joined by migrants from the north and from the high sierra in winter. In the Central Valley, golden eagles usually hunt by soaring high above the ground, then swooping down to capture rabbits, squirrels, and occasionally large birds. Populations of golden eagles that forage in this part of the state (numbers of eagles are highest during winter months) consist chiefly of birds that forage over remnant grassland habitat. Threats to the California population of golden eagles include habitat loss, disturbance, shooting, electrocution, and poisoning. Habitat loss, especially development of extensive tracts of native grassland and scrub habitat, reduces availability of the eagle's prey species.

Although there are no CNDDB records for golden eagle in the immediate vicinity of the Project Site, adult pairs and individual golden eagles were seen during the 1990s and in 2008 foraging over Pleasant Valley/Coalinga. These golden eagles were hunting over grassland and desert scrub habitats similar to those located east of the property up in the Kettleman Hills.

- **No golden eagles were seen on (or in flight over) the Project Site.** The repeatedly disked, cultivated, and ruderal portions of the Panache loam and Wasco sandy loam soil on the Project Site are not suitable nesting habitat for golden eagle. Even the non-cultivated portions of the Project Site are only marginally suitable foraging habitat for golden eagle because there is so little in the way of golden eagle hawk prey on the property. In some years, golden eagles may forage from time to time over the grain stubble on the Project Site or in grassland areas located east of the property up in the Kettleman Hills.

J.4.c - prairie falcon, *Falco mexicanus* WL, G5

Prairie falcons, birds of open grassland and foothill savanna habitat, shun heavily wooded areas. Most prairie falcons in Central California breed in cliff-walled foothill canyons. In the breeding season, foraging is concentrated in grasslands near nest sites. These wide-ranging predators may be in any part of Kings County but foraging birds shift much of their activity to the lowland grasslands during winter months. Prairie falcons are more widespread and more commonly seen in places such as the Kettleman Plain during the non-breeding season (September to April) when birds from the north and the high sierra join the resident local population. The status of prairie falcon nesting habitat is the primary reason for State concern about this species in this part of Central California.

The nine Quad printout of the September 27, 2009 CNDDB “Rarefind” Special Status Species occurrence information (Appendix A) includes 5 records of prairie falcon from the following two U.S.G.S. Quadrangle Maps: the Garza Peak and Tent Hills Quads.

On the 4 Quad printout of the September 27, 2009 CNDDB “Rarefind” Element Occurrence Records (Appendix B), there are only 2 prairie falcon EOs from within a five-mile radius of the Project Site.
Because the location of these May, 1978 and June, 1979 eyrie records is considered sensitive by the CNDDDB, these nest sites may actually be from locations greater than 5 miles distant from the Project Site.

- No prairie falcons were seen on (or in flight over) the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable nesting habitat for prairie falcon. Even the non-cultivated portions of the Project Site are only marginally suitable foraging habitat for prairie falcon because there is so little in the way of prairie falcon prey (small birds) on the property. In some years, prairie falcons may forage from time to time over the grain stubble on the Project Site or in grassland areas located east of the property up in the Kettleman Hills.

**J.4.d - lesser sandhill crane, *Grus canadensis canadensis***  SSC (non-breeding/wintering), G5

**J.4.e - greater sandhill crane, *G. c. tabida***  ST (nesting & non-breeding/wintering), SFP, G5

A large population of up to 5,000 sandhill cranes, chiefly lesser sandhill cranes, winters at the Pixley NWR area (Pamela Williams, pers. comm.; Pixley NWR files) in southwestern Tulare County. Small numbers of greater sandhill cranes have also been identified within the large flocks of wintering sandhill cranes in this area. Greater sandhill crane is a State Threatened subspecies.

These records suggest that greater sandhill crane may historically have been a breeding species in the Tulare Basin. The current population of greater sandhill cranes breeds mainly in the northeastern corner of California and in south-central Oregon, but winters entirely in the Central Valley (Steinhart 1990). In their California breeding range, which may have once included portions of Kings County (see above), greater sandhill cranes establish nesting territories in wet meadows that are often interspersed with emergent marsh vegetation. Sandhill cranes (unspecified subspecies) seen in Kings County are present on their Tulare Basin wintering grounds from late September to early March. Flocks (of up to 300 birds) seen on the Kettleman Plain during the 1940s were usually seen and heard between 1:30 and 3:00 pm between late October and mid February (Wilson 1950). Although this subspecies does not currently breed in Kings County (there are no documented breeding records from the Tulare Basin), the historical breeding range of this subspecies may have included wetland areas in Kings County and northern Kern County. As noted in Grinnell, Bryant, and Storer (1918), greater sandhill cranes:

“… though not proven to have been nesting, [were] observed sparsely in summer of earlier years south through Great Valley as far as neighborhood of Buttonwillow, Kern County.”

In his article entitled *Summer Birds of the Tulare Lake Region*, Goldman (1908) includes one specific record of greater sandhill crane:

“Three only were seen in the marshy land at the south end of Tulare Lake, July 8.”

Favorable winter roost sites (shallow, flooded agricultural fields or marshes) and an abundance of cereal grain crops (chiefly corn) characterize the greater sandhill cranes’ Central Valley wintering grounds. Irrigated pastures are chosen as loafing sites throughout the wintering ground. A communal roost site consisting of an open expanse of shallow water is a key feature of wintering habitat. The great majority of sandhill cranes wintering in this region are undoubtedly *Grus canadensis canadensis* (the “lesser sandhill” or “little brown” crane). Greater sandhill cranes probably comprise part of the local wintering flocks but the relative abundance of the two forms is imperfectly known (Garrett and Dunn 1981).
Since no crane roosts are known from Kings County, the major local threat to this subspecies is the loss of foraging habitat through the conversion of native grassland and scrub communities to dairies, poultry ranches, and other incompatible land uses. Collisions with fog-shrouded power lines are also a major cause of death in winter.

Both nesting and wintering populations of greater sandhill cranes are listed as Threatened in California. Small numbers of greater sandhill crane (Pogson and Lindstedt 1991) have been observed among the 4,000+ lesser sandhill cranes (Clough 2005) which winter (late September to early March) regularly (R. Hansen field notes) at Pixley National Wildlife Refuge (NWR). Grinnell and Miller (1944) list a November 1918 record of greater sandhill crane from Corcoran and Pogson and Lindstedt (1991) observed 14 greater sandhill cranes at Pixley NWR during winter 1983-84.

- Even though no sandhill cranes were observed during the August or September, 2009 field survey dates on the Project Site, the current land owner/farmer stated, while he hears and sees them annually (southbound in the fall months and northbound in spring months), that they have only landed to forage in the grain stubble a few times (Douglas Morris, pers. comm.).

**J.4.f - mountain plover, Charadrius montanus**  
SSC (non-breeding/wintering), WL, G2  
To view a species profile for mountain plover, see the Endangered Species Recovery Program (ESRP) online Web URL: [http://esrp.csustan.edu/speciesprofiles/profile.php?sp=chmo](http://esrp.csustan.edu/speciesprofiles/profile.php?sp=chmo). In the edited ESRP text on mountain plover below, passages most pertinent to the Project Site are highlighted in **bold** type in the indented text:

Contrary to its name, the mountain plover is found mainly in the high plains and semi-desert regions of the western United States. Approximately 90% of the North American population winters in California and then migrates to breeding grounds in Colorado, Montana, Wyoming, New Mexico and other areas in the spring. The mountain plover forages on alkaline flats, plowed ground, grazed pasture, and dry short grass prairie searching for large insects such as grasshoppers, crickets, and flies. It will forage in loose flocks, chasing after prey and capturing it with its pigeon-like bill. …. Historical distribution included the Central Valley south of Sacramento County and a broad region encompassing the southern coastal plain and southern coastal interior valleys. Sightings also were recorded in San Diego County, Los Angeles County, and the Imperial Valley. Currently, mountain plovers winter in flocks in the Sacramento and San Joaquin valleys, in central and south-coastal California, east locally to the southwestern deserts and south to central Mexico. **In winter (mid-October to March)** flocks are regularly found on the Carrizo Plain, other parts of San Luis Obispo county, and along the western edges of Kern, Kings, Tulare, and Fresno counties. The loss of sparse grasslands to urban and agricultural uses has substantially fragmented both the breeding and wintering habitat of the mountain plover, resulting in population declines over the past few decades.

The major threat to mountain plovers in the Tulare Basin, on the Kettleman Plain, and adjacent Coast Range valleys is the loss of foraging habitat through the conversion of native grassland to incompatible land uses. Such changes have already occurred on a grand scale in southern California: “…formerly more numerous…; the decline is largely attributable to the loss of suitable open habitat” (Garrett and Dunn 1981).
Conversion and fragmentation of extensive agricultural land (grazed pasture) to irrigated row crops, conversion of rotated, cultivated field crops (including grain), to permanent crops (orchards and vineyards) and conversion of suitable agricultural foraging areas to urban uses further reduces the available foraging habitat.

In Kings, southwestern Tulare County, and southwestern Fresno County, the local range of mountain plover (classified as a California Species of Special Concern and proposed as a Federally threatened species) is an area of open, bare, or sparsely vegetated land that includes fallowed fields in the Tulare Lake Bed, and those portions of Tulare Kings, and Fresno counties that include and extend west of Waukena and Pixley NWR along with those portions of Kern County that lie west of State Highway 43.

Robert Hansen has observed winter flocks of mountain plover in open and sparsely vegetated grassland and fallow or bare agricultural land in the Pleasant Valley/Coalinga area (just north of Kettleman Plain) and just north of the Kettleman Hills near the PG&E Plant along the Avenal Cutoff (approximately 4.5 miles northeast of the Project Site).

- Even though no mountain plovers were observed during the August or September, 2009 field survey dates on the Project Site, such winter fallowed grain stubble fields (especially when tractors expose insects and insect larvae) are ideal foraging habitat for mountain plovers. The current land owner/farmer stated that he has seen up to 25 “golden” plovers (a local term for mountain plover) during winter months when 500 – 800 acres of the Project Site are being worked by tractors (Douglas Morris, pers. comm.).

J.4.g- long-billed curlew, Numenius americanus WL, G5
Long-billed curlews, California’s largest “shorebird”, forage in grasslands, grazed pastures, sprouting grain fields, fallow agricultural land, and freshly plowed fields (Terres 1980). This species’ breeding range lies entirely east of the Sierra Nevada but wintering long-billed curlews are presenting the Tulare Basin, Kettleman Plain, and adjacent Coast Range valleys for most of the Calendar year. The first flocks return to Central California from their Great Plains and Great Basin breeding grounds in late June and the last northbound and spring migrants leave the Central Valley in May. The major threat to long billed curlews in this part of California is the loss of foraging habitat through the conversion of native grassland to incompatible land uses. Conversion and fragmentation of extensive agricultural land (grazed pasture) to irrigated row crops, conversion of rotated, cultivated field crops (including grain), to permanent crops (orchards and vineyards) and conversion of suitable agricultural foraging areas to urban uses further reduces the available foraging habitat.

The status of nesting habitat in the curlew’s California breeding range is the primary reason for state concern about this species and, along with loss of winter foraging habitat is the reason long-billed curlew is included on the American Bird Conservancy’s United States Watch List of Birds of Conservation Concern (http://www.abcbirds.org/abcprograms/science/watchlist/WatchList.pdf).

- Even though no long-billed curlews were observed during the August or September, 2009 field survey dates on the Project Site, such winter fallowed grain stubble fields (especially when tractors expose insects and insect larvae) are ideal foraging habitat for long-billed curlews. The current land owner/farmer stated that he has seen curlew flocks on the Project Site during winter months (July to June), but that they “seem to appear less often and that there are fewer nowadays” than in previous years (Douglas Morris, pers. comm.).
The winter fallowed grain stubble fields on the Project Site, while outside the breeding range of this species, serve as important long-billed curlew winter foraging habitat. The intermittent presence of winter flocks of long-billed curlews on this property is attributable, in part, to the large size of the property (curlew flocks seldom land and forage on small parcels of grassland or grain stubble fields).

**J.4.h - burrowing owl, *Athene cunicularia* SSC (nesting), G4**
To view a species profile for burrowing owl, see the Endangered Species Recovery Program (ESRP) online Web URL: [http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=spcu](http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=spcu). In the edited ESRP text on burrowing owl below, passages most pertinent to the Project Site are highlighted in **bold** type in the indented text:

The **burrowing owl** is a small ground-dwelling owl with a round head that lacks the tufts of feathers [characteristic of many other owl species] which are often referred to as ear tufts. It has white eyebrows, yellow eyes, and long stilt-like legs. The owl is sandy colored on the head, back, and upperparts of the wings and white-to-cream with barring on the breast and belly. Unlike most owls the male is slightly larger than the female and the females are usually darker than the males. **Burrowing owls are found in open, dry grasslands, agricultural and range lands, and desert habitats, [usually] associated with burrowing animals [. . . .]**. They can be found at elevations ranging from 200 feet below sea level to 9,000 feet [. . . .]. The owl commonly perches on fence posts or on top of mounds outside its burrow. **These owls can be found** at the margins of airports and golf courses and **in vacant urban lots**. They are active day and night, but are usually less active [midday]. Burrowing owls tend to be opportunistic feeders. Large arthropods, mainly beetles and grasshoppers, comprise a large portion of their diet. **Small mammals, especially** mice, rats, gophers, and ground squirrels, are also important food items. Other prey animals include: reptiles and amphibians, scorpions, young cottontail rabbits, bats, and birds, such as sparrows and horned larks. Consumption of insects increases during the breeding season. The burrowing owl hovers while hunting, similar to an American kestrel [. . . .], and after catching its prey it returns to a perch on a fence post or the ground. Burrowing owls are primarily crepuscular (active at dusk and dawn), but will hunt throughout a 24-hour period. **As their name suggests, burrowing owls nest in burrows in the ground, often in old ground squirrel burrows** or badger dens. **They** can dig their own burrows, but **prefer deserted excavations of other animals**. They are also known to use artificial burrows. Their nesting season begins in late March or April. The owls often line their nest with an assortment of dry materials.

Six to 11 eggs are laid; the average number of eggs is 7-9. Incubation lasts 28-30 days and is performed by [. . .] the female [only]. The care of the young, while [they are] still in the nest, is performed by the male. At 14 days of age, the young may be seen [standing] at the entrance to the burrow, waiting for the adults to return with food. The young leave the nest at about 44 days and begin chasing living insects when 49-56 days old. The burrowing owl is found in western North America from Canada to Mexico, [. . . .] east to Texas, [and] Louisiana. In certain areas of its range, it is migratory; this includes the northern areas of the Great Plains and Great Basin. **Although the burrowing owls in northern California are thought to migrate, owls within central and southern California are predominantly nonmigratory.**
In the southern San Joaquin Valley, burrowing owls are resident species and are breeders. They winter throughout their breeding range; some individuals wander outside their breeding range in winter. Nests are generally located in bare, level ground in abandoned rodent burrows (Verner and Boss 1980); in California, burrows dug by ground squirrels are most often appropriated (Thomsen 1971). Burrowing owls breed from early March to late August, with a peak from mid-April to mid-May. Burrowing owls hunt for insects, rodents, and birds during any time of the day or night in areas adjacent to burrows and nest sites.

Burrowing owl was formerly a common, even locally abundant, permanent resident throughout much of California. A decline noticeable in the Fresno area by 1903 (Miller) and 1913 (Tyler) and statewide by the 1940's (Grinnell and Miller 1944) has continued through to the present time (Remsen 1978). In recent years their numbers have been declining throughout California. For example, Remsen (1978) reported that there had been an estimated 70% reduction in suitable habitat in Tulare County [between 1968 and 1978]. Conversion of grasslands and pasturelands [extensive agriculture] to [intensive] agriculture, increasing urban development, and destruction of ground squirrel colonies have been the main factors causing the decline of the burrowing owl population (Zarn 1974). Assimilation of poisons applied to ground squirrel colonies has probably also taken a toll (Remsen 1978). Their propensity for nesting in roadside banks makes burrowing owls particularly vulnerable to roadside shooting, being hit by cars, road maintenance operations, and general harassment. Burrowing owls are usually tolerant of human activity but are vulnerable to predation by domestic cats and dogs. They are also vulnerable to burrow loss from any construction or maintenance activity that compacts soil or otherwise destroys burrows.

In addition to burrowing owl records noted in the nine Quad September 27, 2009 CNDDB “Rarefind” printout of Special Status Species, R. Hansen (field notes) has documented burrowing owl occurrences (usually nests or pairs of adult burrowing owls) at 40 other sites in nearby portions of Kings and Tulare counties.

- **No burrowing owls were found on the Project Site. The repeatedly disked, cultivated, and ruderal portions of the Panoche loam and Wasco sandy loam soil on the Project Site are not suitable habitat for burrowing owl.** Even the non-cultivated portions of the Project Site are only marginally suitable habitat for burrowing owls because there are so few California ground squirrel burrows available as potential nesting burrows and because there is so little in the way of burrowing owl prey on the property. Remnants of suitable habitat for burrowing owl in this part of Kings County are located primarily in relatively level areas of uncultivated ground. The status of burrowing owl burrow sites is the primary reason for state concern about this species in the Central Valley.

As noted above, only a small number of California ground squirrels (and their burrows) were observed during the field survey on August 7, 2009 along the southern fence line of Parcels 008 and 009 and along the western fence line of Parcel 009. No ground squirrels were seen any farther than 50 feet inside the perimeter fence line anywhere on the Project Site. All squirrel burrows were located immediately beneath fence lines, especially in the vicinity of ruderal vegetation (chiefly Russian thistle). All mammal burrows were examined to see if burrowing owls were present or if they exhibited any sign of burrowing owls (prey remains, burrowing owl pellets, or burrowing owl scat. None of the squirrel burrows on the southern or western borders of the Project Site showed any evidence of burrowing owl presence or activity.
While any ground squirrel burrow could potentially serve as a natal burrow or escape cover for a burrowing owl, there are at least five factors that reduce the suitability of the Project Site as burrowing owl natal den habitat:

1. **ground squirrel burrows suitable for use as burrowing owl natal burrows are few in number,**
2. **cultivation and irrigation** on neighboring lands precludes burrowing on surrounding land,
3. **those few portions of the Project Site where ground squirrels do occur are disked frequently enough that it precludes active denning by this species on the site,**
4. **most areas where squirrel burrows are present have a dense cover (overstory) of ruderal vegetation (chiefly Russian thistle).** Burrowing owls tend to avoid areas where the plant cover obstructs their clear view of the horizon and the sky overhead (they prefer to be able to detect the approach of a distant coyote or a prairie falcon in time to retreat into a burrow), and
5. **there are very small numbers of animals** (lizards, small birds, beetles, and grasshoppers) **on the Project Site suitable as prey species to attract burrowing owls.** Fewer than ten side-blotched lizards were seen during the field surveys, always near California ground squirrel burrows (used as escape cover by these small lizards). Very few grasshoppers were seen on the Project Site (grasshoppers flourish in areas where annual grasses grow and there are nearly no patches of undisked annual grass anywhere on the Project Site). While Tenebrionid (darkling) beetles are one of the most important staple prey items in local burrowing owl diets, no Tenebrionid beetles (common in most years in this part of Kings County where ever small mammal burrows are present) were seen during transect surveys on any of the 4 parcels.

Burrowing owl is a Special Status Species which is known to occur in greater or lesser numbers across a broad regional range. Burrowing owls may occasionally pass through the Project Site while migrating or foraging but, based on habitat characteristics, this species would not be expected to den on the Project Site. The Project Site does not provide important intrinsic habitat values unique to the area for nesting burrowing owls and the proposed Project should have little or no effect on regional populations of this species.

Due to the absence of suitable habitat associated with the proposed Solar Farms project, protocol level Phase II burrowing owl burrow surveys would not be required at these sites (Appendix E). However, implementation of a preconstruction survey, including a search for burrowing owl sign, would be recommended no more than 30 days prior to ground disturbing activity.

**J.4.i - loggerhead shrike, Lanius ludovicianus** **SSC, G4**

Loggerhead shrike (classified as a California Species of Special Concern), inhabits open habitats with scattered shrubs, trees, posts, fences, and utility lines (or other perches). Loggerhead shrike populations in California are fairly stable; however, the species is declining over much of its North American range. Habitat loss and pesticides are cited as the major factors in this decline (Morrison 1981; Fraser and Luukkonen 1986). Loggerhead shrikes typically nest in this part of Central California between late February and mid-June with peak breeding occurring between late March to early May (Verner and Boss, 1980). In this part of Central California, peak numbers of loggerhead shrikes are present during the months of June and July.
The nine Quad printout of the September 27, 2009 CNDDB “Rarefind” Special Status Species information (Appendix A) includes only 1 element occurrence (EO) of loggerhead shrike from the La Cima U.S.G.S. Quadrangle Map. Even though the La Cima Quad is adjacent to the Kettleman Plain Quad (where the Project Site is located), the location of this shrike EO is over 5 miles from the Project Site.

**At least four loggerhead shrikes (possibly as many as 8 individuals) were seen on the Project Site on August 7, 2009.** The shrikes seen on August 7 included one that hovered while foraging near the center of Section 26, one on the south fence 0.2 mile east of the southwest corner of Section 26, one on the south fence 0.4 mile west of the southeast corner of Section 26, one on the south fence 0.1 mile west of the southeast corner of Section 26, one on the fence just south of the south end of the private airstrip located on the 40-acre private land in the northwest ¼ of the southwest ¼ of Section 26, one that flew north from the southwest corner of Section 26 to the 5th utility pole north of the southwest corner of Parcel 009, and one that was seen just east of Parcel 007 (at two different locations in the vicinity of the equipment storage yard east of the natural gas pipeline). At least one loggerhead shrike was seen just north of the Project Site at 6:38 pm on September 21, 2009 where it perched on carrot harvesting equipment that was parked 0.1 mile north of the northwest corner of Parcel 007. Additional details about this special status bird species (including comments about local status) are included in Section J (Results of Biological Evaluation) below.

Although no loggerhead shrike nests were found on the Project Site (where there are few suitable nest sites because of a total absence of typical nest substrate - woody shrubs or trees), vegetation along the fence lines on the Project Site provides adequate to fair loggerhead shrike foraging habitat year round. **Under the current agricultural rotation of the lands on the Project Site, this species is not expected to nest on the Project Site. The Project Site does not provide important intrinsic habitat values unique to the area for nesting loggerhead shrikes.** When the proposed solar farms project is constructed, shrikes may establish nests in man-made structures (e.g. the racking system for the photovoltaic panel array). The proposed Project should have little or no effect on regional populations of this species because the solar farm facility, at build-out, will still have a perimeter fence for shrikes to perch on as they forage in the area.

**J.5. Special Status Mammals**

**J.5.a- San Joaquin kit fox, *Vulpes macrotis mutica* FE, ST**

To view a species profile for San Joaquin kit fox, see the Endangered Species Recovery Program (ESRP) online Web URL: [http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=vuma](http://esrpweb.csustan.edu/speciesprofiles/profile.php?sp=vuma). In the ESRP text on San Joaquin kit fox below, passages most pertinent to the London Pond site and/or the Traver Pond site are highlighted in bold type:

San Joaquin kit foxes inhabit grasslands and scrublands, many of which have been extensively modified. Types of modified habitats include... **grazed annual grasslands.** Oak woodland, alkali sink scrubland, and vernal pool and alkali meadow communities also provide habitat for kit foxes. **Dens are scarce in areas with shallow soils because of the proximity to bedrock, high water tables, or impenetrable hardpan [or claypan] layers.** Kit foxes are active year-round and are primarily nocturnal.
Dens are used for housing and protection. One fox may use several dens, particularly during the summer months. Females may change natal and pupping dens one or two times per month. **Kit foxes construct their own dens, but they can also enlarge or modify burrows constructed by other animals, such as ground squirrels, badgers, and coyotes.** They also den in human-made structures, such as culverts, abandoned pipes, and banks in roadbeds. Most dens, especially natal and pupping dens, have at least two entrances [. . . .]. Similar to other predators, reproductive success of kit foxes is related to the abundance of their prey. Decreases in prey abundance caused by circumstances such as drought and too much rainfall result in decreases of reproductive success of kit foxes [. . . .]. There are geographical, seasonal, and annual variations in the diet of San Joaquin kit foxes based upon temporal and spatial variation in abundance of potential prey. In the southern portion of their range, at least one-third of their diet is comprised of kangaroo rats, pocket mice, white-footed mice (*Peromyscus* spp.), and other nocturnal rodents. **Ground squirrels,** black-tailed hares, San Joaquin antelope squirrels, **cottontails, ground-nesting birds, insects, and vegetation,** particularly grasses, **also are eaten** [. . . .]. Although kit foxes are considered to be primarily nocturnal, they are commonly seen during the day in the late spring and early summer. Many factors have contributed to the decline of the San Joaquin kit fox, but the importance of these factors has probably varied over time. By the 1950's, loss, degradation, and fragmentation of habitats in the San Joaquin Valley due to agricultural, industrial, and urban developments were the primary factors in the decline of the San Joaquin kit fox. Since the 1970's, researchers have identified predation, starvation, flooding, and drought as natural mortality factors. Human-induced mortality factors include shooting, trapping, poisoning, electrocution, road kills, and suffocation. Prior to 1930, kit foxes inhabited most of the San Joaquin Valley from southern Kern County north to eastern Contra Costa County and eastern Stanislaus County [. . . .]. It was believed that by 1930 the kit fox range had been reduced by more than half, with the largest remaining portion being in the western and southern portions of the Valley [. . . .]. [Kit] foxes [. . . .] inhabit suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi mountains. Kit foxes have been found on all the larger, scattered islands of natural land on the Valley floor in Kern, Tulare, Kings, Fresno, Madera, San Benito, Merced, Stanislaus, San Joaquin, Alameda, and Contra Costa counties. They also occur in the interior basins and ranges in Monterey, San Benito, San Luis Obispo, and, possibly, Santa Clara counties; and in the upper Cuyama River watershed in northern Ventura and Santa Barbara counties and southeastern San Luis Obispo County.

Kit fox den entrances are characteristically higher (about 8-10 inches in height) than wide (less than 8 inches in width), while still sufficiently small to prevent access by larger carnivores such as coyotes (O'Farrell 1987). Den entrance diameters of under 4 inches have been recorded (Gail Presley, CDFG, pers. commun.). Although occupied dens may show freshly excavated soil, scats, and prey remains (O'Farrell 1987), such obvious sign may be inconspicuous or absent.

Vegetation in San Joaquin kit fox habitat may include a variety of grasses and annual forbs, saltbush, alkali goldenbush, iodine bush (*Allenrolfea occidentalis*), and seep-weed but kit foxes are also known to forage widely in cultivated areas and disturbed habitat (including urban and suburban neighborhoods). Kit foxes occur in the remaining native vegetation associations of the southern San Joaquin Valley and adjacent valleys (e.g. Pleasant Valley), foothills (e.g. Elk Hills and Guijarral Hills), and plains (e.g. Pleasant Valley), foothills (e.g. Elk Hills and Guijarral Hills), and plains.
Carrizo Plain, Elkhorn Plain, and Kettleman Plain). Depending on the extent of agricultural development, distribution is spotty within this broad range. While foxes occasionally are found in cities, or denning in road culverts, orchards, equipment yards, and abandoned pipelines, few can survive in irrigated agricultural settings, where rodents are routinely poisoned and other food items are scarce. Although CDFG banned hunting and trapping of fur-bearing species in the San Joaquin kit fox range in 1972, shooting and trapping, along with off-road vehicles, attacks by dogs, and poisoning by rodent bait still threaten the species.

Coyote predation (in undeveloped areas) and deaths caused by vehicles (in developed areas) are the two major sources of mortality for kit fox (Berry et al. 1987). Other sources of mortality documented by Morrell (1975), Knapp (1978), O'Farrell and Gilbertson (1979), and O'Farrell et al. (1986) include habitat conversion, shooting, drowning, entombment, pneumonia, and starvation. Additionally, widespread use of rodenticides may result in mortality, since kit foxes are extremely vulnerable to secondary poisoning through consumption of poisoned ground squirrels or other scavenged rodents (USFWS 1985). The kit fox's large territorial demands - about one square mile per animal - make protecting the species difficult. Individuals may cover great distances while foraging and especially while dispersing. Because of their mobility, kit foxes require secure denning areas, foraging areas with adequate prey, and safe migration corridors that connect denning and foraging areas.

With proper wildlife management, lands set aside on the Carrizo Plain and in the southern San Joaquin Valley should provide excellent kit fox habitat. USFWS manages the Kern and Pixley National Wildlife Refuges which both support kit fox populations and kit foxes also inhabit ecological reserves in the southern San Joaquin Valley managed by CDFG, U.S. Department of Interior Bureau of Land Management, and the Center for Natural Lands Management (a private NGO). Additional acreage for kit fox management has been purchased using development fees under the Habitat Conservation Plans being implemented in urban Bakersfield and Kern County with the participation of local business interests.

Recent (1985-2002) San Joaquin kit fox records indicate that this locally uncommon predator is widely dispersed on the Valley floor of rural Tulare County and Kings County and that its numbers in this part of its range fluctuate widely from year to year depending on a variety of factors.

Many records in the 1970s and 1980s came from the general vicinity of Porterville (between Terra Bella and Lindsay) on the east side of the Valley but the kit fox's range in the Tulare Basin also includes occurrences from Allensworth, Alpaugh, Poplar, Creighton Ranch, Tulare, Exeter, Ivanhoe, Traver, and Cross Creek (east and west of Highway 99), Avenal, and Kettleman City. The only land in these two Counties that effectively excludes wide-ranging predators (such as San Joaquin kit fox) are densely settled urban areas. Two (2) kit fox dens were found within Tulare City Limits in 1988 and 1989. The 1988 den was located in the vicinity of the Southern California Edison facility and the Haagen Dazs plant just west of Highway 99 (Section 14, Township 20 South, Range 24 East). Numerous sightings of foraging kit foxes (adults and pups) were reported in that area. A 1989 pupping den was located near the intersection of Bardsley and Irwin Street just west of Mooney Boulevard (Section 13, Township 20 South, Range 24 East). When this den was discovered, it was located at the base of a walnut tree at the edge of a walnut orchard adjacent to a vacant (bare) lot. Local residents reported seeing 5-6 kit foxes at the walnut orchard den site during late June 1989 and at least two pups from that litter were still under the care of an adult kit fox on July 3, 1989 (Hansen 1992a). One recent kit fox record from Tulare County is of a road-killed adult reported by Eric and Rachel Kleinfelter on July 9, 2002.
This animal, with two broken legs, had been hit by a vehicle on a stretch of Spruce Road (Road 204) near Avenue 244 (an undivided two-lane road) bordered on the east by an orange grove and on the west by a vineyard (the northwest ¼ of Section 36, Township 19S, Range 26E) 4.5 miles east-southeast of Exeter.

The nine Quad printout of the September 27, 2009 CNDDB “Rarefind” Special Status Species occurrence information (Appendix A) includes 37 records of San Joaquin kit fox from the following two U.S.G.S. Quadrangle Maps: the Kettleman Plain Quadrangle (where the Project Site is located) and Avenal, Avenal Gap, Kettleman City, La Cima, Los Viejos, and Pyramid Hills Quads.

On the 4 Quad printout of the September 27, 2009 CNDDB “Rarefind” Element Occurrence Records (Appendix B), there are 6 San Joaquin kit fox EOs from within a five-mile radius of the Project Site, the closest being a February 2, 1989 record by Nancy Nicolai from an elevation of about 1,000 feet in the foothills of the Kettleman Hills, approximately 0.5 mile east of the Project Site.

No San Joaquin kit fox were observed during this field survey. No evidence of San Joaquin kit fox denning activity was found anywhere on the Project Site during this biological evaluation. No known kit fox dens (or confirmed kit fox den sign) were detected on any of the transect surveys. There was also no evidence of kit fox tracks or scat anywhere on the property.

There are at least five factors that reduce the suitability of the Project Site as San Joaquin kit fox denning habitat:

1. The property is highly disturbed by cultivated irrigated agriculture, disk ing, and road maintenance (all of which deter or exclude burrow-dwelling species),
2. Except for the Avenal Prison’s waste water treatment ponds, located diagonally southwest of the southwest corner of Parcel 008 (and a few residential structures located on private land just west of Parcel 011), all of the lands surrounding the Project Site are managed as grain, row crop, or grazing land (Figures 14, 15, 25, , and 26) and at any given season, many of those surrounding lands are fallowed. This means that many of the same disturbances and habitat shortcomings that contribute to low species richness on the Project Site also affect the surrounding lands and minimize the ability of native plant and animal species to disperse onto the Project Site.
3. There are very small numbers of prey animals (ground squirrels, pocket gophers, lizards, small birds, beetles, and grasshoppers) on the Project Site to attract ground predators (like kit foxes). California ground squirrels, present only along a few fence lines, and Botta’s pocket gophers (most noticeable at the edges of fields along perimeter dirt ranch roads) are both very uncommon on the property. Similarly, fewer than ten side-blotched lizards were seen during the field surveys, always near California ground squirrel burrows (used as escape cover by these small lizards). The only numerous small birds on the Project Site were honed larks. Very few grasshoppers were seen on the Project Site (grasshoppers flourish in areas where annual grasses grow and there are nearly no patches of undisked annual grass anywhere on the Project Site).
4. There is limited nocturnal kit fox prey on site (kangaroo rats do not occur in this part of Tulare County, only two jackrabbits were found, and only a few desert cottontails were seen). Among diurnal prey, most of the California ground squirrels (and squirrel burrows) seen during the two field survey days were in the most ruderal areas (nearly devoid of plant cover) with very friable soil along the west side and near the northeast corner of the property.
5. Sign of both coyotes and dogs (competitor Canid species) was seen on the Project Site.
For the reasons iterated above, **changes in local land use** (conversion of the currently farmed ground to the proposed solar farms project) **should have no impact on this federally- and state-listed species.**

San Joaquin kit fox is a special status animal species which is known to occur in greater or lesser numbers across a broad regional range. **San Joaquin kit fox may occasionally pass through Project Site while foraging** but, based on habitat characteristics and prey availability, **this species would not be expected to den on this property.** The Project Site does not provide important intrinsic habitat values unique to the area for the establishment of San Joaquin kit fox dens. The proposed Projects is expected to have little or no effect on regional populations of this species.

**K. IMPACT ANALYSIS AND COMPENSATION**

**K.1. Significance Criteria**
General plans, area plans, and specific Projects are subject to the provisions of the California Environmental Quality Act (CEQA) to assess the impacts of proposed Projects on the environment before they are constructed. For example, site development may require the removal of some or all of a site’s existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Plants and animals adapted to humans, roads, buildings, pets, etc. may replace those species which formerly occurred on the site. Plants and animals that are State and/or Federally listed as Threatened or Endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. These impacts may be considered significant or not. According to Guide to the California Environmental Quality Act (Remy et al. 1999), “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific Project impacts to biological resources may be considered “significant” if they will:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or Special Status Species (including threatened and endangered species) in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

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

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

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

- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
conflict with the provisions of an adopted Habitat Conservation Plan, or other approved local, regional, or state habitat conservation plan (Remy et al. 1999).

Furthermore, CEQA Guidelines Section 15065 states that a Project may trigger the requirement to make a “mandatory findings of significance” if “the Project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory.”

In a Draft EIS/EIR prepared for a Project in Kings County by the United States Army Corps of Engineers (USACE), the document states,

For this section [Section 4.12 Effects on Endangered Species], any Project action which would affect the continued existence of an endangered or threatened species or a species of special concern is considered to be a significant adverse affect [sic].

If the Project Applicant can demonstrate that potential impacts to biological resources will be avoided then these impacts should be considered less-than-significant for the purpose of a CEQA review.

K.2. Relevant Goals, Policies, And Laws

K.2.1. Threatened and Endangered Species
State and Federal “Endangered species” legislation has provided CDFG and the USFWS with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as “Special Status Species”. Permits may be required from both the CDFG and USFWS if activities associated with a proposed Project will result in the “take” of a listed species.
“Take” is defined by the state of California as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” (California Fish and Game Code, Section 86). “Take” is more broadly defined by the federal Endangered Species Act to include “harm” (16 USC, Section 1532 (19), 50 CFR, Section 17.3). Furthermore, the CDFG and the USFWS are responding agencies under CEQA. Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues to make Project-specific recommendations for their conservation.

K.2.2. Migratory Birds
State and federal laws also protect most birds. The Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

K.2.3. Birds of Prey
Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, (1992), which states that it is “unlawful to take, possess, or destroy any birds in the Order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto”. Construction disturbances during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “taking” by the CDFG.

K.2.4. Wetlands and Other “Jurisdictional Waters”
Natural drainage channels and wetlands are considered “Waters of the United States” (hereafter referred to as “jurisdictional waters”). The U.S. Army Corps of Engineers (USACE) regulates the filling or grading of such waters under the authority of Section 404 of The Clean Water Act (Wetland Training Institute, Inc. 1990). The extent of jurisdiction within drainage channels is defined by “ordinary high water marks” on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All Projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).
The California Department of Fish and Game has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1603 of the California Fish and Game Code (California Department of Fish and Game 1995). Activities that would disturb these drainages are regulated by the CDFG via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

K.3. Environmental Impact/Compensation
This biological evaluation considers potential impacts related to the following proposed Project:

EE Avenal Land LLC (Applicant) proposes to convert approximately 420 acres of row crop (carrots), dry land farmed wheat, and cattle grazing land (located on 4 separate parcels) to three photovoltaic (PV) solar farms that they intend to develop, own and operate. It is anticipated that these 2 Projects (considered together under this Biological Evaluation) would require County approval of a Conditional Use Permit (CUP) to allow for the construction, operation, and maintenance of such facilities for the long-term generation of clean renewable energy from solar power. Construction of both Projects is anticipated to begin in spring, 2010. The Projects are scheduled to be completed in phases. Sun City (APN 009 and 011), is expected to be on-line by the 4th quarter of 2010. Sand Drag (APN 007 and 008) is expected to be on-line at the end of 2010.

As envisioned, cultivated agricultural land with a sparse, patchy cover of ruderal (chiefly non-native annual plants) vegetation (all 420 acres with very low wildlife value) will be converted to a year round solar energy electrical generation facility (a photovoltaic panel array) to provide electricity for public consumption.

Potential impacts to biotic resources at the Project Site are discussed conceptually below.

K.3.1 Will the Project have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or Special Status Species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact

Seven (7) Special Status plant Species (see Section F and Section J of this report) are known to occur in the general vicinity (within 5 miles) of the Project Site but no special status plant species were observed on the Project Site.

Compensation

None required.

K.3.2 Will the Project have a substantial adverse effect, either directly or through habitat modifications, on any animal species identified as a candidate, sensitive, or Special Status Species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact
Seventeen (17) Special Status animal species (see Section F and Section J of this report) are known to occur in the general vicinity (within 5 miles) of the Project Site. **Only one special status animal species (loggerhead shrike) was observed on the Project Site** during the field survey portion (2 days in August and September, 2009) of this biological evaluation.

Section J.4 (Special Status Birds) of this report documents the presence of **three (3) other Special Status animal Species:** 1) sandhill crane (greater or lesser?); 2) mountain plover; and 3 long-billed curlew which **have all been observed on the Project Site by the current land owner/farmer.**

While none of these 4 bird species are either State or federally listed as endangered or threatened, the following 4 text accounts provide details about the local status of these 4 Special Status bird Species:

1. **loggerhead shrike** - At least four loggerhead shrikes (possibly as many as 8 individuals) were seen on the Project Site on August 7, 2009 and at least one loggerhead shrike was seen **on the Project Site on September 21, 2009.** Although no loggerhead shrike nests were found on the Project Site (where there are few suitable nest sites because of a total absence of typical nest substrate - woody shrubs or trees), vegetation along the fence lines on the Project Site provides adequate to fair loggerhead shrike foraging habitat year round. **Under the current agricultural rotation of the lands on the Project Site, this species is not expected to nest on the Project Site.** The Project Site does not provide important intrinsic habitat values **unique to the area for nesting loggerhead shrikes.** When the proposed solar farms project is constructed, shrikes may establish nests in man-made structures (e.g. the racking system for the photovoltaic panel array). **The proposed Project should have little or no effect on regional populations of this species because the solar farm facility, at build-out, will still have a perimeter fence for shrikes to perch on as they forage in the area.**

2. **sandhill crane** - Even though **no sandhill cranes were observed during the August or September, 2009 field survey dates on the Project Site, the current land owner/farmer stated, while he hears and sees them annually** (southbound in the fall months and northbound in spring months), **that they have only landed to forage in the grain stubble a few times** (Douglas Morris, pers. comm.).

3. **mountain plover** - Even though **no mountain plovers were observed during the August or September, 2009 field survey dates on the Project Site, such winter fallowed grain stubble fields (especially when tractors expose insects and insect larvae) are ideal foraging habitat for mountain plovers.** The current land owner/farmer stated that he has seen up to 25 “golden” plovers (a local term for mountain plover) during winter months when 500 – 800 acres of the Project Site are being worked by tractors (Douglas Morris, pers. comm.).

4. **long-billed curlew** - Even though **no long-billed curlews were observed during the August or September field survey dates on the Project Site, such winter fallowed grain stubble fields (especially when tractors expose insects and insect larvae) are ideal foraging habitat for long-billed curlews.**
5. The current land owner/farmer stated that he has seen curlew flocks on the Project Site during winter months (July to June), but that they “seem to appear less often and that there are fewer nowadays” than in previous years (Douglas Morris, pers. comm.).

Section J.4 (Special Status Birds) and Section J.5 (Special Status Mammals) of this report document how seven (7) other Special Status animal Species (San Joaquin whipsnake, Swainson’s hawk, golden eagle, prairie falcon, burrowing owl, San Joaquin kit fox, and American badger) could make short stopovers on the Project Site during migration or while foraging on the property from time to time. Development of the proposed Project will have little or no effect on regional populations of the 7 species mentioned in this paragraph. The Project Site does not provide important intrinsic habitat values unique to this site for any one of these seven species. Similar habitats, or better, are available to regional wildlife populations on other private property on the Kettleman Plain, in the Kettleman Hills and the Kreyenhagen Hills, and on other federally-owned, state-owned, or privately-owned lands. Project construction is not likely to prevent these 7 species from passing through or foraging over the Project Site in the future.

General preconstruction surveys of the Project Site (proposed disturbance area) should be conducted at least 30 days prior to any ground disturbing project activities to ensure no burrowing owls have occupied the Project Site in the interim period between the initial survey (August 7 and September 21, 2009) and the commencement of ground disturbing activity. Protocol level Phase II burrowing owl burrow surveys would not be required at the Project Site (Appendix E).

Even though no positive sign of San Joaquin kit fox was found during this biological evaluation, CDFG recommends that kit fox avoidance be performed prior to and during construction as a standard practice to help avoid or minimize impacts to this wide-ranging species. In the event that kit fox dens are established on the Project Site subsequent to the end of this biological evaluation (September 21, 2009) or during Project-related construction work, then appropriate sections of United States Fish and Wildlife Service's Standardized Recommendations for Protection of the San Joaquin Kit Fox, June 1999 (Appendix F) should be followed. Applicant should conduct kit fox avoidance prior to and during construction.

This prudent course of action (this is the responsibility of the applicant), routinely advocated by both USFWS and CDFG, is recommended to avoid impacts to any kit foxes that might disperse onto the Project Site and establish a den(s) between the end of this biological evaluation (September 21, 2009) and the commencement of actual construction. Specific avoidance, impact minimization, and compensation (mitigation), guidelines for San Joaquin kit fox are included in Appendix I.

**Compensation**

If subsequent surveys on the Project Site document the presence of federally listed species, then consultation with USFWS may direct Applicant to pursue compensation measures for these federally listed species. **If subsequent field work or surveys determine that any listed species inhabit these properties (and if the existing habitats are adversely affected by Project construction), this would be considered a significant environmental impact.** If any listed species are impacted by either Project, consultation with USFWS will be required. The USFWS will require Section 7 take authorization or a Section 10(a)(1)(B) permit (authorizing incidental take of a listed species).
It would be much more cost effective and timely to secure a Section 7 take authorization than to pursue a Section 10(a)(1)(B) incidental take permit. In order to secure a Section 7 take authorization for this Project, a federal nexus must (and does) exist. In addition, a biological assessment must be prepared for the Project and National Environmental Policy Act (NEPA) compliance would be required.

Incidental take permits under the state and federal Endangered Species Acts are typically issued on the condition that the applicant provide compensatory mitigation. Options for such compensatory mitigation include: 1) protection of existing similar habitat on-site in perpetuity, 2) purchase of existing similar habitat off-site (and protection in perpetuity), 3) creation, construction, or restoration of similar habitat on previously damaged or degraded habitat, or 4) the purchase of credits in a conversation or mitigation bank, should one be available in the Project vicinity and should the bank sell credits appropriate for the impact.

K.3.3. Will the Projects have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

**Impact**

No riparian habitat (or other sensitive natural communities) occurs anywhere on the Project Site.

**Avoidance and Minimization Measures**

None Required

**Compensation**

Since no riparian habitat (or other sensitive natural communities) occurs on the Project Site, compensation measures for these habitats are not warranted.

K.3.4. Will the Projects have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

**Impact**

Waters of the United States are absent from the Project Site.

**Compensation**

Compensation measures are not warranted.

K.3.5. Will the Projects interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

**Impact**
The Project Site does not appear to constitute a “movement corridor” for native wildlife, although a number of species potentially move over or around the different parcels. Almost all of the lands surrounding the Project Site are managed as grain, row crop, or grazing land and at any given season, many of those surrounding lands are fallowed. This means that many of the same disturbances and habitat shortcomings that contribute to low species richness on the Project Site also affect the surrounding lands and minimize the ability of native plant and animal species to disperse onto the Project Site. A considerable amount of open space lands in the vicinity of the Project Site (especially in the adjacent Kettleman Hills (to the east) and the more distant Kreyenhagen Hills (to the west) will continue to be used by native species for home range and dispersal movements. Therefore, this Project will result in a less than significant effect on regional wildlife movements.

Compensation

Because these Project will result in a less than significant effect on regional wildlife movements, compensation measures are not considered warranted.

K.3.6 Will the Projects reduce substantially the habitat of a fish or wildlife species, including causing a fish or wildlife population to drop below self-sustaining levels or threaten to eliminate an animal community?

Impact

No; native biodiversity and wildlife population numbers are currently very limited on the Project Site. Most of the terrestrial vertebrates using the Project Site are species common to the region and impacts related to the Project will have no significant effect on them.

Compensation

Because this Project will have a less than significant effect on habitat for common native wildlife occurring in this portion of Kings County, compensation measures for common species are not considered warranted. No fish or wildlife populations are likely to drop below self-sustaining levels because of Project-related activities. The proposed Project does not threaten to eliminate any animal community, so compensation measures for animal communities are not warranted.

K.3.7 Will the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact

As long as Applicant consults with USFWS and CDFG regarding Avoidance, Minimization, and/or Compensation of potential Project-related impacts to Special Status Species such as: loggerhead shrike, sandhill crane, mountain plover, long-billed curlew (and possibly burrowing owl and San Joaquin kit fox) as iterated above and as long as Applicant follows the Avoidance, Minimization, and/or Compensation recommendations as iterated above in Section J.4.h and Section J.5.a, then the proposed solar energy electrical generation facility appears to be consistent with the General Plan Policies of Kings County that are relevant to natural resource protection. Therefore, as long as the Applicant consults with
Federal and State agencies on potential Special Status Species as described above, then the Project should not be in conflict with Kings County General Plan policies or natural resource protection ordinances.

Compensation

Because this Project appears to be consistent with the General Plan Policies of Kings County relevant to natural resource protection, mitigation measures further protecting biological resources are not considered warranted (except, in the case of potential impacts to special status animal species as noted in Section J.4.h and Section J.5.a, above).

K.3.8. Will the Projects conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan?

Impact

No HCP, NCCP, or conservation plan of any kind has been instituted in this part of Kings County. Therefore, the Project will not conflict with any such plan.

Compensation

None required.

K.3.9. Will the Projects result in the degradation of water quality in seasonal creeks, reservoirs and downstream waters?

Impact

The excavation of loose soils often creates conditions conducive to erosion and the concomitant deposition of sediment in adjacent drainages. Because the Project Site is located on land that is relatively level, and because there are no seasonal creeks within proposed construction areas, environmental impact to offsite locations resulting from soil erosion will be minimal. With proper planning (See Figure 5 and Section B), potential Project impact to water quality in seasonal creeks, irrigation canals, reservoirs and downstream waters will be less than significant.

Compensation

Because these Projects will result in less than significant impacts on water quality in nearby creeks, rivers, irrigation canals, reservoirs, and downstream waters, compensation measures are not considered warranted.
K.3.10. Will construction activities during Project implementation disturb any active raptor nests?

**Impact**

There are no trees on the Project Site. The only likely breeding raptors in the vicinity of the Project Site is a probable nesting pair of resident red-tailed hawks (a pair of adult red-tailed hawks was seen on both field survey days perched on utility poles along the west edge of Section 26 and in the vicinity of the large trees at the residence located just west of Parcel 011 and just east of 36th Avenue. It is likely that this pair nests in those trees. Those trees are not located on any of the parcels under consideration for acquisition as part of this Project. If the Project is be constructed during the raptor breeding season (February through May) of some future then construction activities might disturb any raptors that were nesting in those trees at the time. Should raptors be nesting on (or immediately adjacent to the Project Site at the time of Project construction, construction-related disturbance to any nest would constitute a potentially significant adverse impact.

**Avoidance and Minimization Measures**

Preconstruction surveys during the red-tailed hawk nesting season (February through May), within 0.5 mile of construction areas, shall be conducted prior to beginning construction and related activities. Survey results shall be provided to CDFG in a written report.

**Compensation**

The Project will have no impact on active raptor nests if construction occurs between September 16 and January 31. If the Projects are slated for construction between the months of early February and late September (and if impacts to nest trees are unavoidable), then Applicant must implement the following measures to ensure full compensation for known nest trees and potential nest trees (mature trees within 0.25 mile of a known nest tree):

1. A qualified biologist will conduct a survey of the subject property nearest any construction/earth-moving sites for active raptor nests;

2. If no active raptor nests are found, the applicant will then be able to proceed with the Project without additional mitigation measures being necessary;

Implementation of the above measures will fully mitigate possible impact to an active raptor nest resulting from Project construction.
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American Ornithologists Union Staff. 1998. Check-list of North American Birds: Species of Birds of North America from the Arctic through Panama, Including the West Indies and Hawaiian Islands. 7th ed. Washington, DC. 829 pp


California Natural Diversity Database. 2009. California Department of Fish and Game.


Hansen, R.B. 2005b. Biological Evaluation of Potential Impacts to Special Status Species (Endangered, Threatened, and Candidate Species and Species of Special Concern) and Natural Habitat Areas on Tulare County Tract N0. 767, an approximately 14.71-acre Preliminary Subdivision (Phase 1 and Phase 2) on the north side of Avenue 320 ¼ mile east of State Highway 63 (Road 124) just north of The City of Visalia, Tulare County, California. Unpubl. Rep. Dated July 22, 2005. Visalia, CA.

Hansen, R.B. 2005c. Biological Evaluation of Potential Impacts to Special Status Species (Endangered, Threatened, and Candidate Species and Species of Special Concern) and Natural Habitat Areas at “Goshen Village” (an Approximately 17.06-acre Preliminary Subdivision) on the North Side of Avenue 308, 300 Feet East of Road 72, Just East of the Community of Goshen, Tulare County, California. Unpubl. Rep. Dated September 6, 2005. Visalia, CA.


Holstein, G. 1980. Letter to Dr. John Pinto with collection information for L. molesta.


PERSONAL COMMUNICATIONS


Hamilton, W.J., III. Tricolored blackbird researcher, University of California, Davis. 1997 - conversation in the field.


_____. October 2, 2009 – telephone conversation.


APPENDIX A

A Nine Quad Printout of the  
September 27, 2009 CNDDB “Rarefind”  
Special Status Species Occurrence Information  
from the Following 7.5 Minute Series U.S.G.S. Quadrangle Maps:  

Kettleman Plain Quadrangle (where the Project Site is located) and  
the eight adjacent Quadrangle maps (Avenal, Avenal Gap, Garza Peak, Kettleman City, La Cima, Los Viejos, Pyramid Hills, and Tent Hills)

3 Pages
## APPENDIX A: September 27, 2009 CNDDB Rare Find Data Printout for Kettleman Plain Quad (and 8 surrounding Quads)

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<th>USGS Quad Map Name</th>
<th>Number of Element Occurrences in Quad</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Federal Status</th>
<th>California Status</th>
<th>DFG Status</th>
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APPENDIX B

A Four Quad Printout of the September 27, 2009 CNDDB “Rarefind” Special Status Species Occurrence Information for 38 Element Occurrence Records for 7 Plant Species and 10 Animal Species from Within a Five-Mile Radius of the Project Site.

This Area Includes Portions of the Following 7.5 Minute Series U.S.G.S. Quadrangle Maps: the Kettleman Plain Quadrangle (Where the Project Site is Located) and Three Adjacent Quadrangle Maps (Avenal, Garza Peak, and La Cima)

2 Pages
## APPENDIX B: 38 Element Occurrence Records for 7 Plant Species and 10 Animal Species from Within a 5-Mile Radius of the Avenal Project Site

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APPENDIX C

ANNOTATED CHECK LIST OF NATIVE AND INTRODUCED PLANTS
SEEN ON AUGUST 7 AND SEPTEMBER 21, 2009 DURING BIOLOGICAL
EVALUATION
OF POTENTIAL IMPACTS TO SPECIAL STATUS SPECIES
(ENDANGERED, THREATENED, AND CANDIDATE SPECIES
AND SPECIES OF SPECIAL CONCERN) AND NATURAL HABITAT AREAS
AT THE “AVENAL” SITE (APPROXIMATELY 420 ACRES PROPOSED
FOR DEVELOPMENT AS A PHOTOVOLTAIC SOLAR FARM) ON THE
EAST SIDE OF 36TH AVENUE, SOUTH OF THE SALEM AVENUE
ALIGNMENT,
ONE MILE SOUTHEAST OF AVENAL, KINGS COUNTY, CALIFORNIA

Pages C1-C3
Taxonomic nomenclature (except for several common names) and sequence of major taxonomic groups follows Hickman (1993). Within major taxa, Family and Genus names are listed alphabetically rather than in phylogenetic sequence.


CNPS 1B = California Native Plant Society List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere)

I = an Introduced species (aka as invasive, non-native or exotic species)

<table>
<thead>
<tr>
<th>SCIENTIFIC NAME OF FAMILY. Common Name of Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Name of Species</td>
</tr>
</tbody>
</table>

FLOWERING PLANTS. DIVISION: ANTHOPHYTA
CLASS: DICOTYLEDONEAE

AMARANTHACEAE. Amaranth Family

- *Amaranthus albus*  
  I tumbleweed

- *Amaranthus blitoides*  
  I prostrate amaranth or mat amaranth

APIACEAE. Carrot Family

- *Daucus carota*  
  I carrot (grown here as an irrigated row crop)

ASTERACEAE. Sunflower Family

- *Ambrosia acanthicarpa*  
  I annual bur-sage

- *Coneza bonariensis*  
  I flax-leaved fleabane

- *Helianthus annuus*  
  I wild sunflower

- *Lactuca serriola*  
  I prickly lettuce or wild lettuce

- *Sonchus sp.*  
  I sow-thistle species

- *Stephanomeria exigua*  
  I small wirelettuce
BORAGINACEAE. Borage Family

*Amsinckia menziesii*  
Menzies’ fiddleneck or small-flowered fiddleneck

*Heliotropium curassavicum*  
alkali heliotrope

BRASSICACEAE. Mustard Family

*Capsella bursa-pastoris*  
shepherd's purse

*Sisymbrium irio*  
London rocket

*Sisymbrium officinale*  
hedge mustard

CHENOPODIACEAE. Goosefoot Family

*Salsola tragus*  
Russian thistle or tumbleweed

CONVOLVULACEAE. Morning Glory Family

*Convolvulus arvensis*  
bindweed

EUPHORBIACEAE. Spurge Family

*Eremocarpus setigerus*  
dove weed or turkey mullein

LAMIACEAE. Mint Family

*Trichostema lanceolatum*  
vinegar weed or bluecurls

MALVACEAE. Mallow Family

*Malva parviflora*  
cheeseweed
POLYGONACEAE. Buckwheat Family

Polygonum arenastrum  I  common knotweed or prostrate knotweed

SOLANACEAE. Nightshade Family

Datura stramonium  I  jimson weed
Datura wrightii  I  sacred thorn-apple or Western Jimson weed
Nicotiana quadrivalvis  I  Indian tobacco
Solanum nigrum  I  black nightshade

ZYGOPHYLLACEAE. Caltrop Family

Tribulus terrestris  I  puncture vine or caltrop

FLOWERING PLANTS. DIVISION: ANTHOPHYTA

CLASS:  MONOCOTYLEDONEAE

CYPERACEAE. Sedge Family

Scirpus sp.  bulrush species

POACEAE. Grass Family

Digitaria sanguinalis  I  crabgrass or hairy crabgrass
Distichlis spicata  I  saltgrass
Echinochloa crus-galli  I  watergrass
Leptochloa uninerva  I  Mexican sprangletop
Panicum capillare  I  witchgrass
Triticum aestivum  I  wheat (grown here as a dryland farmed crop)

TYPHACEAE. Cattail Family

Typha angustifolia  narrow-leaved cattail

PLANT SPECIES STATUS

TOTAL Number of NATIVE Species:  15
TOTAL Number of INTRODUCED Species:  18
GRAND TOTAL OF ALL PLANT SPECIES:  33
APPENDIX D

ANNOTATED CHECK LIST
OF NATIVE AND INTRODUCED VERTEBRATES
SEEN ON AUGUST 7 AND SEPTEMBER 21, 2009 DURING BIOLOGICAL EVALUATION
OF POTENTIAL IMPACTS TO SPECIAL STATUS SPECIES (ENDANGERED, THREATENED, AND CANDIDATE SPECIES AND SPECIES OF SPECIAL CONCERN) AND NATURAL HABITAT AREAS AT THE “AVENAL” SITE (APPROXIMATELY 420 ACRES PROPOSED FOR DEVELOPMENT AS A PHOTOVOLTAIC SOLAR FARM) ON THE EAST SIDE OF 36TH AVENUE, SOUTH OF THE SALEM AVENUE ALIGNMENT, ONE MILE SOUTHEAST OF AVENAL, KINGS COUNTY, CALIFORNIA

Pages D1-D4
Species "seen" includes species which were identified by tracks, dens, vocalizations, and other sign.

SSC = California State Species of Special Concern
SA = Special Animal
I = an Introduced (aka invasive, exotic or non-native) species

Bird families and species are listed in phylogenetic order as presented in the 7th edition American Ornithologist's Union Check-list of North American Birds, and supplements.

<table>
<thead>
<tr>
<th>Scientific Name of Species</th>
<th>Common Name of Species</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class:</strong> REPTILIA. Reptiles</td>
<td></td>
</tr>
<tr>
<td><strong>Family:</strong> IGUANIDAE. Iguanids</td>
<td></td>
</tr>
<tr>
<td><em>Uta stansburiana</em></td>
<td>side-blotched lizard</td>
</tr>
<tr>
<td><strong>Family:</strong> COLUBRIDA. Colubrids</td>
<td></td>
</tr>
<tr>
<td><em>Arizona elegans</em></td>
<td>glossy snake</td>
</tr>
<tr>
<td><strong>Class:</strong> AVES. Birds</td>
<td></td>
</tr>
<tr>
<td><strong>Family:</strong> CATHARTIDAE. American Vultures</td>
<td></td>
</tr>
<tr>
<td><em>Cathartes aura</em></td>
<td>turkey vulture</td>
</tr>
<tr>
<td><strong>Family:</strong> ACCIPITRIDAE. Osprey, Kites, Hawks, and Eagles</td>
<td></td>
</tr>
<tr>
<td><em>Buteo jamaicensis</em></td>
<td>red-tailed hawk</td>
</tr>
<tr>
<td><strong>Family:</strong> FALCONIDAE. Falcons</td>
<td></td>
</tr>
<tr>
<td><em>Falco sparverius</em></td>
<td>American kestrel</td>
</tr>
<tr>
<td><strong>Family:</strong> CHARADRIIDAE. Plovers</td>
<td></td>
</tr>
<tr>
<td><em>Charadrius vociferus</em></td>
<td>killdeer</td>
</tr>
</tbody>
</table>
Family: **COLUMBIDAE. Pigeons and Doves**

*Zenaida macroura*  
mourning dove

Family: **TYRANNIDAE. Tyrant Flycatchers**

*Sayornis nigricans*  
black phoebe

*Sayornis saya*  
Say’s phoebe

*Tyrannus verticalis*  
Western kingbird

Family: **LANIIDAE. Shrikes**

*Lanius ludovicianus*  
loggerhead shrike  SSC

Family: **CORVIDAE. Crows**

*Corvus brachyrhynchos*  
American crow

*Corvus corax*  
common raven

Family: **ALAUDIDAE. Larks**

*Eremophila alpestris*  
horned lark

Family: **HIRUNDINIDAE. Swallows**

*Tachycineta thalassina*  
violet-green swallow

*Hirundo pyrrhonota*  
cliff swallow

*Hirundo rustica*  
barn swallow

Family: **STURNIDAE. Starlings**

*Sturnus vulgaris*  
European starling

Family: **EMBERIZIDAE. Sparrows**

*Chondestes grammacus*  
lark sparrow

Family: **ICTERIDAE. Blackbirds, Meadowlarks, and Cowbirds**

*Agelaius phoeniceus*  
red-winged blackbird

*Sturnella neglecta*  
Western meadowlark

*Euphagus cyanocephalus*  
Brewer's blackbird

Family: **PASSERIDAE. Old World Sparrows**

*Passer domesticus*  
house sparrow
Class: MAMMALIA. Mammals
Order: LAGOMORPHA. Rabbits and Hares
Family: LEPORIDAE. Rabbits and Hares

Sylvilagus audubonii  
Lepus californicus  
desert cottontail  
black-tailed jackrabbit

Order: RODENTIA. Squirrels, Rats, Mice, and Relatives
Family: SCIURIDAE. Squirrels

Otospermophilus beecheyi  
California ground squirrel

Family: GEOMYIDAE. Pocket Gophers

Thomomys bottae  
Botta's pocket gopher

D-3

Order: CARNIVORA. Carnivores
Family: CANIDAE. Coyote, Dog, and Foxes.

Canis familiaris  
Canis latrans  
1 domestic dog  
coyote

VERTEBRATE SPECIES SEEN
AT THE “AVENAL” SITE

REPTILES:  2
BIRDS:  21
MAMMALS:  6

TOTAL NUMBER OF VERTEBRATE SPECIES SEEN AT
THE “AVENAL” SITE:  29
APPENDIX E

*Burrowing Owl Survey Protocol and Mitigation Guidelines*(California Burrowing Owl Consortium 1991)

Pages i and E1- E13
INTRODUCTION

California's burrowing owl population is clearly in peril and if declines continue unchecked the species may qualify for listing. Because of the intense pressure for development of open, flat grasslands in California, resource managers frequently face conflicts between owls and development projects. Owls can be affected by disturbance and habitat loss, even though there may be no direct impacts to the birds themselves or their burrows. There is often inadequate information about the presence of owls on a project site until ground disturbance is imminent. When this occurs there is usually insufficient time to evaluate impacts to owls and their habitat. The absence of standardized field survey methods impairs adequate and consistent impact assessment during regulatory review processes, which in turn reduces the possibility of effective mitigation.

These guidelines are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect burrowing owls or the resources that support them. The process begins with a four-step survey protocol to document the presence of burrowing owl habitat, and evaluate burrowing owl use of the project site and a surrounding buffer zone. When surveys confirm occupied habitat, the mitigation measures are followed to minimize impacts to burrowing owls, their burrows and foraging habitat on the site. These guidelines emphasize maintaining burrowing owls and their resources in place rather than minimizing impacts through displacement of owls to an alternate site.

Each project and situation is different and these procedures may not be applicable in some circumstances. Finally, these are not strict rules or requirements that must be applied in all situations. They are guidelines to consider when evaluating burrowing owls and their habitat, and they suggest options for burrowing owl conservation when land use decisions are made.

Section 1 describes the four phase Burrowing Owl Survey Protocol. Section 2 contains the Mitigation Guidelines. Section 3 contains a discussion of various laws and regulations that protect burrowing owls and a list of references cited in the text.

We have submitted these documents to the California Department of Fish and Game (CDFG) for review and comment. These are untested procedures and we ask for your comments on improving their usefulness.
SECTION 1 - BURROWING OWL SURVEY PROTOCOL

PHASE I: HABITAT ASSESSMENT

The first step in the survey process is to assess the presence of burrowing owl habitat on the project site including a 150-meter (approx. 500 ft.) buffer zone around the project boundary (Thomsen 1971, Martin 1973).

Burrowing Owl Habitat Description

Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn 1974). Suitable owl habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of burrowing owl habitat: both natural and artificial burrows provide protection, shelter, and nests for burrowing owls (Henny and Blus 1981). Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels or badgers, but also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement.

Occupied Burrowing Owl Habitat

Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. Burrowing owls exhibit high site fidelity, reusing burrows year after year (Rich 1984, Feeney 1992). A site should be assumed occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years (Rich 1984).

The Phase II burrow survey is required if burrowing owl habitat occurs on the site. If burrowing owl habitat is not present on the project site and buffer zone, the Phase II burrow survey is not necessary. A written report of the habitat assessment should be prepared (Phase IV), stating the reason(s) why the area is not burrowing owl habitat.

PHASE II: BURROW SURVEY
1. A survey for burrows and owls should be conducted by walking through suitable habitat over the entire project site and in areas within 150 meters (approx 500 ft.) of the project impact zone. This 150-meter buffer zone is included to account for adjacent burrows and foraging habitat outside the project area and impacts from factors such as noise and vibration due to heavy equipment which could impact resources outside the project area.

2. Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be no more than 30 meters (approx. 100 ft.), and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. To efficiently survey projects larger than 100 acres, it is recommended that two or more surveyors conduct concurrent surveys. Surveyors should maintain a minimum distance of 50 meters (approx. 160 ft.) from any owls or occupied burrows. It is important to minimize disturbance near occupied burrows during all seasons.

3. If burrows or burrowing owls are recorded on the site, a map should be prepared of the burrow concentration areas. A breeding season survey and census (Phase III) of burrowing owls is the next step required.

4. Prepare a report (Phase IV) of the burrow survey stating whether or not burrows are present.

5. A preconstruction survey may be required by project-specific mitigations no more than 30 days prior to ground disturbing activity.

**PHASE III: BURROWING OWL SURVEYS, CENSUS AND MAPPING**

If the project site contains burrows that could be used by burrowing owls, then survey efforts should be directed towards determining owl presence on the site. Surveys in the breeding season are required to describe if, when, and how the site is used by burrowing owls. If no owls are observed using the site during the breeding season, a winter survey is required.

**Survey Methodology**

A complete burrowing owl survey consists of four site visits. During the initial site visit examine burrows for owl sign and map the locations of occupied burrows.
Subsequent observations should be conducted from as many fixed points as necessary to provide visual coverage of the site using spotting scopes or binoculars. It is important to minimize disturbance near occupied burrows during all seasons. Site visits must be repeated on four separate days. Conduct these visits from two hours before sunset to one hour after or from one hour before to two hours after sunrise. Surveys should be conducted during weather that is conducive to observing owls outside their burrows. Avoid surveys during heavy rain, high winds (> 20 mph), or dense fog.

**Nesting Season Survey.** The burrowing owl nesting season begins as early as February 1 and continues through August 31 (Thomsen 1971, Zarn 1974). The timing of nesting activities may vary with latitude and climatic conditions. If possible, the nesting season survey should be conducted during the peak of the breeding season, between April 15 and July 15. Count and map all burrowing owl sightings, occupied burrows, and burrows with owl sign. Record numbers of pairs and juveniles, and behavior such as courtship and copulation. Map the approximate territory boundaries and foraging areas if known.

**Survey for Winter Residents (non-breeding owls).** Winter surveys should be conducted between December 1 and January 31, during the period when wintering owls are most likely to be present. Count and map all owl sightings, occupied burrows, and burrows with owl sign. Surveys Outside the Winter and Nesting Seasons. Positive results (i.e., owl sightings) outside of the above survey periods would be adequate to determine presence of owls on site. However, results of these surveys may be inadequate for mitigation planning because the numbers of owls and their pattern of distribution may change during winter and nesting seasons. Negative results during surveys outside the above periods are not conclusive proof that owls do not use the site.

**Preconstruction Survey.** A preconstruction survey may be required by project-specific mitigations and should be conducted no more than 30 days prior to ground disturbing activity.

**PHASE IV: RESOURCE SUMMARY, WRITTEN REPORT**
A report should be prepared for CDFG that gives the results of each Phase of the survey protocol, as outlined below.

**Phase I: Habitat Assessment**

1. Date and time of visit(s) including weather and visibility conditions; methods of survey.

2. Site description including the following information: location, size, topography, vegetation communities, and animals observed during visit(s).

3. An assessment of habitat suitability for burrowing owls and explanation.
4. A map of the site.

**Phase II: Burrow Survey**

1. Date and time of visits including weather and visibility conditions; survey methods including transect spacing.

2. A more detailed site description should be made during this phase of the survey protocol including a partial plant list of primary vegetation, location of nearest freshwater (on or within one mile of site), animals observed during transects.

3. Results of survey transects including a map showing the location of concentrations of burrow(s) (natural or artificial) and owl(s), if present.

**Phase III: Burrowing Owl Surveys, Census and Mapping**

1. Date and time of visits including weather and visibility conditions; survey methods including transect spacing.

2. Report and map the location of all burrowing owls and owl sign. Burrows occupied by owl(s) should be mapped indicating the number of owls at each burrow. Tracks, feathers, pellets, or other items (prey remains, animal scat) at burrows should also be reported.

3. Behavior of owls during the surveys should be carefully recorded (from a distance) and reported. Describe and map areas used by owls during the surveys. Although not required, all behavior is valuable to document including feeding, resting, courtship, alarm, territorial, parental, or juvenile behavior.

4. Both winter and nesting season surveys should be summarized. If possible include information regarding productivity of pairs, seasonal pattern of use, and include a map of the colony showing territorial boundaries and home ranges.

5. The historical presence of burrowing owls on site should be documented, as well as the source of such information (local bird club, Audubon society, other biologists, etc.).
Burrowing Owl Survey Protocol

Phase I
Habitat Assessment
project area plus 150 m

Habitat present

Phase II
Burrow Survey
project area plus 150 m
- 100% coverage of suitable habitat
- maximum 30 m transect spacing

Habitat not present

No further field surveys required; complete Phase IV: Written Report

Owls or burrows present

Complete Phase IV: Written Report
Preconstruction survey may be required

Burrows not present

map burrow areas

Phase III
Burrowing Owl Surveys:
census and mapping

Winter Survey
1 December - 31 January
- Four site visits on separate dates
  2 hours before to
  1 hour after sunset
  or
  1 hour before to
  2 hours after sunrise
- Map owl sightings, occupied burrows, burrows with sign, territorial boundaries;
  record all breeding behavior

if no owls observed

Phase IV
Resource Summary:
Written Report
Results of each Phase survey, including
number of owls, nesting pairs,
productivity, seasonal pattern of use,
map of site with occupied burrow

Preconstruction surveys may be required

Nesting Season Survey
15 April - 15 July
- Four site visits on separate dates
  2 hours before to
  1 hour after sunset
  or
  1 hour before to
  2 hours after sunrise
- Map owl sightings, occupied burrows, burrows with sign, territorial boundaries;
  record all breeding behavior
The objective of these mitigation guidelines is to minimize impacts to burrowing owls and the resources that support viable owl populations. These guidelines are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect burrowing owls or their resources. The process begins with a four-step survey protocol (see *Burrowing Owl Survey Protocol*) to document the presence of burrowing owl habitat, and evaluate burrowing owl use of the project site and a surrounding buffer zone. When surveys confirm occupied habitat, the mitigation measures described below are followed to minimize impacts to burrowing owls, their burrows and foraging habitat on the site. These guidelines emphasize maintaining burrowing owls and their resources in place rather than minimizing impacts through displacement of owls to an alternate site.

Mitigation actions should be carried out prior to the burrowing owl breeding season, generally from February 1 through August 31 (Thomsen 1971, Zarn 1974). The timing of nesting activity may vary with latitude and climatic conditions. Project sites and buffer zones with suitable habitat should be resurveyed to ensure no burrowing owls have occupied them in the interim period between the initial surveys and ground disturbing activity. Repeat surveys should be conducted not more than 30 days prior to initial ground disturbing activity.

**DEFINITION OF IMPACTS**

1. Disturbance or harassment within 50 meters (approx. 160 ft.) of occupied burrows.

2. Destruction of burrows and burrow entrances. Burrows include structures such as culverts, concrete slabs and debris piles that provide shelter to burrowing owls.

3. Degradation of foraging habitat adjacent to occupied burrows.

**GENERAL CONSIDERATIONS**

1. Occupied burrows should not be disturbed during the nesting season, from February 1 through August 31, unless the Department of Fish and Game verifies that the birds have not begun egg-laying and
incubation or that the juveniles from those burrows are foraging independently and capable of independent survival at an earlier date.

2. A minimum of 6.5 acres of foraging habitat, calculated on a 100-m (approx. 300 ft.) foraging radius around the natal burrow, should be maintained per pair (or unpaired resident single bird) contiguous with burrows occupied within the last three years (Rich 1984, Feeney 1992). Ideally, foraging habitat should be retained in a long-term conservation easement.

3. When destruction of occupied burrows is unavoidable, burrows should be enhanced (enlarged or cleared of debris) or created (by installing artificial burrows) in a ratio of 1:1 in adjacent suitable habitat that is contiguous with the foraging habitat of the affected owls.

4. If owls must be moved away from the disturbance area, passive relocation (see below) is preferable to trapping. A time period of at least one week is recommended to allow the owls to move and acclimate to alternate burrows.

5. The mitigation committee recommends monitoring the success of mitigation programs as required in Assembly Bill 3180. A monitoring plan should include mitigation success criteria and an annual report should be submitted to the California Department of Fish and Game.

AVOIDANCE

Avoid Occupied Burrows
No disturbance should occur within 50 m (approx. 160 ft.) of occupied burrows during the non-breeding season of September 1 through January 31 or within 75 m (approx. 250 ft.) during the breeding season of February 1 through August 31. Avoidance also requires that a minimum of 6.5 acres of foraging habitat be preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird.
MITIGATION FOR UNAVOIDABLE IMPACTS

On-site Mitigation

On-site passive relocation should be implemented if the above avoidance requirements cannot be met. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 m from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls (Figure 3). Relocation of owls should only be implemented during the non-breeding season. On-site habitat should be preserved in a conservation easement and managed to promote burrowing owl use of the site. Owls should be excluded from burrows in the immediate impact zone and within a 50 m (approx. 160 ft.) buffer zone by installing one-way doors in burrow entrances. One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact zone. The project area should be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.
Off-site Mitigation

If the project will reduce suitable habitat on-site below the threshold level of 6.5 acres per relocated pair or single bird, the habitat should be replaced off-site. Off-site habitat must be suitable burrowing owl habitat, as defined in the Burrowing Owl Survey Protocol, and the site approved by CDFG. Land should be purchased and/or placed in a conservation easement in perpetuity and managed to maintain suitable habitat. Off-site mitigation should use one of the following ratios:

1. Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 (9.75) acres per pair or single bird.

2. Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2 times 6.5 (13.0) acres per pair or single bird.

3. Replacement of occupied habitat with suitable unoccupied habitat: 3 times 6.5 (19.5) acres per pair or single bird.
SECTION 3 - LEGAL STATUS

The burrowing owl is a migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 - August 15, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is considered "taking" and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g., MBTA).

The burrowing owl is a Species of Special Concern to California because of declines of suitable habitat and both localized and statewide population declines. Guidelines for the Implementation of the California Environmental Quality Act (CEQA) provide that a species be considered as endangered or "rare" regardless of appearance on a formal list for the purposes of the CEQA (Guidelines, Section 15380, subsections b and d). The CEQA requires a mandatory findings of significance if impacts to threatened or endangered species are likely to occur (Sections 21001(c), 21083. Guidelines 15380, 15064, 15065). Avoidance or mitigation must be presented to reduce impacts to less than significant levels.

CEQA AND SUBDIVISION MAP ACT

CEQA Guidelines Section 15065 directs that a mandatory finding of significance is required for projects that have the potential to substantially degrade or reduce the habitat of, or restrict the range of a threatened or endangered species. CEQA requires agencies to implement feasible mitigation measures or feasible alternatives identified in EIR's for projects which will otherwise cause significant adverse impacts (Sections 21002, 21081, 21083; Guidelines, sections 15002, subd. (a)(3), 15021, subd. (a)(2), 15091, subd. (a)).

To be legally adequate, mitigation measures must be capable of "avoiding the impact altogether by not taking a certain action or parts of an action"; "minimizing impacts by limiting the degree or magnitude of the action and its implementation"; "rectifying the impact by repairing, rehabilitating or restoring the impacted environment"; "or reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action." (Guidelines, Section 15370).
Section 66474 (e) of the Subdivision Map Act states "a legislative body of a city or county shall deny approval of a tentative map or parcel map for which a tentative map was not required, if it makes any of the following findings:...(e) that the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish and wildlife or their habitat". In recent court cases, the court upheld that Section 66474(e) provides for environmental impact review separate from and independent of the requirements of CEQA (Topanga Assn. for a Scenic Community v. County of Los Angeles, 263 Cal. Rptr. 214 (1989)). The finding in Section 66474 is in addition to the requirements for the preparation of an EIR or Negative Declaration.
A - plastic irrigation valve box
B - 4" diameter perforated corrugated plastic pipe
C - 6" square hollow concrete block
D - chain or plastic rope marking location of nesting chamber on ground surface
E - 5' - 6' perch post (optional)
APPENDIX F

STANDARDIZED RECOMMENDATIONS
FOR PROTECTION OF THE SAN JOAQUIN KIT FOX
PRIOR TO OR DURING GROUND DISTURBANCE

UNITED STATES FISH AND WILDLIFE SERVICE

JUNE 1999

PAGES 1-8
INTRODUCTION

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act). Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Formal authorization for the project may be required under either section 7 or section 10 of the Act. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). Such protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

All surveys, den destructions, and monitoring described in this document must be conducted by a qualified biologist. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, biologist(s) must be able to identify coyote, red fox, gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints such as an individual in-fill oil well, communication tower, or bridge repair. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a
STANDARD RECOMMENDATIONS

future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features, and make recommendations on situating the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then preconstruction surveys should be conducted.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, and assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol).

Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities. If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping dens (active or inactive). Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (versus, the project boundary can be demarcated, see den destruction section).

OTHER PROJECTS

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project, and those requirements supersede any requirements found in this document.
**EXCLUSION ZONES**

The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums, and if they cannot be followed the Service must be contacted:

<table>
<thead>
<tr>
<th>Type</th>
<th>Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential den</td>
<td>50 feet</td>
</tr>
<tr>
<td>Known den</td>
<td>100 feet</td>
</tr>
<tr>
<td>Natal/pupping den</td>
<td>Service must be contacted (occupied and unoccupied)</td>
</tr>
<tr>
<td>Atypical den</td>
<td>50 feet</td>
</tr>
</tbody>
</table>

**Known den:** To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

**Potential and Atypical dens:** Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Construction and other project activities should be prohibited or greatly restricted within these exclusion zones. Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited within the exclusion zones.

**DESTRUCTION OF DENS**

Disturbance to all San Joaquin kit fox dens should be avoided to the maximum extent possible. Protection provided by kit fox dens for use as shelter, escape, cover, and reproduction is vital to the survival of the species. Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection. **Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service.**
STANDARD RECOMMENDATIONS

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgement of the biologist, the animal has escaped from the partially destroyed den.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then destruction shall cease and the Service shall be notified immediately.

CONSTRUCTION AND OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbance should be minimized. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be
included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control
must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has expected impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.

12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

13. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during
project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620
"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means "... to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms "active" and "inactive" when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species’ range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Pupping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.
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September 2, 2009

Mr. Dave Singleton  
Associate Governmental Program Analyst  
Native American Heritage Commission  
915 Capitol Mall, Room 364  
Sacramento, CA 95814

Subject: Request for Sacred Lands Inventory Search and Contacts

Dear Mr. Singleton:  

This letter is written on behalf of our client, who is proposing to construct a photovoltaic solar energy facility near the City of Avenal in Kings County, California. The project site would be comprised of three solar generation plants located in Section 26 in T22S, R17E. Three maps showing the project area are attached to this letter. Ecology and Environment, Inc. (E & E) has been retained by the applicant to prepare an Initial Study compliant with the California Environmental Quality Act and complete an application for three Conditional Use Permits for the proposed action.  

On behalf of our client, E & E requests a review of the Sacred Lands file be conducted for the project area, along with a list of appropriate Native American groups that may be interested in the project.  

Please contact me with any questions at (415) 981-2811, or via email at cmccollum@ene.com.  

Thank you very much for your time.  

Sincerely,  

[Signature]

Christine McCollum  
Cultural Resources Specialist  
Ecology and Environment, Inc.
Figure 1-2: Project Site Map
September 9, 2009

Christine McCollum
Ecology and Environment, Inc.
130 Battery Street, Suite 400
San Francisco, CA 94111

Sent by Fax: 001-916-657-5390
Number of Pages: 2

Re: Proposed Photovoltaic Solar Facility; Kings County.

Dear Ms. McCollum:

The Native American Heritage Commission was able to perform a record search of its Sacred Lands File (SLF) for the affected project area. The SLF failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any 'area of potential effect (APE).'

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the nearest tribes that may have knowledge of cultural resources in the project area. A List of Native American contacts are attached to assist you. The Commission makes no recommendation of a single individual or group over another. It is advisable to contact the person listed; if they cannot supply you with specific information about the impact on cultural resources, they may be able to refer you to another tribe or person knowledgeable of the cultural resources in or near the affected project area (APE).

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contact List
Native American Contact
Kings County
September 9, 2009

Santa Rosa Rancheria
Chairperson
P.O. Box 8
Lemoore, CA 93245
(559) 924-1278
(559) 924-3583 Fax

Santa Rosa Rancheria
Lalo Franco, Director - Cultural Department
P.O. Box 8
Lemoore, CA 93245
(559) 924-1278

Table Mountain Rancheria
Lee Ann Walker Grant, Chairperson
P.O. Box 410
Friant, CA 93626-0177
(559) 822-2587
(559) 822-2693 FAX

Table Mountain Rancheria
Bob Pennell, Cultural Resources Director
P.O. Box 410
Friant, CA 93626-0177
(559) 325-0351
(559) 217-9718 - cell
(559) 325-0394 FAX

Kings River Choinumni Farm Tribe
Stan Alec
2248 Vartikian
Clovis, CA 93611
559-297-1787
559-647-3227 - cell

Kings River Choinumni Farm Tribe
John Davis, Chairman
1064 Oxford Avenue
Clovis, CA 93612-2211
559-324-9908

Esohm Valley Band of Indians
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA 93906
831-443-9702

This list is current only as of the date of this document.
Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.95 of the Public Resources Code.
and federal NEPA (42 USC 4321-43351), NHPA Sections 106, 4(f) (16 USC 470(f) and NAGPRA (25 USC 3001-3013)

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Photovoltaic Solar Facility; located near the Community of Avenal in Kings County, California for which a Sacred Lands File search and Native American Contacts list were requested.
September 16, 2009

Santa Rosa Rancheria
Chairperson
P.O. Box 8
Lemoore, CA 93245

Subject: Project Notification and Request for Information

Dear Chairperson:

Ecology and Environment, Inc. has been retained to conduct an Initial Study compliant with the California Environmental Quality Act and complete an application for three Conditional Use Permits for a proposed photovoltaic solar energy facility near the City of Avenal in Kings County, California.

The project site would be comprised of three solar generation plants located in Section 26 in T22S, R17E. Two maps showing the project area are attached to this letter.

At this time, we request your assistance in identifying any cultural sites or areas of cultural significance that could be affected by the proposed project. If there are any sensitive resources in or near the project location that could be impacted by construction activities, or if you have any questions or concerns regarding the proposed project, please feel free to contact me directly at (415) 981-2811, or via email at cmccollum@ene.com.

Sincerely,

Ecology and Environment, Inc.

[Signature]
Christine McCollum
Cultural Resources Specialist

[Enclosure: as stated]
Figure 1-2: Project Site Map
September 16, 2009

Santa Rosa Rancheria
Lalo Franco, Director – Cultural Department
P.O. Box 8
Lemoore, CA 93245

Subject: Project Notification and Request for Information

Dear Lalo,

Ecology and Environment, Inc. has been retained to conduct an Initial Study compliant with the California Environmental Quality Act and complete an application for three Conditional Use Permits for a proposed photovoltaic solar energy facility near the City of Avenal in Kings County, California.

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Sincerely,

Ecology and Environment, Inc.

[Signature]
Christine McCollum
Cultural Resources Specialist

[Enclosure: as stated]
Figure 1-2: Project Site Map
September 16, 2009

Table Mountain Rancheria
Lee Ann Walker Grant, Chairperson
P.O. Box 410
Friant, CA 93626-0177

Subject: Project Notification and Request for Information

Dear Ms. Walker Grant,

Ecology and Environment, Inc. has been retained to conduct an Initial Study compliant with the California Environmental Quality Act and complete an application for three Conditional Use Permits for a proposed photovoltaic solar energy facility near the City of Avenal in Kings County, California.

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Sincerely,

Ecology and Environment, Inc.

[Signature]
Christine McCollum
Cultural Resources Specialist

[Enclosure: as stated]
Figure 1-2: Project Site Map
September 16, 2009

Kings River Choinummi Farm Tribe
Stan Alec
2248 Vartikian
Clovis, CA 93611

Subject: Project Notification and Request for Information

Dear Mr. Alec,

Ecology and Environment, Inc. has been retained to conduct an Initial Study compliant with the California Environmental Quality Act and complete an application for three Conditional Use Permits for a proposed photovoltaic solar energy facility near the City of Avenal in Kings County, California.

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Sincerely,

Ecology and Environment, Inc.

[Signature]
Christine McCollum
Cultural Resources Specialist

[Enclosure: as stated]
Figure 1-2: Project Site Map
September 16, 2009

Table Mountain Rancheria
Bob Pennell, Cultural Resources Director
P.O. Box 410
Friant, CA 93626-0177

Subject: Project Notification and Request for Information

Dear Mr. Pennell,

Ecology and Environment, Inc. has been retained to conduct an Initial Study compliant with the California Environmental Quality Act and complete an application for three Conditional Use Permits for a proposed photovoltaic solar energy facility near the City of Avenal in Kings County, California.

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Sincerely,

Ecology and Environment, Inc.

Christine McCollum
Cultural Resources Specialist

[Enclosure: as stated]
Figure 1-2: Project Site Map
September 16, 2009

Kings River Choinumni Farm Tribe
John Davis, Chairman
1064 Oxford Avenue
Clovis, CA 93612-2211

Subject: Project Notification and Request for Information

Dear Mr. Davis,

Ecology and Environment, Inc. has been retained to conduct an Initial Study compliant with the California Environmental Quality Act and complete an application for three Conditional Use Permits for a proposed photovoltaic solar energy facility near the City of Avenal in Kings County, California.

The project site would be comprised of three solar generation plants located in Section 26 in T22S, R17E. Two maps showing the project area are attached to this letter.

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Sincerely,

Ecology and Environment, Inc.

Christine McCollum
Cultural Resources Specialist

[Enclosure: as stated]
Avenal Project(s) Location
Figure 1-2: Project Site Map
September 16, 2009

Eshorn Valley Band of Indians
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA 93906

Subject: Project Notification and Request for Information

Dear Mr. Woodrow,

Ecology and Environment, Inc. has been retained to conduct an Initial Study compliant with the California Environmental Quality Act and complete an application for three Conditional Use Permits for a proposed photovoltaic solar energy facility near the City of Avenal in Kings County, California.

The project site would be comprised of three solar generation plants located in Section 26 in T22S, R17E. Two maps showing the project area are attached to this letter.

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Sincerely,

Ecology and Environment, Inc.

[Signature]
Christine McCollum
Cultural Resources Specialist

[Enclosure: as stated]
Figure 1-2: Project Site Map
NOTE:
(1) TYPICAL 30 MODULE RACK

NOTES:
1. TOTAL SITE SYSTEM SPECIFICATIONS:
   12,092 30 MODULE RACKS
   362,760 128W - 142W MODULES
   46.43 MW DC, 39.00 MW AC
   GCR = 0.50 (19' ROW SPACING, 9.4' ROW WIDTH)

2. (1) RACK CONSISTS OF 30 THIN FILM MODULES,

3. PROJECT IDENTIFICATION SIGNAGE TO BE INSTALLED AT
   ALL ACCESS POINTS. ALL SIGNAGE TO BE INSTALLED IN
   CONFORMANCE WITH KINGS COUNTY ORDINANCES.

4. EXTERNAL SECURITY AND SAFETY LIGHTING TO BE
   INSTALLED AT ALL ACCESS POINTS, AND AT SUBSTATION
   AREAS (SEE SHT E1.1 FOR SUBSTATION LOCATIONS).
   LIGHTING TO BE SHIELDED AND DIRECTED DOWN TOWARDS
   GROUND IN THE IMMEDIATE AREA.

5. FIRE PROTECTION PROVIDED THROUGH SITE  ACCESS
   ROADS AND VEGETATION MANAGEMENT

LEGEND

PROPERTY BOUNDARY

SOLAR ARRAY UNDERGROUND AC

CONDUCTORS

OVERHEAD ELECTRICAL LINE

FIELD ROAD CENTERLINE

POWDER ELEMENT

60' WIDE ALL WEATHER GRAVEL

ACCESS ROADS FOR FIRE PROTECTION AND

PV SYSTEM MAINTENANCE

SEE DETAIL 1, SHEET E1.2 FOR SETBACK DIMENSIONS OF NEW

SOLAR ARRAY EQUIPMENT AND

STRUCTURES IN THIS AREA

PRELIMINARY - NOT FOR CONSTRUCTION

SUN CITY SUB-STATION

(TAP INTO (E) 69KV TRANSMISSION

LINE)

NORTH ACCESS ROAD

SAND DRAG SUB-STATION

(TAP INTO (E) 69KV TRANSMISSION

LINE)

(1) TYPICAL 1 MW ARRAY CONSISTS OF 310 RACKS.

(1) TYPICAL 1 MW SOLAR ARRAY

TYPICAL 1 MW SOLAR ARRAY

BLOC

(1) TYPICAL 30 MODULE RACK

(1) TYPICAL 30 MODULE RACK

NOTE:
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EUSUS ENERGY AMERICA
4660 LA JOLLA VILLAGE DR.
SUITE 400
SAN DIEGO, CA 92122

SECTION 26-22-17
AVENAL, CA

1 ISSUE FOR C.U.P.

11/11/09

2 COUNTY COMMENTS

12/1/09 - RESPONSE TO

SS

9/22/09

NOTES:

1. TOTAL SITE SYSTEM SPECIFICATIONS:

   12,092 30 MODULE RACKS
   362,760 128W - 142W MODULES
   46.43 MW DC, 39.00 MW AC
   GCR = 0.50 (19' ROW SPACING, 9.4' ROW WIDTH)

2. (1) RACK CONSISTS OF 30 THIN FILM MODULES,

3. PROJECT IDENTIFICATION SIGNAGE TO BE INSTALLED AT
   ALL ACCESS POINTS. ALL SIGNAGE TO BE INSTALLED IN
   CONFORMANCE WITH KINGS COUNTY ORDINANCES.

4. EXTERNAL SECURITY AND SAFETY LIGHTING TO BE
   INSTALLED AT ALL ACCESS POINTS, AND AT SUBSTATION
   AREAS (SEE SHT E1.1 FOR SUBSTATION LOCATIONS).
   LIGHTING TO BE SHIELDED AND DIRECTED DOWN TOWARDS
   GROUND IN THE IMMEDIATE AREA.

5. FIRE PROTECTION PROVIDED THROUGH SITE  ACCESS
   ROADS AND VEGETATION MANAGEMENT

LEGEND

PROPERTY BOUNDARY

SOLAR ARRAY UNDERGROUND AC

CONDUCTORS

OVERHEAD ELECTRICAL LINE

FIELD ROAD CENTERLINE

POWDER ELEMENT

60' WIDE ALL WEATHER GRAVEL

ACCESS ROADS FOR FIRE PROTECTION AND

PV SYSTEM MAINTENANCE

SEE DETAIL 1, SHEET E1.2 FOR SETBACK DIMENSIONS OF NEW

SOLAR ARRAY EQUIPMENT AND

STRUCTURES IN THIS AREA

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PRELIMINARY - NOT FOR CONSTRUCTION
BEFORE THE KINGS COUNTY PLANNING COMMISSION
COUNTY OF KINGS, STATE OF CALIFORNIA

IN THE MATTER OF CONDITIONAL USE
PERMIT NO. 09-08 (Sun City Project LLC)

RESOLUTION NO. 10-02
RE: Southeast of the Intersection of 36th Avenue and Salem Avenue, Avenal

WHEREAS, on November 16, 2009, Sun City Project LLC, filed Conditional Use Permit No. 09-08 to establish a 20 megawatt photovoltaic solar facility; and

WHEREAS, the application was determined to be complete on January 25, 2010; and

WHEREAS, on March 1, 2010, the thirty day public review period for the proposed Initial Study/Mitigated Negative Declaration for this project closed; and

WHEREAS, on March 5, 2010, the Kings County Community Development Agency recommended that the Negative Declaration be approved for the proposal; and

WHEREAS, on March 5, 2010, the Kings County Community Development Agency staff notified the applicant of the proposed recommendation on this project; and

WHEREAS, on March 15, 2010, this Commission held a duly noticed public hearing to receive testimony from any interested person.

NOW, THEREFORE, BE IT RESOLVED, that this Commission finds that:

1. An Initial Study of the project has been conducted by the Lead Agency to evaluate the potential for any adverse environmental impact.

2. There is evidence in the record that indicates that the project has potential for adverse effect on wildlife, resources, or habitat for wildlife.

3. Mitigation measures were developed to mitigate all potential adverse effects on wildlife, resources, or habitat for wildlife.

4. The presumption that the project will have a potential for adverse effect on fish and wildlife resources or the habitat upon which wildlife depends is mitigated based on evidence in the record that:

   A. The project does not involve any riparian land, rivers, streams, watercourses, or wetlands under State and Federal jurisdiction.

   B. The project does not disturb any plant life required to sustain habitat for fish or wildlife.

   C. The project does not disturb any rare or unique plant life or ecological communities dependent on plant life.
D. The project has the possibility to negatively impact the environment and threaten listed or endangered plant or animals or the habitat in which they are believed to reside. Therefore, the following mitigation measures have been incorporated into the project as described in the projects IS/MND to reduce the possible impacts to less than significant:

**MM AG-1: Soil Reclamation Plan.** Prior to the issuance of a building permit, the applicant shall submit a Soil Reclamation Plan for review and approval by Planning Staff. The Plan shall contain specific measures to restore the soil to its pre-project condition, including removal of all fixtures, equipment, non-agricultural roads, and restoration of compacted soil. Reclamation shall be completed within 12 months of the expiration of the use permit.

**MM AIR-1: Indirect Source Review and Fugitive Dust Control Plan.** The applicant will file an Indirect Source Review (District Rule 9510) with the SJVAPCD to determine potential mitigation, if any, for NO\textsubscript{x} and PM\textsubscript{10} emissions. Additionally, the applicant will submit a fugitive dust control plan to SJVAPCD prior to the initiation of construction.

**MM BIO-1: Pre-Construction Burrowing Owl Survey.** A pre-construction clearance survey for burrowing owls shall be performed by a qualified biologist, not more than 30 days prior to construction, to ensure avoidance of this species during construction. If burrowing owls are determined to be present, avoidance measures in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) shall be implemented.

**MM BIO-2: Pre-Construction Nesting Bird Surveys.** Pre-construction surveys for nesting birds shall be conducted by a qualified biologist not more than 30 days prior to commencement of construction. Exclusion areas of 100 feet marked with stakes and colored flagging tape shall be maintained around all active nests until birds have fledged.

**MM BIO-3: Wildlife-Friendly Fencing.** The applicant will design wildlife-friendly fencing that will be installed around the perimeter of the project area. Fence design shall allow kit fox and other wildlife to move freely into and out of the site. Fence design shall either consist of:

1. The installation of 6-in minimum internal diameter piping, or similar opening, at 100 foot intervals or less along the entire bottom of the perimeter fence. Piping will be constructed of polyvinyl chloride (PVC), steel or other durable material, and shall be approximately 1 foot in length. Pipes will be placed on the top of the ground to allow animal movement into and out of the site, or

2. Perimeter fencing that leaves a six inch gap around the entire perimeter; or perimeter fencing of an alternative design approved by CDFG which allows kit foxes to freely move into and out of the site.

**MM BIO-4: San Joaquin Kit Fox Protection Measures.** Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendations for protection of the San Joaquin kit fox..."
fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan:

1. Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction shall be minimized. Offroad traffic outside of designated project areas shall be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from the construction/project site.

5. No firearms shall be allowed on the project site.

6. Use of rodenticides and herbicides in project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide shall be used because of proven lower risk to kit fox.

7. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS.
8. An employee education program shall be conducted for the project. The program shall consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program shall include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

9. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary” disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.

10. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS shall be contacted for advice.

11. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

12. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

F. The project does not disturb any marine species which are subject to the jurisdiction of the Department of Fish and Game and ecological communities in which they reside.

G. The project is mitigated so as not to degrade any air or water resources which will individually or cumulatively result in a loss of biological diversity among plants and animals residing in the air or water.
5. The proposed project may have significant adverse impacts on the environment. However, those impacts can be mitigate to an insignificant level by implementing the mitigation monitoring program attached to this resolution as Exhibit “A.” The Mitigated Negative Declaration reflects the Planning Commission’s independent judgment and analysis.

6. The proposed project will not have a significant impact on the environment and the Mitigated Negative Declaration reflects the Planning Commission’s independent judgment and analysis.

7. The project site is located within an established Agricultural Preserve and is consistent with the California Land Conservation Act of 1965 (Williamson Act) and the Kings County Uniform Rules for Agricultural Preserves pursuant to the following findings of consistency:

   A. Section 51238 of the California Government Code states in (a)(1) that electric facility’s “…are hereby determined to be compatible uses within any agricultural preserve”, unless the Board after notice and hearing makes a finding to the contrary. The Kings County Board of Supervisors has not made a finding to the contrary. Therefore, as stated in the Government Code Section 51238, electric facilities remain a compatible use in Kings County:

   (1) Section 51238(a)(2) goes on to state that “No land occupied by gas, electric, water, communication or agricultural laborer housing facilities shall be excluded from an agricultural preserve by reason of that use.”

   (2) Solar electric facilities are “electric facilities” within the meaning of Section 51238.

   B. Section 51238.1 of the California Government Code establishes additional compatible land uses which have not been identified and “deemed compatible uses” in Section 51238:

   (1) Section 51238.1 does not apply to uses that have already been determined by the Legislature to be compatible.

   (a) Section 51201(e) reinforces this by defining three types of compatible uses:

   1. Uses determined to by compatible by the County under Section 51238; or

   2. Uses determined to be compatible by the County under Section 51238.1; or

   3. Uses determined to by compatible “by this act.”

   (b) “Electric facilities” are facilities deemed compatible “by this act and therefore are deemed compatible by operation of law.

   C. The proposed project is consistent with the Uniform Rules for Agricultural Preserves in Kings County.

   1. The Uniform Rules for Agricultural Preserves in Kings County does not address the construction of electrical facilities since Government Code Section 51238 has already deemed the use “compatible.” Any use that is determined to be compatible
by the Williamson Act is presumed consistent with Kings County’s Uniform Rules for Agricultural Preserves.

2. To the extent that consistency with the Uniform Rules for Agricultural Preserves in Kings County is required beyond the above finding of compatibility by operation of law, the Uniform Rules state that during the term of a contract, the only uses permitted upon the land shall be Commercial Agricultural Uses and Compatible Uses.

(a) Of the 420 acres of prime farmland included in the project, 63 acres would be converted to non agricultural uses throughout the duration of the project. The remaining 357 acres would retain the ability to be farmed using dry farming techniques. If the CUP is not extended, the electrical facility will be removed from the site following the 25 year life of the project allowing the entire site to return to agricultural uses.

8. This proposal conforms with the objectives of the ordinance and policies of the Kings County General Plan, specifically:

A. The proposed project, as recommended for approval, is consistent with the policies of the Kings County General Plan, specifically: The applicable general plan policies are found in the Kings County General Plan.

1) Figure 3, the “Kings County Land Use Map”, designates this site as General Agriculture (AG-40).

2) Page LU-10, Section III A of the Land Use Element states that the physical development of agricultural properties is regulated and implemented by the zoning ordinance.

3) Page RC-9, Section VI., Objective 21.1 of the “Resource Conservation Element” states that the County will promote the development of alternative energy sources, including solar energy.

9. The use complies with the applicable provisions of the ordinance, specifically: The proposed photovoltaic solar farm, as recommended for approval, is consistent with the Kings County Zoning Ordinance.

A. Article 4, Section 405.D.20 of the General Agricultural (AG-40) Zone District lists wind and solar PV electrical generating facilities that commercially produce power for sale, and comply with all local, regional, state, and federal regulations as a conditional use subject to Kings County Planning Commission approval.

BE IT FURTHER RESOLVED, that based on the above findings, this Commission approves the Mitigated Negative Declaration for Conditional Use Permit No. 09-08, and approves Conditional Use Permit No. 09-08, as proposed, subject to the conditions and exceptions as follows:

1. All proposals of the applicant shall be conditions of approval if not mentioned herein.
2. No expansion of use, regardless of size, which would increase the projected scale of operations beyond the scope and nature described in this Conditional Use Permit application, will be allowed. Any expansion that is a substantial change from the conceptually approved site plan will require either an amendment to the approved Conditional Use Permit or a new zoning permit.

3. The development shall comply with all regulations of Zoning Ordinance No. 269, with particular reference to the AG-40 Zone District standards contained in Article 4.

4. Signs shall be permitted only as follows:
   a. Any sign(s) pertaining to the use and location on the site shall not exceed the total copy area of forty (40) square feet. The location of any such sign shall be submitted to the Zoning Administrator for approval prior to installation.
   b. Signs exceeding forty (40) square feet in structural area and up to one-hundred-fifty (150) square feet in structural area which are incidental and pertain to a permitted or conditional use may be permitted subject to a site plan review. Such signs may be located on the same parcel or an adjacent parcel used in conjunction with the permitted or conditional use. Signs exceeding forty (40) square feet in structural area may be illuminated and shall be thirty (30) feet from property lines adjacent to a road.
   c. One non-illuminated on-site sign real estate sign or subdivision not exceeding thirty-two (32) square feet in structural area with copy on both sides pertaining to the sale, lease, rental or display of a structure or land as per Section 1606.B.2.a.
   d. Directional or information (other than advertising) signs not exceeding two hundred and forty (240) square feet in area located adjacent to a State Highway or a county road within an area limited by points not closer than one-fourth (¼) mile or further than three-fourths (¾) mile from a frontage road turnoff, listing commercial establishments accessible via the frontage road, and further provided that not more than four (4) such signs shall be permitted on each side of the highway or county road.
   e. Signs not exceeding two hundred forty (240) square feet in area located adjacent to a State Highway or county road that is classified as an arterial or collector road (including such designations as urban or rural, major or minor) giving direction to or information about Kings County cities, communities, or rural service centers which are accessible by such state highways or county roads or direct routes consisting of combinations thereof, provided that such signs shall be limited to four (4) per city, community or rural service center regardless of the sign's location in this district, and further provided that such signs shall not contain information pertaining to a subdivision of land or private development, commercial establishments or quasi-public developments.
   f. Non-illuminated temporary construction signs in accordance with Section 1606.B.2.c.
   g. Political and campaign signs in accordance with Section 1606.B.3.
   h. Public safety or hazard signs in accordance with Section 1606.B.4.
   i. Placing a sign on property which is restricted by contract under the California Land Conservation “Williamson” Act shall be prohibited, except for temporary signs (pursuant to Section 1606.B.2.a, c, and d), political and campaign signs (pursuant to Section 1606.B.4), and must be consistent with the Uniform Rules for Agricultural Preserves in Kings County.

5. Exterior lighting shall be hooded so as to be directed only on site.
6. A minimum of six (6) off-street parking spaces shall be provided and that such parking shall be installed and maintained in accordance with Kings County Improvement Standards. (Note: Handicapped parking requirements are listed under Other Standards and Regulatory Requirements, Building Division Condition No. 8 and is required in addition to the parking spaces required by this section.)

7. Each parking space shall be not less than twenty (20) feet in length and nine (9) feet in width, exclusive of aisles and access drives. Except that compact car parking spaces, not less than seventeen (17) feet in length and eight (8) feet in width marked for compact cars, maybe provided for 25 percent of all parking spaces required for any use.

8. Parking spaces for the physically handicapped shall be located so as to minimize the travel distance to the use's primary entrances for handicapped access. Required off street parking spaces for the physically handicapped, and standards for those spaces, shall meet state standards.

9. All drive approaches and durable dustless surfaces shall be installed at the time of initial occupation of the site.

10. All parking areas, aisles, and driveways shall be surfaced and maintained so as to provide a durable, dustless surface. (Note: Handicapped parking requirements are listed under Other Standards and Regulatory Requirements, Building Division Condition No. 8 and is required to comply with all applicable Americans with Disability’s Act (ADA) requirements.)

11. All open and unlandscaped portions of the lot shall be maintained in good condition, free from weeds, dust, trash and debris.

12. The applicant shall comply with all adopted rules and regulations of the Kings County Public Works Department, Fire Department, and Department of Environmental Heath Services, and all other local and state regulatory agencies.

13. Pursuant to Section 14-38(d) of the Kings County Code of Ordinances, a “Notice of Disclosure and Acknowledgment of Agricultural Land Use Protection and Right to Farm Policies of the County of Kings” shall be signed, notarized, and recorded.

14. Pursuant to Section 66020(d)(1) of the California Government Code, the owner is hereby notified that the 90-day approval period in which the applicant may protest the imposition of fees, dedications, reservations, or other exactions, begins on the date that this resolution is adopted.

15. Sales or use tax may apply to business activities on the site. The applicant may seek written advice regarding the application of tax to your particular business by writing to the nearest State Board of Equalization office. For general information, please call the Board of Equalization at 1-800-400-7115.

16. Within eight (8) days following the date of the decision of the Kings County Planning Commission, the decision may be appealed to the Kings County Board of Supervisors. The appeal shall be filed with the Clerk of the Board of Supervisors.

17. Conditional Use Permit No’s. 09-08 and 09-09 will expire twenty five (25) years from the date of
approval. The Conditional Use Permit may be renewed for additional periods of time, if an application (by letter) for renewal of the Conditional Use Permit is filed with the Planning Commission prior to the permit’s expiration date.

18. Prior to the issuance of a building permit, the applicant shall submit a Soil Reclamation Plan for review and approval by planning staff. The plan shall contain an analysis of pre-project baseline soil conditions, and shall contain specific measures to restore the soil to its pre-project condition, including removal of all fixtures, equipment, non-agricultural roads, and restoration of compacted soil. Reclamation shall be completed within six months of the expiration of the use permit.

19. The applicant shall post a performance bond or similar instrument to ensure completion of the activities under the Reclamation Plan.

20. Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendation for protection of the San Joaquin kit fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan:

13. Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction shall be minimized. Offroad traffic outside of designated project areas shall be prohibited.

14. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

15. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

16. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from the construction/project site.

17. No firearms shall be allowed on the project site.

18. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on project sites.
19. Use of rodenticides and herbicides in project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide shall be used because of proven lower risk to kit fox.

20. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS.

21. An employee education program shall be conducted for the project. The program shall consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program shall include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

22. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary”disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.

23. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS shall be contacted for advice.

24. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

25. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS
contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

**OTHER STANDARDS AND REGULATIONS:**

In addition to the above Zoning Ordinance requirements, other standards and regulations affecting this project are listed below. These requirements are not part of this zoning approval. However, compliance is required by the departments and agencies listed below. Appeals for relief of these standards and regulations must be made through that department’s or agency’s procedures, not through the Zoning Ordinance procedures.

**KINGS COUNTY COMMUNITY DEVELOPMENT AGENCY - BUILDING DIVISION** (Contact Darren Verdegaal at the Kings County Community Development Agency - Building Division at (559) 582-3211, Extension 2683, regarding the following requirements.)

1. Building permits must be obtained from the Building Division of the Kings County Community Development Agency for any structures, plumbing, electrical, or mechanical work.

2. Failure to obtain a building permit for any structure, prior to commencing construction, which requires a building permit, will result in the payment of a double fee. Payment of such double fee shall not relieve any person from fully complying with the requirements of Kings County Code of Ordinances, Chapter 5 in the execution of the work or from any other penalties prescribed therein.

3. Provide structural calculations and drawings for the proposed 8 foot high chainlink fence.

4. A minimum of (2) sets of plans and calculations signed by an architect or engineer licensed to practice in the State of California shall be required for all structures.

5. The applicant is responsible for contacting the Building Division to request a final inspection of the structures prior to occupying the structures and prior to startup of the operation. No building or structure shall be used or occupied until the Building Division has issued a Certificate of Occupancy.

6. All drive approaches and durable dustless surfaces shall be installed prior to the final inspection and maintained as per County Standards.

7. If the facility will have employees on-site for maintenance of the system an accessible restroom shall be provided and shall comply with Section 1115B of the *California Building Code*. This may be accomplished by either construction of a permanent structure or use of a chemical toilet with a regular maintenance schedule.

8. Pursuant to **Section 1129B** of the *California Building Code* one (1) van accessible parking space, allowing room for individuals in wheelchairs, on braces or crutches to get in and out of an automobile onto a level surface, suitable for wheeling and walking shall be provided. The parking space shall be 9’ x 20’ with an 8’ wide loading and unloading aisle placed on the side opposite the driver’s side.
9. The development shall comply with all applicable Americans with Disability’s Act (ADA) requirements, especially Section 1127B of the California Building Code, which states that site development and grading shall be designed to provide access to all entrances and exterior ground-floor exits, and access to normal paths of travel. The accessible route of travel shall be the most practical direct route between accessible building entrances, accessible site facilities and the accessible entrance to the site, including but not limited to access from the accessible parking space to accessible building entrances.

10. A soils report, prepared by a qualified soils engineer, shall be provided to the Building Division prior to issuance of building permits.

11. The site is located within a Special Flood Hazard Area. The proposed development shall meet the requirements of the Kings County Code of Ordinances, Chapter 5A, Flood Damage Prevention and FEMA Floodplain Management Ordinance.

12. Pursuant to the Kings County Code of Ordinances, Chapter 5A, Flood Damage Prevention, a Floodplain Development Permit shall be obtained from the Kings County Community Development Agency prior to start of construction.

13. Built-up pads for structures shall be constructed to meet a minimum of 95% relative compaction.


KINGS COUNTY PUBLIC WORKS DEPARTMENT: (Contact Mike Hawkins of the Kings County Public Works Department at (559) 582-3211, Extension 2708 regarding the following requirements.)

1. All requirements required hereafter shall conform to the Kings County Improvement Standards.

2. That all other alternatives to Public Works requirements must be approved by the Kings County Public Works Department.

3. That access to the site from a public road must be provided, and must be approved by the Kings County Public Works Department.

4. The applicant shall obtain an encroachment permit from the Kings County Public Works Department.

5. Durable and dustless surfacing shall be constructed for all roads constructed on site.

6. The existing paved road shall remain paved or oil treated.

7. The fence shall be placed outside of the County right-of-way.

KINGS COUNTY FIRE DEPARTMENT: (Contact Mike Virden of the Kings County Fire Department at (559) 582-3211, Extension 2884 for the following requirements.)
1. Fire Department requires a Knox box to be installed to permit entry to the site.

2. All combustible vegetation shall be removed from the site and measures taken to prevent the accumulation of combustible vegetation that would create a fire hazard.

3. Access roads of an all-weather surface shall be provided so that no portions of the photovoltaic panels are farther than 155 feet from fire apparatus access.

4. Access roads shall be a minimum of 20 feet in width with 13 feet 6 inches of vertical clearance.

5. Rows of panels shall not exceed 310 feet in length with an access road between aisles of rows.

6. 20-foot north/south fire access roads shall be constructed at intervals of no greater than 310 feet.

7. Applicant shall be responsible for training fire personnel of facility operations, hazards and emergency procedures for shutting down the operation.

8. Facility shall be protected by an approved security fence to protect and prevent the public from hazards associated with the electrical energy.

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (Contact Debbie Johnson at SJVAPCD at (559) 230-5800, regarding the following requirements.)

1. Based on information provided to the District, project specific emissions of criteria pollutants are not expected to exceed District significance thresholds of 10 tons/year ROG, and 15 tons/year PM10. Therefore, the District concludes that project specific criteria pollutant emissions would have no significant adverse impact on air quality.

2. Based on information provided to the District, the proposed project would equal or exceed 25,000 square feet of light industrial space. Therefore, the District concludes that the proposed project is subject to District Rule 9510 (indirect Source Review).

District Rule 9510 is intended to mitigate a project’s impact on air quality through project design elements or by payment of applicable off-site mitigation fees. 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 discretionary approval, and to pay any applicable off-site mitigation fees before issuance of the first building permit. If approval of the subject project constitutes the last discretionary approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first building permit, be made a condition of project approval. Information about how to comply with District Rule 9510 can be found online at http://www.valleyair.org/ISR/ISRHome.htm.

3. 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 4001 (National Emission Standards for Hazardous Air Pollutants). The above 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.

4. The District recommends that a copy of the District’s comments be provided to the project proponent.
The foregoing Resolution was adopted on a motion by Commissioner _________ and seconded by Commissioner ____________, at a special meeting held on March 15, 2010, by the following vote:

AYES: COMMISSIONERS
NOES: COMMISSIONERS
ABSTAIN: COMMISSIONERS
ABSENT: COMMISSIONERS

KINGS COUNTY PLANNING COMMISSION

_____________________________
Mark Cartwright, Chairperson

WITNESS, my hand this ____ day of ________, 2010.

_____________________________
Gregory R. Gatzka
Secretary to the Commission

cc: Kings County Board of Supervisors
   Kings County Counsel
   Kings County Code Compliance
   Kings County Building Division
   Sun City Project LLC, 4660 La Jolla Village Dr. Ste 400, San Diego, CA 92122
## EXHIBIT “A”
Mitigation Monitoring and Reporting Plan

<table>
<thead>
<tr>
<th>CEQA Checklist Questions</th>
<th>Project Design Features (PDFs) and Mitigation Measures (MMs)</th>
<th>Responsibility for Compliance</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Aesthetics</td>
<td>No applicable PDFs or mitigation measures.</td>
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<td>3.2 Agriculture and Forest Resources</td>
<td>No applicable PDFs or mitigation measures.</td>
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<tr>
<td>3.3 Air Quality</td>
<td><strong>PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions.</strong> The Applicant would implement all applicable and feasible measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement would be incorporated into the construction contract for the project. Applicable and feasible measures include:</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
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<td>• Maximize use of diesel construction equipment meeting CARB’s 1996 or newer certification standard for off-road heavy-duty diesel engines.</td>
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<td>• Use emission control devices at least as effective as the original factory-installed equipment.</td>
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<td><strong>b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?</strong></td>
<td>• Substitute gasoline-powered for diesel-powered equipment when feasible.</td>
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<td>• The primary contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.</td>
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<td>• All equipment will use Tier 2 engines if available.</td>
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<td></td>
<td><strong>PDF AIR-2 Project Design measures for construction fugitive dust emissions.</strong> The Applicant would implement all applicable and feasible fugitive dust control measures including those listed below. This requirement would be incorporated into the construction contract for the project.</td>
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<tr>
<td>CEQA Checklist Questions</td>
<td>Project Design Features (PDFs) and Mitigation Measures (MMs)</td>
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<td>project. Applicable and feasible measures include:</td>
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<td>Prior to and during construction</td>
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<td>• Watering all active construction sites at least twice daily in dry conditions, with the frequency of watering based on the type of operation, soil, and wind exposure.</td>
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<td>• All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water or other approved substances.</td>
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<td>• Prohibit all grading activities during periods of high wind (over 20 miles per hour).</td>
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<td>• On-site vehicles limited to a speed that minimizes dust emissions on unpaved roads (15 mph).</td>
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<td>• Cover all trucks hauling dirt, sand, or loose materials.</td>
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<td>• Cover inactive storage piles.</td>
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<td>• Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person would respond and take corrective action within 48 hours. The phone number of the SJVAPCD also would be visible to ensure compliance with SJVAPCD rules regarding nuisance and fugitive dust emissions.</td>
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<td>• Limit the area under construction at any one time.</td>
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<td>PDF AIR-3 Minimize greenhouse gas emissions during construction.</td>
<td>Applicant</td>
<td>During construction</td>
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<td>The Applicant would incorporate the following measures into the construction contract to reduce greenhouse gas (and other air pollutant) emissions:</td>
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<td>• Encourage construction workers to carpool.</td>
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<td>• Encourage recycling or re-use of all construction waste.</td>
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<td>c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
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<tr>
<td>PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions.</td>
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<td>PDF AIR-2 Project Design measures for construction fugitive dust emissions.</td>
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<td>Prior to and during construction</td>
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</table>
### 3.4 Biological Resources

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

<table>
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</table>
| attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | emissions.  
PDF AIR-3 Minimize greenhouse gas emissions during construction. | Applicant | construction
During construction |

**MM BIO-1: Pre-Construction Burrowing Owl Survey.** A pre-construction clearance survey for burrowing owl shall be performed by a qualified biologist, not more than 30 days prior to construction, to ensure avoidance of this species during construction. If burrowing owls are determined to be present, avoidance measures in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) shall be implemented.

**MM BIO-2: Pre-Construction Nesting Bird Surveys.** Pre-construction surveys for nesting birds shall be conducted by a qualified biologist not more than 30 days prior to commencement of construction. Exclusion areas of 100 feet marked with stakes and colored flagging tape shall be maintained around all active nests until birds have fledged.

**MM BIO-3: Wildlife-Friendly Fencing.** The applicant will design wildlife-friendly fencing that shall be installed around the perimeter of the project area. Fence design, such as leaving six inch tall openings in the bottom of the fence, shall allow kit fox and other wildlife to move freely into and out of the site.

**MM BIO-4: San Joaquin Kit Fox Protection Measures.** Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan:

1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of

<p>| | Applicant | Not more than 30 days prior to construction |
| | Applicant | Not more than 30 days prior to construction |
| | Applicant | Prior to construction |
| | Applicant | Prior, during, and post-construction |</p>
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<td>designated project areas should be prohibited.</td>
<td>2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.</td>
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<td>3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.</td>
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<td>4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from the construction/project site.</td>
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<td>5. No firearms shall be allowed on the project site.</td>
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<td>6. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.</td>
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<td>7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should</td>
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</table>
### CEQA Checklist Questions

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<td>observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.</td>
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</table>

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS.

9. An employee education program should be conducted for the project. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary” disturbance means any area that is disturbed during the project, but that after project completion will not be
subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for advice.

12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

13. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

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

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<td>MM BIO-3: Wildlife-Friendly Fencing.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<tr>
<td>MM BIO-4: San Joaquin Kit Fox Protection Measures.</td>
<td>Applicant</td>
<td>Prior, during, and post-construction</td>
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3.5 Cultural Resources

a. Would the project cause a substantial adverse change in the PDF CR-1 Historic and Archaeological Monitoring. A qualified archaeologist would conduct full-time monitoring of all areas of the Applicant | During construction |
<table>
<thead>
<tr>
<th>CEQA Checklist Questions</th>
<th>Project Design Features (PDFs) and Mitigation Measures (MMs)</th>
<th>Responsibility for Compliance</th>
<th>Timing</th>
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<tr>
<td>significance of a historical resource as defined in Section 15064.5?</td>
<td>project where subsurface ground disturbing activities in excess of three feet would occur. The archaeological monitor will have a working knowledge of the project area and will be competent to identify the range of cultural resources known to exist in the vicinity of the project. The monitor will have the authority to temporarily relocate construction activities to inspect areas where ground disturbance has revealed potential cultural resources. The applicant will suspend construction activities in the area that would impact the resource until the archaeologist has inspected the discovery and determined any required or recommended treatment for the resource(s). <strong>PDF CR-2: Historical and Archaeological Resources Stop Work.</strong> In the event that subsurface historic resources or archaeological resources are encountered during construction, project activities would stop in the immediate vicinity of the find and a qualified archaeologist would be consulted to evaluate the significance of the resource.</td>
<td>Applicant</td>
<td>During construction</td>
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| b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | **PDF CR-1: Historic and Archaeological Monitoring.**  
**PDF CR-2: Historical and Archaeological Resources Stop Work.** | Applicant                      | During construction |
| c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | **PDF CR-3: Paleontological Resources Stop Work.** If undisturbed sediments of the fossiliferous Tulare Formation are exposed during excavation of the site, a qualified professional vertebrate paleontologist would be retained to develop a program to reduce potentially significant impacts to paleontological resources. | Applicant                      | During construction |
| d. Would the project disturb any human remains, including those interred outside of formal cemeteries? | **PDF CR-4: Human Remains Stop Work.** If human remains are encountered, project activities would stop in the immediate vicinity of the discovered remains and the county coroner and a qualified archaeologist notified according to the provisions of California Public Resources Code (PRC) Sections 5097.98 and 5097.99. | Applicant                      | During construction |

3.6 Geology and Soils

| a. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:  
i) Rupture of a known earthquake fault, as | **PDF GEO-1: Geotechnical Investigation.** A site specific geotechnical investigation will be performed prior to project construction and the submittal of the conditional use permit application to Kings County, and will provide the final design recommendations for above ground structures at the project area. | Applicant                      | Prior to construction |
<table>
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<tr>
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<td>delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.</td>
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<td><strong>ii) Strong seismic ground shaking?</strong></td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<tr>
<td><strong>iii) Seismic-related ground failure, including liquefaction?</strong></td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<tr>
<td><strong>b. Would the project result in substantial soil erosion or the loss of topsoil?</strong></td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan. A Storm Water Pollution Prevention Plan (SWPPP), designed to reduce potential impacts related to erosion and surface water quality during construction activities and through the life of the project will be prepared by a qualified engineer or erosion control specialist and implemented before construction. The SWPPP will include measures to address erosion, such as a construction period monitoring program to be implemented by the construction supervisor, and will include Best Management Practices (BMPs) to address erosion, such as watering for dust control and the construction of perimeter silt fences, as needed. The SWPPP will be submitted to Kings County for review and approval prior to issuance of any building or grading permits. Implementation of the SWPPP would comply with state and federal water quality regulations.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<td><strong>c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?</strong></td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<td><strong>d.</strong> Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?</td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<td><strong>3.7 Greenhouse Gas Emissions</strong></td>
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<tr>
<td><strong>a.</strong> Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</td>
<td>PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions. PDF AIR-2 Project Design measures for construction fugitive dust emissions. PDF AIR-3 Minimize greenhouse gas emissions during construction.</td>
<td>Applicant</td>
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<td>Applicant</td>
<td>During construction</td>
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<td><strong>3.8 Hazards and Hazardous Materials</strong></td>
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<td><strong>a.</strong> Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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</table>
| **h.** Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | PDF HAZ-1: Fire Prevention Training and Measures. The applicant will implement the following measures to address potential fire hazards in the project area:  
- Fire Prevention Training. The applicant will coordinate with the California Office of the State Fire Marshall to provide photovoltaic training to County fire responders, construction, operational, maintenance staff. The intent of this training will be to familiarize both responders and workers of the codes, regulations, associated hazards and mitigation processes related to solar electricity. This training will include techniques for proper system shutdown and fire suppression procedures for PV systems. The training will include procedures for coordination with local fire department, sheriff department, and emergency medical services.  
- Fire Prevention Measures. The applicant will employ the | Applicant | Prior, during, and post construction |
CEQA Checklist Questions | Project Design Features (PDFs) and Mitigation Measures (MMs) | Responsibility for Compliance | Timing
--- | --- | --- | ---
following measures during project construction and operation:
- Any applicable Kings County Improvement Standards to ensure accessibility and ground clearance of emergency vehicles (i.e. fire engines).
- The applicant will develop safety measures in accordance with Cal OSHA safety and health regulations and guidance for construction, which will be reviewed by all project construction staff prior to the start of any work. Safety measures will include those that address potential electrical incidents and fire hazards.
- Agricultural vegetation will be maintained to reduce potential fire hazards in the project area.
- Work crews will be required to park vehicles away from flammable vegetation, such as dry grass and brush. At the end of each workday, heavy equipment should be parked over mineral soil, asphalt, or concrete, where available, to reduce the chance of fire.
- Fire suppression equipment (i.e., fire extinguishers) will be made available on the project site at all times. All heavy equipment will be required to include mechanisms for fire suppression, including spark arresters or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers.
- Smoking will be prohibited in the project area except in designated areas.

3.9 Hydrology and Water Quality

a. Would the project violate any water quality standards or waste discharge requirements?

   PDF GEO-2: Storm Water Pollution Prevention Plan.  
   Applicant  
   Prior to construction

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a

   PDF GEO-2: Storm Water Pollution Prevention Plan.  
   Applicant  
   Prior to construction
### CEQA Checklist Questions

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<td>manner which would result in substantial erosion or siltation on- or off-site?</td>
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<td><strong>d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?</strong></td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<td><strong>e. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</strong></td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<tr>
<td><strong>f. Would the project otherwise substantially degrade water quality?</strong></td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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</tbody>
</table>

#### 3.10 Land Use and Planning

No applicable PDFs or mitigation measures.

#### 3.11 Mineral Resources

No applicable PDFs or mitigation measures.

#### 3.12 Noise

No applicable PDFs or mitigation measures.

#### 3.13 Population and Housing

No applicable PDFs or mitigation measures.
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<tr>
<td><strong>3.14 Public Services</strong></td>
<td>Were the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</td>
<td>PDF HAZ-1: Fire Prevention Training and Measures.</td>
<td>Applicant</td>
</tr>
<tr>
<td>a. Fire protection?</td>
<td></td>
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<td><strong>3.15 Recreation</strong></td>
<td>No applicable PDFs or mitigation measures.</td>
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<td><strong>3.16 Transportation/Traffic</strong></td>
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<tr>
<td>a. Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?</td>
<td>PDF TT-1 Minimize Street Use. Construction activities would be designed to minimize work on, or use of, local streets. The project would comply with San Joaquin Valley Air Pollution Control District (SJVAPCD) standards for unpaved roads, which include a requirement to keep vehicle speeds below 15 mph, and to have fewer than 150 trips per day per unpaved road (SJVAPCD 2002).</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
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<td></td>
<td>PDF TT-2 Traffic Control. The applicant will consult with Kings County, and the City of Avenal prior to initiation of construction activities that may affect traffic (e.g., equipment and supply delivery necessitating lane closures, trenching, etc.), and will implement appropriate traffic controls in accordance with the California Vehicle Code and other state and local requirements to avoid or minimize impacts on traffic. Construction traffic would not block emergency equipment routes.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
</tr>
<tr>
<td>b. Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency</td>
<td>PDF TT-1 Minimize Street Use.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
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<tr>
<td></td>
<td>PDF TT-2 Traffic Control.</td>
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<td>for designated roads or highways?</td>
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<tr>
<td>e. Would the project result in inadequate emergency access?</td>
<td>PDF TT-1 Minimize Street Use.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
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</table>

### 3.17 Utilities and Service Systems

No applicable PDFs or mitigation measures.

### 3.18 Mandatory Findings of Significance

No PDFs or mitigation measures in addition to those described in the preceding sections.
BEFORE THE KINGS COUNTY PLANNING COMMISSION
COUNTY OF KINGS, STATE OF CALIFORNIA

IN THE MATTER OF CONDITIONAL USE PERMIT NO. 09-09 (Sand Drag Project LLC) ) RESOLUTION NO. 10-03

WHEREAS, on November 16, 2009, Sun City Project LLC, filed Conditional Use Permit No. 09-09 to establish a 19 megawatt photovoltaic solar facility; and

WHEREAS, the application was determined to be complete on January 25, 2010; and

WHEREAS, on March 1, 2010, the thirty day public review period for the proposed Initial Study/Mitigated Negative Declaration for this project closed; and

WHEREAS, on March 5, 2010, the Kings County Community Development Agency recommended that the Negative Declaration be approved for the proposal; and

WHEREAS, on March 5, 2010, the Kings County Community Development Agency staff notified the applicant of the proposed recommendation on this project; and

WHEREAS, on March 15, 2010, this Commission held a duly noticed public hearing to receive testimony from any interested person.

NOW, THEREFORE, BE IT RESOLVED, that this Commission finds that:

1. An Initial Study of the project has been conducted by the Lead Agency to evaluate the potential for any adverse environmental impact.

2. There is evidence in the record that indicates that the project has potential for adverse effect on wildlife, resources, or habitat for wildlife.

3. Mitigation measures were developed to mitigate all potential adverse effects on wildlife, resources, or habitat for wildlife.

4. The presumption that the project will have a potential for adverse effect on fish and wildlife resources or the habitat upon which wildlife depends is mitigated based on evidence in the record that:

   A. The project does not involve any riparian land, rivers, streams, watercourses, or wetlands under State and Federal jurisdiction.

   B. The project does not disturb any plant life required to sustain habitat for fish or wildlife.

   C. The project does not disturb any rare or unique plant life or ecological communities dependent on plant life.
D. The project has the possibility to negatively impact the environment and threaten listed or endangered plant or animals or the habitat in which they are believed to reside. Therefore the following mitigation measures have been incorporated into the project as described in the projects IS/MND to reduce the possible impacts to less than significant:

**MM AG-1: Soil Reclamation Plan.** Prior to the issuance of a building permit, the applicant shall submit a Soil Reclamation Plan for review and approval by Planning Staff. The Plan shall contain specific measures to restore the soil to its pre-project condition, including removal of all fixtures, equipment, non-agricultural roads, and restoration of compacted soil. Reclamation shall be completed within 12 months of the expiration of the use permit.

**MM AIR-1: Indirect Source Review and Fugitive Dust Control Plan.** The applicant will file an Indirect Source Review (District Rule 9510) with the SJVAPCD to determine potential mitigation, if any, for NOx and PM_{10} emissions. Additionally, the applicant will submit a fugitive dust control plan to SJVAPCD prior to the initiation of construction.

**MM BIO-1: Pre-Construction Burrowing Owl Survey.** A pre-construction clearance survey for burrowing owl shall be performed by a qualified biologist, not more than 30 days prior to construction, to ensure avoidance of this species during construction. If burrowing owls are determined to be present, avoidance measures in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) shall be implemented.

**MM BIO-2: Pre-Construction Nesting Bird Surveys.** Pre-construction surveys for nesting birds shall be conducted by a qualified biologist not more than 30 days prior to commencement of construction. Exclusion areas of 100 feet marked with stakes and colored flagging tape shall be maintained around all active nests until birds have fledged.

**MM BIO-3: Wildlife-Friendly Fencing.** The applicant will design wild-life friendly fencing that will be installed around of the perimeter of the project area. Fence design shall allow kit fox and other wildlife to move freely into and out of the site. Fence design shall either consist of:

1. The installation of 6-in minimum internal diameter piping, or similar opening, at 100 foot intervals or less along the entire bottom of the perimeter fence. Piping will be constructed of polyvinyl chloride (PVC), steel or other durable material, and shall be approximately 1 foot in length. Pipes will be placed on the top of the ground to allow animal movement into and out of the site, **or**

2. Perimeter fencing that leaves a six inch gap around the entire perimeter; **or** perimeter fencing of an alternative design approved by CDFG which allows kit foxes to freely move into and out of the site.

**MM BIO-4: San Joaquin Kit Fox Protection Measures.** Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendations for protection of the San Joaquin kit
fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan:

1. Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction shall be minimized. Offroad traffic outside of designated project areas shall be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from the construction/project site.

5. No firearms shall be allowed on the project site.

6. Use of rodenticides and herbicides in project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide shall be used because of proven lower risk to kit fox.

7. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS.
8. An employee education program shall be conducted for the project. The program shall consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program shall include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

9. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary” disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.

10. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS shall be contacted for advice.

11. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

12. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

F. The project does not disturb any marine species which are subject to the jurisdiction of the Department of Fish and Game and ecological communities in which they reside.

G. The project is mitigated so as not to degrade any air or water resources which will individually or cumulatively result in a loss of biological diversity among plants and animals residing in the air or water.
5. The proposed project may have significant adverse impacts on the environment. However, those impacts can be mitigate to an insignificant level by implementing the mitigation monitoring program attached to this resolution as Exhibit “A.” The Mitigated Negative Declaration reflects the Planning Commission’s independent judgment and analysis.

6. The proposed project will not have a significant impact on the environment and the Mitigated Negative Declaration reflects the Planning Commission’s independent judgment and analysis.

7. The project site is located within an established Agricultural Preserve and is consistent with the California Land Conservation Act of 1965 (Williamson Act) and the Kings County Uniform Rules for Agricultural Preserves pursuant to the following findings of consistency:

A. **Section 51238** of the *California Government Code* states in (a)(1) that electric facility’s “…are hereby determined to be compatible uses within any agricultural preserve”, unless the Board after notice and hearing makes a finding to the contrary. The Kings County Board of Supervisors has not made a finding to the contrary. Therefore, as stated in the Government Code Section 51238, electric facilities remain a compatible use in Kings County:

   (1) Section 51238(a)(2) goes on to state that “No land occupied by gas, electric, water, communication or agricultural laborer housing facilities shall be excluded from an agricultural preserve by reason of that use.”

   (2) Solar electric facilities are “electric facilities” within the meaning of Section 51238.

B. **Section 51238.1** of the *California Government Code* establishes additional compatible land uses which have not been identified and “deemed compatible uses” in Section 51238:

   (1) Section 51238.1 does not apply to uses that have already been determined by the Legislature to be compatible.

      (a) Section 51201(e) reinforces this by defining three types of compatible uses:

         1. Uses determined to be compatible by the County under Section 51238; or
         2. Uses determined to be compatible by the County under Section 51238.1; or
         3. Uses determined to be compatible “by this act.”

      (b) “Electric facilities” are facilities deemed compatible “by this act and therefore are deemed compatible by operation of law.

C. The proposed project is **consistent** with the *Uniform Rules for Agricultural Preserves in Kings County*.

   1. The *Uniform Rules for Agricultural Preserves in Kings County* does not address the construction of electrical facilities since Government Code Section 51238 has already deemed the use “compatible.” Any use that is determined to be compatible
by the Williamson Act is presumed consistent with Kings County’s Uniform Rules for Agricultural Preserves.

2. To the extent that consistency with the *Uniform Rules for Agricultural Preserves in Kings County* is required beyond the above finding of compatibility by operation of law, the Uniform Rules state that during the term of a contract, the only uses permitted upon the land shall be Commercial Agricultural Uses and Compatible Uses.

   (a) Of the 420 acres of prime farmland included in the project, 63 acres would be converted to non agricultural uses throughout the duration of the project. The remaining 357 acres would retain the ability to be farmed using dry farming techniques. If the CUP is not extended, the electrical facility will be removed from the site following the 25 year life of the project allowing the entire site to return to agricultural uses.

8. This proposal conforms with the objectives of the ordinance and policies of the Kings County General Plan, specifically:

   A. The proposed project, as recommended for approval, is consistent with the policies of the Kings County General Plan, specifically: The applicable general plan policies are found in the *Kings County General Plan*.

      1) Figure 3, the “Kings County Land Use Map”, designates this site as General Agriculture (AG-40).

      2) Page LU-10, Section III A of the Land Use Element states that the physical development of agricultural properties is regulated and implemented by the zoning ordinance.

      3) Page RC-9, Section VI., Objective 21.1 of the “Resource Conservation Element” states that the County will promote the development of alternative energy sources, including solar energy.

9. The use complies with the applicable provisions of the ordinance, specifically: The proposed photovoltaic solar farm, as recommended for approval, is consistent with the *Kings County Zoning Ordinance*.

   A. Article 4, Section 405.D.20 of the General Agricultural (AG-40) Zone District lists wind and solar PV electrical generating facilities that commercially produce power for sale, and comply with all local, regional, state, and federal regulations as a conditional use subject to Kings County Planning Commission approval.

   BE IT FURTHER RESOLVED, that based on the above findings, this Commission approves the Mitigated Negative Declaration for Conditional Use Permit No. 09-09, and approves Conditional Use Permit No. 09-09, as proposed, subject to the conditions and exceptions as follows:

1. All proposals of the applicant shall be conditions of approval if not mentioned herein.
2. No expansion of use, regardless of size, which would increase the projected scale of operations beyond the scope and nature described in this Conditional Use Permit application, will be allowed. Any expansion that is a substantial change from the conceptually approved site plan will require either an amendment to the approved Conditional Use Permit or a new zoning permit.

3. The development shall comply with all regulations of Zoning Ordinance No. 269, with particular reference to the AG-40 Zone District standards contained in Article 4.

4. Signs shall be permitted only as follows:
   a. Any sign(s) pertaining to the use and location on the site shall not exceed the total copy area of forty (40) square feet. The location of any such sign shall be submitted to the Zoning Administrator for approval prior to installation.
   b. Signs exceeding forty (40) square feet in structural area and up to one-hundred-fifty (150) square feet in structural area which are incidental and pertain to a permitted or conditional use may be permitted subject to a site plan review. Such signs may be located on the same parcel or an adjacent parcel used in conjunction with the permitted or conditional use. Signs exceeding forty (40) square feet in structural area may be illuminated and shall be thirty (30) feet from property lines adjacent to a road.
   c. One non-illuminated on-site sign real estate sign or subdivision not exceeding thirty-two (32) square feet in structural area with copy on both sides pertaining to the sale, lease, rental or display of a structure or land per Section 1606.B.2.a.
   d. Directional or information (other than advertising) signs not exceeding two hundred and forty (240) square feet in area located adjacent to a State Highway or a county road within an area limited by points not closer than one-fourth (¼) mile or further than three-fourths (¾) mile from a frontage road turnoff, listing commercial establishments accessible via the frontage road, and further provided that not more than four (4) such signs shall be permitted on each side of the highway or county road.
   e. Signs not exceeding two hundred forty (240) square feet in area located adjacent to a State Highway or county road that is classified as an arterial or collector road (including such designations as urban or rural, major or minor) giving direction to or information about Kings County cities, communities, or rural service centers which are accessible by such state highways or county roads or direct routes consisting of combinations thereof, provided that such signs shall be limited to four (4) per city, community or rural service center regardless of the sign's location in this district, and further provided that such signs shall not contain information pertaining to a subdivision of land or private development, commercial establishments or quasi-public developments.
   f. Non-illuminated temporary construction signs in accordance with Section 1606.B.2.c.
   g. Political and campaign signs in accordance with Section 1606.B.3.
   h. Public safety or hazard signs in accordance with Section 1606.B.4.
   i. Placing a sign on property which is restricted by contract under the California Land Conservation “Williamson” Act shall be prohibited, except for temporary signs (pursuant to Section 1606.B.2.a, c, and d), political and campaign signs (pursuant to Section 1606.B.4), and must be consistent with the Uniform Rules for Agricultural Preserves in Kings County.

5. Exterior lighting shall be hooded so as to be directed only on site.
6. A minimum of six (6) off-street parking spaces shall be provided and that such parking shall be installed and maintained in accordance with Kings County Improvement Standards. (Note: Handicapped parking requirements are listed under Other Standards and Regulatory Requirements, Building Division Condition No. 8 and is required in addition to the parking spaces required by this section.)

7. Each parking space shall be not less than twenty (20) feet in length and nine (9) feet in width, exclusive of aisles and access drives. Except that compact car parking spaces, not less than seventeen (17) feet in length and eight (8) feet in width marked for compact cars, maybe provided for 25 percent of all parking spaces required for any use.

8. Parking spaces for the physically handicapped shall be located so as to minimize the travel distance to the use's primary entrances for handicapped access. Required off street parking spaces for the physically handicapped, and standards for those spaces, shall meet state standards.

9. All drive approaches and durable dustless surfaces shall be installed at the time of initial occupation of the site.

10. All parking areas, aisles, and driveways shall be surfaced and maintained so as to provide a durable, dustless surface. (Note: Handicapped parking requirements are listed under Other Standards and Regulatory Requirements, Building Division Condition No. 8 and is required to comply with all applicable Americans with Disability’s Act (ADA) requirements.)

11. All open and unlandscaped portions of the lot shall be maintained in good condition, free from weeds, dust, trash and debris.

12. The applicant shall comply with all adopted rules and regulations of the Kings County Public Works Department, Fire Department, and Department of Environmental Heath Services, and all other local and state regulatory agencies.

13. Pursuant to Section 14-38(d) of the Kings County Code of Ordinances, a “Notice of Disclosure and Acknowledgment of Agricultural Land Use Protection and Right to Farm Policies of the County of Kings” shall be signed, notarized, and recorded.

14. Pursuant to Section 66020(d)(1) of the California Government Code, the owner is hereby notified that the 90-day approval period in which the applicant may protest the imposition of fees, dedications, reservations, or other exactions, begins on the date that this resolution is adopted.

15. Sales or use tax may apply to business activities on the site. The applicant may seek written advice regarding the application of tax to your particular business by writing to the nearest State Board of Equalization office. For general information, please call the Board of Equalization at 1-800-400-7115.

16. Within eight (8) days following the date of the decision of the Kings County Planning Commission, the decision may be appealed to the Kings County Board of Supervisors. The appeal shall be filed with the Clerk of the Board of Supervisors.

17. Conditional Use Permit No’s. 09-08 and 09-09 will expire twenty five (25) years from the date of
approval. The Conditional Use Permit may be renewed for additional periods of time, if an application (by letter) for renewal of the Conditional Use Permit is filed with the Planning Commission prior to the permit’s expiration date.

18. Prior to the issuance of a building permit, the applicant shall submit a Soil Reclamation Plan for review and approval by planning staff. The plan shall contain an analysis of pre-project baseline soil conditions, and shall contain specific measures to restore the soil to its pre-project condition, including removal of all fixtures, equipment, non-agricultural roads, and restoration of compacted soil. Reclamation shall be completed within six months of the expiration of the use permit.

19. The applicant shall post a performance bond or similar instrument to ensure completion of the activities under the Reclamation Plan.

20. Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendation for protection of the San Joaquin kit fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan:

13. Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction shall be minimized. Offroad traffic outside of designated project areas shall be prohibited.

14. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

15. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

16. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from the construction/project site.

17. No firearms shall be allowed on the project site.

18. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on project sites.
19. Use of rodenticides and herbicides in project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide shall be used because of proven lower risk to kit fox.

20. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS.

21. An employee education program shall be conducted for the project. The program shall consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program shall include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

22. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary” disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.

23. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS shall be contacted for advice.

24. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

25. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS
contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

OTHER STANDARDS AND REGULATIONS:

In addition to the above Zoning Ordinance requirements, other standards and regulations affecting this project are listed below. These requirements are not part of this zoning approval. However, compliance is required by the departments and agencies listed below. Appeals for relief of these standards and regulations must be made through that department’s or agency’s procedures, not through the Zoning Ordinance procedures.

KINGS COUNTY COMMUNITY DEVELOPMENT AGENCY - BUILDING DIVISION (Contact Darren Verdegaal at the Kings County Community Development Agency - Building Division at (559) 582-3211, Extension 2683, regarding the following requirements.)

1. Building permits must be obtained from the Building Division of the Kings County Community Development Agency for any structures, plumbing, electrical, or mechanical work.

2. Failure to obtain a building permit for any structure, prior to commencing construction, which requires a building permit, will result in the payment of a double fee. Payment of such double fee shall not relieve any person from fully complying with the requirements of Kings County Code of Ordinances, Chapter 5 in the execution of the work or from any other penalties prescribed therein.

3. Provide structural calculations and drawings for the proposed 8 foot high chainlink fence.

4. A minimum of (2) sets of plans and calculations signed by an architect or engineer licensed to practice in the State of California shall be required for all structures.

5. The applicant is responsible for contacting the Building Division to request a final inspection of the structures prior to occupying the structures and prior to startup of the operation. No building or structure shall be used or occupied until the Building Division has issued a Certificate of Occupancy.

6. All drive approaches and durable dustless surfaces shall be installed prior to the final inspection and maintained as per County Standards.

7. If the facility will have employees on-site for maintenance of the system an accessible restroom shall be provided and shall comply with Section 1115B of the California Building Code. This may be accomplished by either construction of a permanent structure or use of a chemical toilet with a regular maintenance schedule.

8. Pursuant to Section 1129B of the California Building Code one (1) van accessible parking space, allowing room for individuals in wheelchairs, on braces or crutches to get in and out of an automobile onto a level surface, suitable for wheeling and walking shall be provided. The parking space shall be 9’ x 20’ with an 8’ wide loading and unloading aisle placed on the side opposite the driver’s side.
9. The development shall comply with all applicable Americans with Disability’s Act (ADA) requirements, especially Section 1127B of the California Building Code, which states that site development and grading shall be designed to provide access to all entrances and exterior ground-floor exits, and access to normal paths of travel. The accessible route of travel shall be the most practical direct route between accessible building entrances, accessible site facilities and the accessible entrance to the site, including but not limited to access from the accessible parking space to accessible building entrances.

10. A soils report, prepared by a qualified soils engineer, shall be provided to the Building Division prior to issuance of building permits.

11. The site is located within a Special Flood Hazard Area. The proposed development shall meet the requirements of the Kings County Code of Ordinances, Chapter 5A, Flood Damage Prevention and FEMA Floodplain Management Ordinance.

12. Pursuant to the Kings County Code of Ordinances, Chapter 5A, Flood Damage Prevention, a Floodplain Development Permit shall be obtained from the Kings County Community Development Agency prior to start of construction.

13. Built-up pads for structures shall be constructed to meet a minimum of 95% relative compaction.


**KINGS COUNTY PUBLIC WORKS DEPARTMENT:** (Contact Mike Hawkins of the Kings County Public Works Department at (559) 582-3211, Extension 2708 regarding the following requirements.)

1. All requirements required hereafter shall conform to the Kings County Improvement Standards.

2. That all other alternatives to Public Works requirements must be approved by the Kings County Public Works Department.

3. That access to the site from a public road must be provided, and must be approved by the Kings County Public Works Department.

4. The applicant shall obtain an encroachment permit from the Kings County Public Works Department.

5. Durable and dustless surfacing shall be constructed for all roads constructed on site.

6. The existing paved road shall remain paved or oil treated.

7. The fence shall be placed outside of the County right-of-way.

**KINGS COUNTY FIRE DEPARTMENT:** (Contact Mike Virden of the Kings County Fire Department at (559) 582-3211, Extension 2884 for the following requirements.)
Draft Resolution

1. Fire Department requires a Knox box to be installed to permit entry to the site.

2. All combustible vegetation shall be removed from the site and measures taken to prevent the accumulation of combustible vegetation that would create a fire hazard.

3. Access roads of an all-weather surface shall be provided so that no portions of the photovoltaic panels are farther than 155 feet from fire apparatus access.

4. Access roads shall be a minimum of 20 feet in width with 13 feet 6 inches of vertical clearance.

5. Rows of panels shall not exceed 310 feet in length with an access road between aisles of rows.

6. 20-foot north/south fire access roads shall be constructed at intervals of no greater than 310 feet.

7. Applicant shall be responsible for training fire personnel of facility operations, hazards and emergency procedures for shutting down the operation.

8. Facility shall be protected by an approved security fence to protect and prevent the public from hazards associated with the electrical energy.

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (Contact Debbie Johnson at SJVAPCD at (559) 230-5800, regarding the following requirements.)

1. Based on information provided to the District, project specific emissions of criteria pollutants are not expected to exceed District significance thresholds of 10 tons/year ROG, and 15 tons/year PM10. Therefore, the District concludes that project specific criteria pollutant emissions would have no significant adverse impact on air quality.

2. Based on information provided to the District, the proposed project would equal or exceed 25,000 square feet of light industrial space. Therefore, the District concludes that the proposed project is subject to District Rule 9510 (indirect Source Review).

   District Rule 9510 is intended to mitigate a project’s impact on air quality through project design elements or by payment of applicable off-site mitigation fees. 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 discretionary approval, and to pay any applicable off-site mitigation fees before issuance of the first building permit. If approval of the subject project constitutes the last discretionary approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first building permit, be made a condition of project approval. Information about how to comply with District Rule 9510 can be found online at http://www.valleyair.org/ISR/ISRHome.htm.

3. 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 4001 (National Emission Standards for Hazardous Air Pollutants). The above 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).

4. The District recommends that a copy of the District’s comments be provided to the project proponent.
The foregoing Resolution was adopted on a motion by Commissioner ____________ and seconded by Commissioner ____________, at a special meeting held on March 15, 2010, by the following vote:

AYES:  COMMISSIONERS
NOES:  COMMISSIONERS
ABSTAIN:  COMMISSIONERS
ABSENT:  COMMISSIONERS

KINGS COUNTY PLANNING COMMISSION

______________________________
Mark Cartwright, Chairperson

WITNESS, my hand this ____ day of ________, 2010.

______________________________
Gregory R. Gatzka
Secretary to the Commission

cc:  Kings County Board of Supervisors
     Kings County Counsel
     Kings County Code Compliance
     Kings County Building Division
     Sun City Project LLC, 4660 La Jolla Village Dr. Ste 400, San Diego, CA 92122
### EXHIBIT “A”
Mitigation Monitoring and Reporting Plan

<table>
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<tr>
<td><strong>3.1 Aesthetics</strong></td>
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<td>No applicable PDFs or mitigation measures.</td>
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<td><strong>3.2 Agriculture and Forest Resources</strong></td>
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<td>No applicable PDFs or mitigation measures.</td>
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<td><strong>3.3 Air Quality</strong></td>
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| **b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?** | **PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions.** The Applicant would implement all applicable and feasible measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement would be incorporated into the construction contract for the project. Applicable and feasible measures include:  
  - Maximize use of diesel construction equipment meeting CARB’s 1996 or newer certification standard for off-road heavy-duty diesel engines.  
  - Use emission control devices at least as effective as the original factory-installed equipment.  
  - Substitute gasoline-powered for diesel-powered equipment when feasible.  
  - The primary contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.  
  - All equipment will use Tier 2 engines if available.  
**PDF AIR-2 Project Design measures for construction fugitive dust emissions.** The Applicant would implement all applicable and feasible fugitive dust control measures including those listed below. This requirement would be incorporated into the construction contract for the | Applicant | Prior to and during construction |
### CEQA Checklist Questions

#### Project Design Features (PDFs) and Mitigation Measures (MMs)

Applicable and feasible measures include:

- Watering all active construction sites at least twice daily in dry conditions, with the frequency of watering based on the type of operation, soil, and wind exposure.
- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water or other approved substances.
- Prohibit all grading activities during periods of high wind (over 20 miles per hour).
- On-site vehicles limited to a speed that minimizes dust emissions on unpaved roads (15 mph).
- Cover all trucks hauling dirt, sand, or loose materials.
- Cover inactive storage piles.
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person would respond and take corrective action within 48 hours. The phone number of the SJVAPCD also would be visible to ensure compliance with SJVAPCD rules regarding nuisance and fugitive dust emissions.
- Limit the area under construction at any one time.

#### PDF AIR-3 Minimize greenhouse gas emissions during construction.

The Applicant would incorporate the following measures into the construction contract to reduce greenhouse gas (and other air pollutant) emissions:

- Encourage construction workers to carpool.
- Encourage recycling or re-use of all construction waste.

### Applicant

- Prior to and during construction

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<td><strong>c.</strong> Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-</td>
<td><strong>PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions.</strong></td>
<td>Applicant</td>
<td>Prior to and during construction</td>
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<td><strong>PDF AIR-2 Project Design measures for construction fugitive dust</strong></td>
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### CEQA Checklist Questions

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| attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | emissions.  
PDF AIR-3 Minimize greenhouse gas emissions during construction.                                                                 | Applicant                     | construction                   |

### 3.4 Biological Resources

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

**MM BIO-1: Pre-Construction Burrowing Owl Survey.** A pre-construction clearance survey for burrowing owl shall be performed by a qualified biologist, not more than 30 days prior to construction, to ensure avoidance of this species during construction. If burrowing owls are determined to be present, avoidance measures in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) shall be implemented.

**MM BIO-2: Pre-Construction Nesting Bird Surveys.** Pre-construction surveys for nesting birds shall be conducted by a qualified biologist not more than 30 days prior to commencement of construction. Exclusion areas of 100 feet marked with stakes and colored flagging tape shall be maintained around all active nests until birds have fledged.

**MM BIO-3: Wildlife-Friendly Fencing.** The applicant will design wildlife-friendly fencing that shall be installed around the perimeter of the project area. Fence design, such as leaving six inch tall openings in the bottom of the fence, shall allow kit fox and other wildlife to move freely into and out of the site.

**MM BIO-4: San Joaquin Kit Fox Protection Measures.** Prior to any ground-disturbing activities occurring within the project area, the applicant shall adopt and include the following applicable “Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance” (USFWS 1999) into the project construction plan:

1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of construction areas should follow the standards outlined in the Burrowing Owl Survey and Mitigation Guidelines.
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<td>designated project areas should be prohibited.</td>
<td>2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.</td>
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<td>3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at the construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.</td>
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<td>4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from the construction/project site.</td>
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<td>5. No firearms shall be allowed on the project site.</td>
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<td>6. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.</td>
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<td>7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should</td>
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C.U.P. 09-09 Sand Drag LLC
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<td>observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.</td>
<td>8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS.</td>
<td>9. An employee education program should be conducted for the project. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.</td>
<td>10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary”disturbance means any area that is disturbed during the project, but that after project completion will not be</td>
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<td>subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Game (CDFG), and revegetation experts.</td>
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<td>11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for advice.</td>
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<td>12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.</td>
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<td>13. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.</td>
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<td>d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</td>
<td>MM BIO-3: Wildlife-Friendly Fencing. MM BIO-4: San Joaquin Kit Fox Protection Measures.</td>
<td>Applicant</td>
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### 3.5 Cultural Resources

<p>| PDF CR-1Historic and Archaeological Monitoring. A qualified archaeologist would conduct full-time monitoring of all areas of the | Applicant | During construction |</p>
<table>
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<td>significance of a historical resource as defined in Section 15064.5?</td>
<td>project where subsurface ground disturbing activities in excess of three feet would occur. The archaeological monitor will have a working knowledge of the project area and will be competent to identify the range of cultural resources known to exist in the vicinity of the project. The monitor will have the authority to temporarily relocate construction activities to inspect areas where ground disturbance has revealed potential cultural resources. The applicant will suspend construction activities in the area that would impact the resource until the archaeologist has inspected the discovery and determined any required or recommended treatment for the resource(s).PDF CR-2: Historical and Archaeological Resources Stop Work. In the event that subsurface historic resources or archaeological resources are encountered during construction, project activities would stop in the immediate vicinity of the find and a qualified archaeologist would be consulted to evaluate the significance of the resource.</td>
<td>Applicant</td>
<td>During construction</td>
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<tr>
<td>b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?</td>
<td>PDF CR-1: Historic and Archaeological Monitoring. PDF CR-2: Historical and Archaeological Resources Stop Work.</td>
<td>Applicant</td>
<td>During construction</td>
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<tr>
<td>c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</td>
<td>PDF CR-3: Paleontological Resources Stop Work. If undisturbed sediments of the fossiliferous Tulare Formation are exposed during excavation of the site, a qualified professional vertebrate paleontologist would be retained to develop a program to reduce potentially significant impacts to paleontological resources.</td>
<td>Applicant</td>
<td>During construction</td>
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<td>d. Would the project disturb any human remains, including those interred outside of formal cemeteries?</td>
<td>PDF CR-4: Human Remains Stop Work. If human remains are encountered, project activities would stop in the immediate vicinity of the discovered remains and the county coroner and a qualified archaeologist notified according to the provisions of California Public Resources Code (PRC) Sections 5097.98 and 5097.99.</td>
<td>Applicant</td>
<td>During construction</td>
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3.6 Geology and Soils

<p>| a. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as | PDF GEO-1: Geotechnical Investigation. A site specific geotechnical investigation will be performed prior to project construction and the submittal of the conditional use permit application to Kings County, and will provide the final design recommendations for above ground structures at the project area.                                                                                                                                                                  | Applicant                     | Prior to construction        |</p>
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<td>delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.</td>
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<td>ii) Strong seismic ground shaking?</td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<td>iii) Seismic-related ground failure, including liquefaction?</td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<td>b. Would the project result in substantial soil erosion or the loss of topsoil?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan. A Storm Water Pollution Prevention Plan (SWPPP), designed to reduce potential impacts related to erosion and surface water quality during construction activities and through the life of the project will be prepared by a qualified engineer or erosion control specialist and implemented before construction. The SWPPP will include measures to address erosion, such as a construction period monitoring program to be implemented by the construction supervisor, and will include Best Management Practices (BMPs) to address erosion, such as watering for dust control and the construction of perimeter silt fences, as needed. The SWPPP will be submitted to Kings County for review and approval prior to issuance of any building or grading permits. Implementation of the SWPPP would comply with state and federal water quality regulations.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<td>c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?</td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
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<tr>
<td><strong>d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?</strong></td>
<td>PDF GEO-1: Geotechnical Investigation.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<td><strong>3.7 Greenhouse Gas Emissions</strong></td>
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<tr>
<td><strong>a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</strong></td>
<td>PDF AIR-1 Implement best management practices to reduce construction tailpipe emissions. PDF AIR-2 Project Design measures for construction fugitive dust emissions. PDF AIR-3 Minimize greenhouse gas emissions during construction.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
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<td>Applicant</td>
<td>Prior to and during construction</td>
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<td>Applicant</td>
<td>During construction</td>
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<td><strong>3.8 Hazards and Hazardous Materials</strong></td>
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<tr>
<td><strong>a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</strong></td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
<tr>
<td><strong>h. Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?</strong></td>
<td>PDF HAZ-1: Fire Prevention Training and Measures. The applicant will implement the following measures to address potential fire hazards in the project area:</td>
<td>Applicant</td>
<td>Prior, during, and post construction</td>
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<td></td>
<td>• Fire Prevention Training. The applicant will coordinate with the California Office of the State Fire Marshall to provide photovoltaic training to County fire responders, construction, operational, maintenance staff. The intent of this training will be to familiarize both responders and workers of the codes, regulations, associated hazards and mitigation processes related to solar electricity. This training will include techniques for proper system shutdown and fire suppression procedures for PV systems. The training will include procedures for coordination with local fire department, sheriff department, and emergency medical services.</td>
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<td>• Fire Prevention Measures. The applicant will employ the</td>
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</table>
## CEQA Checklist Questions

### Project Design Features (PDFs) and Mitigation Measures (MMs)

Following measures during project construction and operation:

- Any applicable Kings County Improvement Standards to ensure accessibility and ground clearance of emergency vehicles (i.e. fire engines).
- The applicant will develop safety measures in accordance with Cal OSHA safety and health regulations and guidance for construction, which will be reviewed by all project construction staff prior to the start of any work. Safety measures will include those that address potential electrical incidents and fire hazards.
- Agricultural vegetation will be maintained to reduce potential fire hazards in the project area.
- Work crews will be required to park vehicles away from flammable vegetation, such as dry grass and brush. At the end of each workday, heavy equipment should be parked over mineral soil, asphalt, or concrete, where available, to reduce the chance of fire.
- Fire suppression equipment (i.e., fire extinguishers) will be made available on the project site at all times. All heavy equipment will be required to include mechanisms for fire suppression, including spark arresters or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers.
- Smoking will be prohibited in the project area except in designated areas.

### 3.9 Hydrology and Water Quality

#### a. Would the project violate any water quality standards or waste discharge requirements?

| PDF GEO-2: Storm Water Pollution Prevention Plan. | Applicant | Prior to construction |

#### c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a

| PDF GEO-2: Storm Water Pollution Prevention Plan. | Applicant | Prior to construction |
### CEQA Checklist Questions

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<thead>
<tr>
<th>Question</th>
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<th>Responsibility for Compliance</th>
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<tr>
<td>manner which would result in substantial erosion or siltation on- or off-site?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<tr>
<td>d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<tr>
<td>e. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
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<tr>
<td>f. Would the project otherwise substantially degrade water quality?</td>
<td>PDF GEO-2: Storm Water Pollution Prevention Plan.</td>
<td>Applicant</td>
<td>Prior to construction</td>
</tr>
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</table>

#### 3.10 Land Use and Planning

No applicable PDFs or mitigation measures.

#### 3.11 Mineral Resources

No applicable PDFs or mitigation measures.

#### 3.12 Noise

No applicable PDFs or mitigation measures.

#### 3.13 Population and Housing

No applicable PDFs or mitigation measures.
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<tr>
<td>3.14 Public Services</td>
<td><em>Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</em>&lt;br&gt;a. Fire protection?</td>
<td>PDF HAZ-1: Fire Prevention Training and Measures.</td>
<td>Applicant</td>
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<td>3.15 Recreation</td>
<td>No applicable PDFs or mitigation measures.</td>
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<td>3.16 Transportation/Traffic</td>
<td><em>Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?</em>&lt;br&gt;a.</td>
<td>PDF TT-1 Minimize Street Use. Construction activities would be designed to minimize work on, or use of, local streets. The project would comply with San Joaquin Valley Air Pollution Control District (SJVAPCD) standards for unpaved roads, which include a requirement to keep vehicle speeds below 15 mph, and to have fewer than 150 trips per day per unpaved road (SJVAPCD 2002).&lt;br&gt;PDF TT-2 Traffic Control. The applicant will consult with Kings County, and the City of Avenal prior to initiation of construction activities that may affect traffic (e.g., equipment and supply delivery necessitating lane closures, trenching, etc.), and will implement appropriate traffic controls in accordance with the California Vehicle Code and other state and local requirements to avoid or minimize impacts on traffic. Construction traffic would not block emergency equipment routes.</td>
<td>Applicant</td>
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<td></td>
<td>b. Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency</td>
<td>PDF TT-1 Minimize Street Use.</td>
<td>Applicant</td>
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<td>PDF TT-2 Traffic Control.</td>
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C.U.P. 09-09 27 Sand Drag LLC
### CEQA Checklist Questions

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<td><strong>for designated roads or highways?</strong></td>
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<tr>
<td>e.   Would the project result in inadequate emergency access?</td>
<td>PDF TT-1 Minimize Street Use.</td>
<td>Applicant</td>
<td>Prior to and during construction</td>
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</tbody>
</table>

#### 3.17 Utilities and Service Systems

No applicable PDFs or mitigation measures.

#### 3.18 Mandatory Findings of Significance

No PDFs or mitigation measures in addition to those described in the preceding sections.