Community and Economic Development
Planning Division

Norman L. Allinder, AICP
Director BP

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PLANNING COMMISSION DATE: October 7, 2014

AGENDA ITEM: # 2

CUP	**#2012-010**	**A one year time extension on Conditional Use Permit for a 90 megawatt solar facility**
APN:	**#034-210-038**	**Applicant/Owner: 41MB 8ME, LLC**
CEQA	**MND #2012-013**	**Mitigated Negative Declaration**

REQUEST:

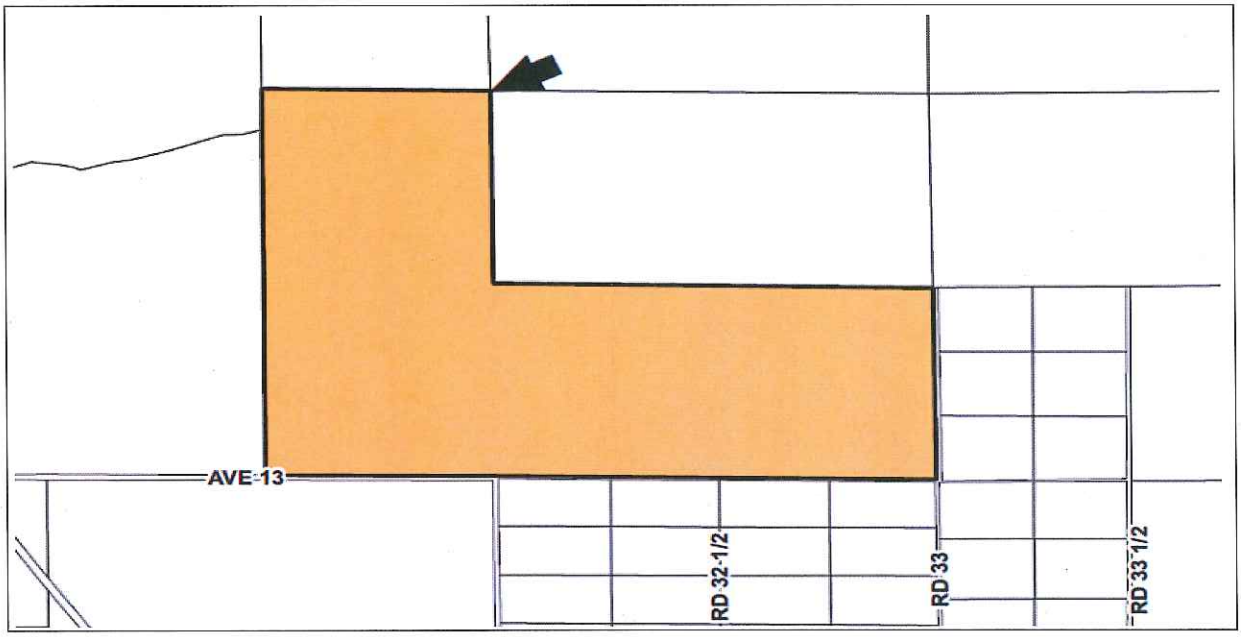
The application is for a time extension for a conditional use permit to allow construction of a photovoltaic solar facility up to 90 megawatt (MW).

LOCATION:

The project is located north of the intersection of Road 33 and Avenue 13, (no situs) Madera.

ENVIRONMENTAL ASSESSMENT:

A Mitigated Negative Declaration (MND#2012-013) was previously approved by Planning Commission on October 2, 2012.



RECOMMENDATION: Approval of a one year time extension for CUP #2012-010 with its corresponding Mitigation Monitoring Program and Mitigation Negative Declaration #2012-013.

BG

CUP#2012-010 October 7, 2014
STAFF REPORT

GENERAL PLAN DESIGNATION:

SITE: AE (Agricultural Exclusive) Designation

SURROUNDING: AE (Agricultural Exclusive) Designation

ZONING:

SITE: ARE-40 (Agricultural, Rural, Exclusive, 40-acre) District

SURROUNDING: ARE-40 (Agricultural, Rural, Exclusive, 40-acre) District

LAND USE:

SITE: Agriculture

SURROUNDING: Agriculture

SIZE OF PROPERTY: 633.64 acres

ACCESS: Access to the site is gained via Road 33.

BACKGROUND AND PRIOR ACTIONS:

41MB 8ME, LLC applied for a conditional use permit #2012-010 which was approved in October of 2012 with its corresponding Mitigated Negative Declaration #2012-013.

ORDINANCES/POLICIES:

Madera County Code 18.58 outlines allowed uses within the ARE-40 (Agricultural, Rural, Exclusive, 40-acres) zone district.

Madera County Code 18.04.493 of the Madera County Zoning Ordinance provides definition for a solar facility (referred to in code as a solar farm).

Madera County General Plan Policy Document (page 7) outlines the allowable uses within the AE (Agricultural Exclusive) designation.

Madera County Code 18.94.180 outlines the requirements for conditional use permits to allow solar farms.

Section 18.92.060.B of the Zoning Ordinance outlines the procedure for Time Extensions.

PROJECT DESCRIPTION:

41MB 8ME, LLC is proposing to install a solar energy facility that would allow up to 90 MW (Megawatts) of power generation. The proposed site is located on approximately 633.64 acres, northwest of the intersection of Road 33 and Avenue 13, (no situs) in Madera. Approximately 175 acres of the subject parcel is not intended for project development, but will be left to its exiting use, including a shop building, almond orchard, and fallow ground. The facility proposed consists of free standing ground mounted photovoltaic panels as high as twenty feet from ground level. An operations and maintenance building is proposed onsite, including an office, restroom,

storage, control room, and a septic tank and leach field. A parking lot will serve the building, with access from Avenue 13. The property will be surrounded with a chain link fence for protection, which will be armed with an alarm or intrusion detection system. Motion-sensor lighting will also be utilized for security purposes. Up to five full-time employees will operate the solar facility. The solar panels are proposed to be spread across the entire project site, with aisles in between for maintenance purposes.

ANALYSIS:

The Zoning Ordinance, Section 19.92.060(B) states that a conditional use permit may be terminated if it is not used within two years of the date of approval, and shall be voidable, unless written time extensions are applied for and approved prior to permit expiration. The granting of a time extension or the voiding of the conditional use permit must occur by Planning Commission action in a noticed public hearing. Time extensions may be granted or conditionally granted provided:

1. Each extension will be for a one year period of time; and
2. The maximum number of extensions will not exceed an additional total of three years.

Prior to the expiration date of the permit, the applicant came to the Planning Department noting that the Purchase Power Agreement (PPA) was secured for the project and the final stages were in order to begin construction early next year. The applicant, 41MB 8ME, LLC, was advised to submit a letter requesting a time extension, along with the appropriate fee to extend the use permit, since work has not begun within the two year time span allowed under a Conditional Use Permit.

If the Commission grants this time extension, the applicant could in the future request up to two more extensions, thereby postponing development up to October 2017. To receive additional extensions the applicant must apply to and receive approval from the Planning Commission each year.

The project has been reviewed and it has been determined that there have been no changes to development standards for the area, or other changes that would change the manner in which a new application at that site would be considered. It is likely that if the time extension was not granted, and the applicant reapplied for a conditional use permit, it would result in the same conditions of approval.

WILLIAMSON ACT:

The parcel is not subject to a Williamson Act (Agricultural Preserve).

GENERAL PLAN CONSISTENCY STATEMENT:

The subject property is designated AE (Agricultural Exclusive) by the General Plan. The property is zoned ARE-40 (Agricultural, Rural, Exclusive -40 Acre District). The zone district is consistent with the general plan designation of AE which allows for various public and quasi-public uses, which energy generation would be. In addition, the project is consistent with General Plan Policy Goal 3.J to provide “efficient and cost-effective utilities.” The proposed solar facilities will provide a local, renewable energy source that

will help Madera County become more self-sustaining, economically viable, and increase environmental conditions.

RECOMMENDATION:

The analysis provided in this report supports approval of the time extension for CUP #2012-010 with its corresponding Conditions of Approval and Mitigated Negative Declaration #2012-013.

ATTACHMENTS:

1. Exhibit A, General Plan Map
2. Exhibit B, Zoning Map
3. Exhibit C, Assessor's Parcel Map
4. Exhibit D1, Site Plan
5. Exhibit D2, Project Detail
6. Exhibit D3, Project Detail
7. Exhibit D4, Project Detail
8. Exhibit E, Aerial Map
9. Exhibit F, Topography Map
10. Exhibit G, Operational Statement
11. Exhibit H, Request for Time Extension
12. Exhibit I, Approved CUP#2012-010 Staff Report

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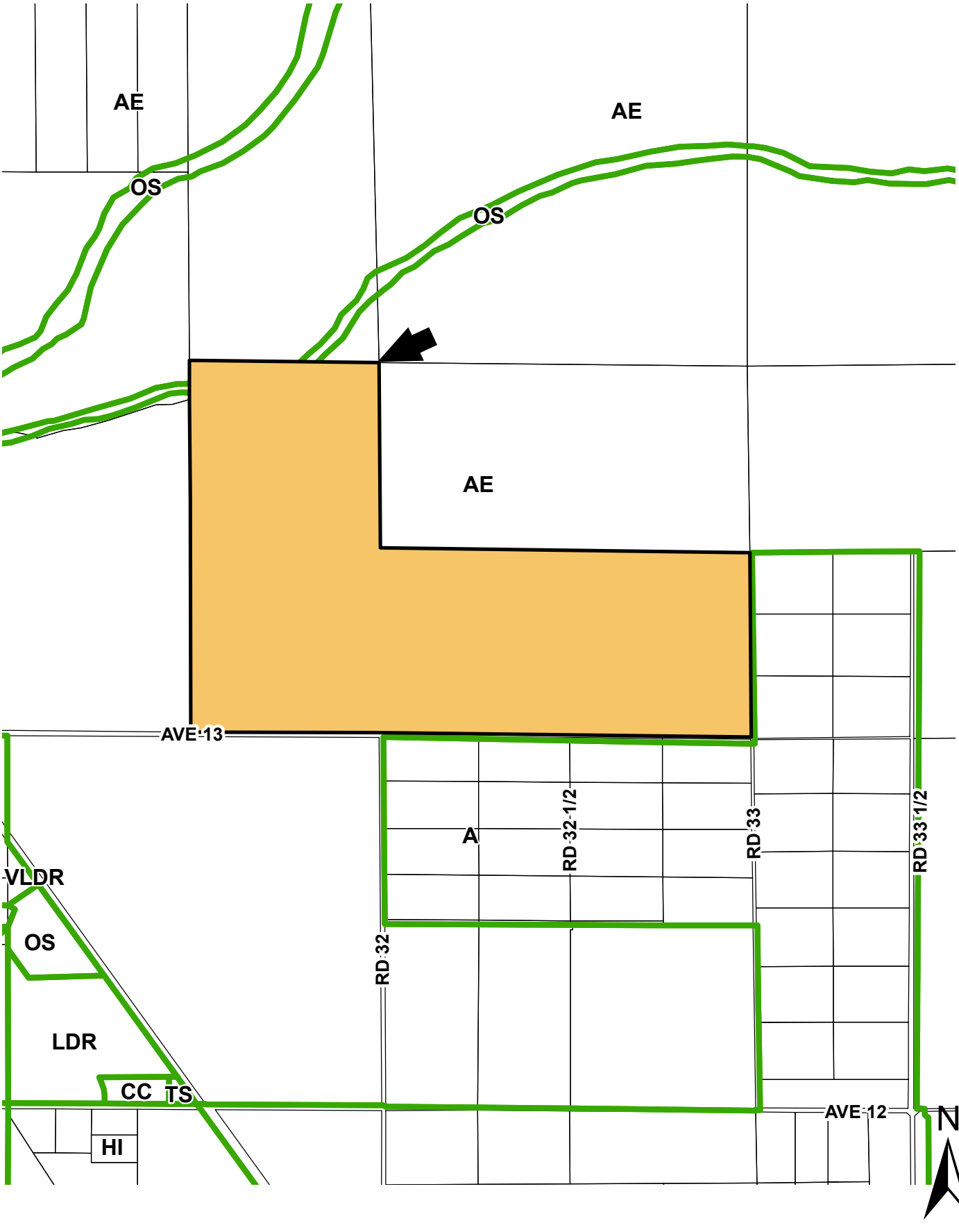
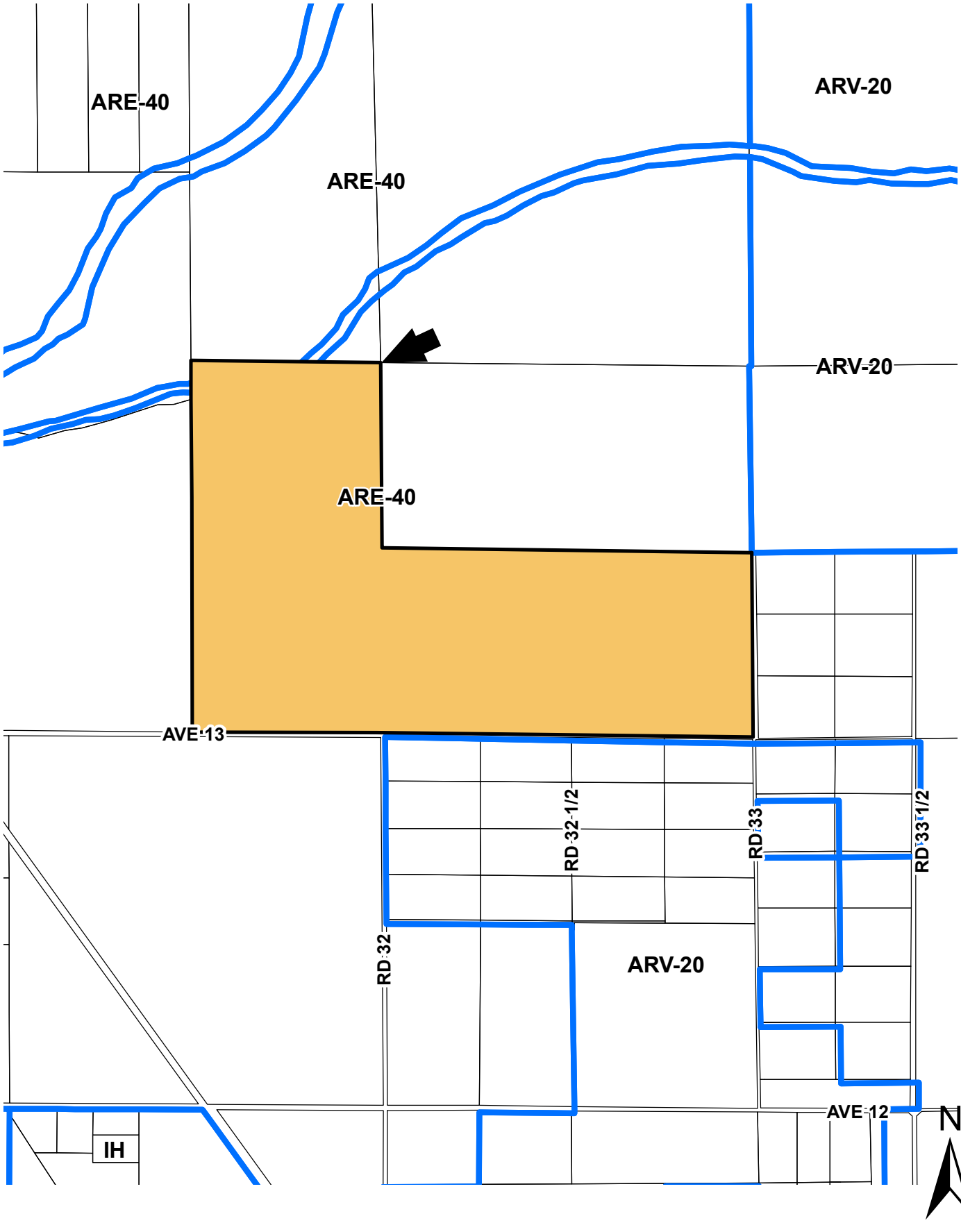
EXHIBIT A



GENERAL PLAN MAP

EXHIBIT B



ZONING MAP

ASSESSOR'S MAP

EXHIBIT C

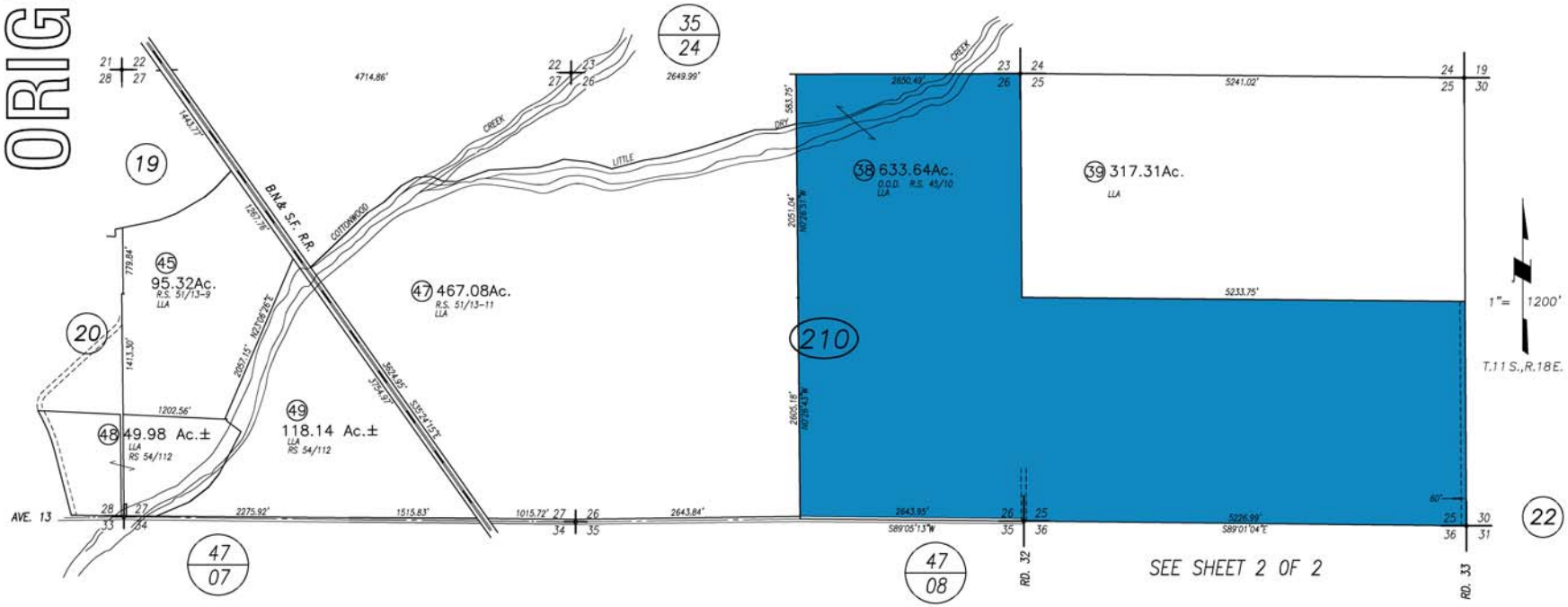
IN BLUE

ORIGINAL

SEC. 25,26 & 27 T.11S. R.18E. M.D.B.&M.

34-21
SHEET 1 of 2

Tax Area Code
61-002

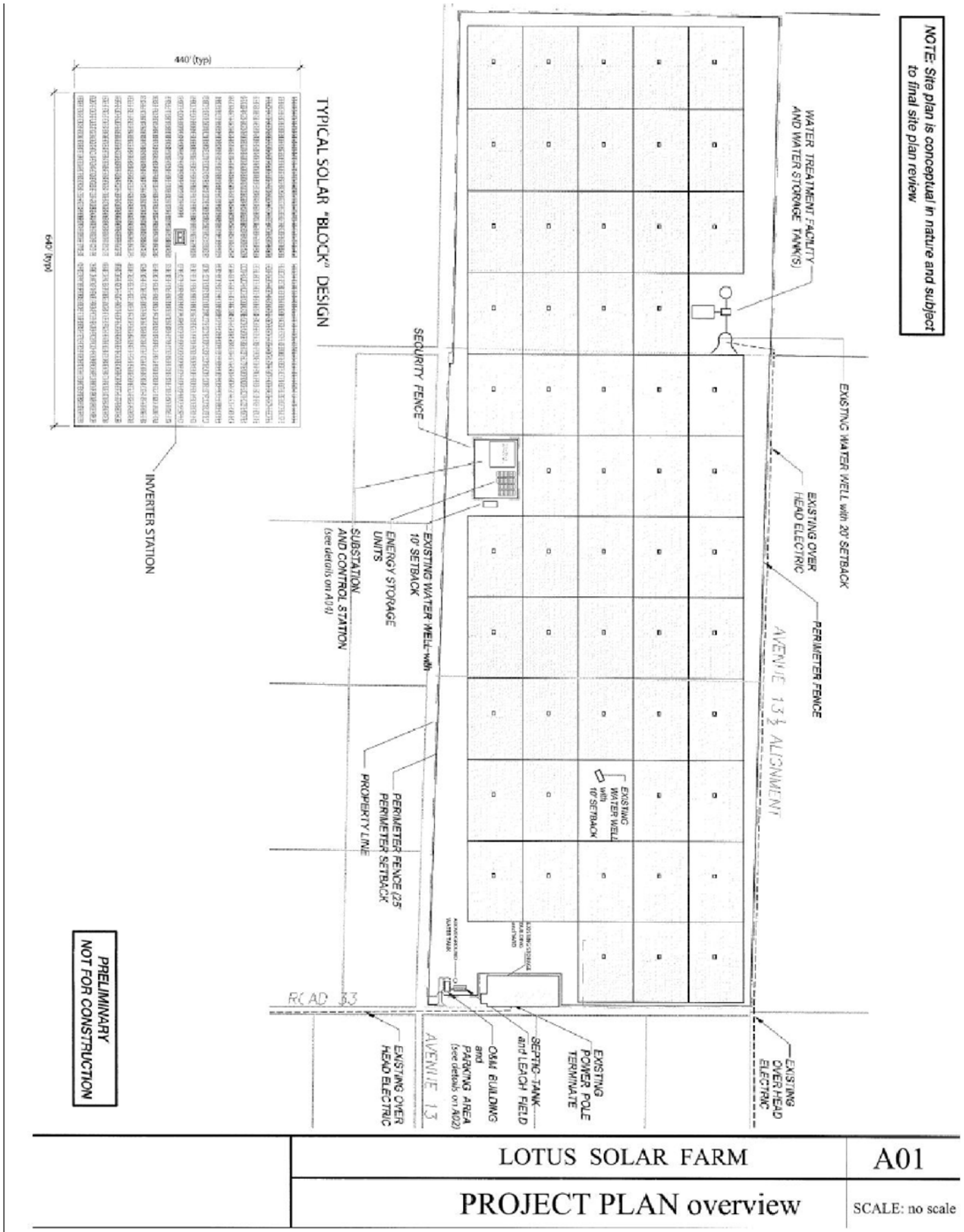


Assessor's Map No. 34-21
Sheet 1 of 2
Madera Unified School Dist.
Madera Outside
County of Madera, Calif.
1955

NOTE: This map is for assessment purposes only and is not for the intent of interpreting legal boundary rights, zoning regulations and/or legality of land division laws.

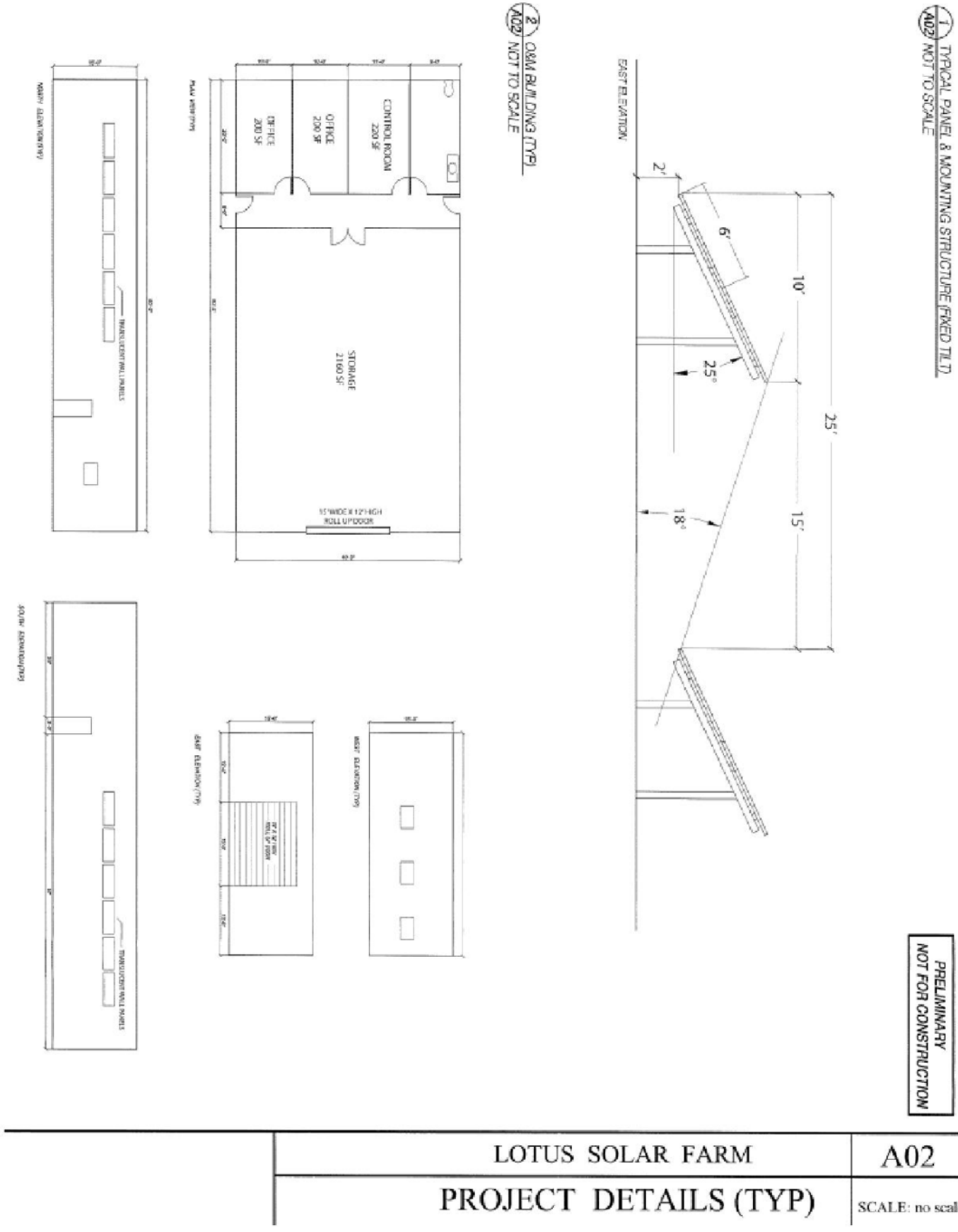
06024-0-49 BLH

EXHIBIT D-1



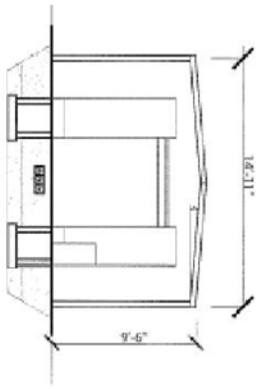
SITE PLAN

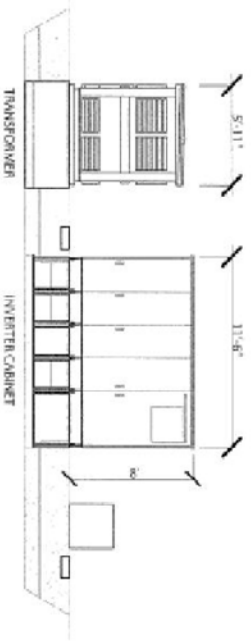
EXHIBIT D-2

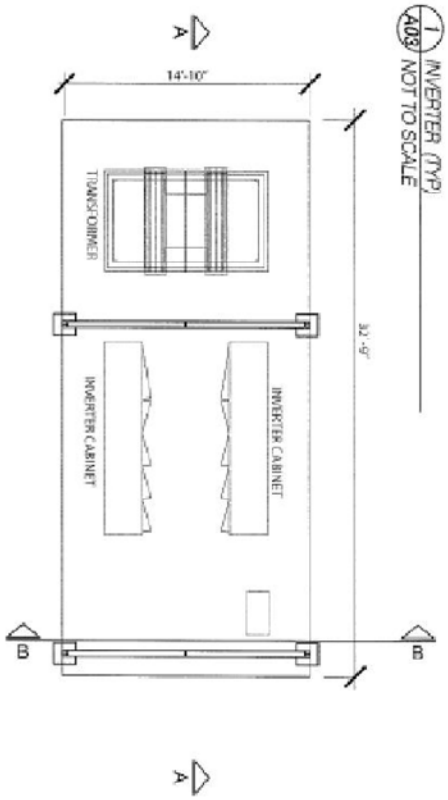


PROJECT DETAIL

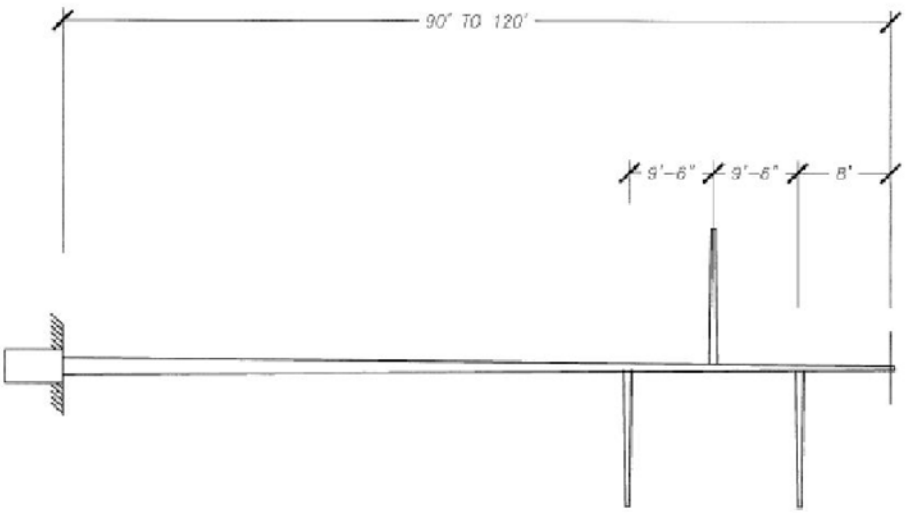
EXHIBIT D-3







1 A03 INVERTER (TYP)
NOT TO SCALE



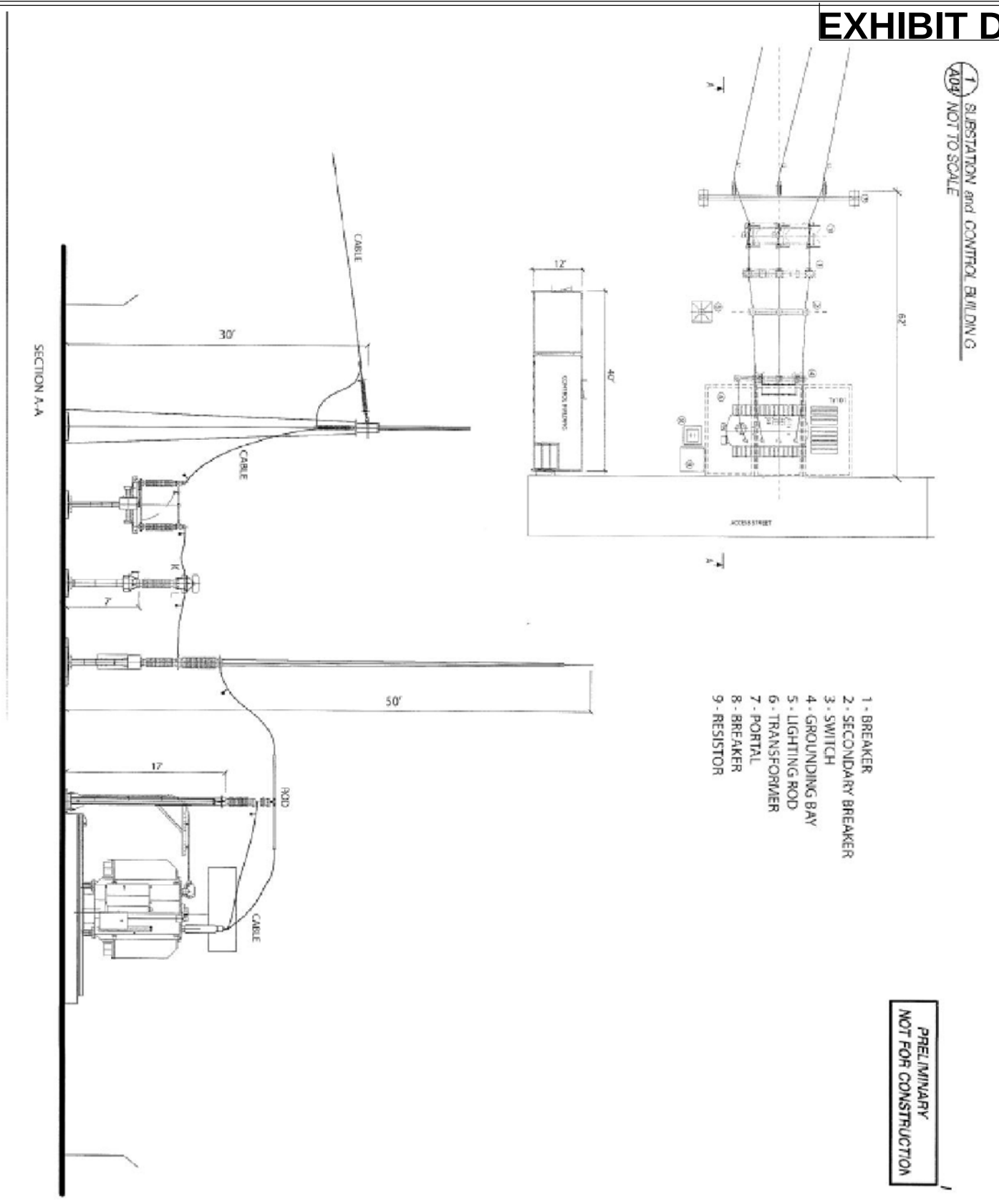
2 A03 MONOPOLE STRUCTURE (TYP)
NOT TO SCALE

PRELIMINARY
NOT FOR CONSTRUCTION

LOTUS SOLAR FARM	A03
PROJECT DETAILS (TYP)	SCALE: no scale

PROJECT DETAIL

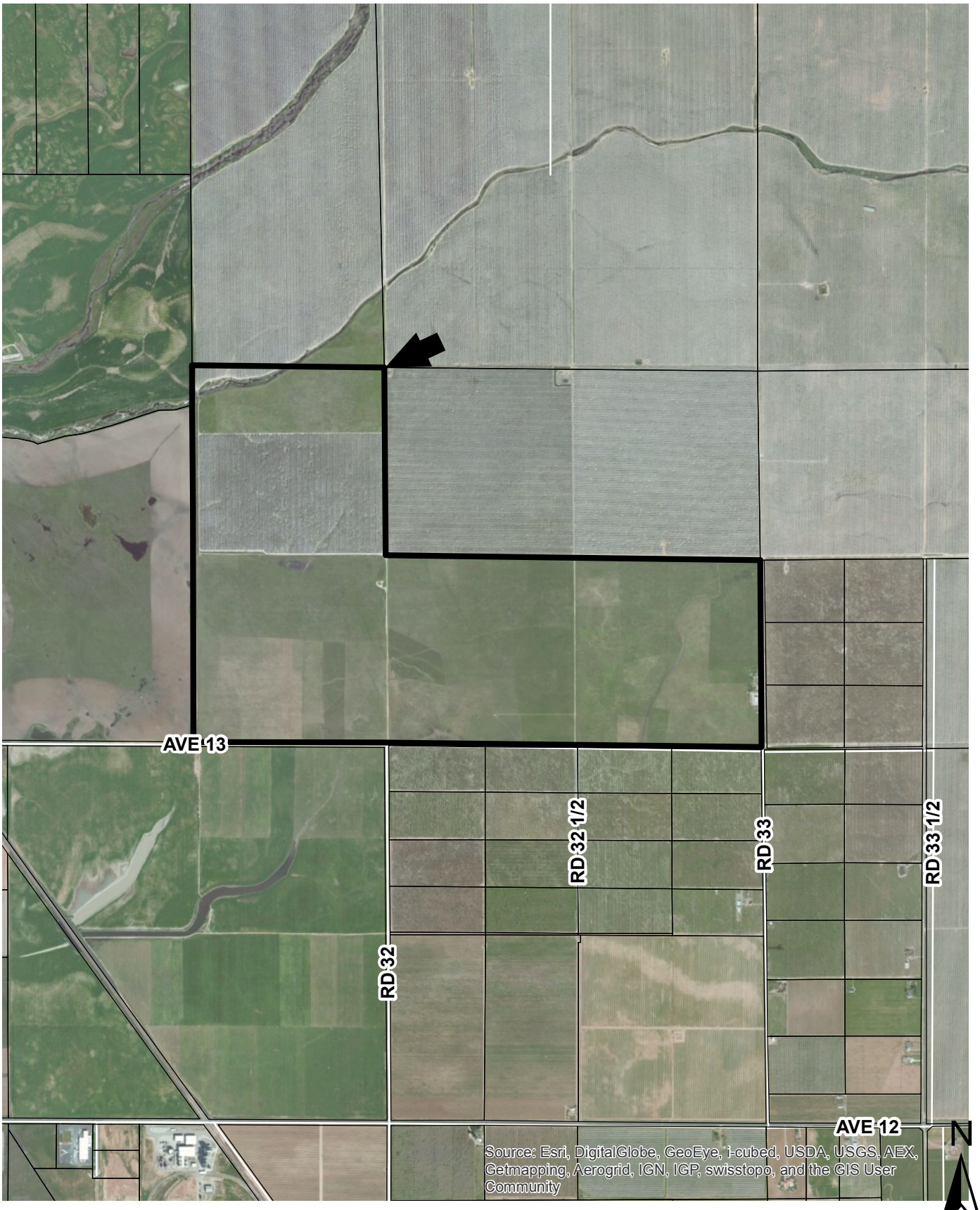
EXHIBIT D-4



LOTUS SOLAR FARM	A04
PROJECT DETAILS (TYP)	SCALE: no scale

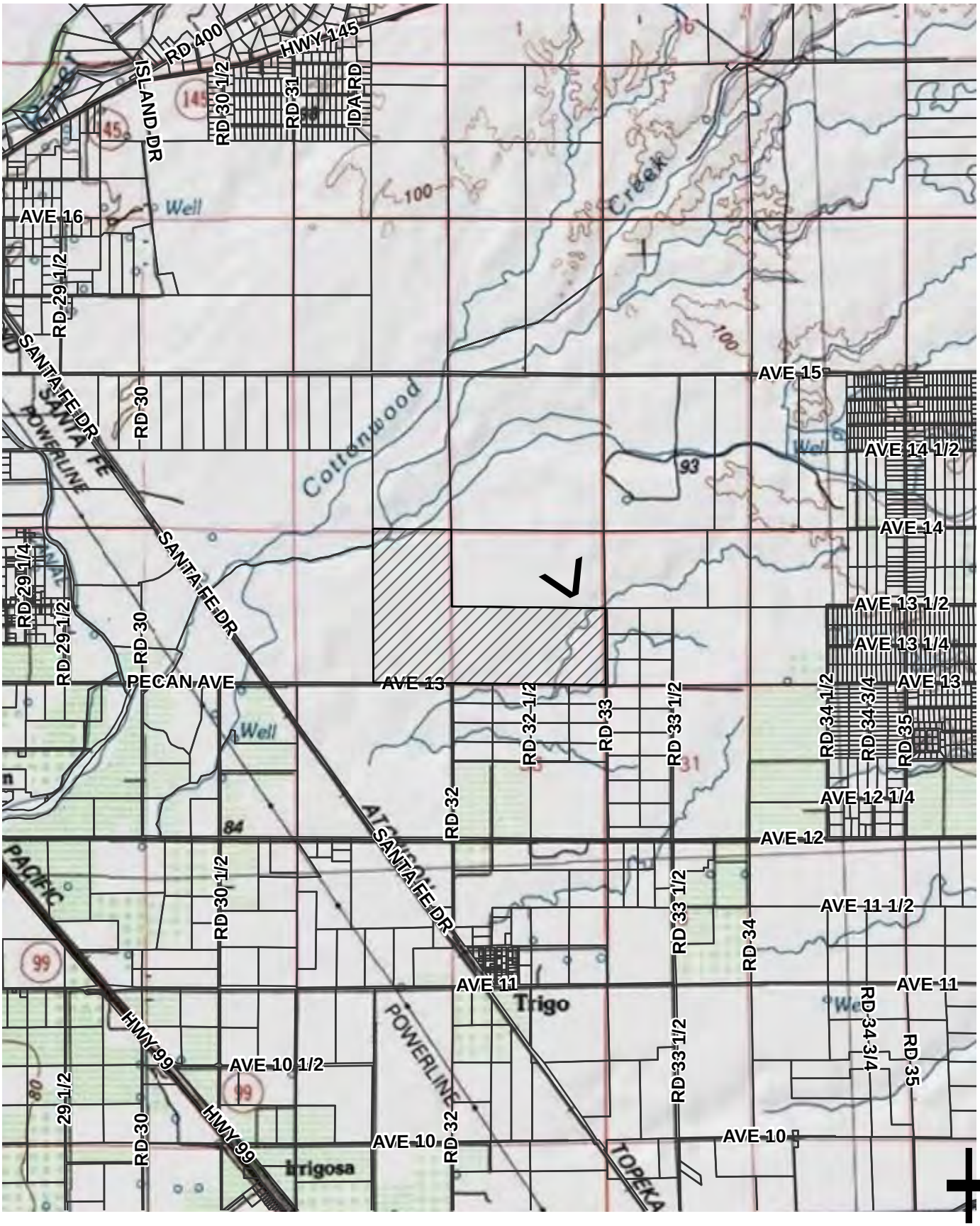
PROJECT DETAIL

EXHIBIT E



AERIAL MAP

EXHIBIT F



TOPOGRAPHICAL MAP

Madera County Planning Department
2037 W. Cleveland Avenue MS-G, Madera CA 93637

OPERATIONAL/ENVIRONMENTAL STATEMENT CHECKLIST

It is important that the operational/environmental statement provides for a complete understanding of your project proposal. Please be as detailed as possible.

1. **Please provide the following information**

   Assessor's Parcel Number: 034-210-038

   Applicant's Name: 41MB 8ME, LLC

   Address: 10100 Santa Monica Boulevard, Suite 300, Los Angeles, CA 90067

   Phone Number: (213) 281-9771

2. **Describe the nature of your proposal/operation.**
   Solar Photovoltaic Electricity Generating Facility (up to 90MW)

3. **What is the existing use of the property?**
   The 459-acre project site is used for grazing (sheep) and is fallow.

4. **What products will be produced by the operation? Will they be produced onsite or at some other location? Are these products to be sold onsite?**
   Electricity will be generated on site and transported to the PG&E Borden Substation.

5. **What are the proposed operational time limits?**

   Months (if seasonal): All year

   Days per week: Seven

   Hours (from___to___): Electrical production during daylight hours. 24/7 security is anticipated.

   Total Hours per day:

7. **How many customers or visitors are expected?**

   Average number per day: 0

   Maximum number per day: 0

   What hours will customers/visitors be there? N/A

8. **How many employees will there be?**

   Current: None

   Future: Up to five (5)

   Hours they work: Operations during daylight hours. Security will be 24/7.

   Do any live onsite? If so, in what capacity (i.e. caretaker)?

No employees will live on site.

9. **What equipment, materials, or supplies will be used and how will they be stored? If appropriate, provied pictures or brochures.**
Tools, spare parts associated with the solar panel assembly, inverters, and transformers may be kept at the O&M building.

10. **Will there be any service and delivery vehicles?**

Number: 2-3

Type: Panel cleaning vehicle(s), delivery truck(s).

Frequency: ~3 times per week

11. **Number of parking spaces for employees, customers, and service/delivery vehicles. Type of surfacing on parking area.**
The parking lot will include 8 parking spaces for employees, maintenance, and security personnel. The parking lot will be surfaced with blacktop.

12. **How will access be provided to the property/project? (street name)**
Access is expected to be provided from Road 33, a paved County road.

13. **Estimate the number and type (i.e. cars or trucks) of vehicular trips per day that will be generated by the proposed development.**
Approximately 5-10 trips per day.

14. **Describe any proposed advertising inlcuding size, appearance, and placement.**
No advertising signs will be present. On-site signage would consist of informational signs relating to emergency contact information and "Do Not Enter" or warning signs.

15. **Will existing buildings be used or will new buildings be constructed? Indicate which building(s) or portion(s) of will be utilized and describe the type of construction materials, height, color, etc. Provide floor plan and elevations, if applicable.**
New building may consist of an Operations and Maintenance building up to approximately 3,200 square feet.

16. **Is there any landscaping or fencing proposed? Describe type and location.**
Security perimeter fencing is proposed.

17. **What are the surrounding land uses to the north, south, east and west property boundaries?**
Site is adjacent to agricultural uses in all directions.

18. **Will this operation or equipment used, generate noise above other existing parcels in the area?**
Minimal noise would be generated by the proposed project.

19. **On a daily or annual basis, estimate how much water will be used by the proposed development, and how is water to be supplied to the proposed development (please be specific).**
Water would be used for panel washing and domestic use in the O&M building. Panel cleaning is expected to occur between two and four times a year. Water usage for these purposes is expected to total less than 5 acre-feet per year.

20. **On a daily or weekly basis, how much wastewater will be generated by the proposed project and how will it be disposed of?**
The only source of wastewater would be a small restroom associated with the O&M building. Up to approximately 125 gallons per day (~25 gallons/person/day) will be disposed of in a septic tank.

21. **On a daily or weekly basis, how much solid waste (garbage) will be generated by the proposed project and how will it be disposed of?**
No solid waste is anticipated to be generated.

22. **Will there be any grading? Tree removal? (please state the purpose, i.e. for building pads, roads, drainage, etc.)**
Minimal grading will be anticipated for on-site access roads, some areas of panel installation, O&M building, substation, transformer, inverter and storage pads.

23. **Are there any archeological or historically significant sits located on this property? If so, describe and show location on site plan.**
No sites were identified in Literature Search Survey and Class III Pedestrian Survey.

24. **Locate and show all bodies of water on application plot plan or attached map.**
No bodies of water exist within the project area.

25. **Show any ravines, gullies, and natural drainage courses on the property on the plot plan.**
Two swales and three drainage related ditches were located in the project area. A delineation of Wetlands and Waters of the United States has been completed and is included as a supplemental report to the application.

26. **Will hazardous materials or waste be produced as part of this project? If so, how will they be shipped or disposed of?**
Minimal amounts of materials (lubricating oil, insulating oil, gasoline, diesel) defined as hazardous under 40CFR Part 261 will be used. Hazardous wastes are expected to be kept at quantities below the threshold (one 55-gallon drum) required a HMMP.

27. **Will your proposal require use of any public services or facilities? (i.e. schools, parks, fire and police protection or special districts?)**
The project would not require use of any public services. No one will live on site, so there will be no impact to schools or parks. Fire and Police will minimally serve this project site. The project would provide its own security consisting of 24-hour monitoring systems and security fencing.

28. **How do you see this development impacting the surrounding area?**
The site would not have no adverse impacts to the surrounding area and the Project would complete a "Right to Farm" agreement with adjacent property owners and operators.

29. **How do you see this development impacting schools, parks, fire and police protection or special districts?**
No one will live on site, so there will be no impact to schools or parks. Fire and Police will minimally serve this project site. The project would provide its own security consisting of 24-hour monitoring systems and security fencing.

30. **If your proposal is for commercial or industrial development, please complete the following;**

Proposed Use(s): Solar Photovoltaic Electricity Generating Facility (up to 90MW)

Square feet of building area(s): Up to approximately 3,200 SF.

Total number of employees: Up to five (5).

Building Heights: O&M building would be approximately 12-15 feet in height.

31. **If your proposal is for a land division(s), show any slopes over 10% on the map or on an attached map.**
N/A

End

EXHIBIT H

Brenton Gibbons

From: Sal Salazar [Ssalazar@8minutenergy.com]
Sent: Thursday, August 28, 2014 11:25 AM
To: Brenton Gibbons
Cc: Sal Salazar
Subject: Sal Salazar

Importance: High

Brent,

Thank you for speaking with me earlier this week about obtaining county permits to activate the Conditional Use Permit for the Solar Farm project.

As discussed the 8minutenergy (41MB 8ME LLC) owner of the project recently obtained a power purchase agreement (PPA) for the project. More specifically, the PPA is a 20-year contract to sell 51 megawatts-ac of clean, renewable solar energy from its Borden Solar Farm project to Southern California Edison (SCE). A link to the press release is included herein for your use and reference http://www.8minutenergy.com/news/press/borden . As discussed during our call, I have discussed with our engineering staff the project and they have provided me with the following anticipated construction schedule:

Q3 2014 Obtaining Permits to activate CUP
Q2 2015 Commence Construction on Solar Farm
Q1 2016 Complete Construction of the Solar Farm
Q2 2016 Commercial Operation Date (COD)

Additionally, as discussed during our call we are also preparing a new application to extend the existing Conditional Use Permit for one more year. The application will be submitted next week . Our hope is that the application to extend the CUP could be heard by the Planning Commission in October 2014. As always, we appreciate your help and assistance on this very important project for us. Please call me if you have any questions.

Thank you.

Salvador M. Salazar, AICP | Counsel
8minutenergy Renewables, LLC

(909) 238-6134 Mobile, (323) 525-0900 Office
5455 Wilshire Blvd., Ste. 2010, Los Angeles, CA 90036

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EXHIBIT I

RESOURCE MANAGEMENT AGENCY
PLANNING DEPARTMENT

2037 W. Cleveland Avenue
Madera, CA
(559) 675-7821
FAX (559) 675-6573
TDD (559) 675-8970
mc_planning@madera-county.com

Norman L. Allinder, AICP
Director

PLANNING COMMISSION DATE: October 2, 2012

AGENDA ITEM: # 3

CUP	**#2012-010**	**90 MW Solar Power Generating Facility**
APN	**#034-210-038**	**Applicant: 41MB 8ME, LLC** **Owner: Joan S & Warren P Felger Trust**
CEQA		**MND #2012-13, SCH #2012081062**

REQUEST:

This project consists of a request to allow a solar photovoltaic electricity generating facility (up to 90 MW).

LOCATION:

The project site is located northwest of the intersection of Road 33 and Avenue 13, (no situs) Madera.

ENVIRONMENTAL ASSESSMENT:

A Mitigated Negative Declaration (MND #2012-13) has been prepared and is subject to approval by the Planning Commission.

RECOMMENDATION: Approval subject to conditions.

GENERAL PLAN DESIGNATION (Exhibit A):

SITE: AE (Agricultural Exclusive) Designation and OS (Open Space) Designation

SURROUNDING: AE (Agricultural Exclusive) Designation, OS (Open Space) Designation, and A (Agricultural) Designation

ZONING (Exhibit B):

SITE: ARE-40 (Agricultural Rural Exclusive-40 Acre Minimum) District and OS (Open Space) District

SURROUNDING: ARE-40 (Agricultural Rural Exclusive-40 Acre Minimum) District, OS (Open Space) District, and ARV-20 (Agricultural Rural Valley-20 acre minimum) District

LAND USE:

The site now consists of fallow non-native annual grassland that is grazed by sheep. Parcels abutting the project site to the north, south, and east are utilized for pistachio orchards. The parcel abutting the site to the east is utilized for grazing.

SIZE OF PROPERTY: 633.64 acres

ACCESS (Exhibits A-E): Access to the site is gained via Road 33.

ORDINANCES/POLICIES:

Chapter 18.04.495 of the Madera County Zoning Ordinance provides a definition for a commercial solar facility (referred to in code as a solar farm).

Chapter 18.58 of the Madera County Zoning Ordinance outlines the procedures for the ARE-40 (Agricultural Rural Exclusive – 40 Acre Minimum) District.

Chapter 18.94.180 of the Madera County Zoning Ordinance provides additional information on Conditional Use Permit standards relating to solar energy facilities.

PROJECT DESCRIPTION:

41MB 8ME, LLC is proposing to install a solar energy facility that would allow up to 90 MW (Megawatts) of power generation. The proposed site is located on approximately 459 acres northwest of the intersection of Road 33 and Avenue 13, (no situs) in Madera. Approximately 175 acres of the subject parcel is not intended for project development, but will be left to its exiting use, including a shop building, almond orchard, and fallow ground. The facility proposed consists of free standing ground mounted photovoltaic panels as high as twenty feet from ground level. An operations and maintenance building is proposed onsite, including an office, restroom, storage, control room, and a septic tank and leach field. A parking lot will serve the building, with access from Avenue 13. The property would be surrounded with a chain link fence for protection, which will also be armed with an alarm or intrusion detection system. Motion-sensor lighting will also be utilized for security purposes. Up to five full-time employees will operate the solar facility. The solar panels are proposed to be spread across the entire project site, with aisles in between for maintenance purposes (Exhibit D-1).

As described in the operational statement, the project will also necessitate the

construction of a substation in order to connect to a PG&E transmission line along Avenue 12. It is important to note that the location of the substation would be on a separate parcel and the facility would require separate County approval.

BACKGROUND AND PRIOR ACTIONS:

None.

ANALYSIS:

The project site is located in the AE (Agricultural Exclusive) General Plan designation and the ARE-40 (Agricultural Rural Exclusive – 40 acre minimum) zone district. Commercial-scale solar generating facilities are allowed by the General Plan as a quasi-public use regulated by the Public Utilities Commission and are allowed by a Conditional Use Permit in the zoning code. The project site is surrounded by properties that are designated and zoned the same as the project site.

The project site has been utilized for grazing since 2004 and is currently designated by the California Department of Conservation as grazing land. However, prime farmland, unique farmland, and farmland statewide importance designations exist to the north, south, and east where pistachio orchards currently exist. The project description indicates that the *panels will be disassembled from the steel mounting frames and the site restored to pre-development condition.* To ensure the project does not permanently disallow the potential future use of the site for more intensive agricultural use, such as row crops or orchards, the panel structure foundations will be required to have minimal impact to the soil and be easily removed from the site. Further, the developer will be required to develop a reclamation plan with a financial assurance to ensure the site returns to its previous state after the life of the project.

A biological resources study was conducted for the proposed project, covering the project area and a number of alternative transmission tie-in lines. The study did not discover the presence of any sensitive vegetative communities or habitats that have the potential to be impacted. The study also found that State or Federally listed plant species are not expected to be found onsite or along the transmission tie-in lines. The study did find that listed wildlife species have the potential to occur on or adjacent to the project site, but that they would be restricted to transient or foraging animals. A number of mitigation measures recommended by the study have been incorporated into the Mitigated Negative Declaration (MND). The study found that site conditions warrant collaboration with regulatory agencies (Department of Fish and Game, Army Corps of Engineers, and United States Fish and Wildlife Service) and the requirement for collaboration has been incorporated into the MND.

The Department of Fish and Game (DFG) submitted comments on the proposal. Their comment largely concurred with the biological resource study conclusions; however, some additional mitigation was recommended.

The project site contains a number of seasonal water features, including two swales, three ditches, one pond, and five culverts located throughout the project site. The applicant has compiled a wetland delineation report, which has been submitted to the Army Corps of Engineers for comment and/or acceptance. Mitigation measures are incorporated into the MND to mitigate potential impacts upon swales onsite.

The Air District's Rule 9510 requires many large projects in the San Joaquin Valley to perform an Air Impact Assessment in order to identify potential pollutants, including NOx and PM10, and to incorporate measures to reduce the pollutants if necessary. The applicant previously submitted an Air Impact Assessment, which was recently approved

by the Air District.

The development of solar energy facilities in Madera County has a number of benefits. Notably, PV solar power is a renewable form of power generation that does not involve any harmful air emissions. On a statewide basis, the development of solar energy facilities contributes towards compliance with Assembly Bill 32, State law that seeks a reduction in the emission of greenhouse gases. The project would contribute towards the State's goal of 33% of all electrical generation to come from renewable sources by 2020. Also, PV solar power requires minimal water use for periodic washing of the panels, especially when compared with the use of groundwater by surrounding agricultural uses.

The project is well-located to avoid valuable farmland and is not located within protected Williamson Act land. With the mitigation measures incorporated into the project, potential sensitive species will be avoided and protected. Since the project vicinity is agricultural in character and is expected to be in agriculture use over the long-term, measures are also incorporated to ensure that the project site returns to its previous condition as grazing land after the life of the project.

FINDINGS:

The Madera County Zoning Ordinance requires that the following findings of fact must be made by the Planning Commission to grant approval of this permit:

1. *The proposed project does not violate the spirit or intent of the zoning ordinance.* The property is zoned ARE-40 (Agricultural Exclusive – 40 Acre Minimum). The zone district allows solar energy facilities through a Conditional Use Permit. Solar energy facilities are also defined in the Zoning Ordinance.

2. *The proposed project (request) is not contrary to the public health, safety or general welfare.* Because conditions of approval are being incorporated, there will be no potential significant impacts with regards to the public health, safety, or general welfare. Mitigation measures are further included to alleviate potentially significant impacts to biological resources, cultural resources, and aesthetics. Compliance with the project conditions and mitigation measures will ensure that the welfare of the surrounding area is not impacted.

   The proposal would have a positive impact upon the welfare of the region and State. Assembly Bill 32, signed by the State in 2008, requires significant reductions in greenhouse gas emissions (GHG). The subject project will further this goal through the creation of a power generation facility that does not include the emission of GHGs and will reduce the State's dependence on fossil fuel energy sources that create GHGs as a byproduct.

3. *The proposed project (request) is not hazardous, harmful, noxious, offensive, or a nuisance because of noise, dust, smoke, odor, glare, or similar factors.* The proposal will not involve hazardous materials or result in the emission of hazardous materials. No emission of any kind will result. Minimal odors and noise will be produced from regular maintenance of the panels.

4. *The proposed project (request) will not for any reason cause a substantial, adverse effect upon the property values and general desirability of the neighborhood or of the County.* The proposal, while different in nature from surrounding agricultural uses, is not a use that will create conflicts with adjacent

uses as a result of power generation. As noted in response to Finding #3, no significant nuisances will be created by the proposal, thereby allowing adjacent property owners to continue existing farming practices. Homes are not located adjacent to the project site.

GENERAL PLAN CONSISTENCY:

The proposal is consistent with Goal 3.J of the General Plan by providing "efficient and cost-effective utilities". The proposed commercial solar energy facilities will provide a local, renewable source of electricity that will help to make Madera County more self-sustaining and economically viable. The AE (Agricultural Exclusive) designation allows for quasi-public uses, which includes power generation facilities regulated by the State Public Utilities Commission. This includes commercial solar facilities as permitted in Chapter 18.58 of the zoning ordinance (ARE-40 zone district) by Conditional Use Permit.

WILLIAMSON ACT:

The subject parcel is not enrolled in the Williamson Act program.

RECOMMENDATION:

The analysis contained in this report supports approval of CUP #2012-010 and MND #2012-13.

CONDITIONS:

Engineering Department (Exhibit H)

1. Prior to the start of any construction projects, the applicant shall secure a Building Permit from the Engineering Department. All construction shall meet the standards of all applicable Codes. All plans must be prepared by a licensed architect or registered civil engineer.

2. Prior to the start of any grading activities, without having first secured a Building Permit, the applicant shall apply for, and obtain a Grading Permit from the Engineering Department.

3. All National Pollution Discharge Elimination System (NPDES) storm water regulations and standards shall be met. It is possible that the quality of storm water may be affected by pollutants. The applicant shall mitigate any impacts associated with storm water contamination caused by this project. A Storm Water Pollution Prevention Plan (SWPPP) is required for all projects 1-acre or more of site disturbance.

Environmental Health Department (Exhibit I)

1. The subject property is not within a Water Maintenance District or County Service Area maintained by the Department of Engineering and General Services. Individual water and sewage services for all necessary and occupied structures requiring these systems will need to be provided by the applicant.

2. The owner/operator must obtain all the necessary Environmental Health Dept. permits that apply to each application. All County Set-Back requirements must be complied with prior to any construction activities on site.

3. If this Operation retains more than 25 employees or has the potential to retain more than 25 employees in the future or at any one time the water well for the business office needs to be built to comply with Public Well Standards and at a minimum must have a 50 ft. well seal installed on it at the time of well installation.

4. When it becomes necessary to close down any existing operations at the facility then these closures must be done with appropriate actions and approval and from this department. For example, water wells installed on site that are not going to be used must be properly abandoned in place and a permit is required for this action from this department. Septic systems must be properly abandoned if they are not going to be used at the facility buildings.

5. An engineered septic system design is required to serve this project. The design requirements shall be based on the maximum potential use of the proposed septic system identified. Contact a Liquid Waste Program Specialist within this department at (559) 675-7823 for any questions that you may have regarding this process or for copies of any of the required Application Forms.

Fire Department (Exhibit J)

No conditions, see comment .

Planning Department

1. The project shall operate in accordance with the operational statement and site plan submitted with the application, except as modified by mitigation measures and other conditions of approval required for the project.

2. The applicant shall submit a parking and circulation plan subject to approval by the Planning Department prior to issuance of this permit. This plan shall indicate the required parking stalls, driveway location(s), and internal circulation patterns.

3. Circulation areas shall be dust free; a dust palliative surface shall be installed that effectively mitigates dust impacts onsite.

4. All open and un-vegetated portions of the lot shall be maintained in good condition, free from weeds, dust, trash and debris.

5. The solar PV panels must comply with zone district setback requirements. Prior to project approval, a new site plan must be submitted to the Planning Department that includes setbacks from property lines and County right of way.

6. Any proposed lighting shall be hooded and directed away from surrounding properties and roadways (County Code 18.102.120.J).

7. Any modifications to the existing substation along Avenue 12 or the addition of any new off-site substation facility is not included under this Conditional Use Permit.

SH/sh

8. All mitigation measures outlined in the Mitigated Negative Declaration #2012-13 shall be implemented in development of this project unless added to, deleted from, and/or otherwise modified.

Road Department (Exhibit K)

1. All proposed driveway approaches shall be a constructed to a commercial County Standard.

2. All construction in the public road right-of-way will require the applicant to apply for and obtain an Encroachment Permit through the Road Department.

3. The applicant will be responsible for any damage incurred to the public roadways from the construction of this project.

Air Pollution Control District (Exhibit L)

Comply with all requirements as set forth by the San Joaquin Valley Air Pollution Control District.

Department of Fish and Game (Exhibit M)

Comply with all requirements as set forth by the California Department of Fish and Game.

U.S. Fish and Wildlife Service (Exhibit V)

Comply with all requirements as set forth by the California Department of Fish and Game.

Regional Water Quality Control Board (Exhibit W)

Comply with all requirements as set forth by the Regional Water Quality Control Board.

Army Corps of Engineers (Exhibit N)

Comply with all requirements as set forth by the San Joaquin Valley Air Pollution Control District.

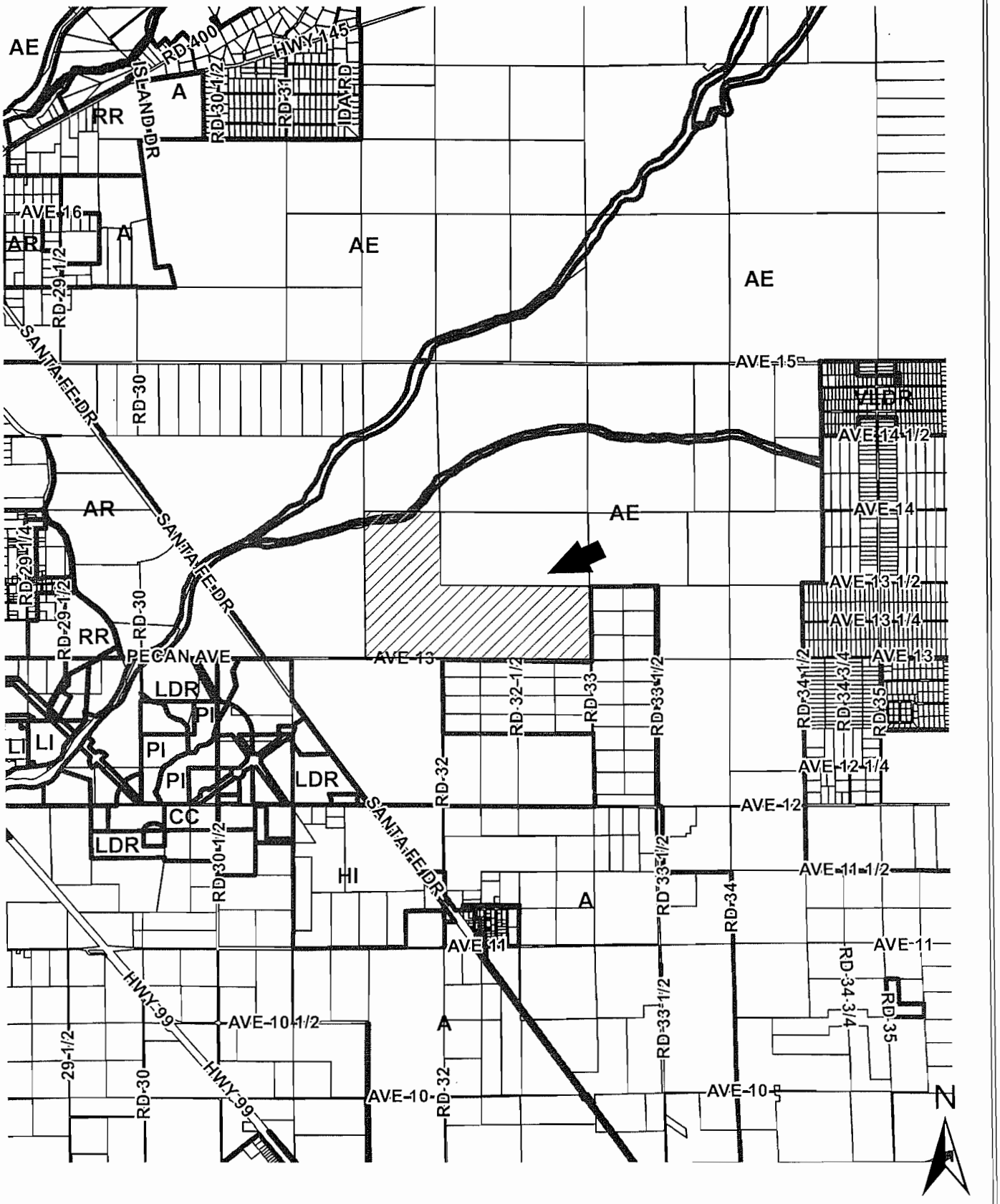
ATTACHMENTS:
1. Exhibit A, General Plan Map
2. Exhibit B, Zoning Map
3. Exhibit C, Assessors Map
4. Exhibit D-1-4, Project Plans
5. Exhibit E, Aerial Map
6. Exhibit F, Topography Map
7. Exhibit G, Operational/Environmental Statement Checklist
8. Exhibit H, Engineering Department Comments
9. Exhibit I, Environmental Health Department Comments
10. Exhibit J, Fire Department Comments
11. Exhibit K, Road Department Comments

SH/sh

12. Exhibit L, Air Pollution Control District Comment
13. Exhibit M, Department of Fish and Game Comment
14. Exhibit N, Army Corps of Engineers Comment
15. Exhibit O, Initial Study
16. Exhibit P, Mitigated Negative Declaration
17. Exhibit Q, Applicant's Project Description
18. Exhibit R, Biological Resources Technical Report
19. Exhibit S, Wetland Delineation
20. Exhibit T, Air Quality Analysis
21. Exhibit U, Geologic and Seismic Hazards Evaluation
22. Exhibit V, US Fish and Wildlife Comment
23. Exhibit W, Regional Water Quality Control Board Comment

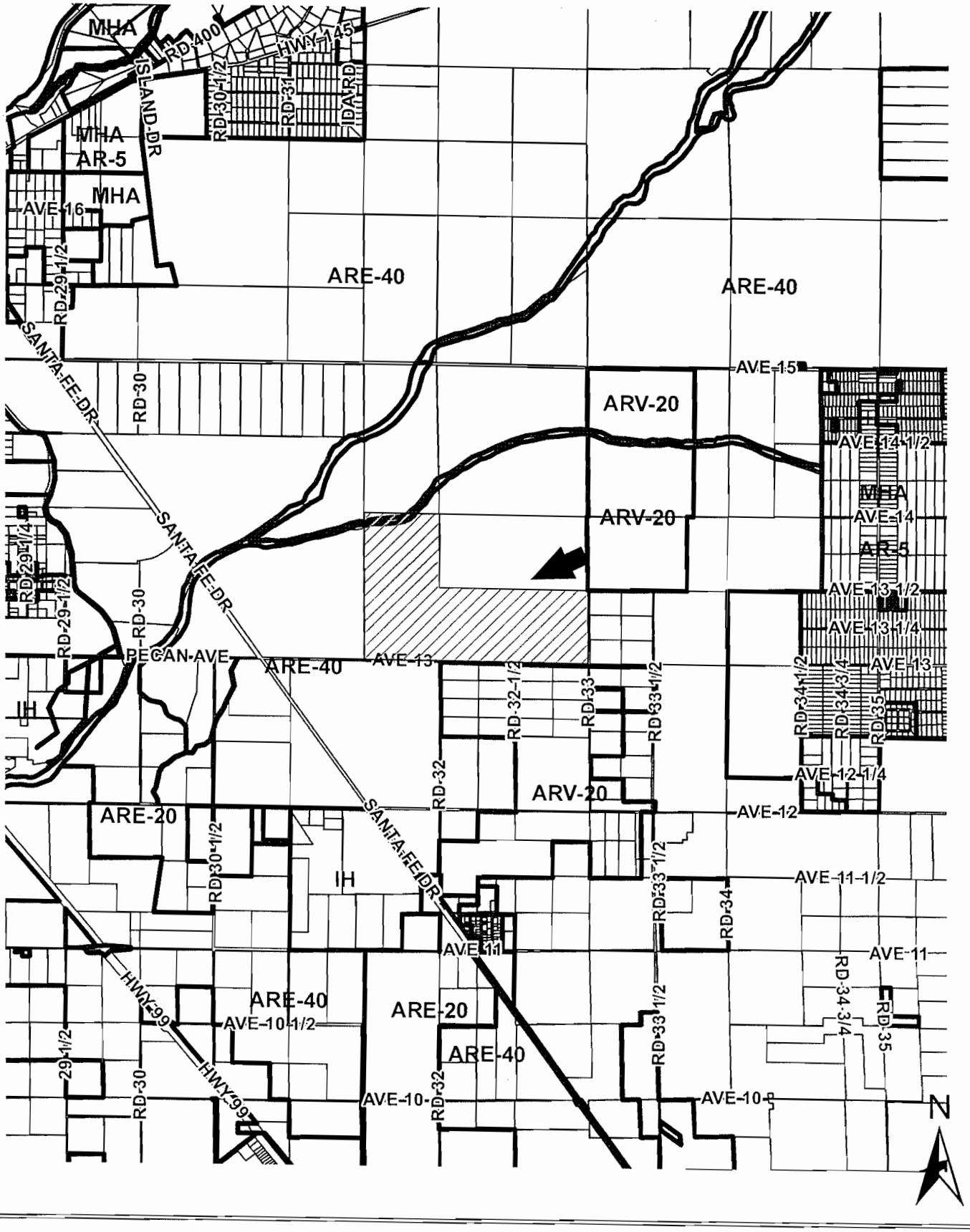
SH/sh

EXHIBIT A



GENERAL PLAN MAP

EXHIBIT B



ZONING MAP

EXHIBIT C

ASSESSOR'S MAP

ORIGINAL [IN BLUE]

SEC. 25,26 & 27 T.11S. R.18E. M.D.B.&M.

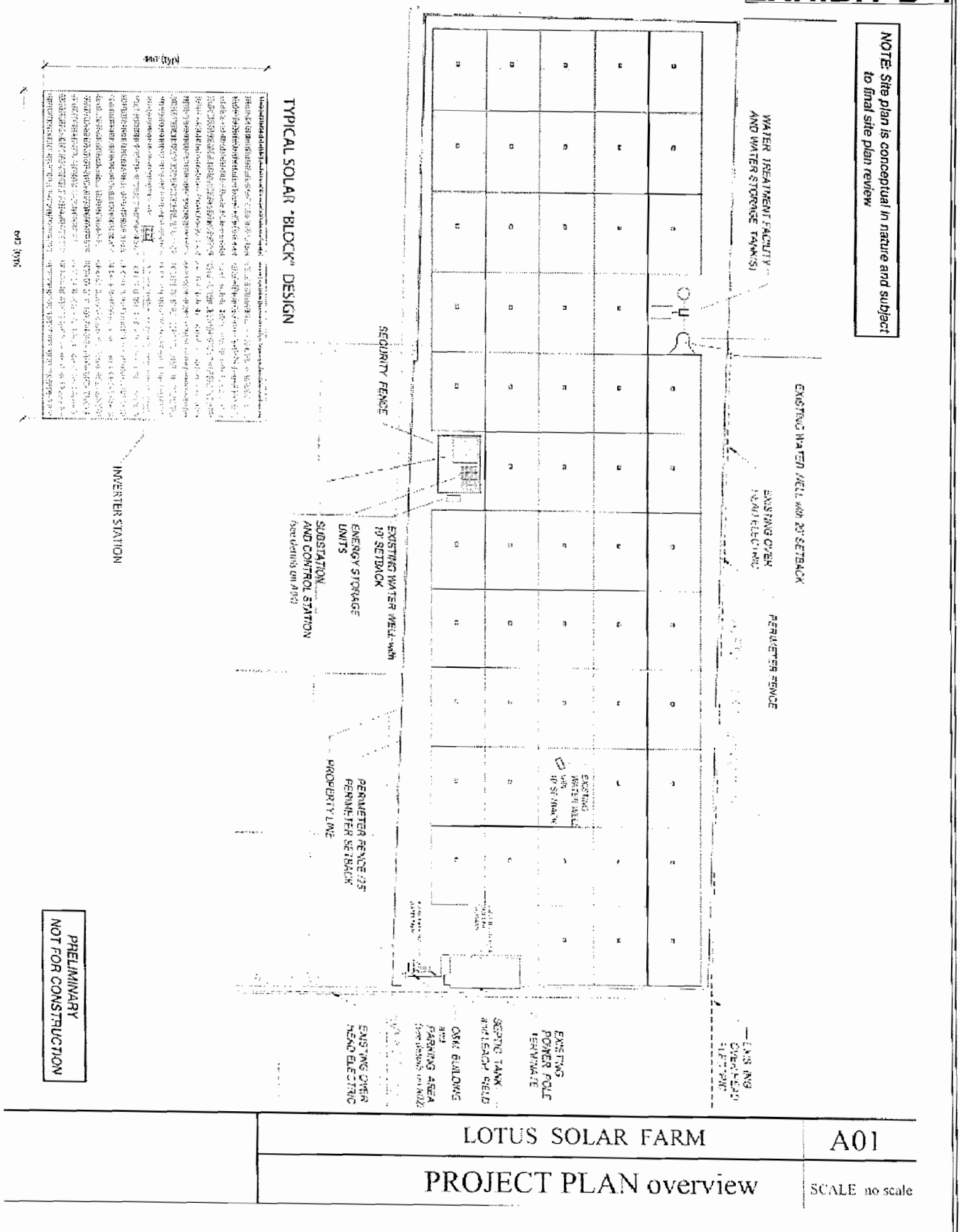
34-21
SHEET 1 of 2

Tax Area Code
61-002

Assessor's Map No. 34-21
Sheet 1 of 2
Madera Unified School Dist.
Madera Outside
County of Madera, Calif.
1955

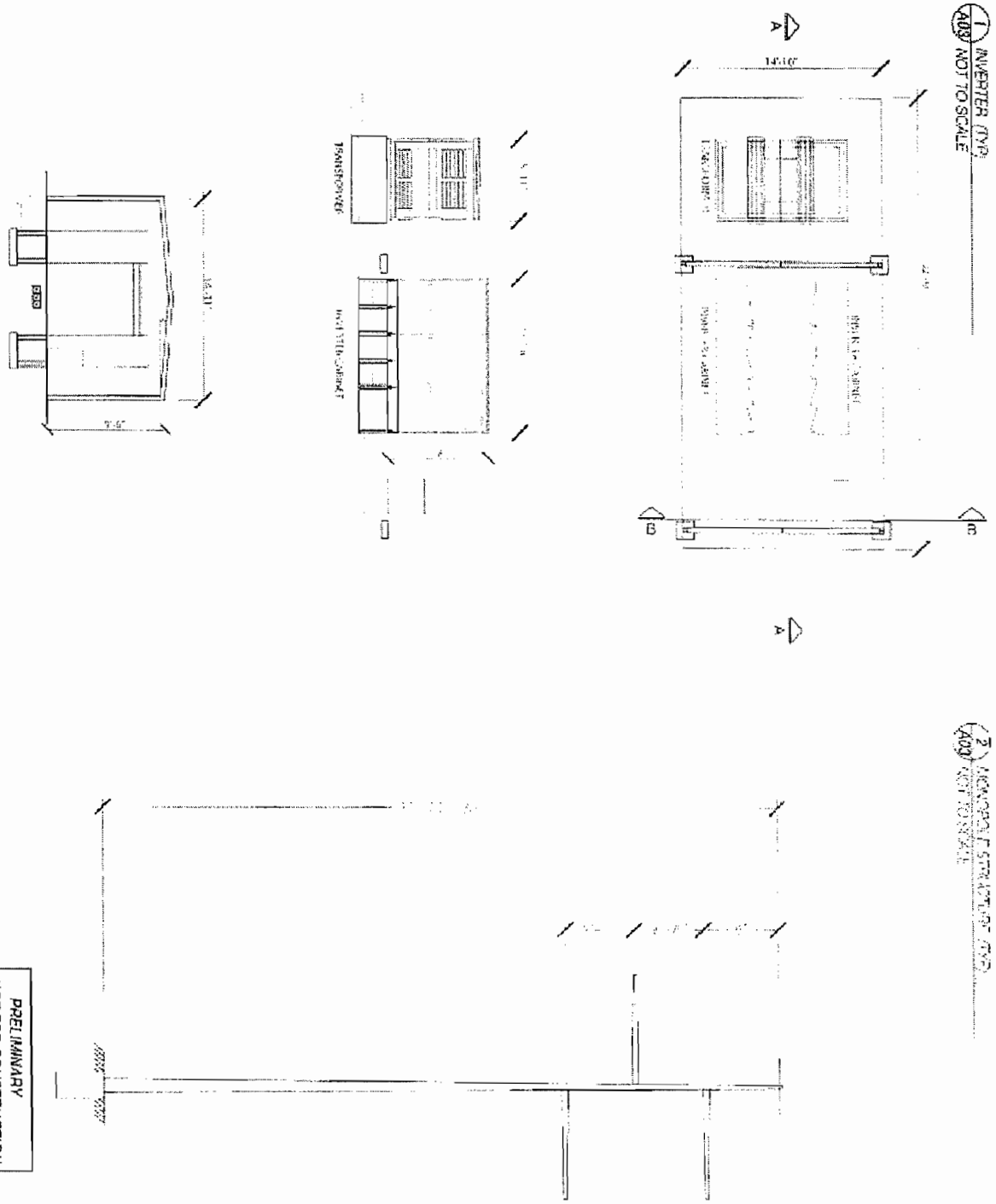
NOTE: This map is for assessment purposes only and is not for the intent of interpreting legal boundary rights, zoning regulations and/or legality of land division laws.

EXHIBIT D-1



SITE PLAN

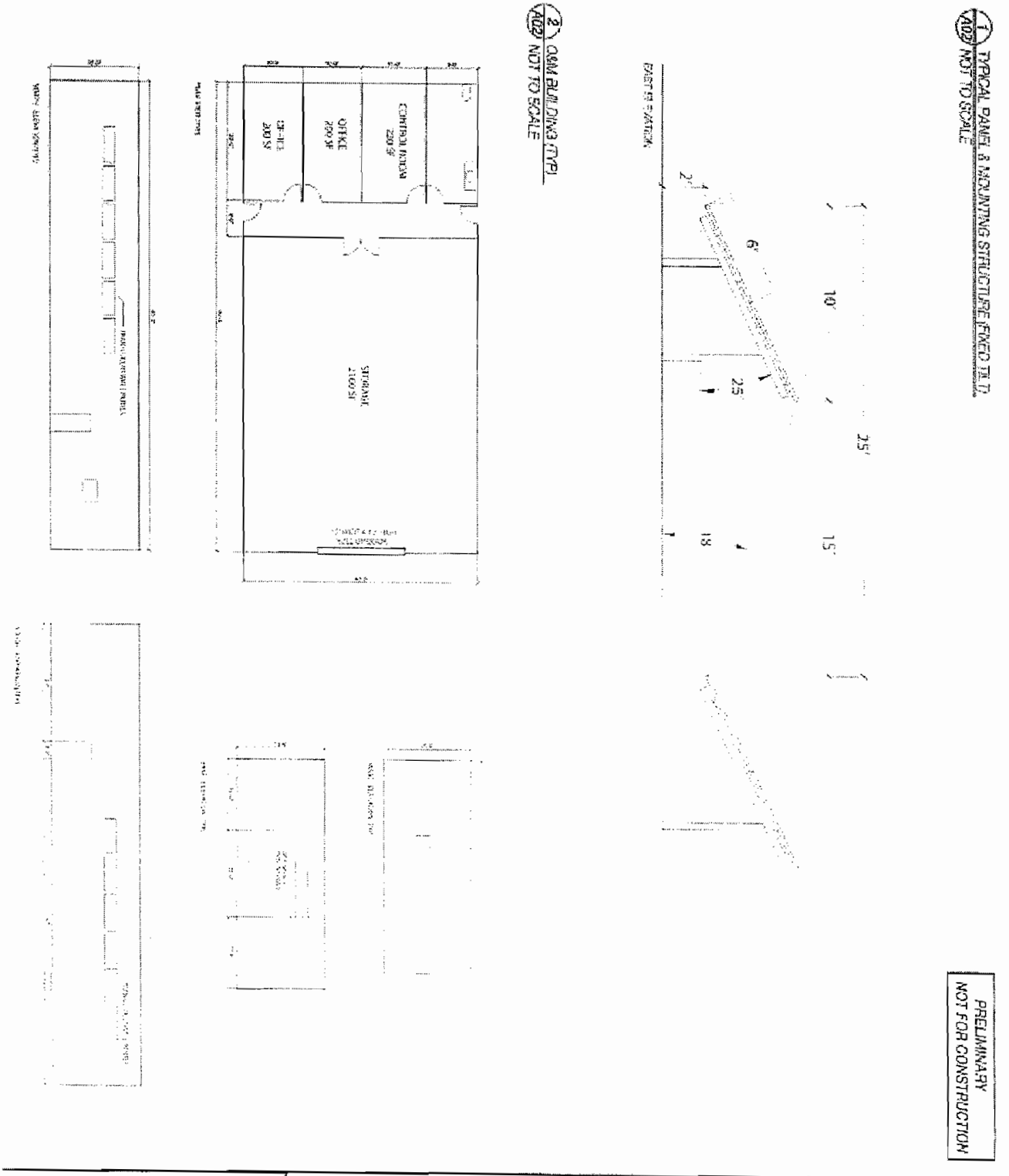
EXHIBIT D-3



	LOTUS SOLAR FARM	A03
	PROJECT DETAILS (TYP)	SCALE: no scale

PROJECT DETAIL

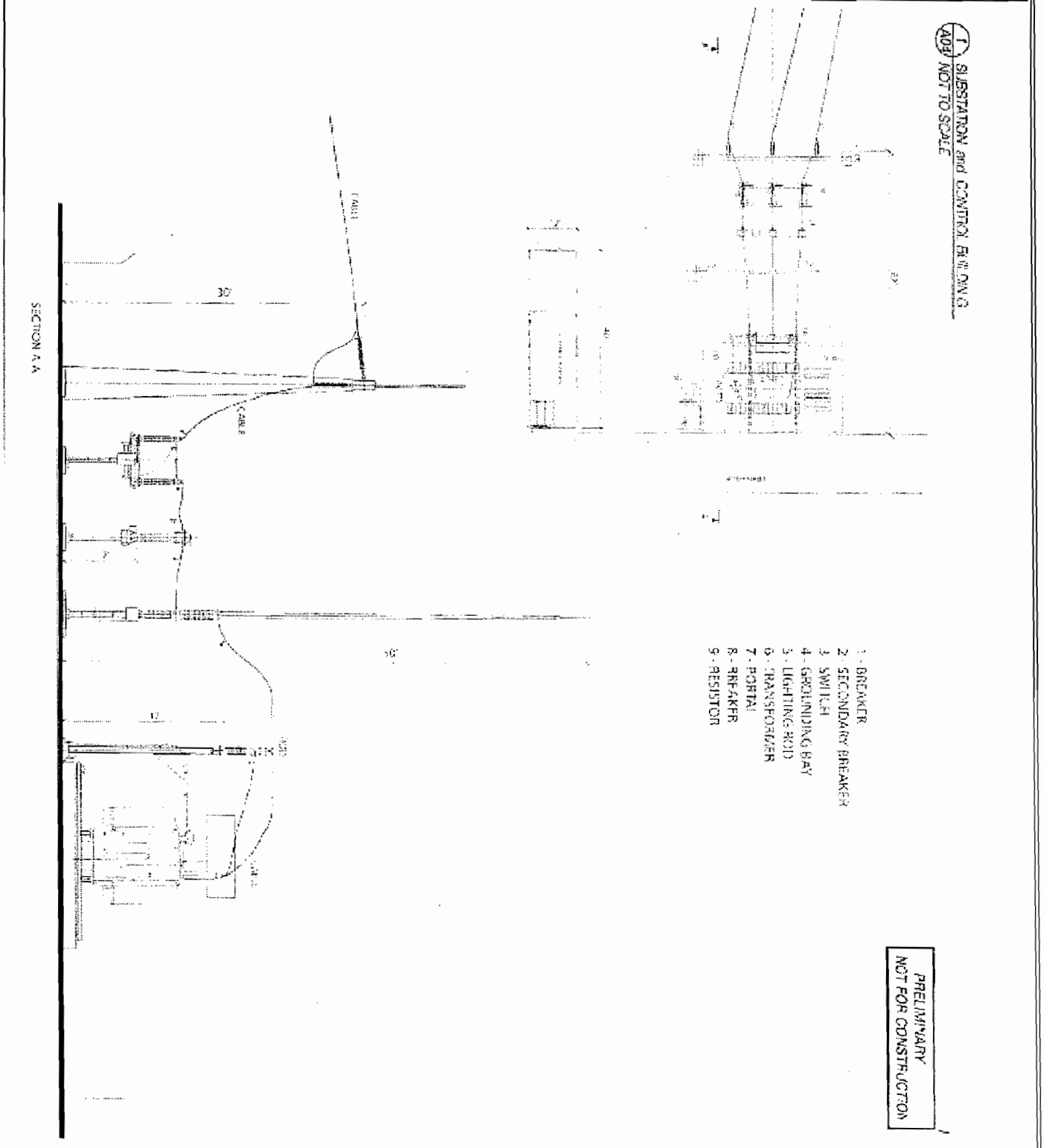
EXHIBIT D-2



LOTUS SOLAR FARM	A02
PROJECT DETAILS (TYP)	SCALE: no scale

PROJECT DETAIL

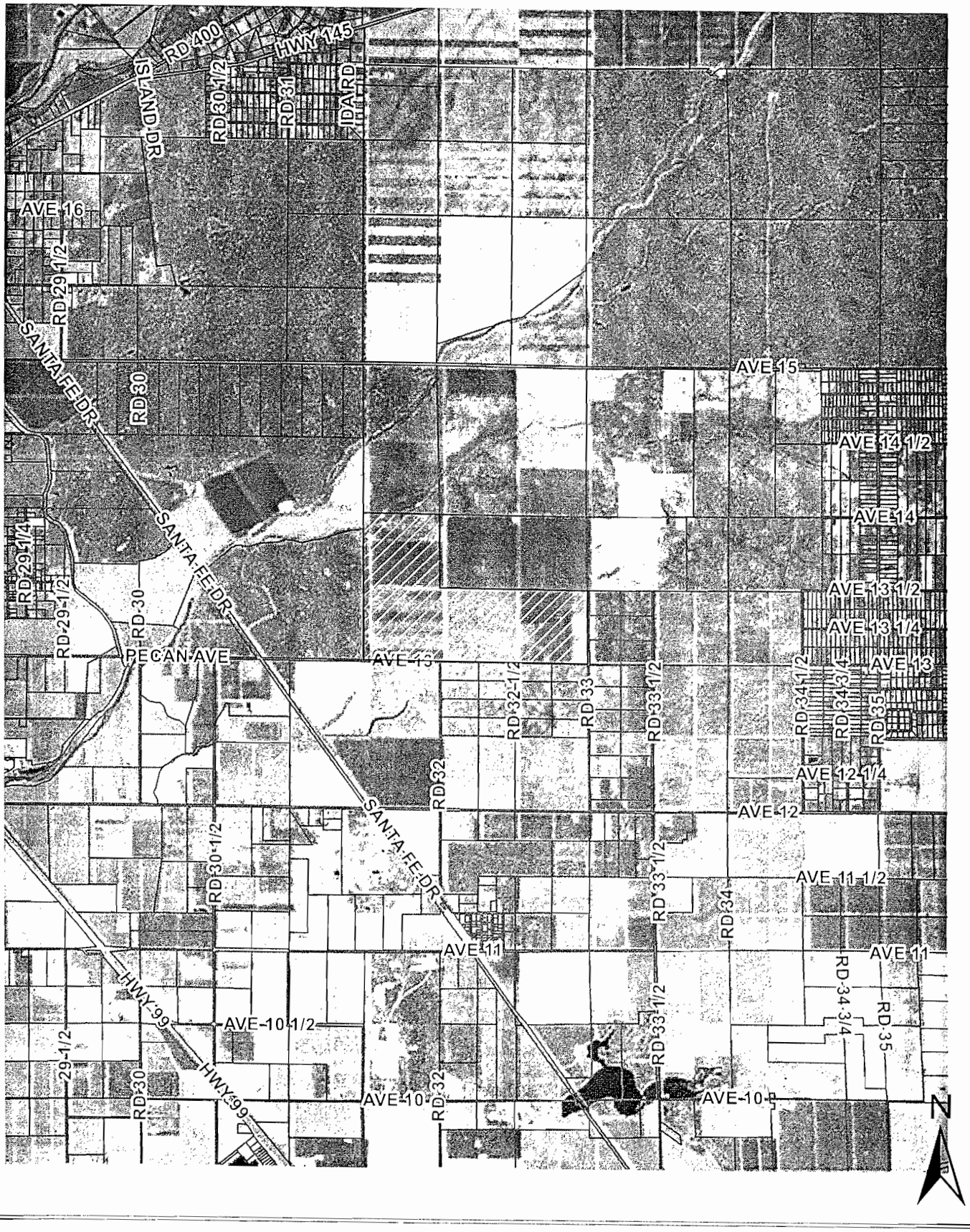
EXHIBIT D-4



LOTUS SOLAR FARM	A04
PROJECT DETAILS (TYP)	SCALE: no scale

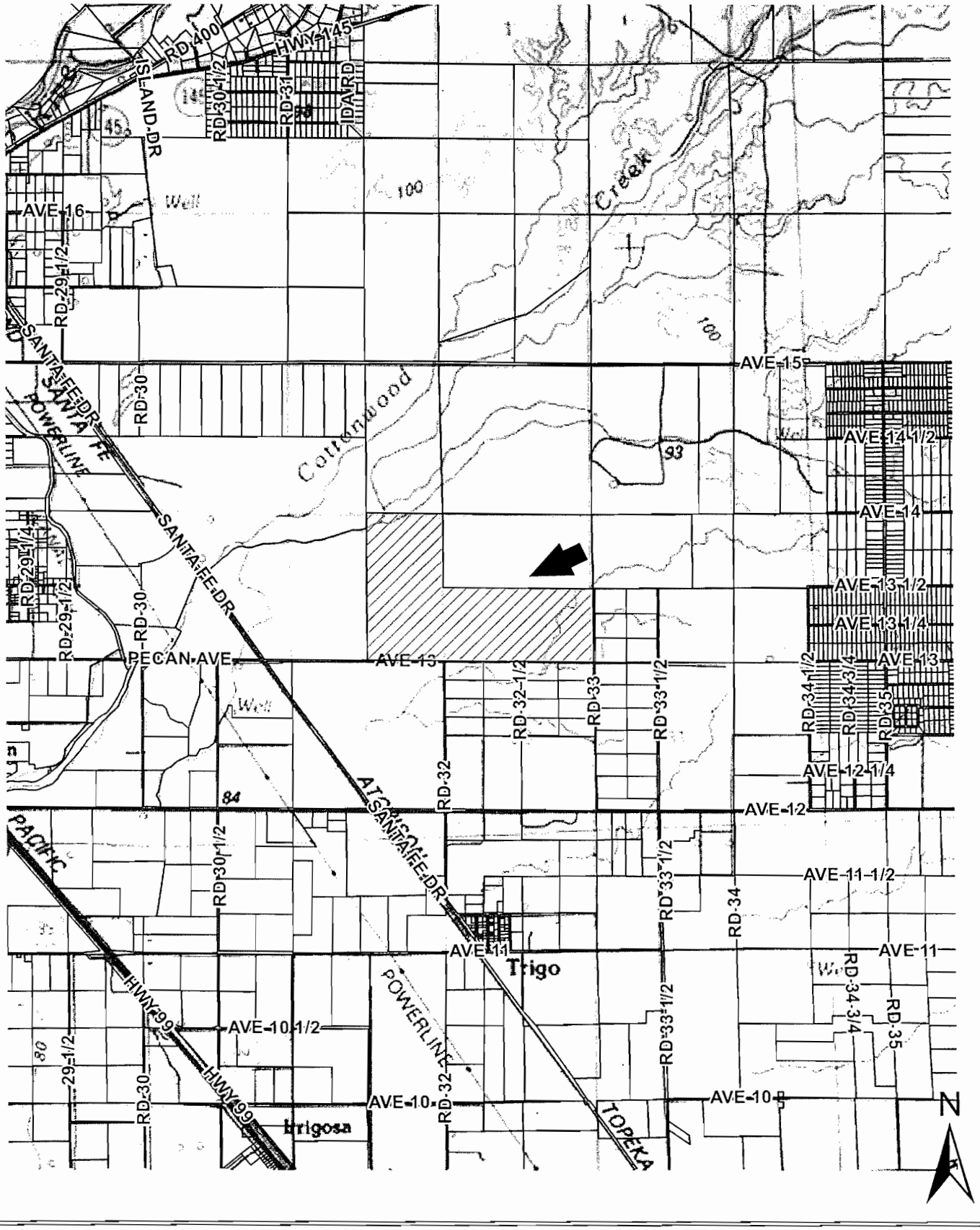
PROJECT DETAIL

EXHIBIT E



AERIAL MAP

EXHIBIT F



TOPOGRAPHICAL MAP

EXHIBIT G

Madera County Planning Department
2037 W. Cleveland Avenue MS-G, Madera CA 93637

OPERATIONAL/ENVIRONMENTAL STATEMENT CHECKLIST

It is important that the operational/environmental statement provides for a complete understanding of your project proposal. Please be as detailed as possible.

1. **Please provide the following information**

   Assessor's Parcel Number: 034-210-038

   Applicant's Name: 41MB 8ME, LLC

   Address: 10100 Santa Monica Boulevard, Suite 300, Los Angeles, CA 90067

   Phone Number: (213) 281-9771

2. **Describe the nature of your proposal/operation.**
   Solar Photovoltaic Electricity Generating Facility (up to 90MW)

3. **What is the existing use of the property?**
   The 459-acre project site is used for grazing (sheep) and is fallow.

4. **What products will be produced by the operation? Will they be produced onsite or at some other location? Are these products to be sold onsite?**
   Electricity will be generated on site and transported to the PG&E Borden Substation.

5. **What are the proposed operational time limits?**

   Months (if seasonal): All year

   Days per week: Seven

   Hours (from___to___): Electrical production during daylight hours. 24/7 security is anticipated.

   Total Hours per day:

7. **How many customers or visitors are expected?**

   Average number per day: 0

   Maximum number per day: 0

   What hours will customers/visitors be there? N/A

8. **How many employees will there be?**

   Current: None

   Future: Up to five (5)

   Hours they work: Operations during daylight hours. Security will be 24/7.

   Do any live onsite? If so, in what capacity (i.e. caretaker)?

No employees will live on site.

9. **What equipment, materials, or supplies will be used and how will they be stored? If appropriate, provied pictures or brochures.**
Tools, spare parts associated with the solar panel assembly, inverters, and transformers may be kept at the O&M building.

10. **Will there be any service and delivery vehicles?**

Number: 2-3

Type: Panel cleaning vehicle(s), delivery truck(s).

Frequency: ~3 times per week

11. **Number of parking spaces for employees, customers, and service/delivery vehicles. Type of surfacing on parking area.**
The parking lot will include 8 parking spaces for employees, maintenance, and security personnel. The parking lot will be surfaced with blacktop.

12. **How will access be provided to the property/project? (street name)**
Access is expected to be provided from Road 33, a paved County road.

13. **Estimate the number and type (i.e. cars or trucks) of vehicular trips per day that will be generated by the proposed development.**
Approximately 5-10 trips per day.

14. **Describe any proposed advertising inlcuding size, appearance, and placement.**
No advertising signs will be present. On-site signage would consist of informational signs relating to emergency contact information and "Do Not Enter" or warning signs.

15. **Will existing buildings be used or will new buildings be constructed? Indicate which building(s) or portion(s) of will be utilized and describe the type of construction materials, height, color, etc. Provide floor plan and elevations, if applicable.**
New building may consist of an Operations and Maintenance building up to approximately 3,200 square feet.

16. **Is there any landscaping or fencing proposed? Describe type and location.**
Security perimeter fencing is proposed.

17. **What are the surrounding land uses to the north, south, east and west property boundaries?**
Site is adjacent to agricultural uses in all directions.

18. **Will this operation or equipment used, generate noise above other existing parcels in the area?**
Minimal noise would be generated by the proposed project.

19. **On a daily or annual basis, estimate how much water will be used by the proposed development, and how is water to be supplied to the proposed development (please be specific).**
Water would be used for panel washing and domestic use in the O&M building. Panel cleaning is expected to occur between two and four times a year. Water usage for these purposes is expected to total less than 5 acre-feet per year.

20. **On a daily or weekly basis, how much wastewater will be generated by the proposed project and how will it be disposed of?**
The only source of wastewater would be a small restroom associated with the O&M building. Up to approximately 125 gallons per day (~25 gallons/person/day) will be disposed of in a septic tank.

21. **On a daily or weekly basis, how much solid waste (garbage) will be generated by the proposed project and how will it be disposed of?**
No solid waste is anticipated to be generated.

22. **Will there be any grading? Tree removal? (please state the purpose, i.e. for building pads, roads, drainage, etc.)**
Minimal grading will be anticipated for on-site access roads, some areas of panel installation, O&M building, substation, transformer, inverter and storage pads.

23. **Are there any archeological or historically significant sits located on this property? If so, describe and show location on site plan.**
No sites were identified in Literature Search Survey and Class III Pedestrian Survey.

24. **Locate and show all bodies of water on application plot plan or attached map.**
No bodies of water exist within the project area.

25. **Show any ravines, gullies, and natural drainage courses on the property on the plot plan.**
Two swales and three drainage related ditches were located in the project area. A delineation of Wetlands and Waters of the United States has been completed and is included as a supplemental report to the application.

26. **Will hazardous materials or waste be produced as part of this project? If so, how will they be shipped or disposed of?**
Minimal amounts of materials (lubricating oil, insulating oil, gasoline, diesel) defined as hazardous under 40CFR Part 261 will be used. Hazardous wastes are expected to be kept at quantities below the threshold (one 55-gallon drum) required a HMMP.

27. **Will your proposal require use of any public services or facilities? (i.e. schools, parks, fire and police protection or special districts?)**
The project would not require use of any public services. No one will live on site, so there will be no impact to schools or parks. Fire and Police will minimally serve this project site. The project would provide its own security consisting of 24-hour monitoring systems and security fencing.

28. **How do you see this development impacting the surrounding area?**
The site would not have no adverse impacts to the surrounding area and the Project would complete a "Right to Farm" agreement with adjacent property owners and operators.

29. **How do you see this development impacting schools, parks, fire and police protection or special districts?**
No one will live on site, so there will be no impact to schools or parks. Fire and Police will minimally serve this project site. The project would provide its own security consisting of 24-hour monitoring systems and security fencing.

30. **If your proposal is for commercial or industrial development, please complete the following;**

Proposed Use(s): Solar Photovoltaic Electricity Generating Facility (up to 90MW)

Square feet of building area(s): Up to approximately 3,200 SF.

Total number of employees: Up to five (5).

Building Heights: O&M building would be approximately 12-15 feet in height.

31. **If your proposal is for a land division(s), show any slopes over 10% on the map or on an attached map.**
N/A

End

EXHIBIT H

Engineering and General Services

2037 West Cleveland Avenue
Madera, CA 93637
(559) 661-6333
(559) 675-7639
FAX
(559) 675-8970
TDD

Bass Lake Office
40601 Road 274
Bass Lake, CA
93604
(559) 642-3203
(559) 658-6959
FAX

engineering@madera-county.com

MEMORANDUM

TO: Scott Harmstead

FROM: Madera County

DATE: July 19, 2012

RE: 41MB 8ME, LLC - Conditional Use Permit - Madera (034-210-038-000)

Comments

1) The identified parcel is not within the 100 year flood plain.

2) The subject property is not located within a Service Area or Maintenance District.

3. Prior to the start of any construction projects, the applicant shall secure a Building Permit from the Engineering Department. All construction shall meet the standards of all applicable Codes. All plans must be prepared by a licensed architect or registered civil engineer.

4. The applicant shall submit a grading, drainage and erosion control plan to the Engineering Department. This plan shall identify onsite retention for any increase in storm water runoff generated by this project. The basis for all designs shall be the provision of capacity for the runoff from a 100 year, 10 day storm event. The grading, drainage and erosion control plan shall be prepared by a registered civil engineer and shall meet all applicable standards and specifications of the latest California Code of Federal Regulations.

5. Prior to the start of any grading activities, without having first secured a Building Permit, the applicant shall apply for, and obtain a Grading Permit from the Engineering Department.

6. All National Pollution Discharge Elimination System (NPDES) storm water regulations and standards shall be met. It is possible that the quality of storm water may be affected by pollutants. The applicant shall mitigate any impacts associated with storm water contamination caused by this project. A Storm Water Pollution Prevention Plan (SWPPP) is required for all projects 1-acre or more of site disturbance.

If you have any questions please contact Dario Dominguez at 559-675-7817 ext 3322.

EXHIBIT I

RESOURCE MANAGEMENT AGENCY

Environmental Health Department

Jill Yaeger, Director

· 2037 West Cleveland Avenue
· Madera, CA 93637
· (559) 675-7823

MEMORANDUM

TO: Scott Harmstead

FROM: Madera County

DATE: July 19, 2012

RE: 41MB 8ME, LLC - Conditional Use Permit - Madera (034-210-038-000)

Conditions

The Environmental Health Department has reviewed the Conditional Use Permit (CUP) #2011-009 Lotus Solar Farm, located at APN: 034-210-038, within the Central Valley Region of our County and has determined the following:

The subject property is not within a Water Maintenance District or County Service Area maintained by the Department of Engineering and General Services. Individual Water and sewage services for all necessary and occupied structures requiring these systems will need to be provided by the applicant.

The owner/operator must obtain all the necessary Environmental Health Dept. permits that apply to each application. All County Set-Back requirements must be complied with prior to any construction activities on site.

If this Operation retains more than 25 employees or has the potential to retain more than 25 employees in the future or at any one time the water well for the business office needs to be built to comply with Public Well Standards and at a minimum must have a 50 ft. well seal installed on it at the time of well installation.

When it becomes necessary to close down any existing operations at the facility then these closures must be done with appropriate actions and approval and from this department. For example, Water Wells installed on site that are not going to be used must be properly abandoned in place and a permit is required for this action from this department. Septic systems must be properly abandoned if they are not going to be used at the facility buildings.

An engineered septic system design is required to serve this project. The design requirements shall be based on the maximum potential use of the proposed septic system identified. Contact a Liquid Waste Program Specialist within this department at (559) 675-7823 for any questions that you may have regarding this process or for copies of any of the required Application Forms.

EXHIBIT J

MADERA COUNTY FIRE DEPARTMENT

IN COOPERATION WITH
CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

2037 W. CLEVELAND
MADERA, CALIFORNIA 93637
(559) 661-6333
(559) 675-6973 FAX

DEBORAH KEENAN
MADERA COUNTY FIRE MARCHAL

MEMORANDUM

TO: Scott Harmstead

FROM: Madera County

DATE: July 19, 2012

RE: 41MB 8ME, LLC - Conditional Use Permit - Madera (034-210-038-000)

Conditions

Fire apparatus access roads shall be provided, constructed and maintained as follows: The roads shall be provided within 150 feet of all portions of the exterior walls of the proposed building as measured by an approved route around the exterior of the building. The roads shall be constructed to have an unobstructed width of not less than 20 feet and an unobstructed vertical clearance of not less than 15 feet. The roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface so as to provide all-weather driving capabilities. (CFC, Sections 503; and CVC Section 22500.1)

For dead-end fire apparatus access roads in excess of 150 feet in length, an area for turning fire apparatus around shall be provided as approved by the Madera County Fire Marshal. (CFC, Section 902.2.2.4, 503.2.5)

When access to or within a structure or an area is unduly difficult because of secured openings or where immediate access is necessary for life-saving or firefighting purposes, a County approved lock box shall be installed in an approved location and shall contain keys to gain necessary access as required by the Madera County Fire Marshal. (CFC, Section 506.1)

All roads accessing the project site shall be cleared of flammable vegetation over 18 inches in height to a distance of 25 feet from the centerline of the road. Vertical clearance of a minimum 15 feet is required as to provide an unobstructed access for fire apparatus. (CFC, Section 503.2.1 and CVC Section 22500.1)

At the time of application for a Building Permit, a more in-depth plan review of the proposed project's compliance with all current fire and life safety codes will be conducted by the Madera County Fire Marshal. (CFC, Section 105.2)

EXHIBIT K

RESOURCE MANAGEMENT AGENCY
Road Department

Johannes J. Hoevertsz, Road Commissioner

2037 W. Cleveland Avenue
Mail Stop 'D'
Madera, CA 93637-8720
(559) 675-7811
FAX (559) 675-7631
jhoevertsz2@madera-county.com

MEMORANDUM

TO: Scott Harmstead – Planning Department

FROM: Gary Neece – Road Department

DATE: July 11, 2012

SUBJECT: **CONDITIONAL USE PERMIT NO. 2012-010**
8 MINUTE ENERGY / 41MB 8ME, LLC
*****LOTUS SOLAR FACILITY*****

Our department does not anticipate any significant impacts to the circulation or roadway from this proposal and recommends approval with the conditions listed below. The project site is located above the north side of the Avenue 13 and Road 32 intersection. The project is proposing to have access via Road 33, which is an offer of dedication heading north of Avenue 12. This roadway is not a publicly maintained road in the County system. The project proposes to construct a Photovoltaic Electricity Generating Facility having a proposed 90-megawatt alternating current. The parcel *(APN 034-210-038)* being approximately 633.64 acres in total size will be using about 459 acres of the land.

****

Information regarding the surrounding public roadways...

AVENUE 12:
This is a County Maintained System Roadway.

AVENUE 13 (Pecan Ave):
This roadway from the project site (Road 32) and heading westerly to the Madera City Limits is within the Maintained Mileage System. The City of Madera has Pecan Avenue designated as a major Arterial roadway leading to this location, being just outside of the City Sphere of Influence. An agreement between BN&SF and the County in 2003 tentatively closed the railroad crossing on this public roadway. This crossing is to be possibly re-establishment at some future date according to the agreement. This public road right-of-way still exists completely through to Road 32, but for the most part is unimproved east of the railroad tracks.

ROAD 32:
This road is also within the County Maintained System, being designated as a Local roadway according to the General Plan. It has mainly become an unimproved roadway over the years without receiving any maintenance. This road does have the required 60 foot right-of-way width according to County Standards.

ROAD 33:

This is an offer-of-dedication only north of Avenue 12 and not a County System Road. The east side of the right-of-way has a 40 foot width within Section 31, 11/19. There are no dedicated rights (prescriptive only) for the west side of the road right-of-way within Section 36, 11/18. This roadway is the proposed access to the project site.

All proposed driveway approaches shall be a constructed to a commercial County Standard. All construction in the public road right-of-way will require the applicant to apply for and obtain an Encroachment Permit through the Road Department. The applicant will be responsible for any damage incurred to the public roadways from the construction of this project.

THE ROAD DEPARTMENT RECOMMENDS THE FOLLOWING CONDITIONS OF APPROVAL:

1. All proposed driveways approaches shall be improved to a Commercial County Standard.

2. Prior to any construction within the right of way, the applicant is required to apply for and obtain an Encroachment Permit from the Road Department. Once this permit is secured, the applicant may commence with construction.

3. The applicant shall be responsible for any off-site improvements that may be necessary during the construction of this project. The Project Engineer shall evaluate the existing roadway before construction of the project and submit to the department rehabilitation recommendations to be reviewed and approved by the Road Department. The department reserves the right to enforce / authorize reasonable repairs during construction of the project. The Road Department shall review and approve any proposed construction within the public road right-of-ways.

EXHIBIT L

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

July 9, 2012

Scott Harmstead
Madera County
Planning Department
2037 W. Cleveland Ave.
Madera, CA 93637

Project: CUP #2012-010 for 41MB 8ME, LLC

District CEQA Reference No: 20120356 – Revised Comments

Dear Mr. Harmstead:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Project Review Request for the project referenced above. The project includes the construction and operation of a 90 MW photovoltaic solar farm to be located on 459 acres in an unincorporated area of Madera County (APN 034-210-038). The District offers the following comments:

Emissions Analysis

1) Based on the information provided in Appendix F, project related criteria pollutant emissions are not expected to exceed the District's thresholds of significance. Therefore, the project is expected to have a less than significant impact on air quality.

2) Based on the information provided in the Operational Checklist, the project is expected to have a less than significant health risk impact.

District Rules and Regulations

3) Based on information provided, the proposed project meets the applicability threshold within District Rule 9510 (Indirect Source Review) of 9,000 square feet of other land uses. Therefore, per Section 2.1 of the rule the District concludes that the proposed project is subject to District Rule 9510. Any applicant subject to District Rule 9510 is required to submit an Air Impact Assessment (AIA) application

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

to the District no later than applying for final discretionary approval. The applicant has submitted an AIA application (ISR Project C-20120103) which is currently under review. In addition to submitting an AIA application prior to final discretionary approval, District Rule 9510 requires applicants subject to pay any applicable off-site mitigation fees before issuance of the first building permit. As such, 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.

4) The proposed project may be subject to District rules and regulations including, but not limited to: 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). Some design elements of the proposed project (e.g. backup generator) may also require District permits. The applicant is strongly encouraged to contact the District prior to the start of construction to identify other District regulations that apply to this project and determine if an Authority to Construct (ATC) is required. District's Small Business Assistance (SBA) staff can be reached by phone at (559) 230-5888. A complete list of current District rules can be found online on the District's website at: www.valleyair.org/rules/1ruleslist.htm.

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

District staff is available to meet with you and/or the applicant to further discuss the regulatory requirements that are associated with this project. If you have any questions or require further information, please call Jessica Willis at (559) 230-5818.

Sincerely,

David Warner
Director of Permit Services

Jessica R. Willis for

Arnaud Marjollet
Permit Services Manager

DW:jw

cc: File

DEPARTMENT OF FISH AND GAME
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
http://www.dfg.ca.gov

CHARLTON H. BONHAM, Director

EXHIBIT M

July 23, 2012

Scott Harmstead
Madera County Resource Management Agency
Planning Department
2037 West Cleveland Avenue
Mail Stop G
Madera, California 93637

Subject: Conditional Use Permit #2012-010
Lotus Solar

Dear Mr. Harmstead:

The Department of Fish and Game (Department) has reviewed the Project Review Request for the Conditional Use Permit (CUP) for the Lotus Solar Project (Project). Approval of the Project would allow the construction and operation of a 90-megawatt (MW) solar photovoltaic (PV) facility on a 458.91-acre portion of a 633.64-acre parcel. The Project will consist of the installation of solar panels, inverters, pad-mounted transformers, and approximately 1.5 to 3.0 miles (depending on alternative) of overhead off-site generation-tie power lines to connect to the existing Borden Substation. The proposed Project also includes construction of an operation and maintenance building, an associated asphalted parking area, an on-site substation, a smaller off-site substation (three proposed alternative locations), a water treatment facility and water tanks, and perimeter fencing. The Project site is located northwest of Avenue 13 and Road 33, just east of the City of Madera in an unincorporated area of Madera County, California.

According to the Operational/Environmental Statement Checklist, the Project site has been grazed by sheep and is fallow agricultural land. Sheep grazing does not preclude use of the Project site by special-status wildlife species and depending on the length of time the portion of the site that was actively cultivated has been fallow, that portion of the Project site may have had sufficient opportunity to reestablish to more natural conditions that may also support special-status wildlife species. Additionally, Little Dry Creek and other streams flow through the Project site. These water features could also support special-status wildlife species.

The Exhibits provided with the Project Review Request do not match the Project site figures in the supplemental information provided by the Project applicant. The former indicate that the area around Little Dry Creek is not a part of the Project site even though the cover letter for the Project Review Request states that the Project site is 633.64 acres, which includes the area around Little Dry Creek. The Department recommends clarifying the Project size and location for use in the California Environmental Quality Act (CEQA) document to be prepared for this Project.

A Biological Analysis report dated June 2012 was prepared by Quad Knopf. This report identified an on-site wetland swale, irrigation ditches, an irrigation pond, and non-native grassland that could provide aquatic and upland habitat for special-status species. Additionally, the report identified several special-status wildlife species that could be impacted by Project implementation. These species included the State threatened and federal endangered San Joaquin kit fox (*Vulpes macrotis mutica*) (SJKF), the State Species of Special Concern burrowing owl (*Athene cunicularia*) and American badger (*Taxidea taxus*), and other nesting bird species.

The report provided recommendations to reduce Project-related impacts to these species to less than significant levels. The Department concurs with these and recommends that the County include the recommendations provided on pages 27-32 of the June 2012 Biological Analysis report as required mitigation measures in the Project's CEQA document. The Department recommends changing the survey protocols to reflect the most up to date guidance (i.e., burrowing owl 2012).

The Department does not concur with the mitigation measure that allows for the relocation of pipes that contain SJKF. The Department considers this a form of "take" which would warrant coverage under a State Incidental Take Permit (ITP), pursuant to Fish and Game Code section 2080, before this activity could occur. Instead, the Department recommends implementing the January 2011 "U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance," which can be found at http://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/kitfox_standard_rec_2011.pdf. These standard measures include a measure to preclude kit foxes from entering pipes to avoid the potential for take when pipes need to be moved and requires consultation with the United States Fish and Wildlife Service (USFWS) prior to moving a pipe with a SJKF in it.

The wetland (WET) mitigation measures provided in the Biological Analysis report did not include a no-disturbance setback from wetland features. The Department recommends that the on-site wetland features (including the center portion of the swale system that was not identified as a wetland feature) and the offsite wetland ditch each be protected with 250-foot no-disturbance setbacks. The on-site irrigation ditches and pond should be protected with a 75-foot or greater (depending on the biological resources being protected and in consultation with the Department) setback. Setbacks should be clearly delineated on the ground using flagging, stakes, or other highly visible material and be maintained during construction activities. These setbacks will help protect water quality from erosion and sedimentation or accidental spills, leaks, or other releases of oils, lubricants, etc. that will be used or stored on the Project site and protect aquatic habitat used by wildlife species. The Department recommends these setback conditions be included as an additional mitigation measure within the Project's CEQA document

The Biological Analysis report did not provide enough information to determine whether the Project would impact the following species: the State and federal threatened California tiger salamander (*Ambystoma californiense*) (CTS), the State threatened Swainson's hawk (*Buteo*

swainsoni), and the State Species of Special Concern western pond turtle (*Emys marmorata*). The Department has the following recommendations for species specific, enforceable mitigation measures for use in the Project's CEQA document.

Swainson's Hawk

Prior to starting Project activities, have a qualified biologist implement the "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" (Swainson's Hawk Technical Advisory Committee, 2000) to determine if any active Swainson's hawk nests could be impacted by Project activities. The survey methodology can be found at http://www.dfg.ca.gov/wildlife/nongame/docs/swain_proto.pdf.

If active Swainson's hawk nests are found, prohibit Project-related activities within 0.5 mile of active Swainson's hawk nests.

Because Swainson's hawk nests are known within 10 miles of the Project site, suitable foraging habitat appears to exist on the Project site, and Swainson's hawk potentially use the Project site for foraging, require habitat mitigation as recommended in DFG's "Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California" (1994 Staff Report), found at http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html.

CTS

Prior to starting Project-related activities, have a qualified biologist conduct surveys according to the "Interim guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Fining of the California Tiger Salamander" (USFWS, 2003) to determine if appropriate upland or aquatic habitat exists on-site (including generation-tie line routes and substation locations) to support CTS and the extent to which Project activities may impact CTS. The survey protocol can be found at http://www.dfg.ca.gov/wildlife/nongame/docs/CTSFinalGuide10-03.pdf.

If appropriate CTS aquatic or upland habitat is identified on the Project site or within 1.3 miles of the Project site, protect the potential breeding site and the surrounding upland habitat for 1.3 miles from the potential breeding site with a no-disturbance buffer during construction, operation and maintenance, and decommissioning activities. If this is not feasible, an ITP may be warranted, and the Project proponent should consult with the Department and the USFWS to make this determination.

Western Pond Turtle

Prior to start of Project-related activities, protect potential western pond turtle aquatic sites with a no-disturbance buffer of at least 250 feet as measured from the top of the banks of each feature. This will allow for turtles to use that portion of the surrounding upland habitat for egg laying purposes without being impacted by Project-related activities.

General Recommendations

The Department may have jurisdiction over on-site wetland swale features or irrigation ponds and ditches. The Department recommends that if any on-site water features will be impacted by Project-related activities, that these activities, impacts, and minimization and mitigation measures be described in a Lake and Streambed Alteration Agreement (LSAA) Notification package submitted to the Department before starting such activities. The Department will then make the determination on whether or not an LSAA will be warranted.

The Department recommends maintaining habitat permeability for SJKF and other wildlife by installing only permeable perimeter fencing. Constructing perimeter fences that would allow for SJKF passage would enable potential wildlife movement through the area and reduce potential impacts to wildlife from fragmentation of their habitat. Several solar projects within SJKF range are constructing perimeter fences with the bottom strand at a height that allows free movement of SJKF (6 to 7 inches) and knuckled along the bottom; this is a measure capable of successful implementation. Another security fence design being implemented on some solar projects is standard deer fencing, installed upside-down so that the larger mesh openings are at ground level.

Vertical tubes such as solar mounts and chain link fencing poles can entrap and kill birds. All hollow solar mount poles and fence poles should be capped at the time they are installed to prevent avian fatalities.

The Department encourages maintaining some vegetation for cover and forage for species traversing or otherwise using the Project site. The Department strongly discourages the use of rodenticides and other pesticides because they have the potential to directly and indirectly impact State listed species such as the San Joaquin kit fox and Swainson's hawk, which may result in take of the species and would warrant issuance of an ITP. Please note that many solar projects are proposed, some of which are in construction and are several thousand acres in size, which will not engage in any form of rodent control. As a result, it does not appear that elimination of rodents is necessary for operation of utility-scale solar projects. If rodent pests are an issue, the Department encourages the use of live traps for pest rodent control. The traps should be sized such that inadvertent trapping of a San Joaquin kit fox would not occur.

The Department recommends that the Project proponent consult with the USFWS, which administers the federal Endangered Species Act (ESA), well in advance of Project implementation regarding potential impacts to SJKF, CTS, or other federal-listed species.

The following is a discussion of the Department's potential jurisdiction for this Project.

Department Jurisdiction

Trustee Agency Authority: The Department is a Trustee Agency with responsibility under CEQA for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, the Department has jurisdiction over the conservation,

protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing, as available, biological expertise to review and comment on environmental documents and impacts arising from project activities as those terms are used under CEQA.

Responsible Agency Authority:

ITP: The Department has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened or endangered pursuant to Fish and Game Code Section 2081. If the Project could result in the "take" of any species listed as threatened or endangered under the California Endangered Species Act (CESA), the Department may need to issue an ITP for the Project. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (Sections 21001{c}, 21083, Guidelines Sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports a Statement of Overriding Consideration (SOC). The CEQA Lead Agency's SOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code Section 2081.

LSAA: The Department also has regulatory authority over activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource. For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, the Department may require an LSAA, pursuant to Section 1600 *et seq.* of the Fish and Game Code.

The Department's issuance of an ITP and/or an LSAA is also considered a "project" subject to CEQA (CEQA Guidelines Section 15378). The Department typically relies on the Lead Agency's CEQA compliance to make findings pursuant to CEQA Guidelines Section 15091. For the Lead Agency's CEQA document to suffice for CESA ITP or LSAA issuance, it must fully describe the potential Project-related impacts to State-listed species or stream resources, analyze potential impacts of the entire Project including private and public land components, and commit to measures to avoid or minimize, and fully mitigate impacts to these resources. This means that the Project must not diminish the overall populations and ranges of State-listed species. The Department may not be able to issue an ITP or LSAA by relying on an Environmental Impact Report (EIR) containing a Statement of Overriding Considerations when impacts to a State-listed species or stream resources are not mitigated to less than significant levels.

If the CEQA document completed for this Project does not include mitigation measures to reduce impacts to State-listed species or stream resources to less than significant levels, or if it does not describe and analyze all components of the Project (including those on private land), the Department, as a result, may need to act as a CEQA Lead Agency and complete a subsequent CEQA document to support issuance of an ITP or LSAA. This could significantly delay ITP or LSAA issuance and, consequently, Project implementation.

Fish and Game Code Authority:

Bird Protections: The Department has jurisdiction over actions which may result in the disturbance or destruction of active nest sites or the unauthorized "take" of birds. Fish and Game Code sections that protect birds, their eggs, and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

Stream Protection: Pursuant to Fish and Game Code Section 5650, it is unlawful to deposit in, permit to pass into, or place where it can pass into a "Waters of the State" any substance or material deleterious to fish, plant life, or bird life. Additionally, Fish and Game Code Section 5652 prohibits the deposition of any cans, bottles, garbage, motor vehicle or parts thereof or rubbish within 150 feet of the high water mark of a "Waters of the State" (or where they can pass into any "Waters of the State").

Thank you for the opportunity to provide input on the Project Review Request for this renewable energy project and for allowing us to submit comments after the comment deadline date. If you have any questions regarding these comments, please contact Lisa Gymer, Staff Environmental Scientist, at the address on this letterhead, by telephone at (559) 243-4014, extension 238, or by electronic mail at lgymer@dfg.ca.gov.

Sincerely,

Jeffrey R. Single, Ph.D.
Regional Manager

cc: Thomas Leeman
United States Fish and Wildlife Service
Sacramento Office
2800 Cottage Way, Rm W-2605
Sacramento, California 95825

41MB 8ME, LLC
10100 Santa Monica Boulevard, Suite 300
Los Angeles, California 90067

ec: Department of Fish and Game
William Condon, Climate Science and Renewable Energy Branch
Stuart Itoga, Climate Science and Renewable Energy Branch
Julie Vance, Central Region
Craig Bailey, Central Region
Lisa Gymer, Central Region
Dave Hacker, Central Region

Literature Cited:

California Department of Fish and Game. 2012. Staff Report on burrowing owl mitigation. Natural Resources Agency; March 7, 2012.

California Department of Fish and Game. 1994. Staff Report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California. November 1, 1994.

Swainson's Hawk Technical Advisory Committee. 2000. Recommended timing and methodology for Swainson's hawk nesting surveys in California's Central Valley. May 31, 2000.

United States Fish and Wildlife Service. 2011. U.S. Fish and Wildlife Service standardized recommendations for protection of the endangered San Joaquin kit fox prior to or during ground disturbance. Sacramento Fish and Wildlife Office; January 2011.

United States Fish and Wildlife Service. 2003. Interim guidance on site assessment and field surveys for determining presence or a negative finding of the California tiger salamander. Sacramento Fish and Wildlife Office, Sacramento, California; October 2003.

EXHIBIT N

From: Simmons, Zachary M SPK
To: Scott Harmstead
Subject: Lotus Solar Power CUP #2012-010, 41 MB 8ME, LLC - Conditional Use Permit - Madera
Date: Tuesday, June 26, 2012 11:34:11 AM

Hello Mr. Harmstead,

Please accept this email as the US Army Corps of Engineers response to your June 12, 2012 request for comments.

We received a delineation of wetlands and waters of the United States for the project site on June 6, 2012. We are currently working with the applicant and their consultant to verify the delineation. At this time we do not know if the waters on the site fall under our jurisdiction and may require a department of the army permit.

Thank you for contacting this office and please keep me informed of any future actions on the site.

Zachary M. Simmons
Biologist / Senior Regulatory Project Manager

U.S. Army Corps of Engineers, Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, CA. 95814
916-557-5274 / FAX 916-557-7803
Zachary.M.Simmons@usace.army.mil

**Please let us know about your experience by filling out our Customer Survey:
http://per2.nwp.usace.army.mil/survey.html

For more information regarding our program, please visit our website at:
http://www.spk.usace.army.mil/Missions/Regulatory.aspx

Environmental Checklist Form

Title of Proposal: Solar Facility, 41MB 8ME, LLC (CUP #2012-010)

Date Checklist Submitted: 8/13/12

Agency Requiring Checklist: Madera County

Agency Contact: Scott Harmstead, Senior Planner **Phone:** (559) 675-7821

Description of Project:

41MB 8ME, LLC is proposing to install a solar energy facility that would allow up to 90 MW (Megawatts) of power generation. The proposed site is located on approximately 459 acres northwest of the intersection of Road 33 and Avenue 13, (no situs) in Madera. Approximately 175 acres of the subject parcel is not intended for project development, but will be left to its exiting use, including a shop building, almond orchard, and fallow ground. The facility proposed consists of free standing ground mounted photovoltaic panels as high as twenty feet from ground level. An operations and maintenance building is proposed onsite, including an office, restroom, storage, control room, and a septic tank and leach field. A parking lot will serve the building, with access from Road 33. The property would be surrounded with a chain link fence for protection, which will also be armed with an alarm or intrusion detection system. Motion-sensor lighting will also be utilized for security purposes. Up to five full-time employees will operate the solar facility.

Also included in the project and the environmental analysis are five alternative transmission/substation tie-in lines, connecting to the Borden substation located south of the project site along Avenue 12. Three potential alternative substation locations are proposed for the transmission tie-in, including two sites abutting the Borden substation and one site across Avenue 12, north of the Borden substation. The three alternative substations are not included in this environmental analysis and are not included in the solar facility's project approval.

The Initial Study is a public document used by the decision-making lead agency to determine whether a project may have significant effects on the environment. In the case of the proposed project, the Madera County Planning Department, acting as lead agency, will use the initial study to determine whether the project has a significant effect on the environment. In accordance with CEQA, Guidelines (Section 15063[a]), an environmental impact report (EIR) must be prepared if there is substantial evidence (such as results of the Initial Study) that a project may have significant effect on the environment. This is true regardless of whether the overall effect of the project would be adverse or beneficial. A negative declaration (ND) or mitigated negative declaration (MND) may be prepared if the lead agency determines that the project would have no potentially significant impacts or that revisions to the project, or measures agreed to by the applicant, mitigate the potentially significant impacts to a less-than-significant level.

The initial study considers and evaluates all aspects of the project which are necessary to support the proposal. The complete project description includes the site plan, operational statement, and other supporting materials which are available in the project file at the office of the Madera County Planning Department.

Project Location:

The project site is located northwest of the intersection of Road 33 and Avenue 13, (no situs) in Madera.

Applicant Name and Address:

41MB 8ME, LLC
10100 Santa Monica Blvd. Suite #300
Los Angeles CA 90067

General Plan Designation:

AE (Agricultural Exclusive)

Zoning Designation:

ARE-40 (Agricultural Rural Exclusive – 40 Acre Minimum) & POS (Public Open Space)

Surrounding Land Uses and Setting:

The site now consists of fallow non-native annual grassland that is grazed by sheep. Parcels abutting the project site to the north, south, and east are utilized for pistachio orchards. The parcel abutting the site to the east is utilized for grazing.

Other Public Agencies whose approval is required:

None

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

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.

Signature _____ Date 8/13/12

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

Discussion:

a) *Less than Significant Impact:* Road 33 abuts the project site on the east and Avenue 13 abuts the southern boundary of the site; both roads would allow public view of the solar panels. Avenue 13, however, is not improved and not maintained (currently a dirt road). No residential structures are situated along Road 33 or Avenue 13 adjacent to the site that would have direct views of the solar panels. The maximum height of the solar panels is twenty feet. In comparison, a mature orchard allowed on the agricultural property could have trees up to twenty feet in height. Both Avenue 13 and Road 33 dead-end near the site and do not serve as through routes. Motorists using Road 33 and Avenue 13 primarily involve agricultural workers and would potentially include future solar facility employees. Due to the small amount of vehicles using abutting roads, the impact to views from public right of way will be minimal. Since there are no designated scenic highways that overlook the proposed site, no adverse effect on a scenic vista would result.

b) *No Impact:* The proposed project would not remove any scenic resources such as buildings, trees, or rock outcroppings. In addition, according the California Scenic Highway Mapping System, there are no designated State or County Scenic Highways located in the vicinity of the project site.

c) *Less than Significant Impact with Mitigation:* Solar panels will extend across 459 acres and replace the existing annual fallow ground/non-native grassland. The existing visual character of the project area and vicinity is characterized by grassland and pistachio orchards. The project will have more of an industrial appearance compared with the project vicinity. The solar panels and associated appurtenances will have a metallic appearance in contrast to adjacent grassland/fallow ground and agricultural cropland. In order to ensure that the project area reflects the existing open space/agricultural visual character over the long term, the project area will have to be reclaimed to its present condition after the life of the project.

1. Upon cessation of the project, the land upon which the project is located shall be reclaimed to its previous condition. The project owner shall agree to a Reclamation Plan including conditions for site reclamation and financial assurances to ensure reclamation is performed.

d) *Less than Significant Impact with Mitigation:* The operational statement indicates that motion sensor site lighting will be used for security purposes. The installation of lighting throughout the entire site may constitute a significant impact, since no lighting exists on the site currently. However, the impact of the lighting may be mitigated with the use of motion detection systems that only operate the lights when movement is detected. The motion detection system must exclude auto traffic along Road 33 and Avenue 13 (Avenue 13 may be improved in the future). To reduce glare into abutting right of way and properties and to minimize general light pollution, County Code 18.102.120.J requires that all lighting be hooded and shielded from adjacent rights of way and properties. The solar panels are designed to absorb light; they do not reflect light that could result in glare. Since construction would occur during daytime hours, use of lighting during construction is not anticipated.

2. All outdoor lighting utilized for the project must utilize motion detection systems that only operate the lights when movement is detected. The motion detection system must exclude auto traffic along Road 33 and Avenue 13.

III. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☑	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☑	☐	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resource Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526) or timberland zoned Timberland Protection (as defined by Government Code section 51104(g))?	☐	☐	☐	☑
d) Result in the loss of forest land or conversion of forest land to non-forest land?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Discussion:

The project vicinity is situated on the east side of the San Joaquin Valley in an area that has been recently developed for agricultural use over the past several decades. The project site has been utilized for grazing since 2004 and is currently designated by the California Department of Conservation as grazing land. The site is not enrolled within the Williamson Act program. The project vicinity is designated grazing land to the east. Prime farmland, unique farmland, and farmland statewide importance designations exist to the north, south, and east where agricultural cropland currently exists. The Department of Conservation (DOC) has not submitted comment on the proposed project.

a) *Less than Significant Impact with Mitigation:* The project would not directly impact prime farmland, unique farmland, farmland of statewide importance, or farmland of local importance. However, analysis of agricultural use of properties to the north, south, and east of the project site reveals the potential for the project site to have a significant productive capability for pistachio orchards or other similar crops. The abutting properties to the north, south, and east do contain prime farmland, unique farmland, and farmland of statewide importance designations. Therefore, the potential for the project site to be utilized for agricultural use is significant, given the nature of adjacent properties.

The project description indicates that the "panels will be disassembled from the steel mounting frames and the site restored to pre-development condition". To ensure the project does not permanently disallow the potential future use of the site for more intensive agricultural use, such as row crops or orchards, the panel structure foundations must be conditioned for minimal impact to the soil and easy removal from the site. All

project-related structures and equipment must be removed from the site after the life of the project.

1. The solar panel footings must be designed for temporary use to allow for removal at the cease of project operations and easily allow the conversion of the site to permanent farming use. Conversion to a permanent facility beyond the life of the project will require an amendment to the Conditional Use Permit.

2. Upon cessation of the project, the land upon which the project is located shall be reclaimed to its previous condition. The project owner shall agree to a Reclamation Plan including conditions for site reclamation and financial assurances to ensure reclamation is performed.

No conflict is expected with typical agricultural production operations in the project vicinity or activity onsite. The only issue that could be of concern is the deposition of dust on the panels, which could decrease their power output by obscuring the panels. If this should be an issue, it can easily be resolved by periodically washing the panels with water, a maintenance practice that is included in the project description.

b) *Less than Significant Impact with Mitigation:* The project site is zoned ARE-40 (Agricultural Rural Exclusive – 40 acre minimum), which allows for agricultural use. Solar facilities are allowed with a conditional use permit, per amendments made April 28, 2010 to the Zoning Ordinance. The project site is not enrolled in the Williamson Act program.

The project vicinity is zoned for agricultural use and designated for agricultural use in the Madera County General Plan. The permanent use of the project site as a solar facility has the potential to encourage surrounding agriculturally-designated properties to convert to solar energy facility use. In order to maintain the agricultural character of the project site and the vicinity over the long-term, the site will be required to revert back to its previous condition after the life of the project.

c) *No Impact.* The subject properties are zoned for agricultural use, and are not designated as forested land. Nearby properties are also zoned for agricultural use and do not include forested land.

d) *No Impact:* No forested land is present on the project site or within the vicinity of the project.

e) *No Impact:* All foreseeable changes to the subject and surrounding farmland are discussed in part a) and b) above.

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☑	☐
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)?	☐	☐	☑	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☑	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐

Discussion:

a-c) *Less than Significant Impact:* The proposed project site is located within the San Joaquin Valley Air Basin. The San Joaquin Valley Air Pollution Control District (SJVAPCD) is required, pursuant to the federal Clean Air Act, to reduce emissions of criteria pollutants for which the basin is on nonattainment (i.e., Particulate Matter 10 and Particulate Matter 2.5). As such, the proposed project would be subject to the SJVAPCD's rules and regulations.

The proposed project would involve construction of a 90 MW (maximum) solar facility (i.e. photovoltaic power). The physical changes to the environment proposed by the project would involve site grading and installation of solar panel arrays. The proposed project would require a minimal amount of maintenance, thereby resulting in a minimal increase in employment in the region (five permanent employees).

An Air Impact Assessment was conducted for the project and is provided in the appendices of this environmental document (Appendix A). The proposal was evaluated for both construction-related air quality impacts and operational impacts. Project construction (two year period) will contribute 16.769 tons of NOx and 0.733 tones of PM10. Operational emissions will be generated from employees traveling to and from the site and a water truck servicing the site to provide water necessary for cleaning the panels. Annual NOx emissions will result in 0.455 tons and PM10 exhaust will be 0.015 tons.

Project related emissions are not expected to exceed the thresholds of significance as established by the SJVAPCD (10 tons per year for ROG and NOx, 15 tons per year for PM10). However, the proposed project may be subject to SJAPCD rules and regulations including, but not limited to: 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).

Regional and Localized Impacts

Because the solar facility would require very little maintenance once the system is installed, emissions generated by operation of the facility would be minimal, as shown through the Air Impact Assessment. The project would likely have an overall beneficial air quality impact due to a reduction in demand for electricity generated by more polluting methods.

Cumulative Impacts

The only potential cumulatively considerable impact would result from emissions generated during site

preparation/grading. The project's operational emissions are well below the established threshold for the pollutants discussed. Operational emissions would be similar or higher for adjacent agricultural operations utilizing dirt access roads, farm vehicles, and occasional farm labor. Construction impacts would be temporary and would not contribute as an ongoing cumulative impact.

d) *Less than Significant Impact with Mitigation:* As discussed in responses a-c), construction, operation, and maintenance of the proposed project would not result in any substantial localized or regional air pollution impacts and, therefore, would not expose any nearby sensitive receptors to substantial pollutant concentrations. The implementation of dry crop farmland on open ground will help to mitigate windblown dust impacts not analyzed in the Air Impact Assessment.

1. A dry agriculture crop or soil stabilizer is to be utilized on the site's remaining open ground and shall be maintained to control dust.

e) *Less than Significant Impact:* The proposed project does not include any uses identified by the SJVAPCD as being associated with odors and, therefore, would not produce objectionable odors. A potential source that may emit odors during construction activities is asphalt paving. Through mandatory compliance with SJVAPCD rules, no construction activities or materials are proposed that would create a significant level of objectionable odor.

Global Climate Change

Climate change is a shift in the "average weather" that a given region experiences. This is measured by changes in temperature, wind patterns, precipitation, and storms. Global climate is the change in the climate of the earth as a whole. It can occur naturally, as in the case of an ice age, or occur as a result of anthropogenic activities. The extent to which anthropogenic activities influence climate change has been the subject of extensive scientific inquiry in the past several decades. The Intergovernmental Panel on Climate Change (IPCC), recognized as the leading research body on the subject, issued its Fourth Assessment Report in February 2007, which asserted that there is "very high confidence" (by IPCC definition a 9 in 10 chance of being correct) that human activities have resulted in a net warming of the planet since 1750.

CEQA requires an agency to engage in forecasting "to the extent that an activity could reasonably be expected under the circumstances. An agency cannot be expected to predict the future course of governmental regulation or exactly what information scientific advances may ultimately reveal" (CEQA Guidelines Section 15144, Office of Planning and Research commentary, citing the California Supreme Court decision in Laurel Heights Improvement Association v. Regents of the University of California [1988] 47 Cal. 3d 376).

Recent concerns over global warming have created a greater interest in greenhouse gases (GHG) and their contribution to global climate change (GCC). However at this time there are no generally accepted thresholds of significance for determining the impact of GHG emissions from an individual project on GCC. Thus, permitting agencies are in the position of developing policy and guidance to ascertain and mitigate to the extent feasible the effects of GHG, for CEQA purposes, without the normal degree of accepted guidance by case law.

Greenhouse Gas (GHG) Emissions

The potential effect of greenhouse gas emission on global climate change is an emerging issue that warrants discussion under CEQA. Unlike the pollutants discussed previously that may have regional and local effects, greenhouse gases have the potential to cause global changes in the environment. In addition, greenhouse gas emissions do not directly produce a localized impact, but may cause an indirect impact if the local climate is adversely changed by its cumulative contribution to a change in global climate. Individual development projects contribute relatively small amounts of greenhouse gases that when added to other greenhouse gas producing activities around the world would result in an increase in these emissions that have led many to conclude is changing the global climate. However, no threshold has been established for what would constitute a cumulatively considerable increase in greenhouse gases for individual development projects. The State of California has taken several actions that help to address potential global climate change impacts.

California Assembly Bill (AB) 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18 percent by 2020 and by 27 percent in 2030 (CARB 2004a).

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S3-05, the following GHG emission targets: by 2010 reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions by 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels.

IV. BIOLOGICAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☑
c) Have a substantial adverse effect on 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?	☐	☑	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

A Biological Resources Technical Report (Report) was provided for the project and is provided in the appendices of this environmental document (Appendix B). The executive summary of the technical report provides the following analysis:

> *The project site is located on lands currently zoned as Public Open Space/Agricultural Exclusive (POS/AE). The site now consists of fallow non-native annual grassland that is grazed by sheep, but it was historically agriculturally developed. Abandoned irrigation appurtenances including well stands, tanks, and culverts are found throughout the site. Agricultural land uses dominate the habitat surrounding the project site. One swale, three ditches, and one ponding basin are located throughout the project site. One swale and one ditch were the only features that met U.S. Army Corps of Engineers (USACE) wetland criteria. Federal jurisdiction of these features will be determined through consultation with USACE. Additionally, two wetlands and one swale are located near two of the potential substation alternatives but those can be avoided by the project.*
>
> *No sensitive vegetation communities are present on the project site. The project site is not expected to support special status plant species. With the exception of northern harriers and horned larks, no special status wildlife species have been observed on the project site. However, other special status wildlife species have the potential to occur on or adjacent to the project site, but these would generally be restricted to transient or foraging animals. There is one record of the vernal pool fairy shrimp occurring along one of the gen-tie alternatives but there is no habitat on the solar site that is suitable to*

support fairy shrimp of any species.

There are no apparent issues that would preclude the construction of a solar facility on the project site. However, there are biological conditions present on and adjacent to the project site, gen-tie alternatives, and substation alternatives that will require collaboration with regulatory agencies, possible constraints on project construction, and the implementation of mitigation measures for avoidance and minimization of biological impacts.

The Department of Fish and Game (DFG) provided comment on the proposal and the Report. In their comment letter, the DFG concurs with the findings of the Report that features do exist onsite that may support special-status wildlife species. The DFG also concurred with the mitigation measures as recommended by the Report, with minor changes. However, the DFG does not concur with the mitigation measure provided in the report for the San Joaquin kit fox and provides recommended changes to the mitigation. The DFG also identifies the need for a no-disturbance setback for wetland features identified on the project site. The comment letter also highlights the need to further address a number of listed species, including Swainson's hawk, California Tiger Salamander, and the western pond turtle. General recommendations are also provided regarding DFG permitting requirements, project design, and project operation/maintenance.

Standard Conditions:

A. Any impacts to onsite water features may require a Lake and Streambed Alteration Agreement (LSAA) from the DFG. The LSAA is to include information pertaining to project-related activities, impacts, and minimization and mitigation measures.

Discussion:

a) *Less than Significant Impact with Mitigation:* As aforementioned, there is a potential for special-status wildlife species to onsite on the project site. Reconnaissance-level surveys were conducted onsite for listed plant species. The site was found to have a high level of disturbance (regular disking) and to be surrounded on three sides by orchards. Surveys did reveal the existence of listed plant species onsite or the possibility for listed plant species to exist onsite due to site conditions.

No listed wildlife species were discovered during surveys onsite. The Report does note the possibility for transient foragers to temporarily occupy the site—these species may include burring owls, migratory birds and raptors, San Joaquin kit fox, and the American badger. The DFG also highlights the potential for Swainson's hawk (migratory raptor), California tiger salamander, and western pond turtle to be present onsite.

The following mitigation measures are necessary to ensure a less than significant impact results:

1. Pre-construction surveys shall be performed on the project site in areas where there is a potential for nesting raptors and nesting migratory birds to occur if construction occurs during the breeding season (loosely defined as February 15 to August 15). These include all areas of the project site that contain or are within 500 feet of power poles or trees that are suitable for the establishment of nests. These areas should also include the nonnative annual grassland habitat, which provides potential breeding habitat for ground-nesting birds such northern harriers and horned larks. The pre-construction survey shall be performed within 14 days of construction to identify active nests and mark those nests for avoidance. During the nesting period, raptor nests shall be avoided by 500 feet and all other migratory bird nests should be avoided by 250 feet. The applicant shall cooperate with the California Department of Fish and Game (DFG) and United States Fish and Wildlife Service (USFWS) prior to conducting surveys to ensure survey protocols reflect the most up to date guidance.

2. Because there is the potential for San Joaquin kit foxes to occur on site, the most recent *USFWS Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* shall be followed in cooperation with the DFG and USFWS. Implementation of the measures will ensure the protection of San Joaquin kit foxes from direct mortality and from destruction of active dens and natal or pupping dens. The Lead Agency or Designee shall determine the applicability of the measures depending on specific construction activities and the applicant shall implement such measures when required. Survey and

potential mitigation information must be submitted to the Lead Agency, including all correspondence with the DFG and/or USFWS. Measures utilized to ensure San Joaquin kit fox protection will also protect American badgers.

3. Standard measures for the protection of burrowing owls shall comply with the DFG's most recent recommended survey protocols (2012). The applicant shall cooperate with the DFG and USFWS prior to conducting surveys. Survey and potential mitigation information must be submitted to the Lead Agency, including all correspondence with the DFG and/or USFWS.

4. Swainson's hawk, California tiger salamander, and western pond turtle

   Surveys must be conducted in cooperation with the DFG and USFWS. If necessary, appropriate mitigation for the species must be established in cooperation with the DFG and USFWS. Survey and potential mitigation information must be submitted to the Lead Agency, including all correspondence with the DFG and/or USFWS.

5. All perimeter fencing must be permeable for the passage of wildlife. Appropriate fencing must be designed in cooperation with the DFG.

b) *No Impact:* As stated within the Report, no riparian habitat is present onsite. The Report also finds that no sensitive vegetative communities are located on the project site.

c) *Less than Significant with Mitigation:* Swales and man-made ditches exist onsite that may meet United States Army Corps of Engineer (USACE) wetland criteria. The applicant has requested a jurisdictional determination from the USACE. All of the water features identified onsite are likely within the jurisdiction of the Regional Water Quality Control Board (RWQCB). The following mitigation measures will minimize and otherwise avoid impacts to water features onsite:

6. The project proponent shall cooperate with the United States Army Corps of Engineers (USACE) regarding a jurisdictional determination of the features that meet wetland criteria (Swale SW1 and Ditch 2), and if required proceed with Section 404 permitting.

7. The project design shall be modified to include no-disturbance setbacks from on-site wetland features. Setbacks widths shall determined in cooperation with the DFG.

d) *No Impact:* No evidence exists onsite that the project area contains wildlife nursery sites. Wildlife movement corridors generally span contiguous acres of undisturbed habitat. As detailed in the Report, the site does not serve as a wildlife movement corridor or contain wildlife nursery sites.

e) *No Impact:* No local policies or ordinances exist that require the protection of biological resources as identified in the project area. Therefore, *no impact* will result from the project.

f) *No Impact:* No local, regional, or state conservation plan exists that governs the protection of biological resources in the project area. Therefore, *no impact* will result from the project.

General Information

Effective January 1, 2007, Senate Bill 1535 took effect that has changed de minimis findings procedures. The Senate Bill takes the de minimis findings capabilities out of the Lead Agency hands and puts the process into the hands of the Department of Fish and Game. The same Senate Bill also increases the associated fees for the Fish and Game; the current fees associated with a Mitigated Negative Declaration are $2101.50, and the County Clerk filing fee is $50.

In short, the applicant must either contact the California Department of Fish and Game and get them to issue a de minimis finding and fee exemption waiver, submit that with the County $50 filing fee, **OR** submit a total of $2,151.50 (in addition to associated County Fees) to the County. New fees may be effective January 1, 2013.

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

Discussion:

Public Resource Code 5021.1(b) defines a historic resource as "any object building, structure, site, area or place which is historically significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." These resources are of such import, that it is codified in CEQA (PRC Section 21000) which prohibits actions that "disrupt, or adversely affect a prehistoric or historic archaeological site or a property of historical or cultural significance to a community or ethnic or social groups; or a paleontological site except as part of a scientific study."

Archaeological importance is generally, although not exclusively, a measure of the archaeological research value of a site which meets one or more of the following criteria:

- Is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory.
- Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions.
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind.
- Is at least 100 years old and possesses substantial stratigraphic integrity (i.e. it is essentially undisturbed and intact).
- Involves important research questions that historic research has shown can be answered only with archaeological methods.

A cultural resources survey (Survey) was provided for the project and is included in the appendices of this document (Appendix C). The Survey included a records search to identify previously recorded resources and prior studies in the project area, a Sacred Lands File search by the Native American Heritage Commission, consultation with local Native American groups and representatives, and a pedestrian archaeological survey encompassing the 459-acre project site as well as the five proposed transmission line alternatives.

a) *No Impact:* No historical resources were discovered onsite during the Survey that are consistent with CEQA guidelines section 15064.5. The closest potential resource identified was the Atchison, Topeka, and Santa Fe Railway, which is not considered eligible for either the California Historical Register or the Federal Register. Therefore, no impact will result.

b) *Less than Significant Impact with Mitigation:* Given the regular disking that has occurred onsite, the potential for discovery of cultural resources during the grading and construction of the proposed project is low. If cultural materials, whether historic or prehistoric, are encountered during construction, a qualified archaeologist would examine the materials and determine appropriate treatment, if any. The following mitigation measure applies, as provided by the Survey:

1. In the event that archaeological remains are encountered during project development or groundmoving activities within the project area, all work shall be halted until a qualified archaeologist can assess the discovery. Such finds include, but are not limited to, prehistoric grinding implements, stone tools, soapstone bowls, and ornaments (e.g., beads, pendants) as well as intact building foundations and high concentrations of historical artifacts.

c) *Less than Significant Impact:* While no paleontological resources have been identified in the project area, the possibility remains that digging or trenching may expose a resource. In the case a resource is discovered, existing County policy requires the notification of the Planning Department within 24 hours, after a resource has been discovered. Thereafter the appropriate studies or observance will be required.

d) *Less than Significant Impact with Mitigation:* As noted in part b), as with the potential for cultural resources, the potential for discovery of human remains during the grading and construction of the proposed project is low. The following mitigation measure applies:

2. If human remains are uncovered, or in any other case where human remains are discovered, the Madera County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will determine the manner in which the remains are treated.

VI. GEOLOGY AND SOILS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) 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.	☐	☐	☐	☑
ii) Strong seismic ground shaking?	☐	☐	☐	☑
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☑	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☑	☐

Discussion:

Madera County is divided into two major physiographic and geologic provinces: the Sierra Nevada Range and the Central Valley. The Sierra Nevada physiographic province in the northeastern portion of the county is underlain by metamorphic and igneous rock. It consists mainly of homogenous types of granitic rocks, with several islands of older metamorphic rock. The central and western parts of the county are part of the Central Valley province, underlain by marine and non-marine sedimentary rocks.

The foothill area of the county is essentially a transition zone, containing old alluvial soils that have been dissected by the west-flowing rivers and streams which carry runoff from the Sierra Nevada's.

Seismicity varies greatly between the two major geologic provinces represented in Madera County. The Central valley is an area of relatively low tectonic activity bordered by mountain ranges on either side. The Sierra Nevada's, partly within Madera County, are the result of movement of tectonic plates which resulted in the creation of the mountain range. The Coast Ranges on the west side of the Central Valley are also a result of these forces, and continued movement of the Pacific and North American tectonic plates continues to elevate the ranges. Most of the seismic hazards in Madera County result from movement along faults associated with the creation of these ranges.

There are no active or potentially active faults of major historic significance within Madera County. The County does not lie within any Alquist Priolo Special Studies Zone for surface faulting or fault creep.

However, there are two significant faults within the larger region that have been and will continue to be, the principle sources of potential seismic activity within Madera County.

San Andreas Fault: The San Andreas Fault lies approximately 45 miles west of the county line. The fault has a long history of activity and is thus a concern in determining activity in the area.

Owens Valley Fault Group: The Owens Valley Fault Group is a complex system containing both active and potentially active faults on the eastern base of the Sierra Nevada Range. This group is located approximately 80 miles east of the County line in Inyo County. This system has historically been the source of seismic activity within the County.

The *Draft Environmental Impact Report* for the state prison project near Fairmead identified faults within a 100 mile radius of the project site. Since Fairmead is centrally located along Highway 99 within the county, this information provides a good indicator of the potential seismic activity which might be felt within the County. Fifteen active faults (including the San Andreas and Owens Valley Fault Group) were identified in the *Preliminary Geotechnical Investigation*. Four of the faults lie along the eastern portion of the Sierra Nevada Range, approximately 75 miles to the northeast of Fairmead. These are the Parker Lake, Hartley Springs, Hilton Creek and Mono Valley Faults. The Remaining faults are in the western portion of the San Joaquin Valley, as well as within the Coast Range, approximately 47 miles west of Fairmead. Most of the remaining 11 faults are associated with the San Andreas, Calaveras, Hayward and Rinconada Fault Systems which collectively form the tectonic plate boundary of the Central Valley.

In addition, the Clovis Fault, although not having any historic evidence of activity, is considered to be active within quaternary time (within the past two million years), is considered potentially active. This fault line lies approximately six miles south of the Madera County line in Fresno County. Activity along this fault could potentially generate more seismic activity in Madera County than the San Andreas or Owens Valley fault systems. However, because of the lack of historic activity along the Clovis Fault, there is inadequate evidence for assessing maximum earthquake impacts.

Seismic ground shaking, however, is the primary seismic hazard in Madera County because of the County's seismic setting and its record of historical activity (General Plan Background Element and Program EIR). The project represents no specific threat or hazard from seismic ground shaking, and all new construction will comply with current local and state building codes. According to the Madera County General Plan Background Report, groundshaking is the primary seismic hazard in Madera County. The valley portion of Madera County is located on alluvium deposits, which tend to experience greater groundshaking intensities than areas located on hard rock. Therefore, structures located in the valley will tend to suffer greater damage from groundshaking than those located in the foothill and mountain areas.

A geologic and seismic hazards evaluation (Evaluation) was performed for the project (Appendix D). Soils onsite include Atwater Loamy Sand (Awa, AwB), Greenfield Sandy Loam (GrA), San Joaquin sandy loam (SaA), Whitney fine sandy loam (WfB), Whitney and Rocklin sandy loam (WrB) and Alamo clay (AsA). The Unified Soil Classification System indicates these soils consist primarily of silty sand and sandy silt with isolated areas of sandy clay. Local groundwater conditions evidenced in the area indicate that the depth to groundwater exceeds 100 feet below grade.

a) I) *No Impact:* No earthquake faults are known to exist in the project area or vicinity. The Alquist-Priolo Earthquake Fault Zoning Map does not identify any faults nearby that may pose a threat to the project area. See the Evaluation included in the Appendices.

II) *No Impact:* Active faults in the greater region (Sierra Nevada and Coast Ranges) have the potential to create ground shaking in the project area. All development proposed will be required to meet State building code, which will ensure protection from strong seismic ground shaking. The proposed project includes the construction of structures for solar power generation, but does not involve any substantive structures for human habitation.

III) *No Impact:* The Evaluation evaluated the soils onsite and determined that due to the time at which the soils were deposited onsite (Pliestocene) and the average depth to groundwater (over 100 feet), the potential for liquefaction does not exist.

IV) *No Impact:* The site for the proposed project is relatively flat and does not have the potential for landslides.

b) *Less than Significant Impact:* The Evaluation included a review of soil corrosiveness and found that soils onsite have low to moderate corrosivity. Compliance with County Grading Permit requirements will also ensure that erosion onsite is minimized to ensure a less than significant impact.

c) *No Impact:* See a) I-IV) above. Construction activities for the proposed project would not require a substantial amount of earth to be moved or any deep excavations; therefore, unstable soils resulting in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse are not anticipated.

d) *Less than Significant Impact:* The Evaluation found that clay soils may be present onsite. Design modifications may be necessary to accommodate the expansion characteristics of soils onsite. Compliance with existing Building Code requirements will ensure a less than significant impact.

e) *Less than Significant Impact:* The project is proposed to utilize one septic system to service one bathroom onsite for employees. Soils onsite may exhibit slow percolation for effective leaching. However, compliance with County Environmental Health requirements will ensure the septic absorption area meets all existing regulations.

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

Discussion:

a) *Less than Significant Impact.* Greenhouse gas emissions resulting from the proposal will result from construction activities involving the use of equipment for grading activities. However, impacts will be minor due to minor grading activities necessary in addition to the short duration of grading activities. Operation of the project will help to reduce overall dependence on other sources of power generation that produce greenhouse gases.

b) *No Impact.* At this time, no applicable plans, policies, or regulations are known to exist in force to reduce emissions of greenhouse gases.

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

Discussion:

The operational statement does not indicate that any hazardous chemicals will be stored or produced onsite as a result of the proposal. New development is not expected to create any significant hazards.

a) *No Impact:* Operation of the proposed solar power generation facility would not result in any increase in the routine use, storage, or transportation of hazardous materials. Some hazardous materials typically used during construction activities, such as gasoline for construction equipment, would only be used during construction of the proposed project. The proposal will be in compliance with existing state and federal rules regarding proper gasoline storage.

b) *No Impact:* See response for part a). No hazardous materials would be required during operation of the proposed project.

c) *No Impact:* Caesar Chavez Elementary School is located 2.3 miles to the west of the proposed project at 2600 East Pecan Avenue. No impact is expected.

d) *No Impact:* The proposed project would not provide for additional handling or storage of hazardous materials. No hazardous materials would be used during operation of the proposed project.

e) *No Impact:* The project is not located near any private or public airports. According to the Airport Land Use Plan, the project area is not impacted by an airport flight path. Therefore, the project will have no impact upon the County Airport Land Use Plan.

f) *No Impact:* No private airstrips are located within the project vicinity. Therefore, no conflict will occur with any private airstrip.

g) *No Impact:* Construction and operation of the proposed project would not impair implementation of, or physically interfere with, and adopted emergency response plan or emergency evacuation plan. Road 33 abutting the project site dead-ends at the project's northeast corner and is not classified as an expressway, arterial, or a collector.

h) *No Impact:* The proposed project is located in an active agricultural area that does not pose any threat of wildfire. The proposed solar panels will be constructed of steel and similar metallic materials and are not flammable.

IX. HYDROLOGY AND WATER QUALITY – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☑	☐
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)?	☐	☐	☑	☐
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?	☐	☑	☐	☐
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?	☐	☑	☐	☐
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?	☐	☑	☐	☐
f) Otherwise substantially degrade water quality?	☐	☐	☑	☐
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?	☐	☐	☐	☑
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☑
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?	☐	☐	☐	☑
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

Discussion:

The Delineation of Wetlands and Waters of the United States report (Report) indicates that two swales, three ditches, one pond, and five culverts are located throughout the project site (Appendix F). The project site is located within flood zone X, a 500 year flood area.

a) *Less than Significant Impact:* Operation of the proposed project would generate minimal amounts of wastewater via one bathroom proposed onsite. A septic system will be utilized to discharge effluent as approved by the Madera County Environmental Health Department. Otherwise, the proposed operation involves minimal maintenance, and waste discharges would not occur. However, activities associated with the construction of the proposed project, associated access road improvements, and the small parking lot have the potential to result in runoff that could carry erosion materials off-site.

Compliance through the County Department of Engineering Grading Permit process will ensure potential runoff, sedimentation, and erosion problems are controlled on-site. County Code requires the submission of a detailed grading, drainage, and erosion control plan. The use of open areas for dry crop agriculture and/or grazing would reduce the potential for wind or water erosion of on-site soils.

b) *Less than Significant:* The development will utilize well water from the site for on-site water supply. Water supply will be utilized for the bathroom on-site, and the periodical washing of the panels. The small restroom is estimated to utilize an average of 125 gallons per day. Total water usage for panel washing and cleaning is not expected to exceed 5 acre-feet per year. Average water use for the common crop grown in the area, pistachios, is approximately 18 acre feet for an orchard the size of the project footprint (Pistachio water use source: *University of California Extension. Sample Costs to Establish and Produce Pistachios, 2008*). Therefore, compared to the adjacent water use required of pistachio orchards, the proposed project will utilize 60% less water on average.

c) *Less than Significant with Mitigation:* The two swales onsite may potentially be impacted by the project. A mitigation measure has been included in the Biological Resources section of this document to ensure adequate setbacks are in place to protect the swales. The site plan and project document does not indicate that the project design will protect the swales.

Other water features onsite may be altered or removed through project implementation. Mitigation measures have been applied relating to biological resources that may be affected as a result of alteration or removal. Otherwise, the project is required to mitigate any potential increase in stormwater flows offsite:

1. The applicant shall submit a grading, drainage and erosion control plan to the Engineering Department. This plan shall identify onsite retention for any increase in storm water runoff generated by this project. The basis for all designs shall be the provision of capacity for the runoff from a 100 year, 10 day storm event. The grading, drainage and erosion control plan shall be prepared by a registered civil engineer and shall meet all applicable standards and specifications of the latest California Code of Federal Regulations.

d) *Less than Significant with Mitigation:* See c) above.

e) *Less than Significant with Mitigation:* The project site consists of gentle, rolling terrain and is otherwise generally flat. The discussion and mitigation measure noted in c) above is applicable.

f) *Less than Significant Impact:* See a) above.

g) *No Impact:* No housing is proposed as part of the proposed project.

h) *No Impact:* The proposed project is located within a 500 year flood zone. No flooding is expected onsite.

i) *No Impact:* According to the City of Madera General Plan (GP) Review Draft, 2009, the Hidden Dam / Hensley Lake could cause flooding within the project area in the event of a failure. Based on an Inundation Map, Figure HS-3, included in the City of Madera General Plan (2009) Public Review Draft, the proposed project site partially lies within an inundation area. Flood elevations were not reported. Due to the proposed land use (solar field), mitigation measures, such as preparing an emergency evacuation plan and route, are not deemed necessary.

j) *No Impact:* The proposed project is not located within a coastal zone that would be subject to tsunami, nor is it located near a hillside that would be subject to mudflows. No natural creeks or drainages are located nearby that may contribute to inundation by seiche.

X. LAND USE AND PLANNING – Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☑	☐
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?	☐	☐	☑	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

Discussion:

a) *Less than Significant Impact:* The proposed project will not physically divide or otherwise alter the character of the surrounding community. In operation, the project will be required to have dry crop farming, which is consistent with farming practices in the surrounding community. No significant increases in traffic or population will result from operation, wherein the intensity of use (population and traffic) will constitute an insignificant change.

b) *Less than Significant Impact:* The proposal project site is designated as Agricultural Exclusive (AE) in the Madera County General Plan and zoned Agricultural Rural Exclusive – 40 acre minimum (ARE-40). The AE General Plan designation allows for quasi-public, and uses compatible with general agriculture. As a major power generation facility regulated by the Public Utilities Commission, the use can be deemed as quasi-public. Furthermore, the use is also compatible with surrounding agricultural uses through the requirement for dry crop farming during operation. Policy 3.J.1 of the General Plan states:

> The County shall facilitate the provision of adequate gas and electric, communications, and telecommunications service and facilities to serve existing and future needs while minimizing noise, electromagnetic, and visual impacts on existing and future residents.

The proposed project will serve the existing and future needs of the community and region through the production of clean, renewable energy. Impacts resulting from the photovoltaic system proposed are minimal—no significant noise impacts, no electromagnetic impacts, and minimal glare will result from the project. The ARE-40 zone allows for solar facilities with discretionary approval via a Conditional Use Permit.

c) *No Impact:* No habitat or natural community conservation plans exist for the project area. Therefore, *no impact* will result.

XI. MINERAL RESOURCES – Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

Discussion:

The County General Plan does not identify mineral resources within the project area.

a) *No Impact:* No mineral resources of value to the local area or state are known to exist in the project area. Therefore, no impact will occur as a result of the project.

b) *No Impact:* No locally-important mineral resource recovery sites have been identified by any land use plans that include the project area.

XII. NOISE – Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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?	☐	☐	☑	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d) A substantial temporary or periodic increase in ambient levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Discussion:

General Discussion

The Noise Element of the Madera County General Plan (Policy 7.A.5) provides that noise which will be created by new non-transportation noise sources shall be mitigated so as not to exceed the Noise Element noise level standards on lands designated for noise-sensitive uses. However, this policy does not apply to noise levels associated with agricultural operations. All the surrounding properties, while include some residential units, are designated and zoned for agricultural uses. This impact is therefore considered less than significant.

Construction noise typically occurs intermittently and varies depending upon the nature or phase of construction (e.g. demolition/land clearing, grading and excavation, erection). The United States Environmental Protection Agency has found that the average noise levels associated with construction activities typically range from approximately 76 dBA to 84 dBA Leq, with intermittent individual equipment noise levels ranging from approximately 75 dBA to more than 88 dBA for brief periods.

Short Term Noise

Noise from localized point sources (such as construction sites) typically decreases by approximately 6 dBA with each doubling of distance from source to receptor. Given the noise attenuation rate and assuming no noise shielding from either natural or human-made features (e.g. trees, buildings, fences), outdoor receptors within approximately 400 feet of construction site could experience maximum noise levels of greater than 70 dBA when onsite construction-related noise levels exceed approximately 89 dBA at the project site boundary. Construction activities that occur during the more noise-sensitive eighteen hours could result in increased levels of annoyance and sleep disruption for occupants of nearby existing residential dwellings. As a result, noise-generating construction activities would be considered to have a potentially significant short-term impact. However, construction is only to occur during day time hours so as to not impact adjacent uses.

Long Term Noise

There would be no long-term operational noise impacts from the proposed project. Excessive groundborne vibration or noise levels are not anticipated during either construction or operations.

a) *Less than Significant Impact:* The project will generate a relatively small amount of truck trips during construction. Site grading will occur onsite, to prepare the site for solar panel installation and project amenities. While grading activity and truck trips may result in elevated noise levels periodically, such occurrences would be relatively brief and infrequent and would not result in sustained increases in local traffic noise or activity onsite. The closest residence is located approximately 1/3 mile to the south of the project site—no residences abut the project site. There would be no long-term operational noise impacts from the proposed project. The proposed project would generate power using passive, non-mechanical solar arrays. Thus, there would be little, if any, noise produced. Periodic maintenance would consist primarily of cleaning panels, as needed—resultant noise levels would be low and below a level of significance.

b) *Less than Significant Impact:* Excessive groundbourne vibration and groundbourne noise levels will only result from site grading and construction of the project. The proposed project will not allow for excessive groundbourne noise levels in addition to construction noise.

c) *No Impact:* Operation of the project would not produce noise. The project includes up to five employees. Any traffic generated on the access road for the project would be there for routine maintenance activities, which would occur on as-needed basis.

d) *Less than Significant Impact:* As discussed in part a) above, the proposed project could potentially generate high noise levels during short term construction activities as a result of heavy machinery and equipment use. However, construction noise impact associated with the proposed project would be temporary and intermittent in nature.

e) *No Impact:* The project area is not located within an Airport Land Use Plan. Therefore, no impact will result from airport noise impacts.

f) *No Impact:* No private airstrips are located within the project vicinity. Therefore, no impact will result.

XIII. POPULATION AND HOUSING -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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)?	☐	☐	☐	☑
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Discussion:

a) *No Impact:* Due to the limited duration of construction and small number of construction workers, construction of the proposed project elements (installation of solar panels and other amenities) does not have the potential to induce population growth either directly or indirectly. Operation of the proposed project would require only up to five employees.

b) *No Impact:* The proposed site is currently fallow ground utilized for grazing. No housing is proposed by this project, nor would any be displaced as a result of the project.

c) *No Impact:* see part b) above.

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

Discussion:

The proposed project site is located within the unincorporated County and will be served by the County Fire Department and County Sheriff Department. The project area is located within the Bass Lake Joint Union Elementary School District and Yosemite Union High School District.

i. *No Impact:* In the event of fire or hazardous material release, the fire station closest to the project (Madera County Fire Department Station No.1, 14225 Road 28, Madera CA 93638) would initially respond. The construction and operation of the proposed project would not include any characteristics or create fire hazards that would increase the need for fire protection.

ii. *No Impact:* The construction and operation of the proposed project would not increase the need for police services. The project is planned to be a secure facility, with a fence surrounding the facility and light poles equipped with security cameras.

iii. *No Impact:* The proposed project does not include a housing component and it would not increase permanent employment, only part time employment as a result of periodical maintenance. Therefore, it would not directly or indirectly increase student enrollment levels.

iv. *No Impact:* The proposed project does include a housing component and it would not increase permanent employment. Therefore, additional demands on existing public parks would not occur as a result of construction or operation of the proposed project.

v. *No Impact:* Construction and operation of the proposed project would not result in any impacts to public facilities.

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

Discussion:

a) *No Impact:* The proposed project would not include housing and include a minimal increase in employment opportunities within the community; therefore, the proposed project would lead to a minimal increase the use of existing neighborhood or regional parks or other recreational facilities.

b) *No Impact:* The proposed project would not affect existing recreational resources or create the need for new or expanded facilities.

XVI. TRANSPORTATION/TRAFFIC -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☑
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures or other standards, established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
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?	☐	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☐	☑
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☑

Discussion:

a) *No Impact:* During the construction phase, the proposed project would add truck trips to local roads; however, this would be a temporary traffic impact and would not substantially affect traffic load or capacity of the road system in the proposed project vicinity. No long-term impact on the capacity of the road system would occur since the minor increase in construction traffic on the surrounding road system would be temporary. Operation of the project would add a few daily vehicular trips on the surrounding road system from occasional maintenance of the facility.

b) *No Impact:* See a) above.

c) *No Impact:* No excessive heights are proposed through the project that may affect air traffic patterns.

d) *No Impact:* The proposed project would not require changes to local public roads or introduce incompatible uses on local streets. All new drive approaches are required to be constructed per County Code, through the Road Department. The design and construction of the approach is not expected to result in any hazardous features.

e) *No Impact:* See response to part VIIg of this Initial Study.

f) *No Impact:* Adequate parking per County Code will be provided on-site for maintenance workers servicing the solar panels and other project amenities.

XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☑	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☑
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?	☐	☐	☐	☑
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☑
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☑

Discussion:

According to the Madera County General Plan Background report, all solid waste generated in the unincorporated area is currently disposed of at the Fairmead Landfill, which is owned by the County and operated by Madera Disposal Systems, Inc. The facility is located on 48 acres at the southeast corner of Road 19 and Avenue 22. The landfill is expected to reach capacity in 2020. If additional waste can be diverted, the life of the expansion area could be increased.

a) *No Impact:* Minimal amounts of wastewater would be generated by construction workers on the site during the construction period. The wastewater would percolate into the ground. The proposed project would generate minimal amounts of wash water during operation. Wash water would percolate into the ground. The bathroom proposed onsite will be served by a septic system designed and installed to meet all local and state requirements.

b) *No Impact:* see a) above.

c) *Less than Significant Impact:* Operation of the proposed facility would not result in substantial amounts of runoff that would require construction of new, or expansion of existing, stormwater drainage facilities. The increase in impermeable surface, including the paved parking lot, would not be substantial. The runoff from the washing of the solar panels would percolate into the dry crop below. Otherwise, compliance with all Department of Engineering requirements for the containment of runoff will ensure a less than significant impact.

d) *No Impact:* The project will utilize an agricultural well on-site. No entitlements or new sources will be necessary for water supply. A discussion on water use is contained in part IXb of this Initial Study.

e) *No Impact:* Construction and operation of the proposed project would not increase the demand for wastewater treatment facilities in the area.

f) *No Impact:* Operation of the proposed project would not generate any solid waste. If any waste were generated during construction, disposal of construction materials would be in accordance with federal, state, and local regulations. Disposal would occur at the Fairmead landfill. In addition, solar panels are prefabricated; therefore, there would be minimum waste associated with their installation.

g) *No Impact:* All solid waste generated during construction and operation of the proposed project must comply with existing local, State, and federal statutes regarding the disposal of solid waste.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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?	☐	☑	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☑	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

Discussion:

CEQA defines three types of impacts or effects:

- Direct impacts are caused by a project and occur at the same time and place (CEQA §15358(a)(1).
- Indirect or secondary impacts are reasonably foreseeable and are caused by a project but occur at a different time or place. They may include growth inducing effects and other effects related to changes in the pattern of land use, population density or growth rate and related effects on air, water and other natural systems, including ecosystems (CEQA §15358(a)(2).
- Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA §15355(b)). Impacts from individual projects may be considered minor, but considered retroactively with other projects over a period of time, those impacts could be significant, especially where listed or sensitive species are involved.

a) *Less than Significant Impact with Mitigation.* The project does not have the potential to degrade sensitive habitats or vegetative communities, since none have been found to exist onsite. However, the potential exists for foraging or transient wildlife to pass through the site. To mitigate the potential impacts to foraging or transient wildlife, a Biological Resources Study was prepared and identified mitigation measures to avoid impacts to Federally or State listed wildlife species. Comments from the Department of Fish and Game have been received and have aided in refining the mitigation measures. Due to the application of mitigation measures as described in the Biological Resources section, a less than significant impact is expected.

b) *Less than Significant Impact.* The project will not generate significant environmental impacts. The incremental effect of the current project, when viewed in light of both existing development and reasonably foreseeable future projects does not yield impacts which are cumulatively considerable. Cumulatively, the impacts of the proposed project are less significant than ordinary agricultural practices existing in the area. Impacts of less significance compared to agriculture may include, but are not limited to, air quality, water use, and noise.

c) *Less than Significant Impact.* The initial study has reviewed all impacts that have the potential to have adverse effects on human beings. No potentially significant impacts have been identified.

Documents/Organizations/Individuals Consulted
In Preparation of this
Initial Study

Madera County General Plan, 1995

Oakhurst Area Plan, 2005

California Department of Finance

California Integrated Waste Management Board

California Environmental Quality Act Guidelines

United States Environmental Protection Agency

Madera County Environmental Health

Madera County Roads Department

Caltrans website http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm

California Department of Fish and Game "California Natural Diversity Database" http://www.dfg.ca.gov/biogeodata/cnddb/

California Land Conservation Act, Chapter 7

California Department of Conservation, Solar Power and the Williamson Act

California Department of Conservation, Early Consultation Review for Cal SP V, LLC – 20 MW Solar Energy Facility

University of California Extension. Sample Costs to Establish and Produce Pistachios, 2008

EXHIBIT P

MITIGATED NEGATIVE DECLARATION MND 2012-013

RE: CUP #2012-010, 41MB 8ME, LLC

LOCATION AND DESCRIPTION OF PROJECT:

41MB 8ME, LLC is proposing to install a solar energy facility that would allow up to 90 MW (Megawatts) of power generation. The proposed site is located on approximately 459 acres northwest of the intersection of Road 33 and Avenue 13, (no situs) in Madera. Approximately 175 acres of the subject parcel is not intended for project development, but will be left to its exiting use, including a shop building, almond orchard, and fallow ground. The facility proposed consists of free standing ground mounted photovoltaic panels as high as twenty feet from ground level. An operations and maintenance building is proposed onsite, including an office, restroom, storage, control room, and a septic tank and leach field. A parking lot will serve the building, with access from Road 33. The property would be surrounded with a chain link fence for protection, which will also be armed with an alarm or intrusion detection system. Motion-sensor lighting will also be utilized for security purposes. Up to five full-time employees will operate the solar facility.

The project site is located northwest of the intersection of Road 33 and Avenue 13, (no situs) in Madera.

ENVIRONMENTAL IMPACT:

No adverse environmental impact is anticipated from this project. The following mitigation measures are included to avoid any potential impacts.

BASIS FOR NEGATIVE DECLARATION:

1. Upon cessation of the project, the land upon which the project is located shall be reclaimed to its previous condition. The project owner shall agree to a Reclamation Plan including conditions for site reclamation and financial assurances to ensure reclamation is performed.

2. All outdoor lighting utilized for the project must utilize motion detection systems that only operate the lights when movement is detected. The motion detection system must exclude auto traffic along Road 33 and Avenue 13.

3. The solar panel footings must be designed for temporary use to allow for removal at the cease of project operations and easily allow the conversion of the site to permanent farming use. Conversion to a permanent facility beyond the life of the project will require an amendment to the Conditional Use Permit.

4. A dry agriculture crop or soil stabilizer is to be utilized on the site's remaining open ground and shall be maintained to control dust.

5. Pre-construction surveys shall be performed on the project site in areas where there is a potential for nesting raptors and nesting migratory birds to occur if construction occurs during the breeding season (loosely defined as February 15 to August 15). These include all areas of the project site that contain or are within 500 feet of power poles or trees that are suitable for the establishment of nests. These areas should also include the nonnative annual grassland habitat, which provides potential breeding habitat for ground-nesting birds such northern harriers and horned larks. The pre-construction

survey shall be performed within 14 days of construction to identify active nests and mark those nests for avoidance. During the nesting period, raptor nests shall be avoided by 500 feet and all other migratory bird nests should be avoided by 250 feet. The applicant shall cooperate with the California Department of Fish and Game (DFG) and United States Fish and Wildlife Service (USFWS) prior to conducting surveys to ensure survey protocols reflect the most up to date guidance.

6. Because there is the potential for San Joaquin kit foxes to occur on site, the most recent *USFWS Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* shall be followed in cooperation with the DFG and USFWS. Implementation of the measures will ensure the protection of San Joaquin kit foxes from direct mortality and from destruction of active dens and natal or pupping dens. The Lead Agency or Designee shall determine the applicability of the measures depending on specific construction activities and the applicant shall implement such measures when required. Survey and potential mitigation information must be submitted to the Lead Agency, including all correspondence with the DFG and/or USFWS. Measures utilized to ensure San Joaquin kit fox protection will also protect American badgers.

7. Standard measures for the protection of burrowing owls shall comply with the DFG's most recent recommended survey protocols (2012). The applicant shall cooperate with the DFG and USFWS prior to conducting surveys. Survey and potential mitigation information must be submitted to the Lead Agency, including all correspondence with the DFG and/or USFWS.

8. Swainson's hawk, California tiger salamander, and western pond turtle

   Surveys must be conducted in cooperation with the DFG and USFWS. If necessary, appropriate mitigation for the species must be established in cooperation with the DFG and USFWS. Survey and potential mitigation information must be submitted to the Lead Agency, including all correspondence with the DFG and/or USFWS.

9. All perimeter fencing must be permeable for the passage of wildlife. Appropriate fencing must be designed in cooperation with the DFG.

10. The project proponent shall cooperate with the United States Army Corps of Engineers (USACE) regarding a jurisdictional determination of the features that meet wetland criteria (Swale SW1 and Ditch 2), and if required proceed with Section 404 permitting.

11. The project design shall be modified to include no-disturbance setbacks from on-site wetland features. Setbacks widths shall determined in cooperation with the DFG.

12. In the event that archaeological remains are encountered during project development or groundmoving activities within the project area, all work shall be halted until a qualified archaeologist can assess the discovery. Such finds include, but are not limited to, prehistoric grinding implements, stone tools, soapstone bowls, and ornaments (e.g., beads, pendants) as well as intact building foundations and high concentrations of historical artifacts.

13. If human remains are uncovered, or in any other case where human remains are discovered, the Madera County Coroner is to be notified to arrange their proper

treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will determine the manner in which the remains are treated.

14. The applicant shall submit a grading, drainage and erosion control plan to the Engineering Department. This plan shall identify onsite retention for any increase in storm water runoff generated by this project. The basis for all designs shall be the provision of capacity for the runoff from a 100 year, 10 day storm event. The grading, drainage and erosion control plan shall be prepared by a registered civil engineer and shall meet all applicable standards and specifications of the latest California Code of Federal Regulations.

Madera County Environmental Committee

A copy of the negative declaration and all supporting documentation is available for review at the Madera County Planning Department, 2037 West Cleveland Avenue, Madera, California.

DATED: August 13, 2012

FILED:

PROJECT APPROVED:

EXHIBIT Q

SECTION III

Project Description

Lotus Solar Farm

PROJECT DESCRIPTION

41MB 8ME, LLC
10100 Santa Monica Boulevard
Suite 300
Los Angeles, CA 90067
(213) 281-9771

With Technical Assistance By:
Quad Knopf
6051 N. Fresno Street, Suite 200
Fresno, CA 93710
(559) 449-2400

MAY 2012

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PROJECT INFORMATION

41MB 8ME, LLC, known herein as the "Applicant", is seeking approval of a Conditional Use Permit (CUP) from Madera County for the development of the Lotus Solar Farm ("LSF"), a solar photovoltaic project (up to 90MW) located in Madera County, California (see Vicinity Map below). The CUP term requested is 26 years. The Applicant proposes to construct, own, operate, and fund LSF.

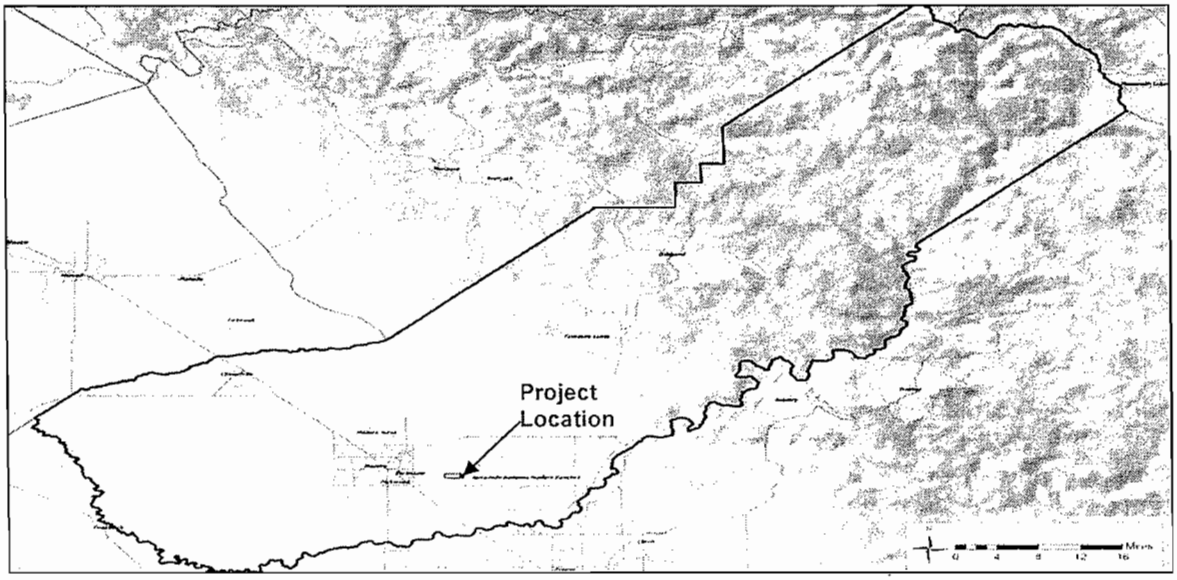
Site Information:

Assessor Parcel Number	Owner	Zoning	Acreage
034-210-038	Joan S. Felger and Warren P. Felger	Agricultural, Rural, Exclusive (ARE-40) District	Up to 459+/- ac. of 634 ac. parcel

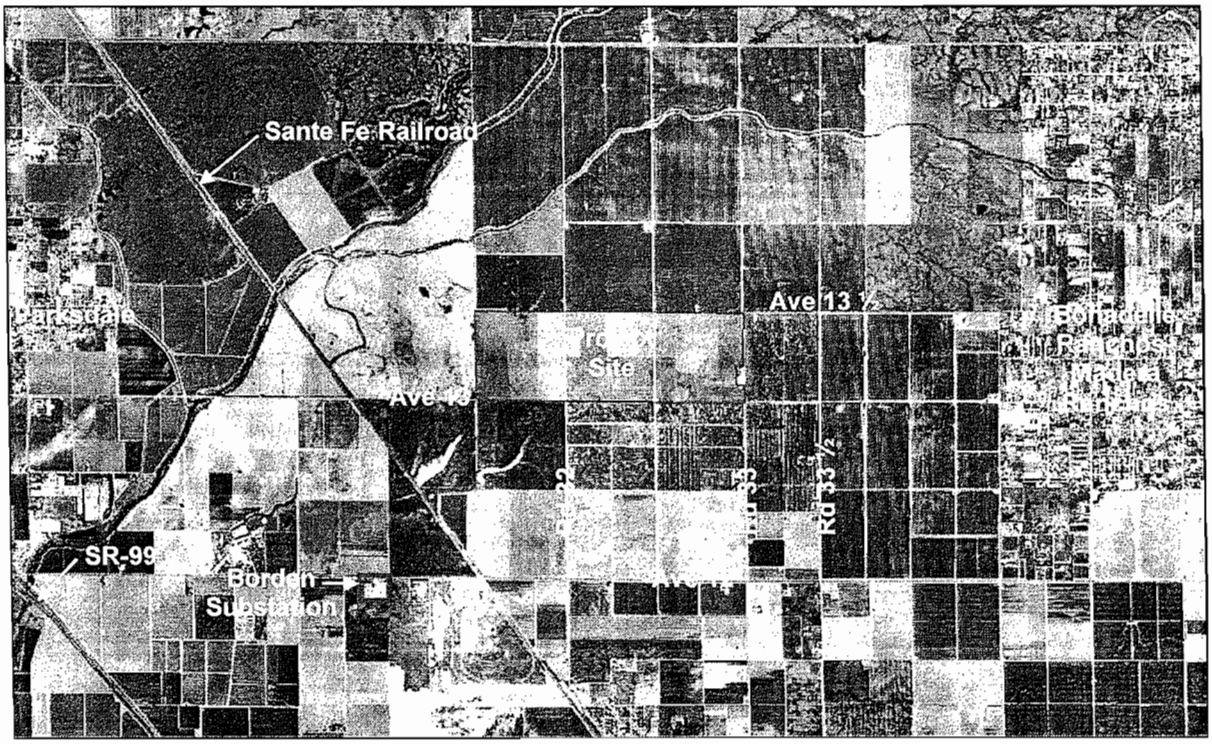
Location: The project site is located in an unincorporated area of Madera County, approximately 3 ¼ mi. east of the City of Madera city limits and approximately 1 ½ mi. west of Bonadelle Ranchos-Madera Ranchos. The site is bordered by Road 33 to the east, Avenue 13 ½ alignment to the north, and unnamed private dirt roads to the west and south. Access to the LSF is via Road 33, which is an existing north-south paved road extending from Avenue 12 to the northeast corner of the project site. The site is adjacent to agricultural land uses to the east, west, north and south.

Site Description: The project is sited on up to 459+/- acres of a 633.64-acre parcel (assessed acreage). The 459-acre site is primarily being used for grazing and has been fallow since 2004. The remaining portions of the parcel which are not a part of project, include a shop building and storage area occupying approximately 3.3 acres located at the eastern edge of the property, an almond orchard (planted in 1994) occupying approximately 99 acres, and approximately 49 acres which are currently fallow. The topography is slightly undulating, with elevations ranging from approximately 285 feet to approximately 305 feet.

Location Map:



Vicinity Map:



DESCRIPTION OF PROPOSED PROJECT

41MB 8ME, LLC (Applicant) proposes to develop a photovoltaic energy facility (up to 90MW-AC) on up to 459 +/- acres of a 634-acre parcel. The power generated by LSF will be delivered from the site via an overhead 230kV generator tie-in line ("gen-tie line") originating from an on-site transformer and terminating at Pacific Gas & Electric's Borden Substation (point of interconnection). Borden Substation is located approximately 1 ½ miles to the southwest of the project site.

The Applicant has considered the following in its selection of the LSF site for detailed evaluation:

- Land availability (approximately 459 acres gross);
- Zoning – Project site is zoned ARE-40 (Agricultural, Rural, Exclusive District)
- Minimal environmental consequences (LSF will be located on previously disturbed land);
- Proximity to interconnecting substation (1.5 miles);
- Long-term land lease (21-year lease commencing with entitlements with a five one-year extensions for a total of 26 years);
- Avoidance of high production/value agricultural land – property is used for grazing sheep and is not encumbered by Williamson Act;
- Water availability – Active on-site well with sufficient pumping capacity and water rights

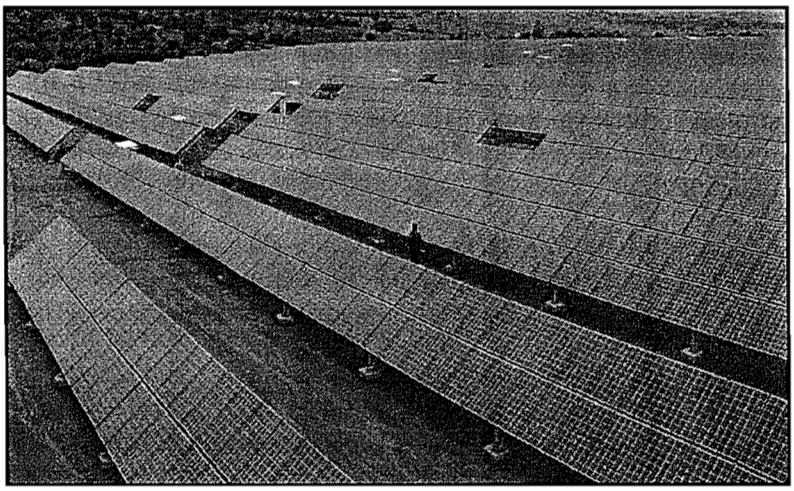
Additionally, pre-application site evaluations have included the following studies:

- CEQA level biological analysis
- Delineation of Wetlands and Waters of the United States report to the United States Army Corps of Engineers (USACE)
- Indirect Source Review application to San Joaquin Valley Air Pollution Control District (SJVAPCD)
- Cultural review and pedestrian surveys
- Preliminary geological hazard analysis

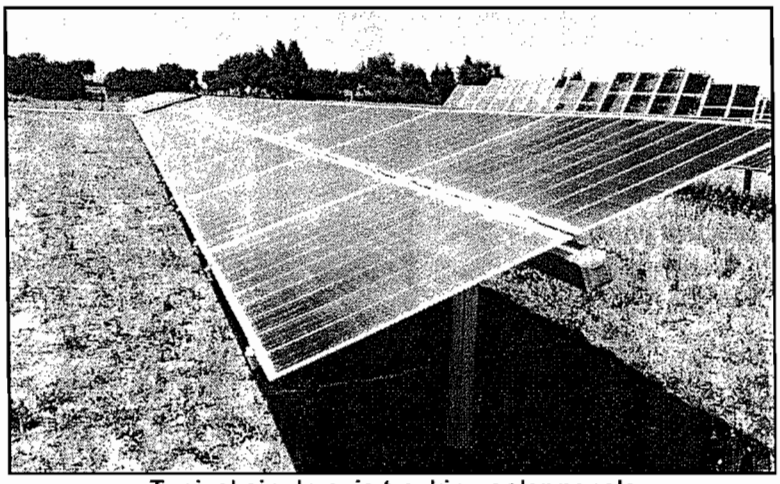
Up to five (5) full-time employees will operate the solar farm (split between daytime and nighttime shifts). Typically, up to three (3) staff will work during the day shift (sunrise to sunset) and the remainder during the night shifts and weekend. LSF will export and sell the generated electricity via the California Independent System Operator ("CAISO") grid. After the useful life of the project, the panels will be disassembled from the steel mounting frames and the site restored to pre-development condition.

PV Module Configuration

LSF will utilize up to 720,000 photovoltaic panels or modules (total depending on the power rating of the panels procured) on mounting frameworks in continuous rows to convert sunlight directly into electricity. Individual panels would be installed on either fixed-tilt or tracker mount systems (galvanized steel or aluminum). If the panels are configured with a fixed tilt, the panels would be oriented toward the south. For the tracking configuration, the modules would rotate from east to west over the course of the day. The panels will stand up to 20 feet high while tilted at approximately 25 degrees from horizontal to the south. Due to the rolling topography of the site, the tilt angle can vary from mounting structure to mounting structure.

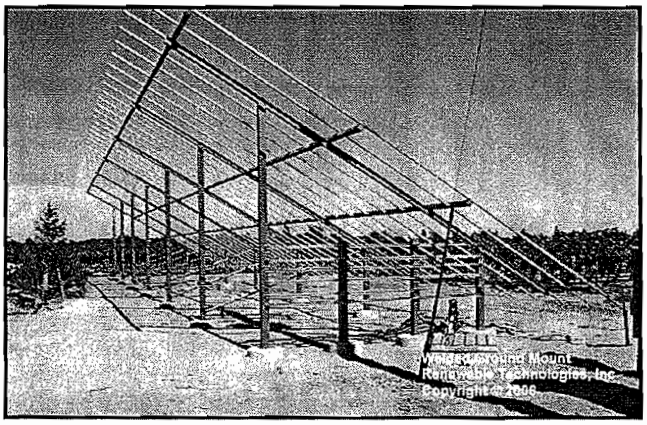


Typical fixed-tilt solar panel rows



Typical single-axis tracking solar panels

The solar array field will be arranged in groups called "blocks" with inverter modules, a unit transformer and medium voltage switch gear centrally located with the block. Each block would produce direct electrical current (DC), which is converted to alternating electrical current (AC) at the inverter module.

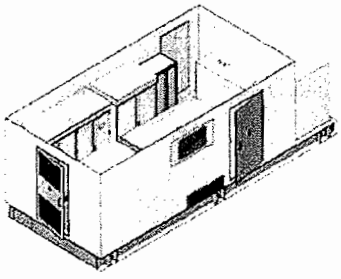


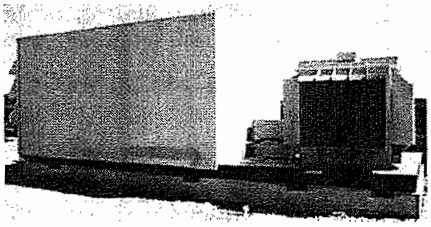
Typical Solar PV Mounting Structure

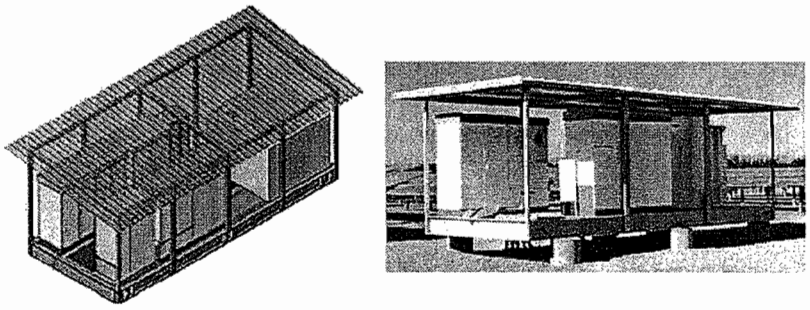
Each mounting structure for the PV modules is expected to be comprised of a mount flange, cross beam, support beam and mounting profile. PV modules will be installed on the mounting profiles, which are supported by the cross beams. These cross beams are in turn fixed on support beams, which are installed on the mount flange. The foundations for the mounting frames will be installed about 20 feet on center along each panel row. Each foundation is expected to consist of an impact beam/driven pier or beams with concrete footings extending about 4 to 8 feet below ground surface, depending on soil conditions and wind loads.

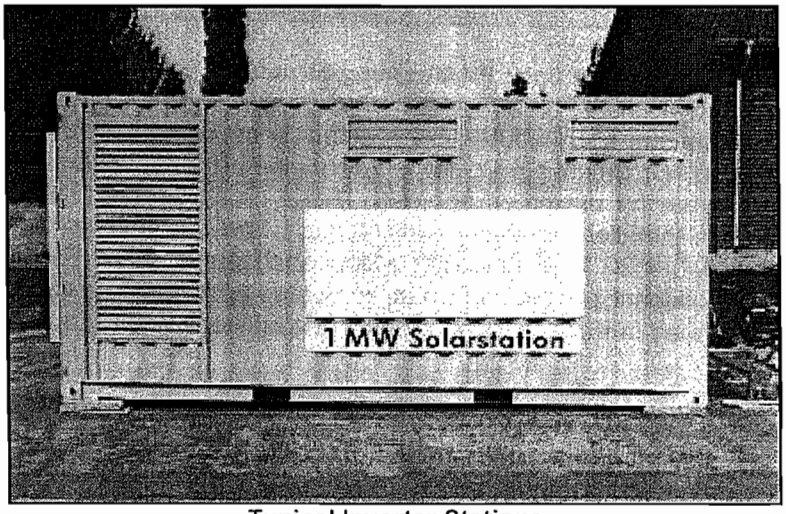
Inverter Stations

Photovoltaic energy is delivered to the inverter stations via cable. Inverter stations, located near the center of each block, typically comprise of one or two inverter modules with a rated power of approximately 630 kVA each, a unit transformer, and medium voltage switch gear. Unit transformer and medium voltage switch gear are housed in steel enclosures with the inverter modules housed in cabinets. Depending on the vendor selected, the inverter station would likely lie within an enclosed or canopied metal structure, typically on a skid or concrete mounted pad.





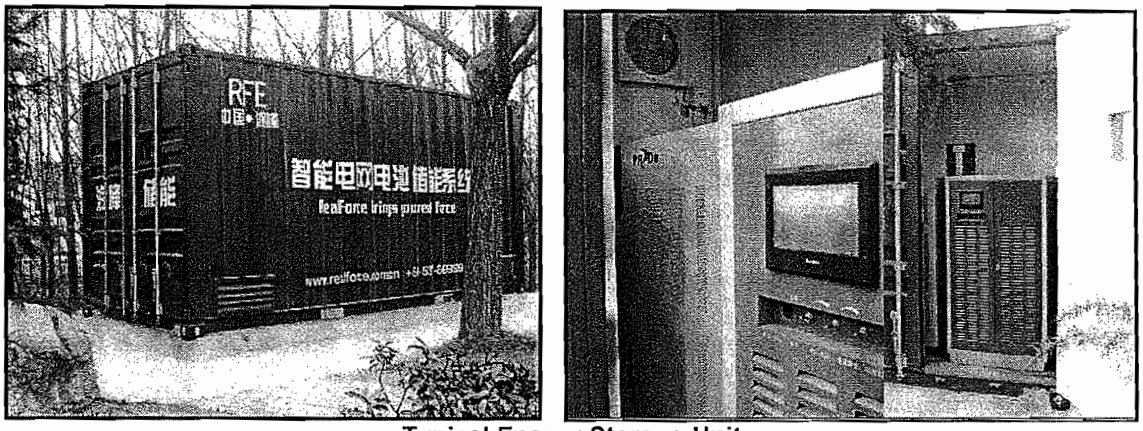




Typical Inverter Stations

Energy Storage Units

An energy storage system in the form of modular and scalable battery packs and battery control systems would likely be located near the substation or at the inverter stations. The battery packs would utilize non-hazardous solid state materials (i.e. lithium ion or other commercially available large-scale system) and are fully recyclable. The energy storage devices are typically housed in pad- or post-mounted metal containers. It is estimated that the energy storage units would utilize up to 50 containers (approximately 40'L x 11'W x 11'H each). The actual dimensions of the container may vary depending upon the supplier chosen, with the length measuring up to approximately 55 feet.

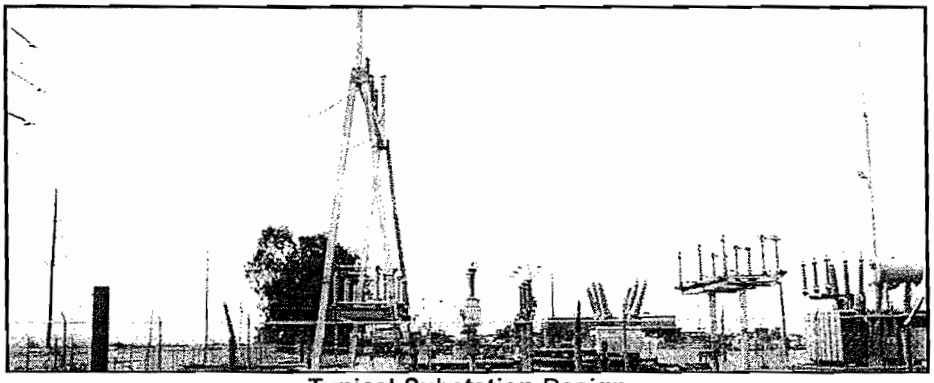


Typical Energy Storage Unit

Substation

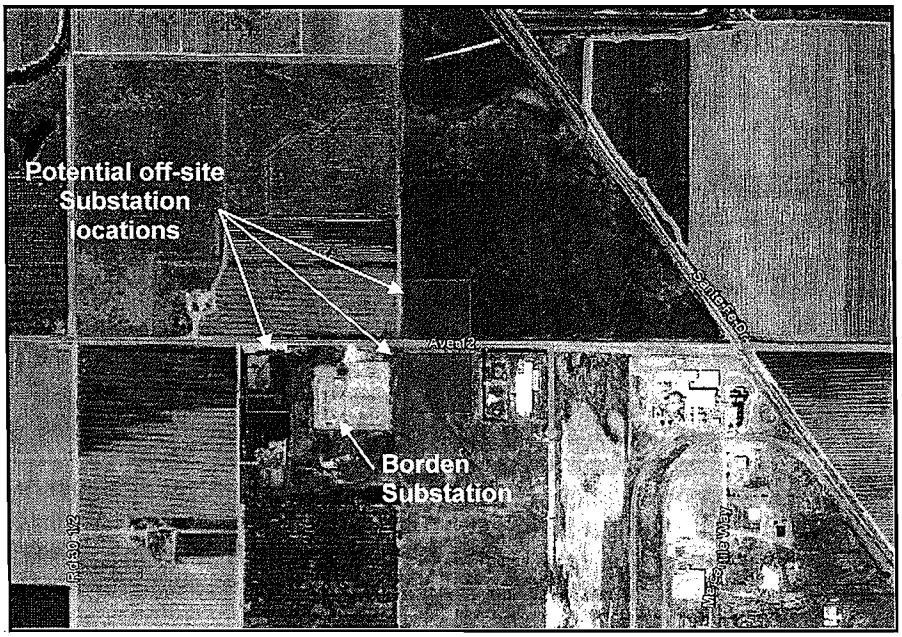
Output from the transformers will be transferred via electrical conduits and electrical conductor wires to a substation ("Substation"). The substation will comprise of various components including an auxiliary power transformer, a low-voltage main distribution cabinet, revenue metering system, and medium voltage switch gears. The substation will step up the voltage to 230kV and will occupy an area of up to approximately 200 ft by 200 ft, secured separately by an additional chain-link fence. The power will then be transmitted to the Borden Substation via a 230kV gen-tie line.

The substation facility will include a small control building (approximately 500 square feet) standing approximately 10 feet tall. The building will be either prefabricated concrete or steel housing with rooms for the medium voltage switch gears and the metering, a room for the station supply transformer and a separate control technology room in which the main computer, the intrusion detection system and the low voltage main distribution are housed. Components of this building (control technology room and intrusion detection system) may alternatively be located at a potential Operations and Maintenance building (subsequently described in this project description document).



Typical Substation Design

The substation would either be located on-site or off-site near the Borden Substation. The Applicant has identified and analyzed the following three (3) potential off-site substation locations (see map below):



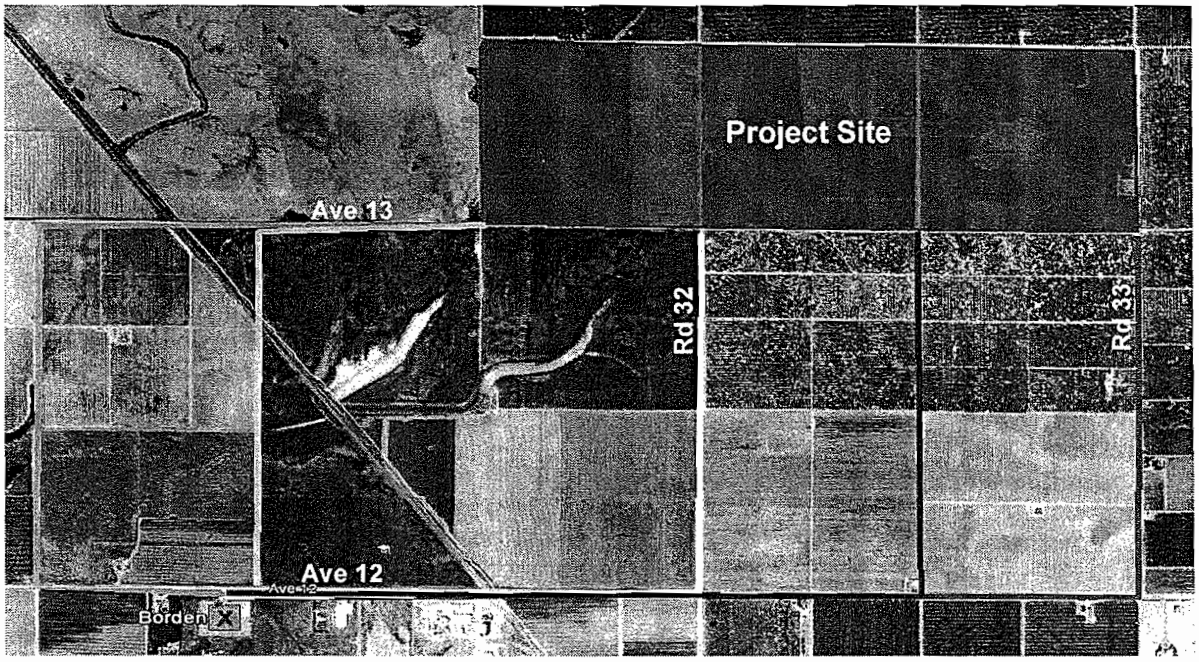
Potential Off-Site Substation Alternatives

Generator Tie-In Line

The power generated by LSF will be delivered from the substation via an overhead 230kV generator tie-in line ("gen-tie line") to Borden Substation, which is the project's Point of Interconnection. Borden substation is located approximately 1 ½ miles to the southwest of the project site.

If the LSF substation is located off-site, the gen-tie line from the project site to the LSF substation will be either an overhead or underground 34.5kV line. The gen-tie line from the LSF substation to Borden substation would remain as an overhead 230kV gen-tie line.

The Applicant has identified and analyzed the following five (5) potential gen-tie line route locations (see map below):



Gen-Tie Route Alternatives

On-Site Water Wells and Water Treatment Facility

LSF intends to use water from existing on-site wells to accommodate the project's limited water usage. Domestic water for the O&M building would likely be sourced from the existing domestic well, which is located at the eastern end of the project site. This well is active and being used to provide domestic water to the existing shop building. Based on an average daily water usage of 200 gallons per day, the amount of domestic water use at the O&M building is expected to be approximately 73,000 gallons per year.

It is estimated that the project would require panel washing two to four times a year. Panel washing requires about one quart of water for each panel per cleaning. Therefore, water demand for panel washing is not expected to exceed 5 acre-feet per year. Water used for panel washing would likely be sourced from the three on-site irrigation wells. Combined, the wells have a pumping capacity of approximately 15,000 acre-feet per year. Depending on the quality of the groundwater, a small water treatment system may be installed at one of the on-site well locations to provide deionized water for panel washing.

The solar array areas may have a cover crop (Salt grass or similar) and/or a soil stabilizing polymer to control dust and storm water erosion. If utilized, the cover crop will be watered infrequently to maintain it a low lying level while ensuring binding of the soil with the grass root system. It is estimated that water usage to maintain the cover crop would be approximately 115-acre feet per year (1/4" per acre/year).

Water Storage Tanks

Above-ground water storage tanks with total capacity of approximately 50,000 gallons would be placed on site near the on-site well and at the O&M building. The storage tank(s) near the O&M

building will have the appropriate fire department connections in order to be used for fire suppression purposes.

Operations and Maintenance Building

The project may feature an operations and maintenance ("O&M") building (approximately 40 ft x 80 ft), with associated parking, on site as a part of the project. The O&M building would be steel framed, with metal siding and roof panels, painted to match the surrounding setting. The O&M building would include:

1. Office
2. Repair building/parts storage
3. Control room
4. Restroom
5. Septic tank and leach field

The parking lot and access driveway from Road 33 will be paved (not curbed). The roads, driveways and parking lot will meet the Road Department and Fire Department Standards. Parking spaces and walkways will be concreted to meet all California Accessibility Regulations.

Site Security and Fencing

The site will be enclosed with a chain link fence up to approximately eight (8) feet tall. An intrusion alarm system is expected to comprise of sensor cables integrated into the perimeter fence, intrusion detection cabinets placed approximately every 1,500 feet along the perimeter fence and an intrusions control unit, located either in the substation control room or at the O&M Building. Additionally, the LSF may include additional security measures including, but not limited to, barbed wire, low voltage fencing with warning reflective signage, controlled access points, security alarms, security camera systems, and security guard vehicle patrols to deter trespass or unauthorized activities that would interfere with operation of the proposed project.

Controlled access gates will be maintained at the main entrance to the site. Site access will be provided to offsite emergency response teams that respond in the event of an "after-hours" emergency. If the gates are manual, a key for the gate will be provided in a key box at the gate location.

Site Lighting

Motion sensor site lighting will be used for security purposes and will comply with Madera County Zoning Ordinance.

ANNUAL PRODUCTION

The LSF facility will provide electrical output during daylight hours. Peak electricity demand in California corresponds with air conditioning use on summer afternoons when ambient temperatures are high. LSF peak generating capacity corresponds to this time-period when the peak solar energy, solar insulation value, is highest. There is no generating capacity between sunset and sunrise due to the lack of solar energy.

The proposed LSF will have a nominal output capacity of up to 90 MW (AC). The initial energy production would be up to 186,000 MWh per year, sufficient to power over 34,000 homes and displacing over 105,000 tons of CO_2 emissions per year when compared to a gas-fired power plant or 209,000 tons when compared to a coal-fired power plant.

CONSTRUCTION ACTIVITIES

The construction period for LSF, from site preparation through construction, testing, and commercial operation, is expected to commence in Q4 2012 and would extend for approximately nine months. Construction of the facility will include the following activities:

- Site Preparation
- Grading and Earthwork
- Concrete Foundations
- Structural Steel Work
- Electrical/Instrumentation Work
- Generator Tie-in Installation
- Architectural and Landscape

No roadways will be affected by the LSF project, except during the project's construction period. Construction traffic will access the LSF site from Road 33 via Avenue 12. It is estimated that up to approximately 200 workers per day would be required during the construction of the project. The construction workforce will primarily consist of laborers, electricians, equipment/vehicle operators, supervisory personnel, support personnel, and construction management personnel.

Heavy construction is expected to occur during daylight hours, Monday through Friday. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. Some activities may continue 24 hours per day, seven days per week. These activities include, but are not limited to, refueling equipment, staging material for the following day's construction activities, quality assurance/control, and commissioning.

Materials and supplies will be delivered to the site by truck. Truck deliveries will normally occur during daylight hours. However, there will be offloading and/or transporting to the site on weekends and during evening hours.

Earthmoving activities is expected to be limited to the construction of the access roads, O&M building, the substation/transformer and any storm water protection or storage (detention) facilities. Final grading may include revegetation with low lying grass or applying earth-binding materials to disturbed areas.

WORK FORCE

Once LSF is constructed, maintenance needs are required and are generally limited to:

1. Cleaning of PV panels
2. Monitoring electricity generation
3. Providing site security

4. Facility maintenance – replacing or repairing inverters, wiring and PV modules

It is expected that the LSF facility will be operated with a staff of up to five full-time employees. The facility will operate seven days per week, generating electricity during normal daylight hours when the solar energy is available. Maintenance activities will occur seven days a week, 24 hours a day to ensure PV Panel output when solar energy is available.

PROJECT FEATURES AND BEST MANAGEMENT PRACTICES (BMPs)

The following sections describe standard project features and best management practices that will be applied during construction and long-term operation of LSF in an effort to avoid environmental impact.

Waste and Hazardous Materials Management

LSF will have minimal levels of materials on site that have been defined as hazardous under 40CFR, Part 261. The following materials are expected to be used during the construction, operation, and long term maintenance of LSF:

- Insulating oil – used for electrical equipment
- Lubricating oil – used for maintenance vehicles
- Various solvents/detergents – equipment cleaning
- Gasoline – used for maintenance vehicles

Wastes will be managed in accordance with applicable regulations for the approved LSF facility as follows:

- All hazardous wastes will be maintained at quantities below the threshold requiring a Hazardous Material Management Program (HMMP) (one 55 gallon drum).
- All waste drums will be stored in accordance with good practice and applicable regulations, and will be protected from environmental conditions, including rain, wind, and direct heat and physical hazards such as vehicle traffic and sources of heat and impact.
- Waste lubricating oils will be recovered and reclaimed by a waste oil-recycling contractor.
- Spent lubricating oil filters from vehicles will be disposed at an authorized waste disposal facility.
- Batteries will be reclaimed and recycled by authorized facilities.
- Hazardous waste generation, handling, and storage areas will be inspected and monitored on a regular basis.
- California-authorized and certified hazardous waste haulers will transport hazardous wastes to registered waste treatment, storage, disposal, and recycling facilities.
- Emergency response and reporting will be performed per written procedures that follow government and industry requirements and standards.
- Workers will be trained to handle hazardous wastes generated at the site.
- If 55 gallons of hazardous waste or more should accumulate onsite, storage of such hazardous waste will at no time exceed 90 days from the date of initial accumulation exceeding 55 gallons, and a HMMP shall be developed as described below.

The storage, use, and handling of any hazardous materials will be in accordance with applicable regulations and will include the following items:

- Facility personnel will be trained in hazardous materials and hazardous waste awareness, handling, and management as required for their level of responsibility.
- Bulk chemicals will be stored in the original shipping container provided by and returned to the chemical provider.
- Chemical storage areas and feed/transfer areas will be equipped with secondary containment sufficient in size to contain the volume of the largest container or tank including an allowance for rainwater.
- Small-quantity chemicals used for maintenance tasks will be kept in appropriate flammable material or corrosive material storage lockers following applicable regulations.
- Periodic inspections will ensure that all containers are secure and properly marked.
- Sanitary wastewater generated at the facility cannot be conveyed to an existing sewage public treatment facility. There are no public entities that manage sanitary wastewater flows for locations in the vicinity of the project site.

Should onsite storage of hazardous materials exceed one 55 gallon drum, LSF will implement a Hazardous Materials Management Program (HMMP) developed for the LSF construction and operation stages, and will include, at a minimum, procedures for:

1. Hazardous materials handling, use and storage,
2. Emergency response,
3. Spill control and prevention,
4. Employee training,
5. Record keeping and reporting.

The HMMP (if required) will be developed and implemented prior to start of construction or prior to the storage on-site of an excess of 55 gallons of hazardous materials. The program will be revised and updated as required in a timely manner. Employees will be trained and the program implemented prior to the start of commercial operation. The procedures outlined in the HMMP will be in accordance with all applicable regulations.

Spill Prevention and Containment

Spill prevention and containment for construction and operation of LSF will adhere as follows to EPA's guidance on Spill Prevention Control and Countermeasures (SPCC) as any hazardous materials stored onsite will be in quantities of less than 55 gallons.

> *Regularly scheduled inspections, evaluations, and testing by qualified personnel are critical parts of discharge prevention. Their purpose is to prevent, predict, and readily detect discharges. They are conducted not only on containers, but also on associated piping, valves, and appurtenances, and on other equipment and components that could be a source or cause of an oil release.*

Waste Water/Septic System

A standard onsite septic tank and leach field will be used to dispose sanitary wastewater, designed to meet operation and maintenance guidelines required by Madera County laws, ordinances, regulations and standards.

Inert Solids

Inert solid wastes resulting from construction activities may include recyclable items such as paper, cardboard, solid concrete and block, metals, wire, glass, type 1-4 plastics, drywall, wood, and lubricating oils. Non-recyclable items include insulation, other plastics, food waste, vinyl flooring and base, carpeting, paint containers, packing materials, and other construction wastes. Management of these wastes will be the responsibility of the construction contractor(s). All packaging materials for components of the solar farm shall be crated and recycled offsite. No crating or packaging materials will be placed in local landfills. Management practices require recycling of contractor waste when possible, and proper storage of non-recyclable waste and debris to prevent wind dispersion, and weekly pickup of non-recyclable wastes with disposal at a local approved landfill.

Chemical storage tanks (if any) will be shop-fabricated, double-walled construction meeting applicable regulations. These tanks, as well as portable drums (if any), will be provided with appropriate anchors or cradles and placed within spill containment basins.

Any wastes classified as hazardous such as solvents, degreasing agents, concrete curing compounds, paints, adhesives, chemicals, or chemical containers will be stored (in an approved storage facility/shed/structure) and disposed of as required by local and state regulations. Material quantities of hazardous wastes are not expected.

Health and Safety

Safety precautions and emergency systems will be implemented as part of the design and construction of the LSF facility to ensure safe and reliable operation. Administrative controls will include classroom and hands-on training in operating and maintenance procedures, general safety items, and a planned maintenance program. These will work with the system design and monitoring features to enhance safety and reliability.

All employees shall be provided with communication devices, cell phones, or walkie-talkies, to aid in the event of an emergency situation on-site.

Safety, Auxiliary and Emergency Systems

Safety, auxiliary, and emergency systems will consist of lighting, grounding, backup UPS systems and diesel power generators, fire and hazardous materials safety systems, security systems, chemical safety systems, and emergency response teams. The O&M building will include their own utilities and services, such as emergency power, fire suppression, and domestic water systems.

LSF will implement programs to assure compliance with federal and state occupational safety and health program requirements. In addition to compliance with these programs, LSF will identify and implement plant-specific programs that effectively assess potential hazards and mitigate them on a routine basis.

As discussed above, hazardous materials may be stored and used at LSF during construction and operation, but will be restricted to less than one 55 gallon drum. The design and construction of any hazardous materials storage and dispensing systems will be in accordance with applicable regulations. Hazardous materials storage areas will be designed with curbs or other containment measures like double-walled storage tanks, if applicable, to contain spills and leaks. If hazardous materials exceed 55 gallons, a Hazardous Material Management Program will be developed as described above.

Emergency eyewashes and showers (if required by fire or safety codes) will be provided at appropriate locations. Appropriate Personal Protective Equipment (PPE) will be provided during both construction and operation of the LSF facility.

Emergency Response Plan

LSF will have an Emergency Response Plan (ERP). The ERP will address potential emergencies including chemical releases, fires, and injuries. The ERP will describe emergency response equipment and equipment locations, evacuation routes, procedures for reporting to local emergency response agencies, responsibilities for emergency response, and other required actions to be taken in the event of an emergency.

Employee response to an emergency will be limited to an immediate response to minimize the risk of escalation of the accident or injury. Employees will be trained to respond to fires, spills, earthquakes, and injuries. A first aid facility with adequate first-aid supplies and personnel qualified in first aid treatment will be onsite.

41MB 8ME, LLC
10100 Santa Monica Blvd.
Suite 300
Los Angeles, CA 90067

July 19, 2012

Mr. Norman L. Allinder, Director
Madera County Planning Department
2037 W. Cleveland Ave.
Mailstop G
Madera, CA 93637

Subject: **Project Modification**
Lotus Solar Farm

Dear Mr. Allinder:

The purposed of this letter is to indicate a modification to the proposed Lotus Solar Farm project. The Project Description, which was provided with the Conditional Use Permit application (CUP #2012-010), indicates that the project's Point of Interconnection is at a voltage of 230kV at Borden Substation. While the location of the interconnection would remain at Borden Substation, the voltage has been changed from 230kV to 70kV. This modification will consequently also change the type of generator tie-in line from 230kV to 70kV should an off-site substation be utilized. This would also translate into a lower height for the transmission structures. The height of the 70kV transmission structures would be approximately 60 to 70 feet, instead of 90 to 120 feet required for 230kV transmission lines.

If there are any questions regarding this modification or any other matters associated with this Project, please feel free to contact me at (213) 281-9771.

Kind Regards,

Thomas Buttgenbach, Manager
41MB 8ME, LLC

EXHIBIT R

41MB 8ME, LLC

BIOLOGICAL ANALYSIS OF THE LOTUS SOLAR SITE MADERA COUNTY, CALIFORNIA

June 2012

Quad Knopf

Biological Analysis
41MB 8ME, LLC
Lotus Solar Project Site
Madera County, California

Prepared for:
41MB 8ME, LLC
10100 Santa Monica Blvd. Ste. 300
Los Angeles, CA 90067
Contact Person: Michael Joh
Phone: (310) 906-0675

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Visalia, California 93277
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Phone: (559) 733-0440

June 2012

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EXECUTIVE SUMMARY

41MB 8ME, LLC proposes to develop the Lotus Solar Project (project), which is a utility-scale photovoltaic (PV) solar project in Madera County, California. The proposed project site encompasses approximately 458 acres that are located west of Madera Ranchos, between State Route 41 and State Highway 99. The proposed 90 megawatt alternating current (MW-AC) project is associated with five gen-tie alternatives, which connect to the Borden substation located to the south of the project site along Avenue 12. The preferred, and shortest, gen-tie line alternative is approximately 1.5 miles long. One additional small substation is also proposed for development within one of three potential location alternatives.

The project site is located on lands currently zoned as Public Open Space/Agricultural Exclusive (POS/AE). The site now consists of fallow non-native annual grassland that is grazed by sheep, but it was historically agriculturally developed. Abandoned irrigation appurtenances including well stands, tanks, and culverts are found throughout the site. Agricultural land uses dominate the habitat surrounding the project site. One swale, three ditches, and one ponding basin are located throughout the project site. One swale and one ditch were the only features that met U.S. Army Corps of Engineers (USACE) wetland criteria. Federal jurisdiction of these features will be determined through consultation with USACE. Additionally, two wetlands and one swale are located near two of the potential substation alternatives but those can be avoided by the project.

No sensitive vegetation communities are present on the project site. The project site is not expected to support special status plant species. With the exception of northern harriers and horned larks, no special status wildlife species have been observed on the project site. However, other special status wildlife species have the potential to occur on or adjacent to the project site, but these would generally be restricted to transient or foraging animals. There is one record of the vernal pool fairy shrimp occurring along one of the gen-tie alternatives but there is no habitat on the solar site that is suitable to support fairy shrimp of any species.

There are no apparent issues that would preclude the construction of a solar facility on the project site. However, there are biological conditions present on and adjacent to the project site, gen-tie alternatives, and substation alternatives that will require collaboration with regulatory agencies, possible constraints on project construction, and the implementation of mitigation measures for avoidance and minimization of biological impacts.

The following measures are recommended:

Mitigation Measure BIO-1. Pre-construction surveys should be performed on the project site in areas where there is a potential for nesting raptors and nesting migratory birds to occur if construction occurs during the breeding season (loosely defined as February 15 to August 15).

Mitigation Measure BIO-2. Because there is the potential for San Joaquin kit foxes to occur on site, the USFWS Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance shall be followed. This measure would also protect American badgers.

Mitigation Measure BIO-3. Standard measures for the protection of burrowing owls provided in Burrowing Owl Consortium's April 1995 *Burrowing Owl Survey Protocol and Mitigation Guidelines* and the CDFG's October 17, 1995 *Staff Report on Burrowing Owl Mitigation* shall be implemented.

Mitigation Measure WET-1. Consult with USACE regarding a jurisdictional determination of the features that met wetland criteria, and if required proceed with Section 404 permitting.

Mitigation Measure WET -2. If the wetland (Wet 2) near Substation Alternative 3 or the wetland (Wet 1) and swale (Swale 2) near Substation Alternative 2 will be impacted by development of the selected substation, then the project proponent shall consult with USACE, USFWS, and CDFG. if. . Furthermore, if these wetlands will be impacted, then the presence of of special status plant species, listed branchiopod species, the California tiger salamander, and the Western spadefoot shall be determined by conducting protocol-level surveys.

1.0 INTRODUCTION

1.1 Project Description

41MB 8ME, LLC proposes to develop the Lotus Solar Project (project), which is a utility-scale photovoltaic (PV) solar project in Madera County, California. The proposed project site is located west of Madera Ranchos, between State Route 41 and State Highway 99, north of Avenue 13 and west of Road 33 (Figure 1).

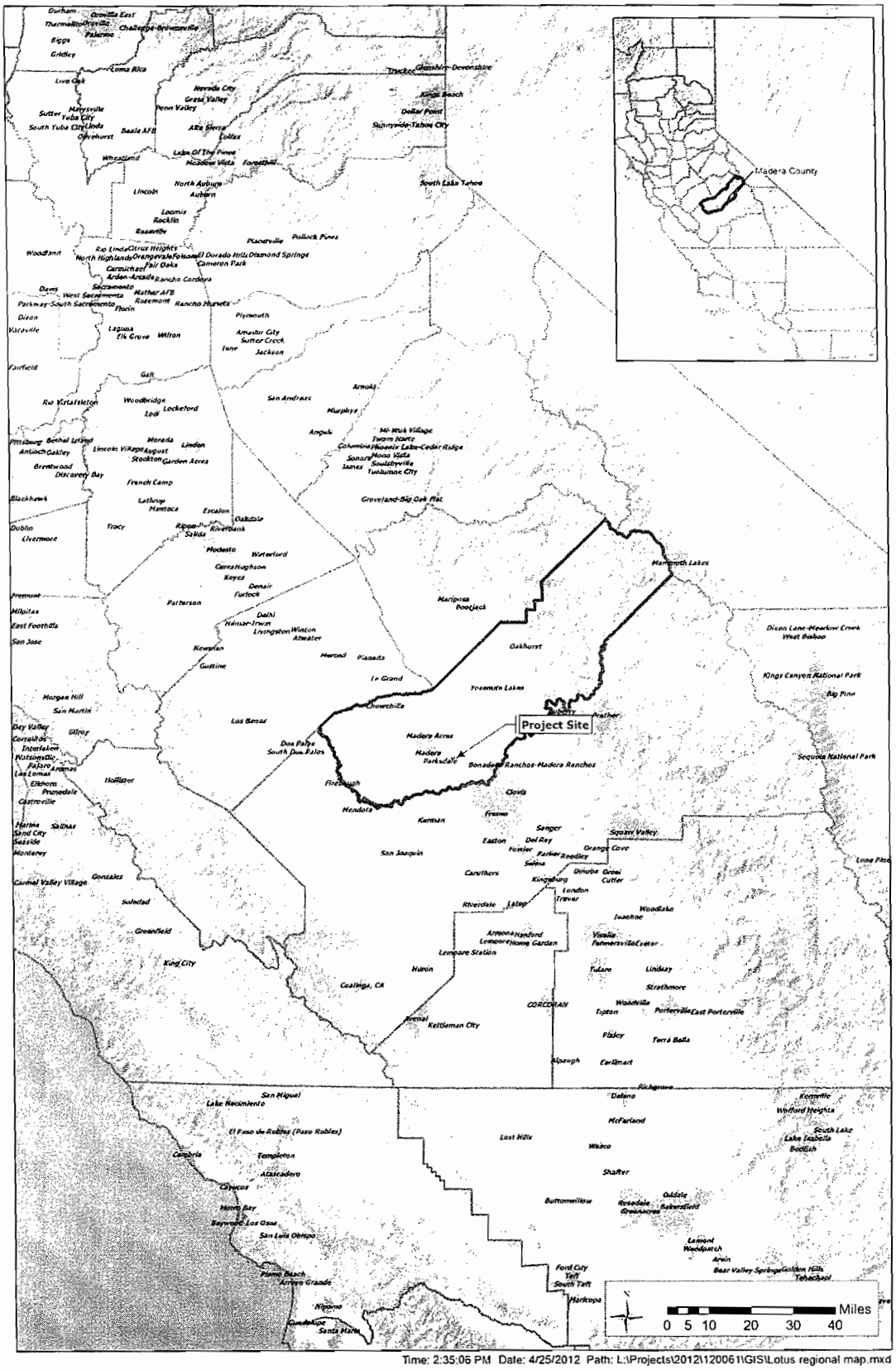
The proposed 90 megawatt alternating current (MW-AC) project site is located on lands currently zoned as Public Open Space/Agricultural Exclusive (POS/AE). The site now consists of grasslands primarily used for sheep grazing, but much of it was formerly used for crop production. The proposed project site is situated on one parcel (APN 034-210-038) that encompasses approximately 458 acres (Figure 2). One of five gen-tie line alternatives, which connect to the Borden substation, will also be installed (Figure 2). The preferred, and shortest, gen-tie line alternative is approximately 1.5 miles long. The five gen-tie line alternatives are:

1. Preferred route (aqua) – west from project site along Ave 13 (south side of road); south along private property line/road (east side of private road); cross Ave 12 to Borden; approximately 1.5 miles total to Borden.

2. Secondary route (yellow) – south from project site along Rd 32 (west side of road); west along Ave 12 (south side); approximately 2.0 miles total to Borden.

3. Third route (blue) – south from project site along private road (west side); west along Ave 12 (south side); approximately 2.6 miles to Borden.

4. Fourth route (orange) – west from project site along Ave 13 (south side); south on Road 30 ½ (east side); east on Ave 12 (south side); approximately 2.5 miles to Borden.



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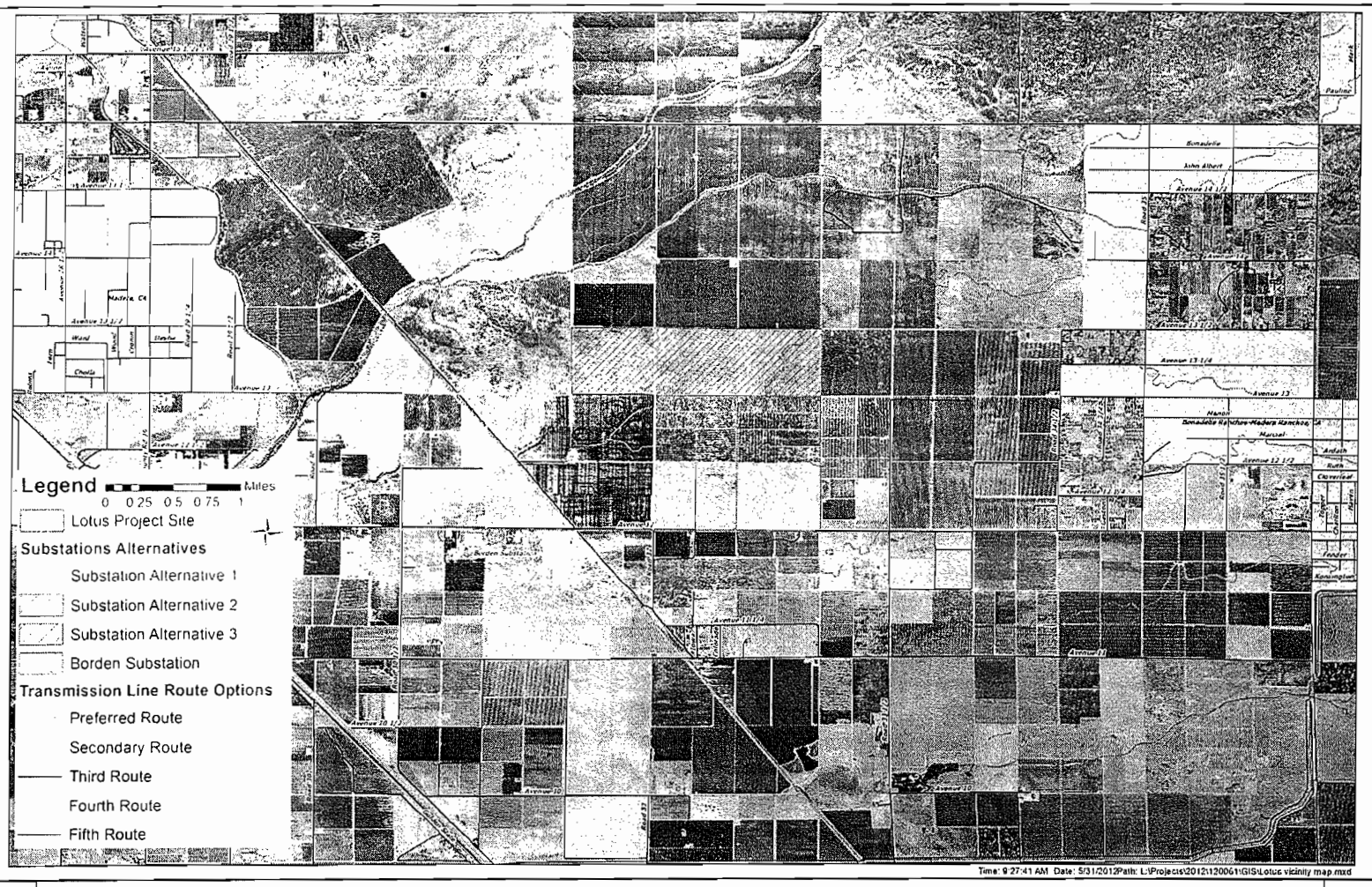
REGIONAL LOCATION OF THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 1



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LOCAL VICINITY OF THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 2

5. Fifth route (purple) – south from project site along Road 33 (west side); west on Ave 12 (south side); approximately 3 miles to Borden.

Site boundaries for each location are approximations, and currently encompass much larger areas (approximately 7.5 acres) than will actually be required for development (approximately 200 by 200 feet or 0.005 acre) (Figure 2). The final substation footprint can be placed within any portion of the location alternative selected. This initial consideration of a larger area will increase the flexibility of project design, thereby allowing avoidance or minimization of potential impacts to sensitive biological resources. The three location alternatives are in proximity to the existing Borden substation as follows:

1. Substation Alternative 1 (green) – north of Avenue 12, approximately 600 feet northeast of the existing Borden substation.

2. Substation Alternative 2 (orange) – south of Avenue 12, approximately 450 feet east of the existing Borden substation.

3. Substation Alternative 3 (red) – south of Avenue 12, approximately 450 feet west of the existing Borden substation.

The project site, five gen-tie line alternatives, and three substation alternatives are collectively located in Sections 25, 26, 34, 35, and 36 on the Gregg U.S. Geological Survey (USGS) 7.5 minute quadrangle, Township 11 South and Range 18 East, Mount Diablo Base and Meridian.

1.2 Purpose of Analysis

Quad Knopf prepared this Biological Evaluation of the project site to determine whether there are sensitive biological resources that will be adversely impacted by the proposed solar development and associated gen-tie line and substation. The analysis is based upon existing site conditions, the potential for sensitive biological resources to occur on and in the vicinity of the project site, and any respective impacts that could potentially occur. Appropriate avoidance and mitigation measures are recommended where warranted. Sensitive biological resources generally include:

- ***Special Status Species.*** These taxa may fall into one or more of the following categories:

  - Species that are officially listed or proposed for listing under the Federal and/or State Endangered Species Acts;
  - Species that are tracked by the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB);
  - State or Federal candidates for possible listing;
  - Taxa considered by the CDFG to be a "Species of Special Concern";
  - 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); and
- Taxa designated as special status, sensitive, or declining by other State or federal agencies, or a non-governmental organization.

- ***Sensitive Habitats.*** Sensitive habitats may include the following:

  - Native habitats of limited distribution (e.g. wetlands of various types, riparian habitat, native grasslands);
  - Native habitats used by state or federally listed threatened or endangered species;
  - Habitats supporting particularly high concentrations of native plants and animals; and
  - Habitat that is within the jurisdiction of one or more State and federal resource agencies (i.e. wetland, endangered species habitat).

- ***Migratory Corridors of Native Fish and Wildlife Species.*** Wildlife movement corridors (also referred to as dispersal corridors or landscape linkages) are linear features that connect at least two significant habitat areas. Examples of such corridors include the following:

  - Rivers and associated riparian habitats;
  - Irrigation canals and associated levies;
  - Ridge lines; and
  - Adjoining green space areas in urbanized landscapes.

2.0 METHODOLOGY

2.1 Literature Review and Database Search

Literature reviews and database searches were conducted in support of this Biological Evaluation. The CNDDB (April 2012), California Native Plant Society (CNPS) database (April 2012), and USFWS Threatened and Endangered Species List (April 2012) were reviewed to assess whether occurrences of special status species have been documented within the Gregg 7.5-minute topographical U.S. Geological Survey (USGS) quadrangle, which encompasses the project site and its vicinity. The surrounding eight 7.5-minute USGS quadrangles, Biola, Daulton, Fresno North, Herndon, Kismet, Lanes Bridge, Little Table Mountain, and Madera, were also searched to satisfy CDFG's standard nine-quadrangle search protocol. The CNDDB provides element-specific spatial information on individual documented occurrences of special status species and sensitive natural vegetation communities. The CNPS database provides similar information, but at a much lower spatial resolution, for additional sensitive plant species tracked by the CNPS. The USFWS query generates a list of federally protected species known to potentially occur within individual USGS quadrangles. Wildlife species designated as "Fully Protected" by California Fish and Game Code Sections 5050 (Fully Protected reptiles and amphibians), 3511 (Fully Protected birds), and 4700 (Fully Protected mammals) are also included on this list.

Additional databases that were accessed included the USFWS National Wetlands Inventory (NWI) Map (April 2012), U.S. Department of Agriculture (USDA) Web Soil Survey (April 2012), and Federal Emergency Management Agency (FEMA) 100-year floodplain database (April 2012). The potential for sensitive biological resources to occur on the project site, or within its vicinity, was primarily evaluated during on-site surveys. Regional hydrologic information was obtained from the Geospatial Data Gateway website of the Natural Resources Conservation Service (NRCS). Weather and precipitation data were obtained from http/www.wunderground.com.

2.2 On-site Surveys

Four on-site surveys of the project site were conducted. Quad Knopf Biologist Curtis Uptain conducted a reconnaissance-level survey of the portion of the project site proposed for photovoltaic facility development, and all lands immediately adjacent to it, on March 24, 2012. Gene "Woody" Moise and Ginger White conducted a wetland delineation on the project site on April 3, 2012. Curtis Uptain completed a second survey of the five gen-tie line alternative locations on April 22, 2012. Quad Knopf Biologist Andy Glass completed a survey of the three substation alternatives on May 24, 2012. These surveys (excluding the wetland delineation) generally consisted of "windshield surveys" along roads throughout the project site vicinity, but pedestrian transects were also conducted in areas where needed. Regardless of survey type, 100% visual coverage of the project site, gen-tie line alternatives, and substation alternatives was achieved.

The wetland delineation was conducted using standard methods described in the *1987 Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the most recent version of the *Arid West Supplement* (Version 2 2008). Selected areas that could potentially support wetlands were surveyed on foot to ensure 100% visual coverage. Roadside ditches, culverts, and other wetlands and non-wetland that were encountered were mapped. The purpose of the delineation was to provide sufficient data and information to the U.S. Army Corps of Engineers (USACE) to allow the agency to prepare a jurisdictional determination for the project site. Details regarding the methods, findings, and conclusions of this delineation are summarized in *Delineation of Wetlands and Waters of the United States, 41 MB 8ME, LLC, Lotus Solar Project Site, Madera County, CA* (Quad Knopf 2012, Appendix C). General tasks completed during this delineation included:

- Reviewing topographic maps and aerial photography;
- Reviewing National Wetland Inventory (NWI) data and maps and Soil Survey data and maps;
- Conducting a field survey of the project site to locate all potential wetlands and other waters;
- Documenting soil conditions, hydrological conditions, and plant community composition of potential wetlands; and

- Determining the presence and distribution of wetlands and other waters located on and adjacent to the project site based upon standardized wetlands characteristics.

Because the reconnaissance survey of the substation alternatives was completed after the wetland delineation, the delineation did not encompass the substation alternatives. Boundaries of wetland features occurring near these alternatives were mapped without sub-meter accuracy and without using the standard triple parameter technique approved by USACE. , A formal wetland delineation using the triple parameter technique will need to be conducted if it is later determined that potential wetland features will be impacted by substation development, but it is likely that the wetlands occurring near the substations will be avoided.

Tasks completed during these surveys of the project include::

- Characterizing vegetation associations and habitat conditions present on the project site, gen-tie lines, and substation areas;
- Inventorying plant and wildlife species on the project site; and
- Assessing the potential for special status species and wetlands to occur on or near the project site, gen-tie lines, and substations.

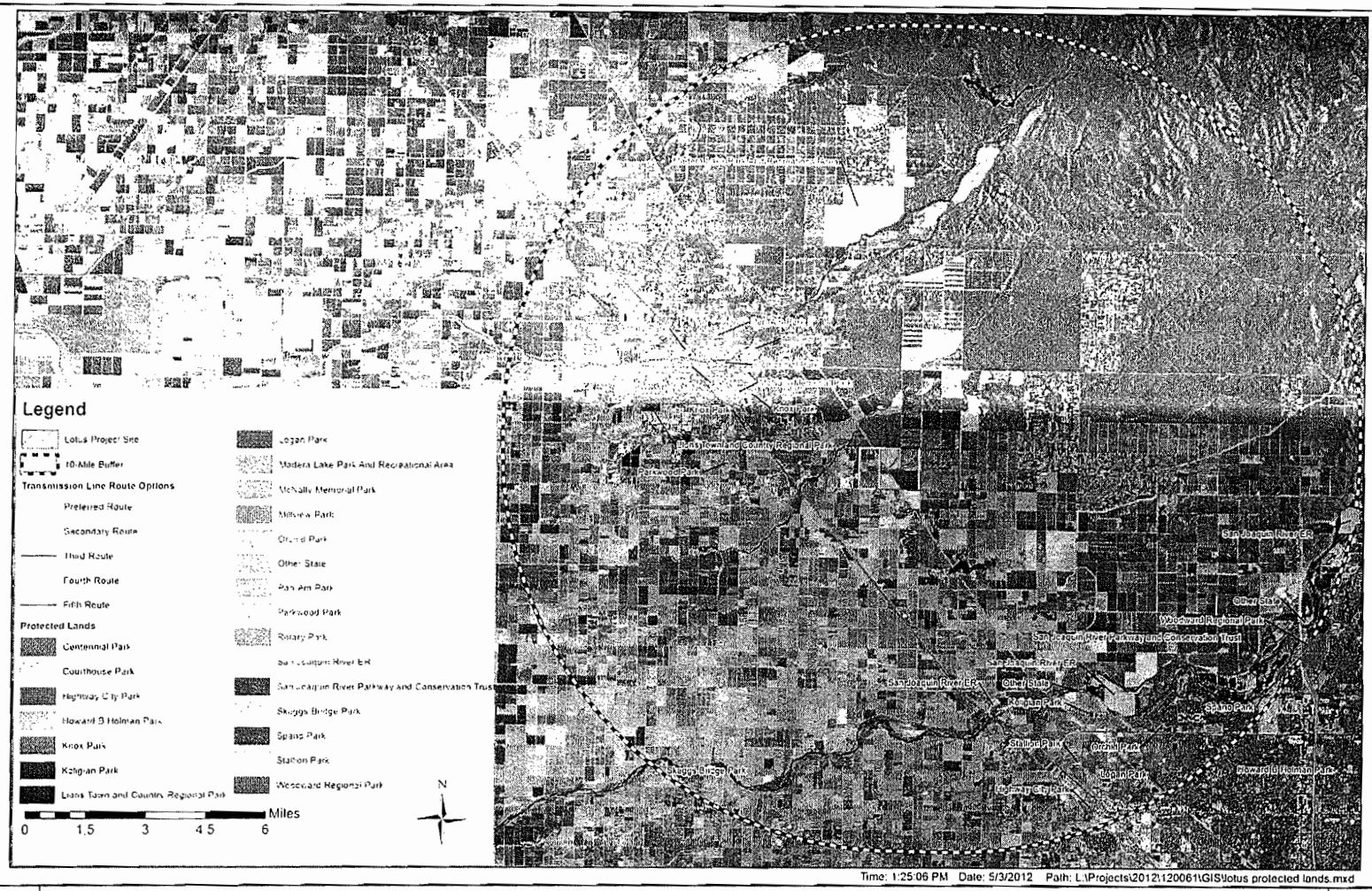
Representative photographs of the project site and adjacent lands were taken during the surveys (Photos, Appendix A).

3.0 FINDINGS

3.1 Geographic Area and Climate

The Lotus Solar project is situated in Madera County, which encompasses 2,147 square miles in the center of California, and is bordered by Fresno County to the south, Merced and Mariposa Counties to the north, Mono County to the east, and a small portion of Tuolumne County to the northeast. Four nationally protected areas occur in Madera County: Devil's Postpile National Monument, Inyo National Forest, Sierra National Forest, and Yosemite National Park. Knox Park, which is owned and managed by the City of Madera, is the nearest public land to the project site. It encompasses 32.4 acres located approximately 2.7 miles west of the project site (Figure 3).

The climate of the region varies greatly from the foothills of the Sierra Nevada Mountains to the foothills of Coastal Ranges. Madera, which is the county seat and nearest principal city to the project site, has average January temperatures ranging between a low of 35.9 degrees and maximum of 53.9 degrees Fahrenheit. In July, average temperatures range between a low of 61.4 degrees and 98.3 degrees Fahrenheit. Average annual rainfall is 10.97 inches (WRCC). Most of the annual precipitation, which occurs almost entirely as rain, falls between the months of October and May.



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PROTECTED PUBLIC LANDS IN THE VICINITY OF THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 3

3.2 Land Use and Topography

The project site is located on flat or slightly sloped rural lands that are currently either fallow or grazed by sheep. The ground has been highly disturbed in the past, as indicated by the presence of irrigation structures and equipment including well stands, a dilapidated pump, tanks, and culverts. Non-native annual grassland habitat currently exists on the site.

The Atchison Topeka and Santa Fe Railroads are located approximately 0.75 mile to the west of the site. The railway line was originally part of the Southern Pacific Railroad, which was constructed in 1872 above the grade of the surrounding lands. Consequently, it serves as a landscape barrier that restricts surface water flow from the east. Overhead power terminals, power lines, and irrigation ditches also occur on and near the project site.

Agricultural land uses dominate the habitat surrounding the project site. Almond orchards are to the north; almond and pistachio orchards are to the east, grape vineyards are to the west, and barley, almond orchards, pomegranate orchards, oats, alfalfa, and grape vineyards are to the south (Figure 4). Sheep grazing also occurs on some of the parcels to the south of the project site.

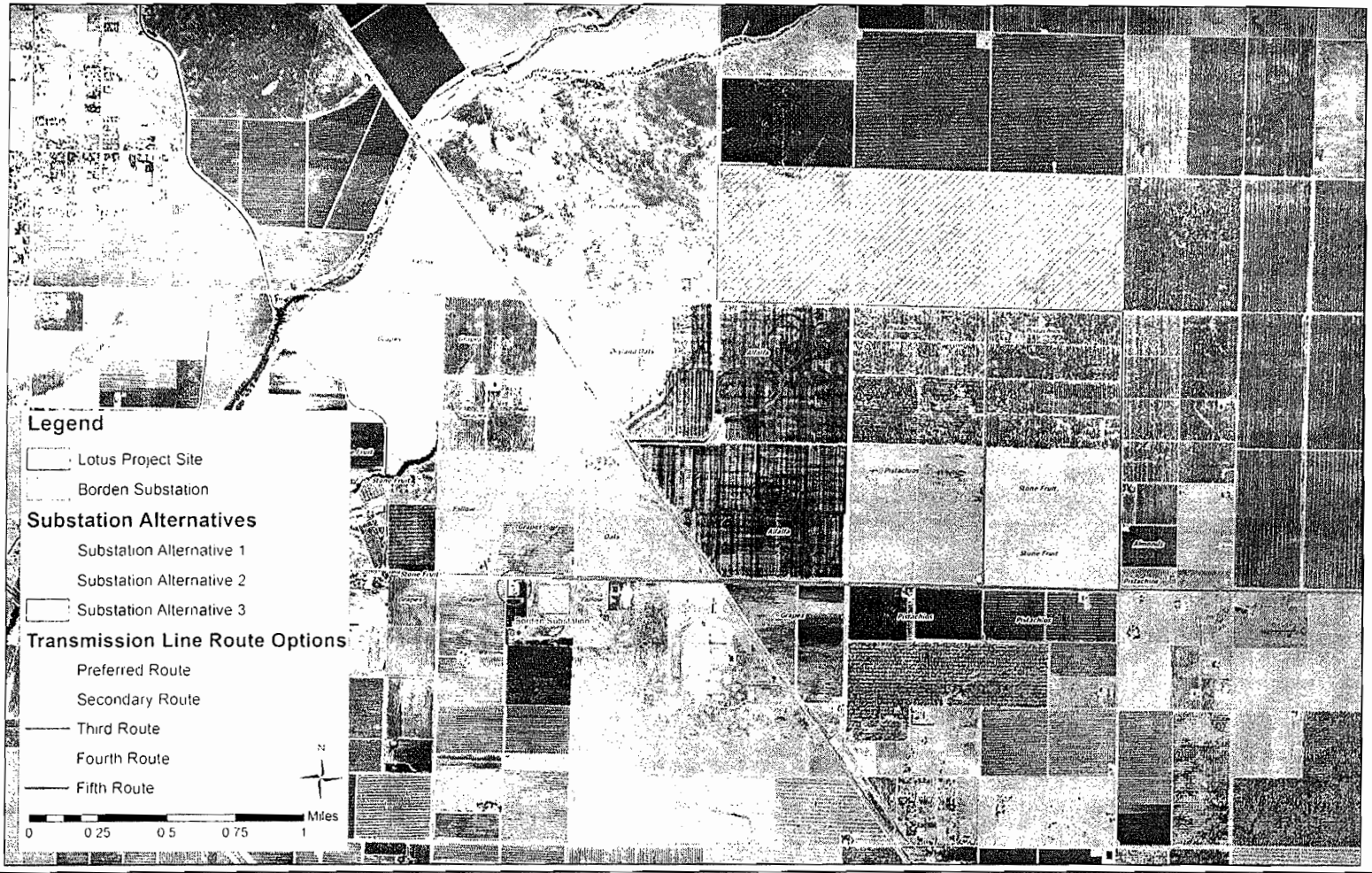
The center of the project site includes a shallow swale, aligned along a north-south axis, which has higher ground dividing it into two wetland features. With the exception of ditches and two shallow swales, the topography is relatively flat. It has an average slope of approximately 2 to 3%. The elevation of the site ranges from 283 feet above mean sea level (AMSL) near the southwest corner of the project site to 305 feet AMSL along the north perimeter of the project site.

In addition to the swale near the center of the project site, another minor drainage is located just beyond the east perimeter of the project site. Both swales are shallow drainages that are short-lived and do not have defined bed and banks. One is classified as a wetland swale and the other is a non-wetland swale. They flow south into the orchards beyond their confluence, which is located just beyond the south perimeter of the project site. Manmade features, including ditches that were created by the installation of culverts and now-nonfunctioning irrigation stands, are located sporadically around the perimeter of the project site as well. The only other wetland features identified during the surveys included one wetland and one swale located near Substation Alternative 2 and one wetland located near Substation Alternative 3.

3.3 Site Specific Conditions

SOILS

There is relatively little diversity of soils types occurring within the 458-acre project site, with eight soils types in the Area of Interest (AOI) around the site (Figure 5). The vast majority of soil was sand or sandy loam, with a small percentage of clay (Table 1)



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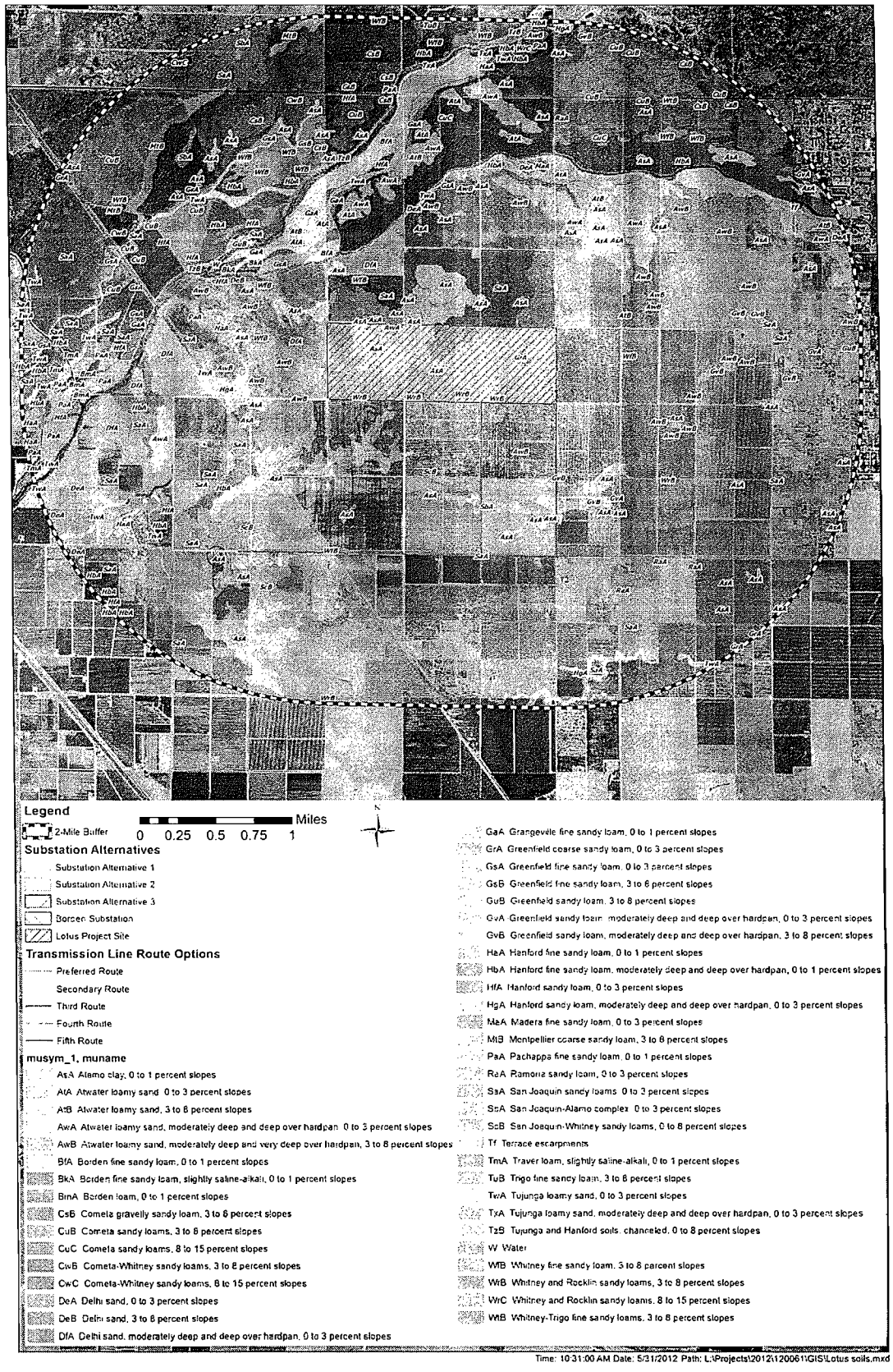
LAND USES IN THE VICINITY OF THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 4



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SOIL MAPPING UNITS ON THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 5

Table 1
Soils on the Lotus Solar Project Site, Madera County

	Soil Symbol and Description	Coverage Area
AsA	Alamo clay, 0-1% slopes	2% of AOI
AwA	Atwater loamy sand over hardpan, 0-3% slopes	16.6% of AOI
AwB	Atwater loamy sand over hardpan, 0-3% slopes	0.1% of AOI (0.8 ac)
Dfa	Delhi sand over hardpan, 0-3% slopes	0.0% of AOI (0.3 ac)
GrA	Greenfield coarse sandy loam, 0-3% slopes	0.9% of AOI
SaA	San Joaquin sandy loams, 0-3% slopes	8.3% of AOI
WfB	Whitney fine sandy loam, 3-8% slopes	48.7% of AOI
WrB	Whitney and Rocklin sandy loams, 3-8% slopes	23.3% of AOI

The project site contains two main soil types, Whitney fine sandy loam (219 ac) and Whitney and Rocklin sandy loams (105 ac), with minor amounts of Atwater loamy sand over hardpan (75 ac) and San Joaquin sandy loams (37 ac).

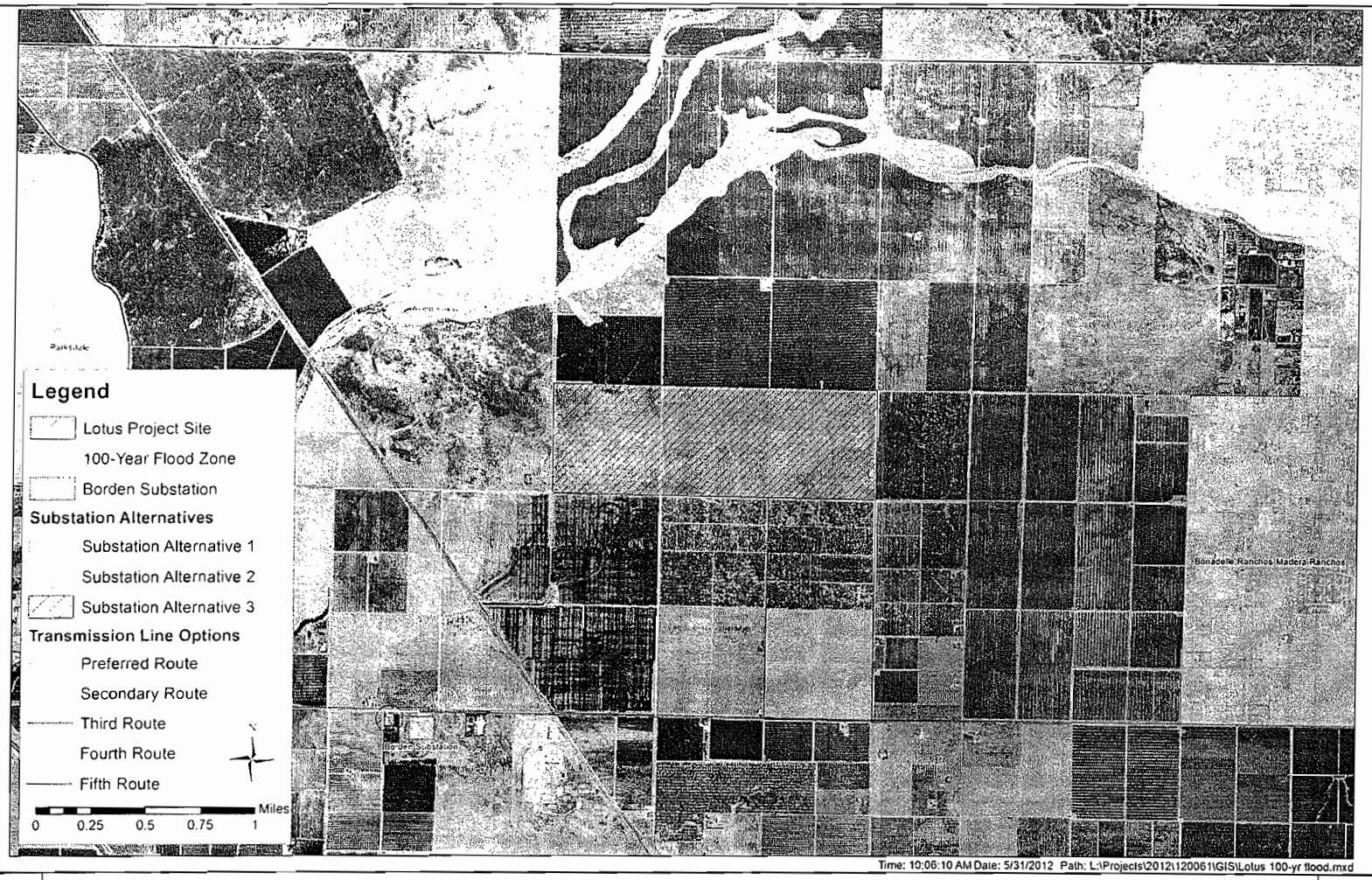
Whitney fine sandy loam: The Whitney series consists of well drained (minimal) Noncalcic Brown soils on undulating to hilly topography under annual grass-herb vegetation. Characteristically the Whitney soils have brown to strong brown slightly acid to neutral A horizon and weakly developed B2 horizons which grade at variable depths into mildly alkaline, softly consolidated, light colored, moderately coarse textured granitic sediments. This soil type may be considered prime farmland.

Whitney and Rocklin sandy loams: The Whitney series consists of well drained (minimal) Noncalcic Brown soils on undulating to hilly topography under annual grass-herb vegetation. Characteristically the Whitney soils have brown to strong brown slightly acid to neutral A horizon and weakly developed B2 horizons which grade at variable depths into mildly alkaline, softly consolidated, light colored, moderately coarse textured granitic sediments. The Rocklin series consists of moderately deep to hardpan, well or moderately well drained soils that formed in old alluvium from granitic rock sources. These soils are not considered to be prime farmland.

Atwater loamy sand over hardpan: The Atwater series consists of very deep, well drained soils formed in granitic alluvium. The mean annual precipitation is about 15 inches, and the mean annual temperature is about 61 degrees F. They occur at elevations of less than 500 feet, in a semiarid, mesothermal climate with mean annual rainfall of 9 to 20 inches, with hot, dry summers and cool, moist winters. These soils are prime farmland if irrigated.

San Joaquin sand loams: The San Joaquin series consists of moderately deep to a duripan, well and moderately well drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources. They are on undulating low terraces with slopes of 0 to 9 percent. This soil is not considered to be prime farmland.

This site is not located within a hundred-year flood zone (Figure 6).



Quad Knopf

100-YEAR FLOODPLAIN IN THE VICINITY OF THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 6

VEGETATION

The project site supports grassland that is dominated by non-native annual grasses and forbs (Table 2), with fewer native forbs and grasses intermixed. The presence of an above-ground irrigation system on the eastern portion of the site indicates that these grasslands were likely irrigated in the past, and that irrigation may continue during dry months to facilitate production of sheep forage. Typically, this grassland flourishes during the winter and spring when precipitation occurs, but becomes dry as the heat of summer approaches.

Table 2
Plants Observed on the Lotus Solar Project Site, Madera County

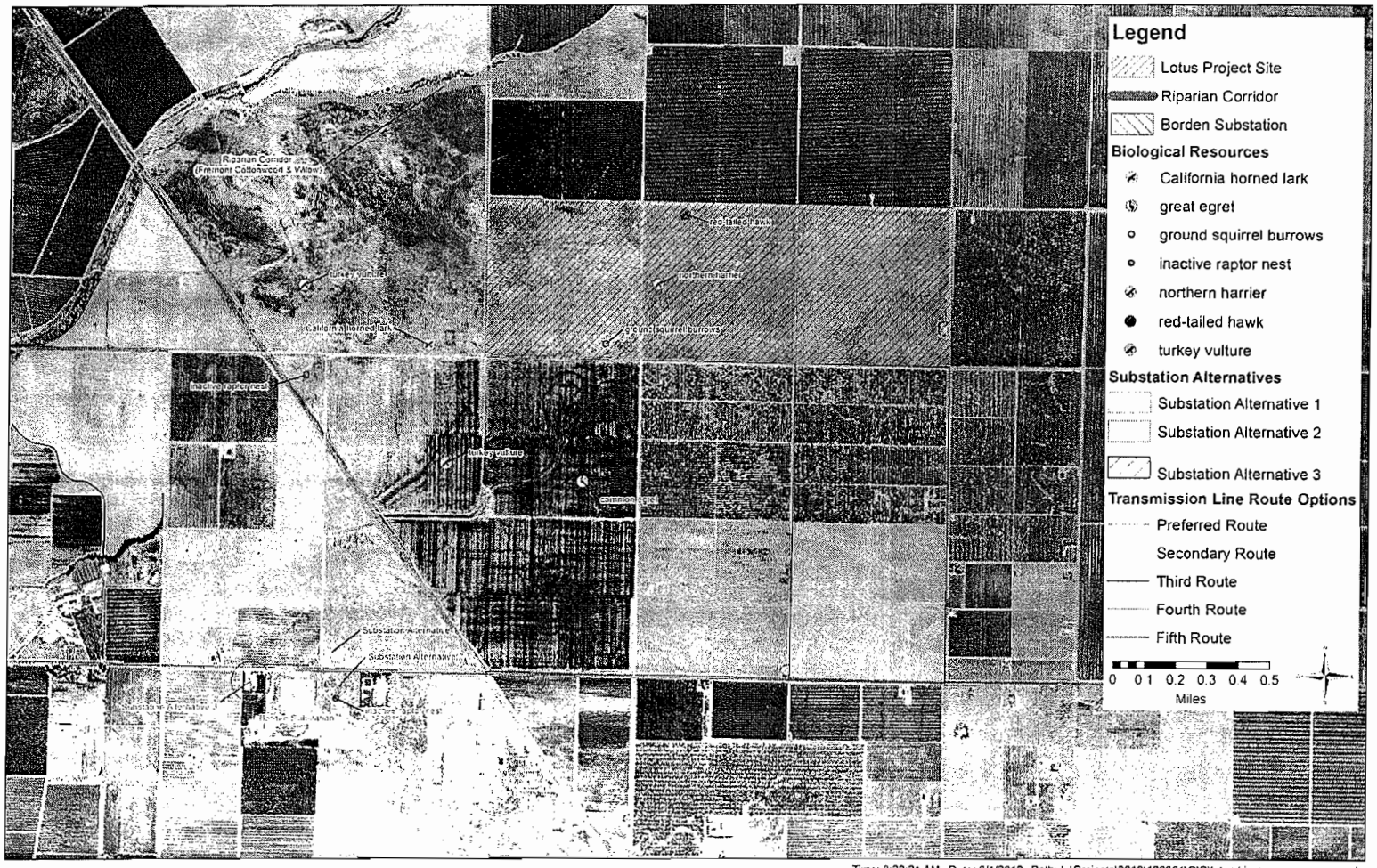
Scientific Name	Common Name
Bromus hordeacous	soft chess
Hordium murnium	mouse barley
Erodium cicutarium	filaree
Amsinckia intermedia	fiddleneck
Rumes crispus	curly dock
Plagiobothrys nothofulvus	popcorn flower
Raphanus setiva	radish
Brassica nigra	Black mustard
Centaurea solstitialis	Yellow star thistle
Lactuca serriola	Prickly wild lettuce
Cryptantha	cryptantha
Sisymbrium irio	London rocket

The non-native annual grasses and forbs listed above are also found throughout the portions of the gen-tie and substation alternatives that have not been agriculturally developed.

General wildlife activity observed on the project site, gen-tie alternatives, and substation alternatives was relatively minimal. Avian species identified collectively during the surveys included great egret (*Ardea alba),* western meadowlark (*Sturnella neglecta)*, turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), and a red-tailed hawk *(Buteo jamaicensis*). A breeding pair of northern harriers (*Circus cyaneus*) and two female horned larks (*Lepus sylvaticus*) were also observed (Figure 7). The horned lark, which was identified along the west perimeter of the project site, is on the CDFG watch list (WL). Mammal species identified during the surveys included the California ground squirrel (*Spermophilus beecheyi)*, cottontail rabbit (*Sylvilagus audubonii*)), and California vole (*Microtus californicus*).

3.4 Sensitive Natural Communities and Special Status Species

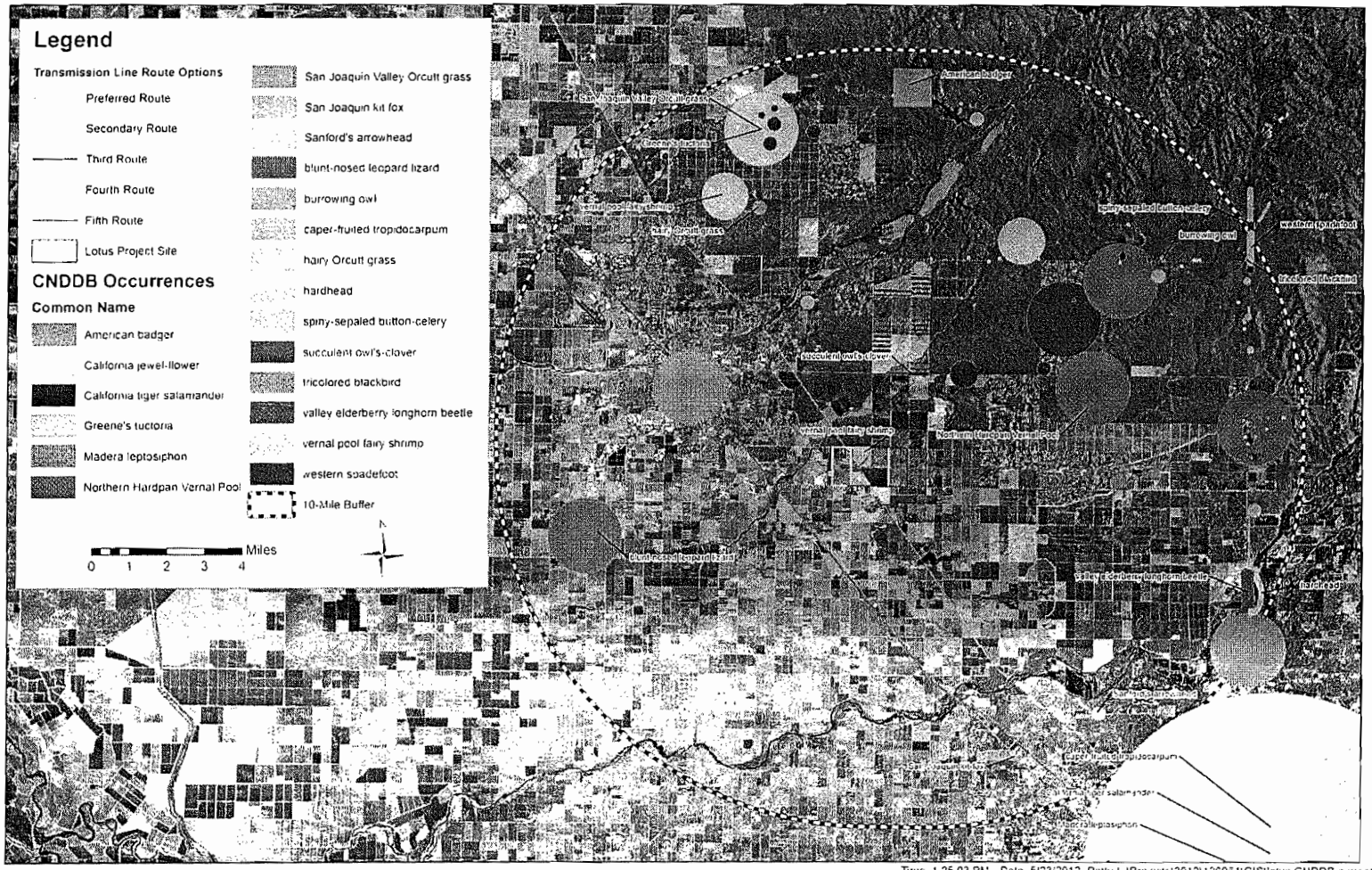
The database search listed historical occurrences of two Sensitive Vegetative Communities, 11 special status plant species, and 20 special status wildlife species within the nine USGS quadrangles queried (Appendix B). There are no historical records of special status species on the project site, but there is one special status species occurrence record near the fourth gen-tie line alternative (Figure 8). There are additional confirmed records of special status resources occurring within 10 miles of the project site (Figure 8). These special status resources include



Quad Knopf

BIOLOGICAL RESOURCES DOCUMENTED ON THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 7



Quad Knopf

CNDDB

Figure 8

one vegetative community, 11 plant species, and 16 wildlife species. Some of these species have the potential to occur on or immediately adjacent to the project site. A total of six USFWS critical habitat units were located within 10 miles of the project site (Figure 9).

The conversion of large expanses of native lands in the San Joaquin Valley has led to the State and federal listing of a multitude of plants and animals as Endangered, Threatened, of Special Concern, or otherwise being declared Sensitive. No native habitats exist in the vicinity of the project site, although there are records of Northern Claypan Vernal Pool, defined as a Sensitive Community, occurring within 10 miles of the project site (Figure 8). The project site supports one swale meeting the USACE standard criteria of a wetland. Other non-wetland features on the project site included two dry ditches and one small pond, all of which are fed by irrigation runoff. Additionally, one wetland and one swale are located near Substation Alternative 2, and one wetland is located near Substation Alternative 3.

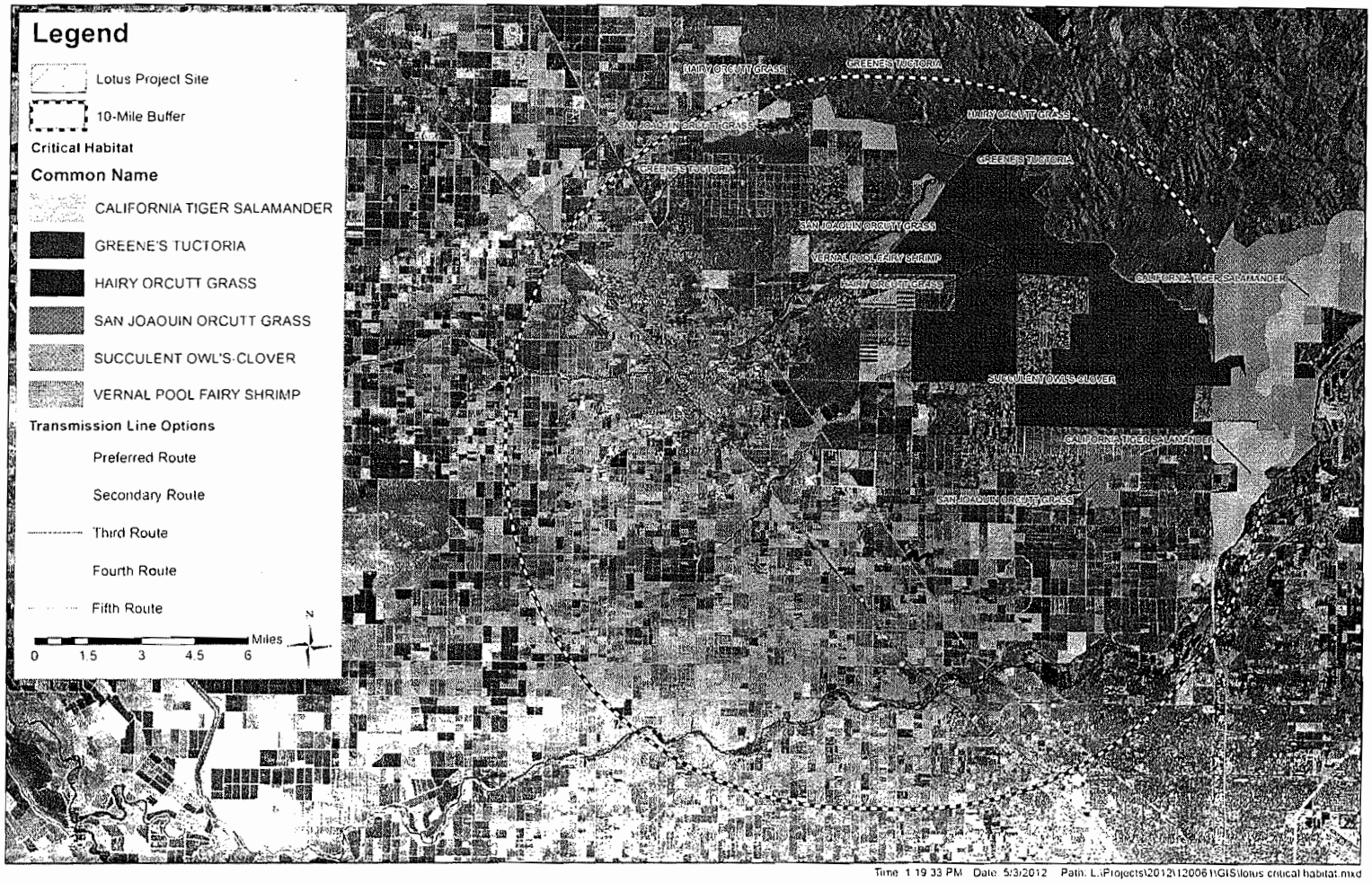
There are no historical records of special status species occurring on the project site. However, there is a confirmed record of vernal pool fairy shrimp (*Branchinecta lynchi*) located adjacent to the fourth gen-tie line alternative (Figure 8). This occurrence was documented in 1994. No vernal pools were documented at this location during the surveys, but the accuracy descriptor (80 meters) for the record does encompass a small irrigation ditch. This ditch is intensively managed, and supports an artificial lotic hydrological regime. Consequently, it is not expected to currently provide habitat for this sensitive species. There are confirmed records of other special status species occurring within 10 miles of the project site. Some of these special status species, as well as others, have the potential to occur on or adjacent to the project site, but these would be generally restricted to transient or foraging animals, as described below.

WESTERN POND TURTLE

There are no records of the western pond turtle (*Actinemys marmorata pallida*) occurring within 10 miles of the project site (Figure 8). This aquatic turtle is limited to water sources that provide adequate breeding and basking sites. The three irrigation ditches along the perimeter of the project site are the only features that could potentially support pond turtles. Pond turtles are not likely to be present in these features because they are intensively managed and irregularly inundated. The occurrence of this species on the project site is extremely unlikely.

PALLID BAT

There are no records of pallid bats (*Antrozous pallidus)* occurring within 10 miles of the project site (Figure 8). The pallid bat is usually found in rocky areas near water. It typically utilizes different diurnal, nocturnal, and hibernation roosts. No roosts were found on the project site. However, this species is known to forage in open, sparsely vegetated areas. It could therefore potentially occur on the project site as a transient or forager, but project impacts to this species are not anticipated.



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USFWS CRITICAL HABITAT UNITS WITHIN TEN MILES OF THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 9

WESTERN MASTIFF BAT

There are no records of Western mastiff bats (*Eumops perotis californicus)* occurring within 10 miles of the project site (Figure 8). The Western mastiff bat diurnally roosts in rock crevices that form vertical or nearly vertical cliffs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least three meters. This species does not use night roosts. It instead forages throughout the night over wide areas. Preferable foraging areas include broad, open semi-arid to arid habitats such as grasslands. This species could therefore potentially occur on the project site as a transient or forager, but project impacts to this species are not anticipated.

AMERICAN BADGER

There are no known historical records of the American badger (*Taxidea taxus*) on the project site, but there are two historical records of American badgers within 10 miles (Figure 8). The badger is known to occur in low densities scattered throughout the San Joaquin Valley. No American badgers or sign of badgers (e.g., dens, tracks, scat, characteristic scratch marks) were observed on the proposed project site or along the gen-tie lines. Due to the mobility of this species and its preferred foraging habitat, this species is anticipated to potentially occur on the project site as an occasional transient or forager. No evidence of the American badger was observed during field surveys.

SAN JOAQUIN KIT FOX

There are no known historical records of the San Joaquin kit fox (*Vulpes macrotis mutica*) on the project site, but there is one historical record of San Joaquin kit fox within 10 miles (Figure 8). No San Joaquin kit foxes or sign of San Joaquin kit foxes (e.g., dens, tracks, scat, characteristic scratch marks) were observed on the proposed project site or along the gen-tie lines. Due to the mobility of this species and its preferred foraging habitat, this species is anticipated to potentially occur on the project site as an occasional transient or forager. No evidence of the San Joaquin kit fox was observed during field surveys.

WESTERN BURROWING OWL

There are no known historical records of the western burrowing owl (*Athene cunicularia*) occurring on the project site, but there are three historical records of western burrowing owls within 10 miles (Figure 8). Burrowing owls typically utilize a variety of arid and semi-arid environments with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground. These conditions generally occur in the project vicinity, particularly throughout the grassland areas on the project site. No evidence of the western burrowing owl was observed during field surveys.

TRICOLORED BLACKBIRD

There are no known historical records of the tricolored blackbird (*Agelaius tricolor*) occurring within 10 miles of the project site (Figure 8). Tricolored blackbirds typically live near fresh water with tall dense emergent or riparian vegetation. However, they often forage in nearby grasslands and agricultural fields. Although no breeding habitat was identified on or adjacent to

the project site, this species could potentially forage throughout the grassland areas on the project site if breeding in the vicinity, but project impacts to this species are not anticipated. No evidence of the tricolored blackbird was observed during field surveys.

MIGRATORY BIRDS AND OTHER RAPTORS

Various species of migratory birds and raptors, which are protected by the Migratory Bird Treaty Act and various provisions of the California Fish and Game Code, are likely to forage on the project site and may nest on the project site, particularly when vegetation is tall, and when coincident with seasonal nesting. A pair of breeding northern harriers and two California horned larks were identified on the project site during the surveys (see Figure 7). Both of these species nest on the ground in dense herbaceous vegetation. A red-tailed hawk was also observed perched on a power pole on the project site. No active raptor nests were identified on the project site, but an inactive raptor nest was identified in a tree along a gen-tie line alternative (see Figure 7). No other nests were observed within 0.5 mile of the projects site, but transmission towers to the west and Fremont cottonwoods to the north do provide potential nesting substrate for raptors. Installation of a solar facility on the project site has the potential to impact nesting and foraging of migratory birds and raptors.

ADDITIONAL SPECIES POTENTIALLY ASSOCIATED WITH THE SUBSTATION ALTERNATIVES

As indicated above, small wetland features were located near Substation Alternative 2 and Substation Alternative 3. Such ephemeral water features can potentially provide breeding habitat for federally listed branchiopods, the federally and state threatened California tiger salamander (*Ambystoma californiense*), or the western spadefoot (*Spea hammondi*), a California Species of Special Concern, as described below. At this time, though, these two wetland features are not expected to be impacted by project development.

Branchiopods

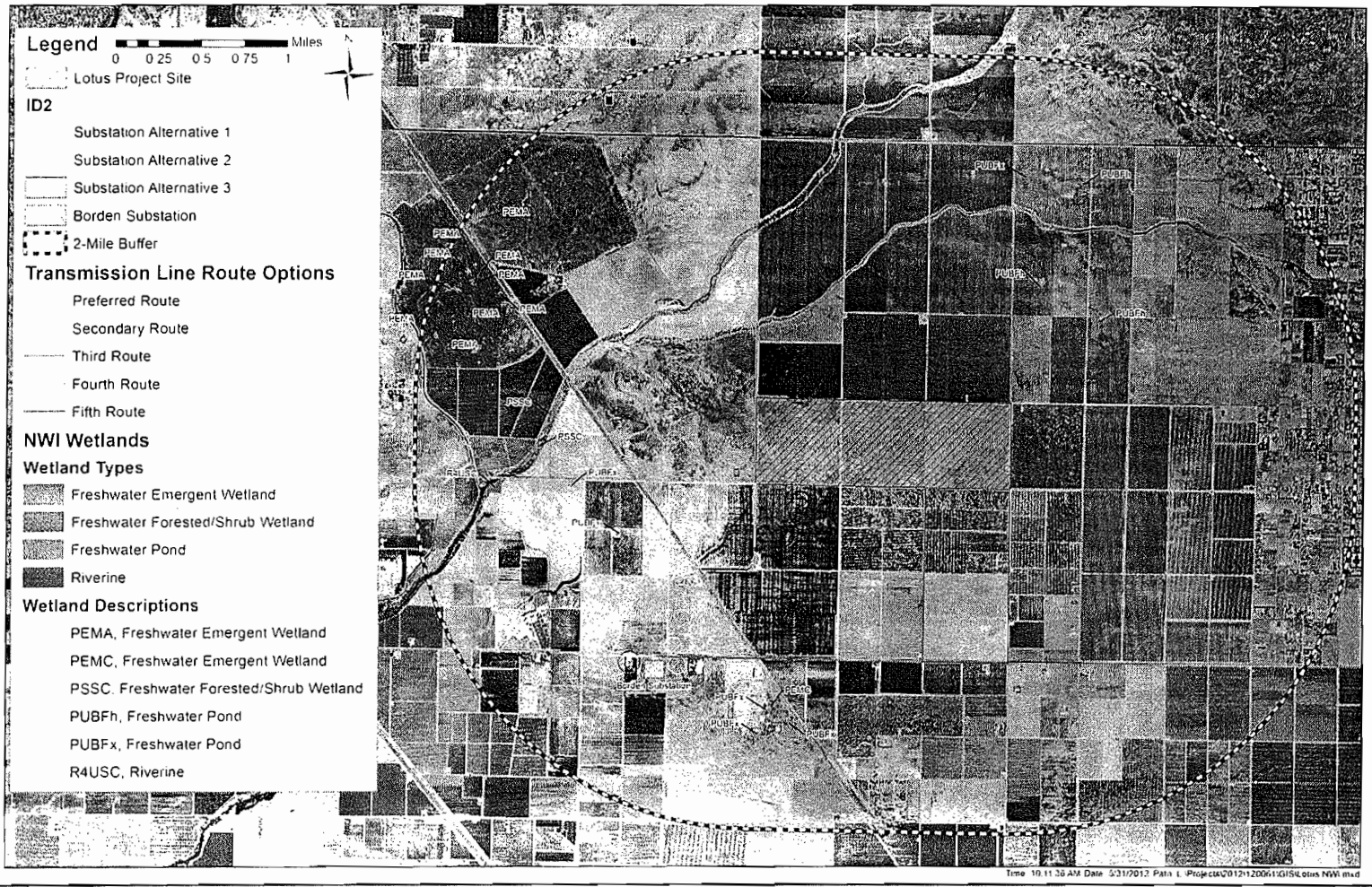
The USFWS has listed four branchiopod species with ranges known to encompass the California Central Valley. These species include the federally endangered vernal pool tadpole shrimp (*Lepidurus packardi*), longhorn fairy shrimp (*Branchinecta longiantenna*), conservancy fairy shrimp (*Branchinecta conservatio*), and the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*). Both fairy shrimp and tadpole shrimp occupy relatively specialized niches, occurring primarily within vernal pool habitats. Fairy shrimp and tadpole shrimp have a breeding strategy uniquely adapted to ephemeral aquatic features, and could potentially occur within the two wetlands located near the two substation alternatives. The absence of branchiopod species within potential habitats can only be formally determined through implementation of the survey protocol outlined in the "Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods." The protocol stipulates that either two wet season surveys be completed within a five-year period, or one wet season survey and one dry season survey be completed consecutively.

California tiger salamander and Western spadefoot

The California tiger salamander and western spadefoot are restricted to grasslands and low foothill regions where lowland aquatic sites are available for breeding. Both species prefer natural ephemeral pools, or ponds that mimic them (e.g. stock ponds that undergo seasonal inundation). California tiger salamander larvae, though, require significantly more time to transform into juvenile adults than other amphibians such as the western spadefoot. Breeding pools must hold water for at least 10 weeks. It is unknown whether the two wetland features typically hold water for this period of time, but the feature near Substation Alternative 2 likely holds water longer than the smaller wetland near Substation Alternative 3 (Photos, Appendix A). The absence of California tiger salamanders within potential habitats can only be formally determined through implementation of a survey in accordance with accepted USFWS guidelines. The protocol stipulates that aquatic sampling during two breeding seasons and a drift fence study in the intervening winter should be conducted to support a negative finding. Surveys for the California tiger salamander would also detect the Western spadefoot.

3.5 Wetlands and Waters of the United States

Existing data from the NWI indicates the presence of no wetland features within the project site (Figure 10). This finding is not consistent with findings of the field studies as it did not include the wetland swale or additional features that occur on the site. The swale flowed through the project site from north to south, interrupted by slightly higher ground in the center of the site (Figure 11 and Photos, Appendix A). This topography divided the swale into two sections, with the portion between not meeting wetland hydrology or vegetation criterion. There was a recently created, man-made ditch originating on the northeast corner, and another on the southern perimeter of the site (Figure 11). Another ditch, recognized on the topographic map but not the NWI, was barely discernible during the field study, but was easy to locate by a culvert crossing. A fourth ditch that was located north of the project was the only wet ditch (Figure 11). This large ditch was not included on the NWI, and was wet due to irrigation runoff. A small ponding basin was located on the northern perimeter of the site. This shallow ponding basin was fed by irrigation water delivered through a culvert. Swale SW1A, Swale SW1B, and Ditch 2 were the only features that met USACE wetland criteria (Table 3).



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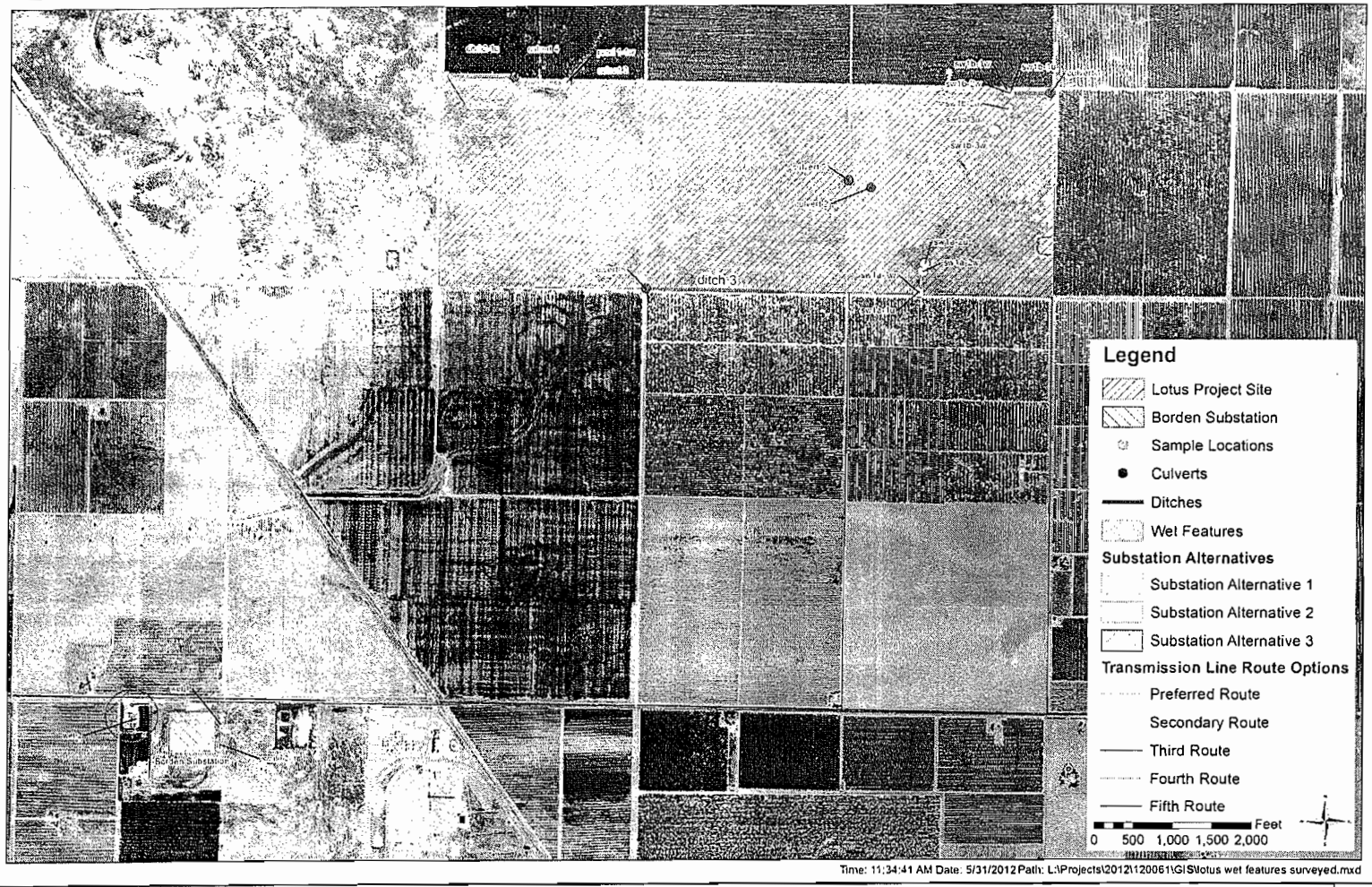
KNOWN WETLANDS ON AND IN THE VICINITY OF THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 10



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WATER FEATURES DELINEATED ON THE LOTUS SOLAR PROJECT SITE, MADERA COUNTY, CALIFORNIA

Figure 11

Table 3
Wetlands and Other Features in the Vicinity of the Lotus Solar Project

Feature	ID	Description	Acreage/ Length
Swales	SW1A	Swale at southeastern end of project, separated from SW1B by topography. This swale meets wetland criteria.	
	SW1B	Swale at northeastern end of the project, fed by irrigation runoff, and from natural drainage. Linked to Ditch 2. This swale meets wetland criteria.	
Ditches	Ditch 1	Inlet of Culvert 1 is not visible, but is apparently under the dirt road north of the project. This non-wetland, dry ditch is approximately 24" wide, and flows from the northeast corner of the site into SW1B, although it is filled with silt at the southern end.	578 ft
	Ditch 2	Man-made ditch 12 to 15' wide on the northern side of the dirt road, immediately north of the project site. This ditch was flooded on its western end. This ditch was fed by Culvert 4 and meets wetland criteria.	878 ft
	Ditch 3	Non-wetland, dry ditch on southern end of the site, fed by Culvert 5.	1,801 ft
Ponding basins	Pond 1	Appears to be created from overflow of irrigation of orchard to north of the project site. Fed by Culvert 3. Does not meet wetland criteria.	
Culverts	Culvert 1	25', 24" diameter, plastic culvert associated with Ditch 1, at the northeastern corner of the site. Culvert was apparently situated to divert irrigation overflow from the orchard north of the site.	
	Culvert 2	In center of the site. This cast iron culvert was placed under a dirt access road. The topographic map indicated the presence of a ditch flowing from the north, but no signs of a ditch are visible at this culvert location.	
	Culvert 3	Originates in orchard to north of the Project. Feeds Pond 1. Constructed of cast iron, 24" in diameter.	
	Culvert 4	Feeds Ditch 2 north of the site. Culvert is on the eastern side of the ditch, and diverts irrigation overflow from the orchard.	
	Culvert 5	Feeds Ditch 3 on the southwestern side of the Project. This 30" diameter, corrugated metal culvert diverts the flow under a dirt road, where it is fed to a pipe stand.	

In addition to the features described above that were mapped during the formal USACE wetland delineation, three other features were identified near two of the substation alternatives. One wetland feature (Wet 1) and one swale feature (Swale 2) were identified near Substation Alternative 2 (Figure 11). One wetland feature (Wet 2) was also identified near Substation Alternative 3 (Figure 11). Wetland features Wet 1 and Wet 2 encompass approximately 0.082 acre and 0.001 acre, respectively. However, boundaries of these features were not mapped with sub-meter accuracy using the standard triple parameter technique formally approved by USACE.

At this time, these wetland features associated with the substation alternatives are not expected to be impacted by project development. A formal USACE wetland delineation will be conducted if it is later determined that these features will be impacted by substation development.

4.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT IMPACT ANALYSIS

The purpose of the California Environmental Quality Act (CEQA) is to identify the significant effects on the environment of a project, to identify alternatives to a project, and to indicate the manner in which significant effects can be mitigated or avoided. The mechanism to ensure protection is the preparation and review of an environmental document that identifies the existing environmental conditions, describes a proposed project, assesses the types and significance of impact on the environment, and identifies mitigation that would mitigate, reduce, or avoid impacts where feasible. If significant impacts are found to be unmitigable, CEQA requires the lead agency to reject the project or make findings of fact and issue a statement of overriding findings. Various responsible and trustee agencies provide review, comments, and input into the decision making process. CEQA guidelines require that significant impacts to wetlands, sensitive natural communities, and special status plant and wildlife species be fully analyzed. A significant impact would occur if the project would:

1. 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?

2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

3. 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?

4. 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?

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The following analysis discusses potential impacts associated with the development of the project and recommends feasible mitigation measures, where appropriate.

1. **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?**

Impact Finding: ***Less Than Significant with Mitigation Incorporated.***

Discussion: There is the potential for some special status species to be present on the project site and be significantly impacted by the project. Each subject is discussed below and appropriate measures to reduce impacts to below significant levels are provided where appropriate.

Sensitive/Special Status Plant Species

No sensitive plant species were observed during the reconnaissance-level surveys. The project site does not contain habitat that would support sensitive plant species. The project site was historically routinely disked for agriculture, and is currently surrounded by agricultural development. Because of the high level of agricultural disturbance, there are no sensitive plant species that would occur on the project site. Accordingly, ***no impacts*** to sensitive or special status plants would occur.

Special Status Wildlife Species

The project site was historically routinely disked for agriculture, and is currently surrounded by agricultural development. However, it is now fallow and supports non-native annual grassland habitat that could potentially be utilized by some special status wildlife species. No special-status species were observed on the project site during the surveys and none are likely to be present on the site, except perhaps as an occasional transient forager. Transient foragers could include western burrowing owl, nesting migratory birds and raptors, San Joaquin kit fox, and American badger. Project development has the potential to impact special status wildlife species. However, implementation of standard mitigation measures for avoidance and minimization will reduce potential biological impacts to ***less than significant***.

Mitigation Measure BIO-1. Pre-construction surveys shall be performed on the project site in areas where there is a potential for nesting raptors and nesting migratory birds to occur if construction occurs during the breeding season (loosely defined as February 15 to August 15). These include all areas of the project site that contain or are within 500 feet of power poles or trees that are suitable for the establishment of nests. These areas should also include the non-native annual grassland habitat, which provides potential breeding habitat for ground-nesting birds such northern harriers and horned larks. The pre-construction survey shall be performed within 14 days of construction to identify active nests and mark those nests for avoidance. During the nesting period, raptor nests shall be avoided by 500 feet and all other migratory bird nests should be avoided by 250 feet.

Mitigation Measure BIO-2. Because there is the potential for San Joaquin kit foxes to occur on site, the USFWS Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance shall be followed (see Appendix D). The measures that are

listed below have been excerpted from those guidelines and will protect San Joaquin kit foxes from direct mortality and from destruction of active dens and natal or pupping dens. The Lead Agency or Designee shall determine the applicability of the following measures depending on specific construction activities and shall implement such measures when required.

- Pre-construction surveys shall be conducted no fewer 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 or American badger. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

Potential Den	50 foot radius
Known Den	100 foot radius
Natal/Pupping Den (Occupied and Unoccupied)	Contact U.S. Fish and Wildlife Service for guidance
Atypical Den	50 foot radius

  If dens must be removed, they must be appropriately monitored and excavated by a trained wildlife biologist. Replacement dens will be required. Destruction of natal dens and other "known" kit fox dens must not occur until authorized by USFWS.

- 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. Nighttime construction shall be avoided, unless the construction area is appropriately fenced to exclude kit foxes. The area within any such fence must be determined to be uninhabited by San Joaquin Kit foxes prior to initiation of construction. Off-road traffic outside of designated project areas shall be prohibited.

- 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 numbers 8 and 9 of this section must be followed.

- 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 shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. 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.

- 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 a construction or project site.

- No firearms shall be allowed on the project site.

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

- 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's name and telephone number shall be provided to the USFWS and CDFG.

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

- Any contractor, employee(s), 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.

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, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Scott Osborn at 1416 9th Street, Sacramento, CA 95814, (916) 324-3564.

The above listed measures would also protect American badgers.

Mitigation Measure BIO-3. Standard measures for the protection of burrowing owls provided in Burrowing Owl Consortium's April 1995 *Burrowing Owl Survey Protocol and Mitigation Guidelines* and the CDFG's October 17, 1995 *Staff Report on Burrowing Owl Mitigation* shall be implemented. Active burrows will be avoided by 250 feet, compensation will be provided for the displacement of burrowing owls, and habitat acquisition and the creation of artificial dens for any burrowing owls removed from construction areas will be provided (Appendix E, Appendix F).

1. Pre-construction surveys for burrowing owls shall be conducted. Pre-construction surveys of construction areas and a 500 foot buffer shall be conducted no more than 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed.

2. If burrowing owls are present on the construction site (or within 500 feet of the construction site) during the breeding season (April 15 through July 15), and appear to be engaged in

nesting behavior, a fenced 500 foot buffer shall be installed between the nest site or active burrow and any earth-moving activity or other disturbance. This 500 foot buffer could be removed once it is determined by a qualified biologist that the young have fledged. Typically, the young fledge by August 31st. This date may be earlier than August 31st, or later, and would have to be determined by a qualified biologist.

3. If burrowing owls are present in the non-breeding season and must be passively relocated from the project site, passive relocation shall not commence until October 1st and must be completed by February 1st. Passive relocation may only be conducted by a qualified biologist or ornithologist and with approval by CDFG. After passive relocation, the area where owls occurred and its immediate vicinity (500 feet) will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document that owls are not reoccupying the site.

4. Compensation for the loss of burrowing owl habitat shall be based upon the number of owls or pairs of owls located on the construction area during pre-construction surveys following the CDFG's October 17, 1995 *Staff Report on Burrowing Owl Mitigation.* The areas identified as land retirement areas and enhancement areas shall be used as compensation for the loss of habitat and for relocation of burrowing owls.

Effectiveness of Mitigation Measures. Implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3 would reduce potential impacts to special status species to ***less than significant.***

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

Impact Finding: *No Impact.*

Riparian Habitat

Riparian habitat is defined as lands that are influenced by a river, specifically the land area that encompasses the river channel and its current or potential floodplain. There are no riparian habitats occurring on the project site. Accordingly, ***no impacts*** would occur.

Sensitive Vegetative Communities

There are no sensitive vegetative communities located on the project site. Therefore, the proposed project would not impact sensitive vegetative communities. There would be ***no impacts***.

Mitigation Measures: None are required.

3. 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?

Impact Finding: L*ess than significant.*

Discussion: Swale SW1 and Ditch 2 are the only water features on the project site that meet USACE wetland criteria. These features are unlikely to have a significant nexus with Waters of the United States because they are isolated from other waters in the region by a railway line to the west, and agricultural developments to the north, east, and south. Nonetheless, a jurisdictional determination is being requested from the USACE. Two additional ditches and one ponding basin were also identified on the project site, but these features did not meet USACE wetland criteria.

All of the water features delineated on the project site are likely considered to be waters of the state under the jurisdiction of the Regional Water Quality Control Board (RWQCB). In accordance with the Porter-Cologne Act, the RWQCB typically claims jurisdiction of all surface waters. The California Department of Fish and Game (CDFG) could also potentially claim jurisdiction of the ditches and ponding basin under CDFG Code Section 1600 regardless of their nexus to other waterways. However, it is unlikely that CDFG would claim such jurisdiction because these features lack riparian habitats, do not support sensitive biological resources, and are generally devoid of any semblance of a wildlife community. Consultation with both the RWQCB and the CDFG is recommended to verify respective jurisdictional claims.

Mitigation Measure WET-1. The project proponent shall consult with USACE regarding a jurisdictional determination of the features that met wetland criteria (Swale SW1 and Ditch 2), and if required proceed with Section 404 permitting.

Effectiveness of Mitigation Measure WET-1. If Swale SW1 and Ditch 2 are determined by USACE to be a federal waters, implementation of mitigation measures required through Section 404 permitting would reduce potential impacts to federal waters to ***less than significant***.

Mitigation Measure WET -2. If the wetland (Wet 2) near Substation Alternative 3 or the wetland (Wet 1) and swale (Swale 2) near Substation Alternative 2 cannot be avoided, then the project proponent shall consult with USACE, USFWS, and CDFG. . If any of these wetland features will be impacted, USACE should be consulted regarding a jurisdictional determination of the wetland feature(s) following completion of a formal wetland delineation in accordance with accepted standards. These standards involve delineating features using three parameters (hydrology, hydrophytic vegetation, and hydric soils), and mapping the boundaries with sub-meter accuracy.

If these wetland features cannot be avoided, then the presence of special status plant species, listed branchiopod species, the California tiger salamander, and the Western spadefoot shall be determined by implementing standard protocol surveys. Presence of special status plant species shall be determined. The absence of branchiopod species within potential habitats can only be formally determined through implementation of the survey protocol outlined in the "Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the

Endangered Species Act for the Listed Vernal Pool Branchiopods." The protocol stipulates that either two wet season surveys be completed within a five-year period, or one wet season survey and one dry season survey be completed consecutively. The absence of California tiger salamanders within potential habitats can only be formally determined through implementation of a survey in accordance with accepted USFWS guidelines. The protocol stipulates that aquatic sampling during two breeding seasons and a drift fence study in the intervening winter should be conducted to support a negative finding. Surveys for the California tiger salamander would also detect the Western spadefoot.

Effectiveness of Mitigation Measure WET-2. If wetland features Wet 1, Swale 2, or Wet 2 are cannot be avoided by development of Substation Alternatives 2 or 3, implementation of Mitigation Measure WET-2 would reduce potential impacts to these wetland features, or special status species associated with them, to ***less than significant.***

4. 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?

Impact Finding: *No impact.*

Discussion: Wildlife movement corridors are routes that provide shelter and sufficient food supplies to support wildlife species during migration. Movement corridors generally consist of riparian, woodlands, or forested habitats that span contiguous acres of undisturbed habitat, and are important elements of resident species' home ranges. The project site would not be considered a wildlife movement corridor. The reconnaissance surveys conducted for the proposed project found no evidence of wildlife nursery sites on the project site, and there is no aquatic habitat to support fish species. Because the project site does not serve as a wildlife movement corridor nor as a wildlife nursery site, project development would not impede wildlife movement nor the use of a wildlife nursery site. ***No impacts*** would occur.

Mitigation Measures: None are required.

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

Impact Finding: *No Impact.*

Discussion: The project will not conflict with any local policies or ordinances protecting biological resources. There are no tree ordinances or preservation policies listed in the Madera County General Plan (City of Madera, 2009, Madera County 1995). The project also will not conflict with the recovery plan for upland species of the San Joaquin Valley (USFWS 1998).

Mitigation Measures: None are required.

6. **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?**

Impact Finding: *No Impact.*

Discussion: The project site is not located within the boundaries of any adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan or any other local, regional, or state conservation plan. As such, ***no impact*** would occur.

5.0 CONCLUSION

There are no biological issues that would preclude the construction of solar facilities on the project site. Permitting needs through the regulatory wildlife agencies for the installation of a solar project on this site is anticipated to be minimal. Appropriate surveys and avoidance measures have been proposed to ensure that the project results in less than significant impacts to all biological resources.

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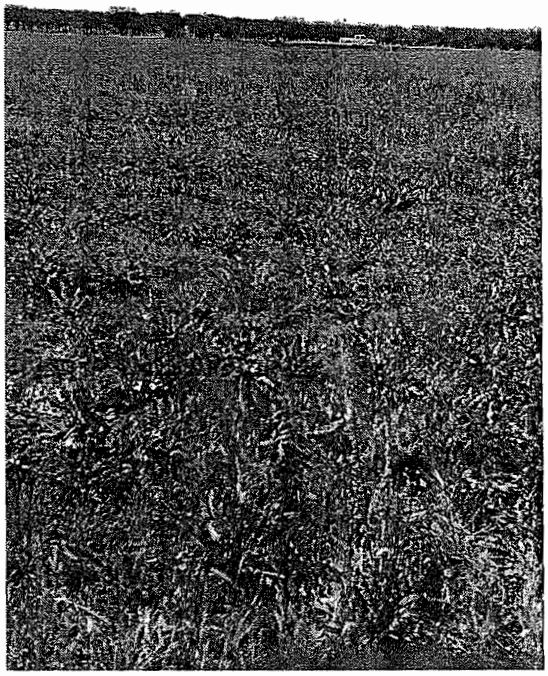
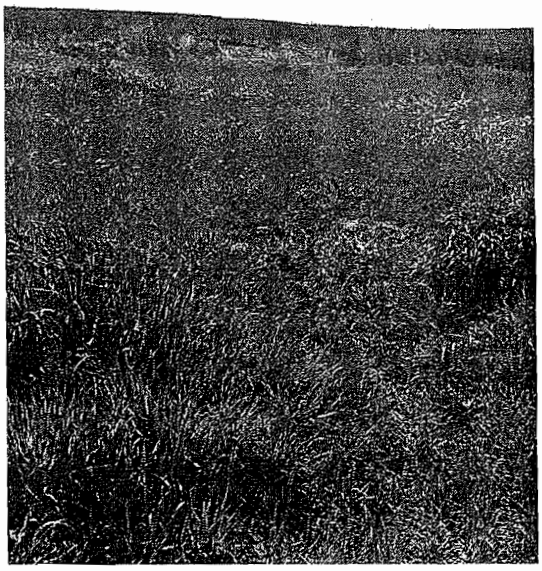
APPENDICES

Appendix A

Representative Photos of Swale SW1 on the Lotus Solar Project Site

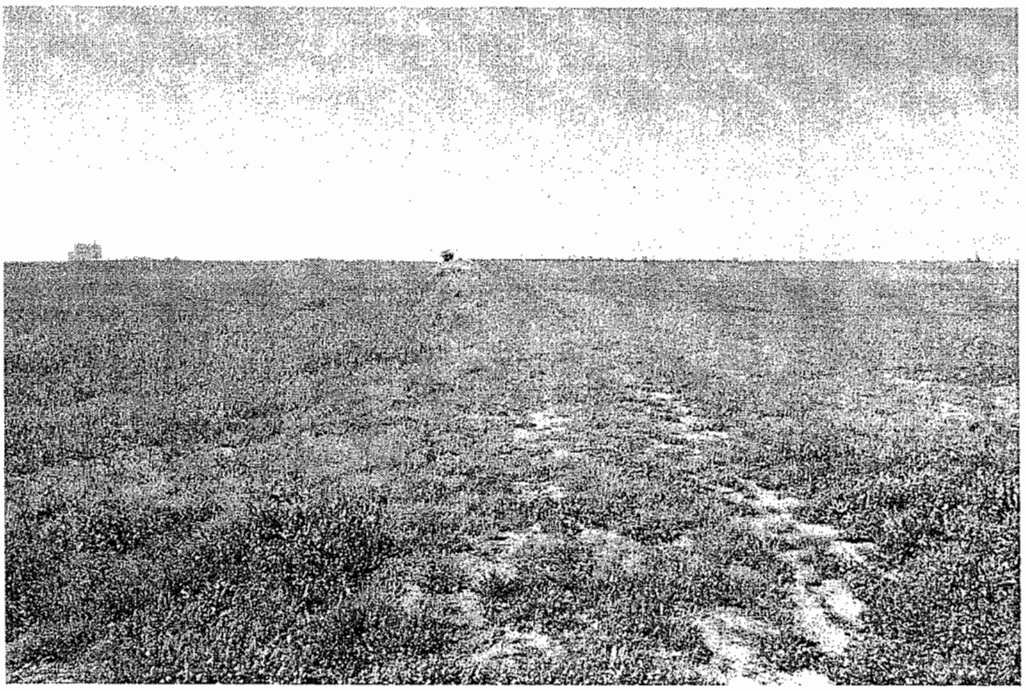


South view of Swale SW1A

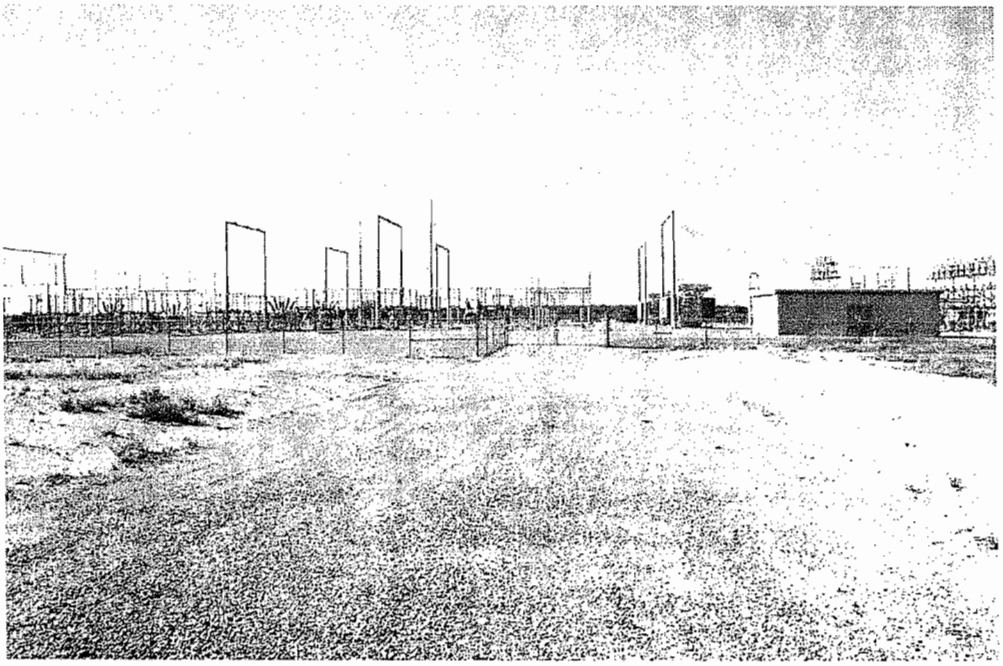


South view of Swale SW1B

Quad Knopf	REPRESENTATIVE PHOTOS OF SWALE SW1 ON THE LOTUS SOLAR PROJECT SITE	Photo Plate 1

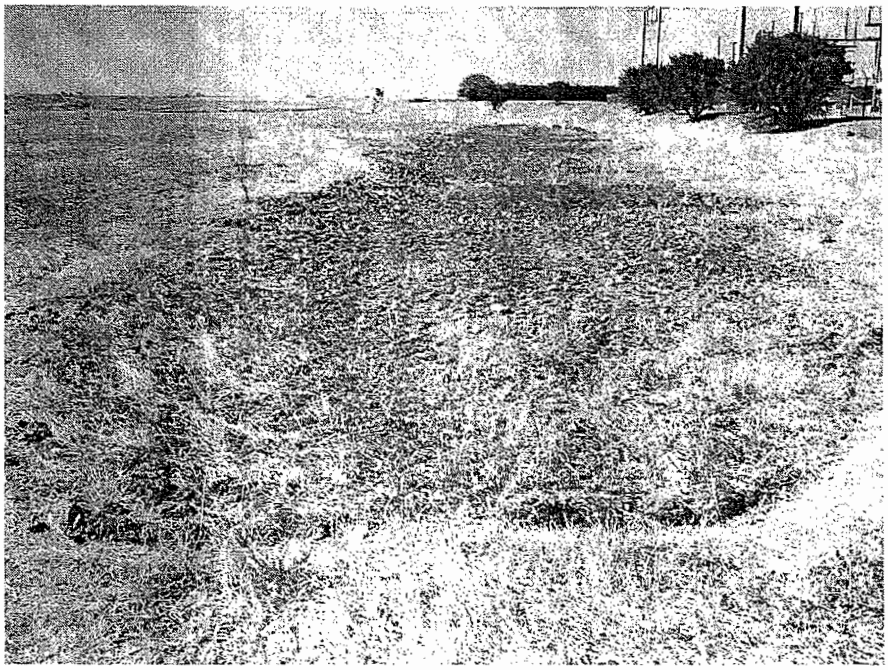


South view of gen-tie alternative 1

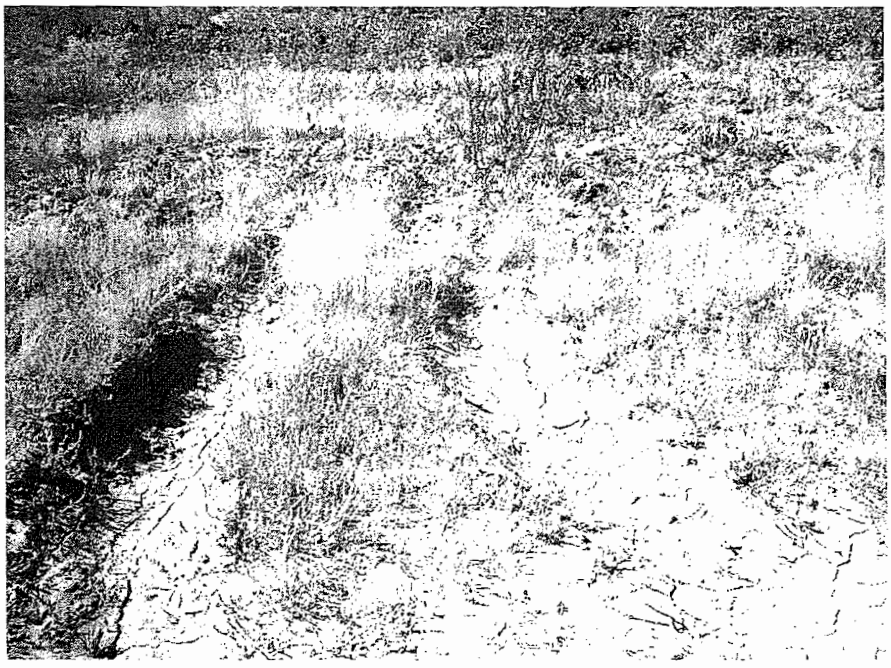


South view of Borden substation

Quad Knopf	REPRESENTATIVE PHOTOS OF SWALE SW1 ON THE LOTUS SOLAR PROJECT SITE	Photo Plate 2



South view of wetland Wet 1 near Substation Alternative 2



South view of wetland Wet 2 near Substation Alternative 3

Quad Knopf	REPRESENTATIVE PHOTOS OF SWALE SW1 ON THE LOTUS SOLAR PROJECT SITE	Photo Plate 3

Appendix B

Sensitive Communities and Special Status Species Potentially Occurring at the Lotus Solar Project Site

Sensitive Communities and Special-Status Species Potentially Occurring on Lotus Solar Project Site
(Source: CNDDB 2012, CNPS 2012, USFWS 2012, and CDFG 2012)

Scientific Name	Common Name	Status	Habitat Requirements	Probability of Occurrence and Assessment of Impacts
SENSITIVE NATURAL COMMUNITIES				
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	RARE	Northern hardpan vernal pools occur on old, very acidic, Fe-Si cemented hardpan soils (Redding, San Joaquin, and similar series). The microrelief on these soils typically is hummocky, with mounds intervening between localized depressions. Winter rainfall perches on the hardpan, forming pools in the depressions. Evaporation (not runoff) empties pools in the spring.	**Absent.** Soil type and topography on the project site were not suitable for this natural community, and therefore this community is not present on the project site. There were eight CNDDB records of this natural community occurring within ten miles of the project site.
SPECIAL-STAUS PLANTS				
Atriplex persistens	vernal pool smallscale	1B.2	This plant is restricted to alkaline vernal pools on the floor of the San Joaquin Valley and is endemic to California. It is most common in northern claypan soils. It flowers between July and September and ranges in elevation from 25 to 345 feet	**Absent.** This species was not found within the project site and its associated habitat is absent. There were no grasslands, scrublands, or alkali sink habitats within the project site and the project site does not contain soils that would support this species. There were no records of this species occurring within 10 miles of the project site.
Castilleja campestris ssp. succulenta	succulent owl's-clover	FT, CE, 1B.2	Succulent owl's clover occurs in the margins of vernal pools, swales and some seasonal wetlands, often on acidic soils. The flowering period is during April and May and it ranges in elevation from 80 to 2,300 feet.	**Absent.** Habitat suitable to support this species is absent from the project site. No vernal pools or vernal pool habitat is located within or near the project site. This species was not observed during surveys. There were three CNDDB records of this species occurring within ten miles of the project site. Critical

Scientific Name	Common Name	Status	Habitat Requirements	Probability of Occurrence and Assessment of Impacts
				habitat has been established for this species within 10 miles of project site.
Caulanthus californicus	California jewel-flower	FE, CE, 1B.1	This annual plant occurs in Chenopod scrub, Pinyon and juniper woodland, and valley and foothill grassland on sandy soils.	**Absent.** This species is not expected to occur on the project site due to the routine disking that has historically occurred on it and to the agricultural development that currently surrounds it. No record of this species occurred within 10 miles of the project site.
Eryngium spinosepalum	spiny-sepaled button-celery	1B.2	Spiny-sepaled button celery is associated with vernal pools and depressions within grasslands. This species ranges between 330 to 840 feet in elevation and flowers during April and May.	**Absent.** Habitat suitable to support this species is absent from the project site. No vernal pools or vernal pool habitat is located within or near the project site. This species was not observed during surveys. There were three CNDDB records of this species occurring within 10 miles of the project site.
Leptosiphon serrulatus	Madera leptosiphon	1B.2	This annual plant occurs in Cismontane woodland and lower montane coniferous forest. It flowers during April and May and ranges in elevation from 984 and 4,265 feet	**Absent.** Habitat suitable to support this species is absent from the project site. The elevation range in which this species grows is also outside of the elevation range of the project site. There were no CNDDB records of this species occurring within 10 miles of the project site.
Lupinus citrinus var. citrinus	orange lupine	1B.2	This annual plant occurs in Chaparral habitat, cismontane woodland, and lower montane coniferous forest, generally around granitic minerals. It flowers between April and July and ranges in elevation from 4,000 to 5,300 feet.	**Absent.** Habitat suitable to support this species is absent from the project site. The elevation range in which this species grows is also outside of the elevation range of the project site. There were no CNDDB records of this species occurring within 10 miles of the project site.
Orcuttia inaequalis	San Joaquin Valley orcutt grass	FT, CE, 1B.1	San Joaquin Valley orcutt grass occurs in vernal pools. It is most common in acidic soils that vary in texture from	**Absent.** Habitat suitable to support this species is absent from the project site. No vernal pools or vernal pool habitat is

Scientific Name	Common Name	Status	Habitat Requirements	Probability of Occurrence and Assessment of Impacts
			clay to sandy loam. It flowers from May through August and ranges in elevation from 100 to 2,500 feet.	located within or near the project site. This species was not observed during surveys. There were six CNDDB records of this species occurring within 10 miles of the project site. Critical habitat has been established within ten miles of project site.
Orcuttia pilosa	hairy orcutt grass	FE, CE, 1B.1	Hairy orcutt grass occurs in vernal pools. It is most common in acidic and saline-alkaline soils. It flowers between May and September and ranges in elevation from 75 to 375 feet.	**Absent.** Habitat suitable to support this species is absent from the project site. No vernal pools or vernal pool habitat is located within or near the project site. This species was not observed during surveys. There were six CNDDB records of this species occurring within ten miles of the project site. Critical habitat has been established within 10 miles of project site.
Sagittaria sanfordii	Sanford's arrowhead	1B.2	This perennial herb is endemic to California. It is occurs in sandy loam and clay soils. It is found in riparian habitats. It flowers between July and September and ranges in elevation from 10 to 100 feet.	**Absent.** This species is not expected to occur on the project site due to the routine disking that has historically occurred on it and to the agricultural development that currently surrounds the project site. One record of this species occurred within 10 miles of the project site.
Tropidocarpum capparideum	caper-fruited tropidocarpum	1B.1	This annual plant occurs in valley and foothill grassland (alkaline hills). It is endemic to California and may be extinct. It flowers between March and April and ranges in elevation from 1 to 1,500 feet.	**Absent.** This species is not expected to occur on the project site due to the routine disking that has historically occurred on it and to the agricultural development that currently surrounds it. This species is considered to be extinct or at least extremely rare. No records of this species occurred within 10 miles of the project site. If the appropriate avoidance and

Scientific Name	Common Name	Status	Habitat Requirements	Probability of Occurrence and Assessment of Impacts
				mitigation measures are followed project activities should not impact this species.
Tuctoria greenei	Greene's tuctoria	FE, 1B.1	Greene's tuctoria occurs in small or shallow vernal pools or the early drying sections of large, deep vernal pools in the Central Valley. It is most common in Anita clay and Tuscan loam soils. It flowers from May to July and ranges in elevation from 110 to 440 feet.	**Absent.** Habitat suitable to support this species is absent from the project site. No vernal pools or vernal pool habitat is located within or near the project site. This species was not observed during surveys. There was one CNDDB record of this species occurring within ten miles of the project site. Critical habitat has been established for this species within 10 miles of project site.
INVERTEBRATES				
Branchinecta conservatio	Conservancy fairy shrimp	FE	Endemic to the grasslands of the northern two-thirds of the central valley; found in large, turbid pools. Inhabits astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	**Absent.** Habitat suitable to support this species is absent from the project site. No vernal pools or vernal pool habitat is located within or near the project site. This species was not observed during surveys. There were no CNDDB records of this species occurring within 10 miles of the project site.
Branchinecta lynchi	vernal pool fairy shrimp	FT	Vernal pool fairy shrimp occur in a variety of vernal pool habitats from small, clear sandstone rock pools to large, turbid, alkaline, grassland valley floor pools.	**Absent.** Habitat suitable to support this species is absent from the project site. No vernal pools or vernal pool habitat is located within or near the project site. This species was not observed during surveys. There were 20 CNDDB records of this species occurring within 10 miles of the project site. The nearest historical occurrence is located adjacent to the fourth gen-tie line alternative, but the nearest water feature is currently an irrigation ditch that is not expected to provide habitat for this species. Critical

Scientific Name	Common Name	Status	Habitat Requirements	Probability of Occurrence and Assessment of Impacts
				habitat has been established within 10 miles of project site.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	Valley elderberry longhorn beetles are associated with elderberry bushes (Sambucus spp.) in the Central Valley.	**Absent.** Habitat suitable to support this species is absent from the project site. No elderberries were located within or near the project site. Valley elderberry longhorn beetle were not observed during surveys. There was one CNDDB record of this species occurring within 10 miles of the project site.
FISH				
Hypomesus transpacificus	Delta Smelt	FT, CT	Occurs primarily in main waterbodies and sloughs of the Delta and Suisun Bay. Not directly associated with small stream systems.	**Absent.** No habitat for Delta smelt occurred within the project site. This species not observed during surveys and no CNDDB records of this species occur within 10 miles of the project site.
Mylopharodon conocephalus	hardhead	CSC	Found in Sacramento-San Joaquin and Russian River drainages in California. Inhabits deep, rocky and sandy pools of small to large rivers in slow moving water; found from Modoc County in the north to Kern County in the south.	**Absent.** No habitat for hardhead occurred within the project site. This species not observed during surveys and no CNDDB records of this species occur within 10 miles of the project site.
Oncorhynchus mykiss	Central Valley Steelhead	FT	Steelhead trout occur in stream and rivers with connections with the San Joaquin River.	**Absent.** No habitat for Central Valley steelhead occurred within the project site. This species not observed during surveys and no CNDDB records of this species occur within 10 miles of the project site. Project activities should have no impact on this species.
AMPHIBIANS				
Ambystoma californiense	California tiger salamander	FT, CT	California tiger salamanders occur in natural ephemeral pools or ponds that mimic them, that remain inundated for 12 weeks or more. They require	**Absent.** No potential breeding features are present on the project site. No upland estivation is expected to occur on the project site. Although 17 CNDDB records

Scientific Name	Common Name	Status	Habitat Requirements	Probability of Occurrence and Assessment of Impacts
			nearby upland habitat containing small mammal burrows or crevices that provide refugia.	of this species historically occurred within 10 miles of the project site, none are within 1.25 miles. Critical habitat has been established within 10.5 miles of the project site.
Rana draytonii	California red-legged frog	FT, CSC	California red-legged frogs occur in small streams, ponds and marshes, preferably with dense shrubby vegetation such as cattails and willows near deep water pools	**Absent.** No breeding habitat for this species is present on the project site. No CNDDB records of this species occur within ten miles of the project site.
Spea hammondii	western spadefoot	CSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	**Absent**. No potential breeding features are present on the project site. No upland estivation is expected to occur on the project site. Eight CNDDB records of this species occurred within ten miles of the project site, but the nearest occurrence is greater than five miles away.
BIRDS				
Agelaius tricolor	tricolored blackbird	CSC	Tricolored blackbirds live near fresh water, and prefer emergent wetland vegetation with tall, dense cattails or tules, but they also are found in thickets of willow, blackberry, wild rose, and tall herbs. They forage in grassland and agricultural fields.	**Possible transient forager.** Marginal upland foraging habitat is available for this species within the project vicinity. However, this species was not observed, and the available habitat is limited. No CNDDB records of this species occurred within 10 miles of the project site.
Athene cunicularia	burrowing owl	CSC	This species inhabits open annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	**Possible.** This species was not observed during the survey, but marginal habitat for it is available throughout the grassland areas on the project site. Three CNDDB records of this species occurred within 10 miles of the project site.
Buteo swainsoni	Swainson's hawk	CT	Swainson's hawks occur in riparian forests and other forested areas. They roost in a variety of trees and forage	**Possible.** This species was not observed during the survey, but one small inactive raptor nests was identified along the

Scientific Name	Common Name	Status	Habitat Requirements	Probability of Occurrence and Assessment of Impacts
			widely over forests, grasslands, and shrublands. They are easily disturbed by human activities.	preferred gen-tie line alternative. Other trees or transmission towers in the vicinity provide potential nesting substrate for this species. No CNDDB records of this species occurred within 10 miles of the project site.
REPTILES				
Emys marmorata	western pond turtle	CSC	Western pond turtles can be found in ponds and small lakes with abundant vegetation; also found in marshes, slow moving streams, reservoirs, and brackish water. Require basking sites.	**Possible.** This species was not observed during the survey, but marginal habitat for it is available within the irrigation ditches on the project site. No CNDDB records of this species occurred within 10 miles of the project site.
Gambelia sila	blunt-nosed leopard lizard	FE, CE	Blunt-nosed leopard lizards occur in sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. They seek cover in mammal burrows, under shrubs, or structures such as fence posts.	**Absent.** This species is not expected to occur on the project site due to the routine disking that has historically occurred on it and to the agricultural development that currently surrounds it. One CNDDB record of this species occurred within 10 miles of the project site.
Thamnophis gigas	giant garter snake	FT, CT	Giant garter snakes require permanent or semi-permanent marshes and sloughs.	**Absent.** No permanent or semi-permanent marshes or sloughs occur within the project site. No CNDDB records of this species occurred within 10 miles of the project site.
MAMMALS				
Antrozous pallidus	pallid bat	CSC	This bat is found in deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Possible transient forager.** No potential roosts were identified on the project site, but this species may be a transient forager there. No CNDDB records of this species occurred within 10 miles of the project site.

Scientific Name	Common Name	Status	Habitat Requirements	Probability of Occurrence and Assessment of Impacts
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE, CE	Fresno kangaroo rats historically occurred in alkali sink within open grassland habitats on the valley floor in Fresno County and portions of Tulare, Kings, and Madera counties. The last confirmed specimen was captured in 1992 and they may be extinct.	**Absent.** Alkali sink habitat is absent from the project site. No CNDDB records of this species occurred within 10 miles of the project site.
Eumops perotis californicus	western mastiff bat	CSC	Western mastiff bats are found in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. They roost in crevices on cliff faces, high buildings, trees, and tunnels.	**Possible transient forager.** No potential roosts were identified on the project site, but this species may be a transient forager there. No CNDDB records of this species occurred within 10 miles of the project site.
Taxidea taxus	American badger	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Possible.** This species could be a transient on the project site. They are known from the vicinity and could forage on the project site. No dens or sign of this species were observed during the site survey. Two CNDDB records of this species occurred within 10 miles of the project site.
Vulpes macrotis mutica	San Joaquin kit fox	FE, CT	Found in annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	**Possible.** This species could be a transient on the project site. They are known from the vicinity and could forage on the project site. No dens or sign of this species were observed during the site survey. One CNDDB record of this species occurred within 10 miles of the project site.

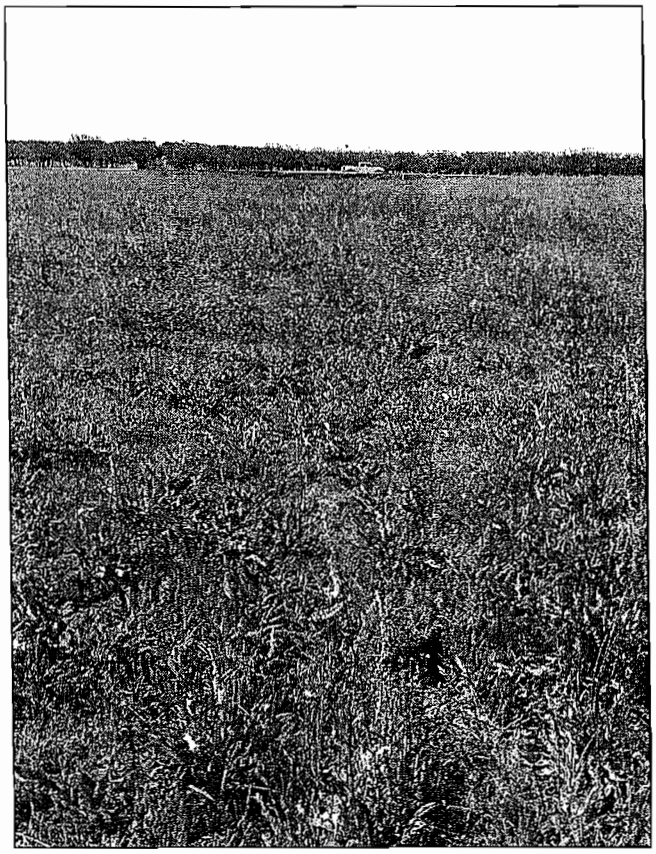
Appendix C

Delineation of Wetlands and Waters of the United States, Lotus Solar Project Site, Madera County, California

DELINEATION OF WETLANDS AND WATERS OF THE UNITED STATES

41MB 8ME, LLC

LOTUS SOLAR PROJECT SITE
MADERA COUNTY, CA



April 2012

Delineation of Wetlands and Waters of the United States
41MB 8ME, LLC
Lotus Solar Project Site
Madera County, California

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April 2012

120061

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EXECUTIVE SUMMARY

41MB 8ME, LLC is investigating the potential to develop a utility-scale photovoltaic (PV) solar farm (up to 90 mw) in Madera County, California. The proposed Project site is located west of Madera Ranchos and southeast of the City of Madera. The project is known as the Lotus Solar Project (Project).

The proposed Project site is located on lands currently zoned as Public Open Space/Agricultural Exclusive (POS/AE) on an agricultural grazing site. The proposed Project site would be situated on up to 458 acres of a 634-acre parcel.

Quad Knopf, Inc. conducted a delineation of wetlands and Waters of the United States within the Lotus Solar Project on April 3, 2012. The site contained one swale meeting the US Army Corps of Engineers (USACE) standard criteria of a wetland. Other non-wetland features on the site included two dry ditches and one small pond. Irrigation runoff from orchards north of the site fed one of these ditches, the swale, and the pond. A third ditch and the only wet ditch in the vicinity was located north of the Project site. This ditch was also fed by irrigation runoff. The site is isolated from other wetlands by topography and alterations to the land from humans. These include a railway line to the west of the Project, and agricultural lands to the north, east, and south of the Project.

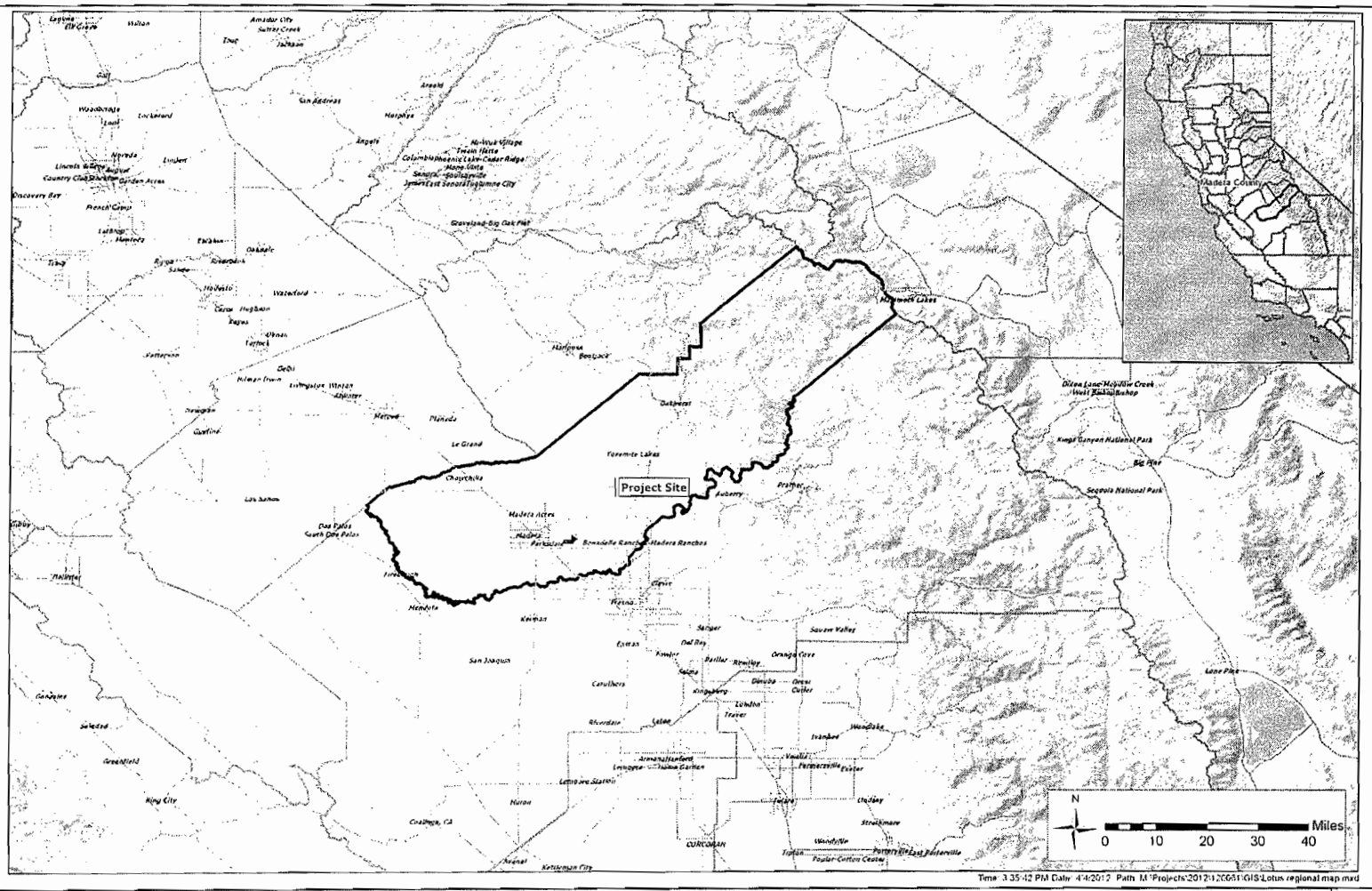
Most of these features will not fall within the jurisdictional authority of the USACE because they do not meet wetland criteria, would be considered isolated features, or would be exempt from the permitting process. The State RWQCB may take jurisdictional authority over some of the features that are excluded from USACE jurisdiction. There are no riparian areas or riverine systems that are likely to be within the jurisdiction of the CDFG.

1.0 INTRODUCTION

41MB 8ME, Inc. is investigating the potential to develop a utility-scale photovoltaic (PV) solar farm project in Madera County, California. The proposed Project site is located west of Madera Ranchos, between State Route 41 and State Route 99, north of Avenue 13 and west of Road 33 (Figure 1). The project is known as the Lotus Solar Project (Project).

The proposed Project is located on lands currently zoned as Public Open Space/Agricultural Exclusive (POS/AE). The site consists primarily of grasslands used for sheep grazing, some of which was formerly used for crop production. The proposed Project site is situated on up to 458 acres of APN 034-210-038 (Figure 2).

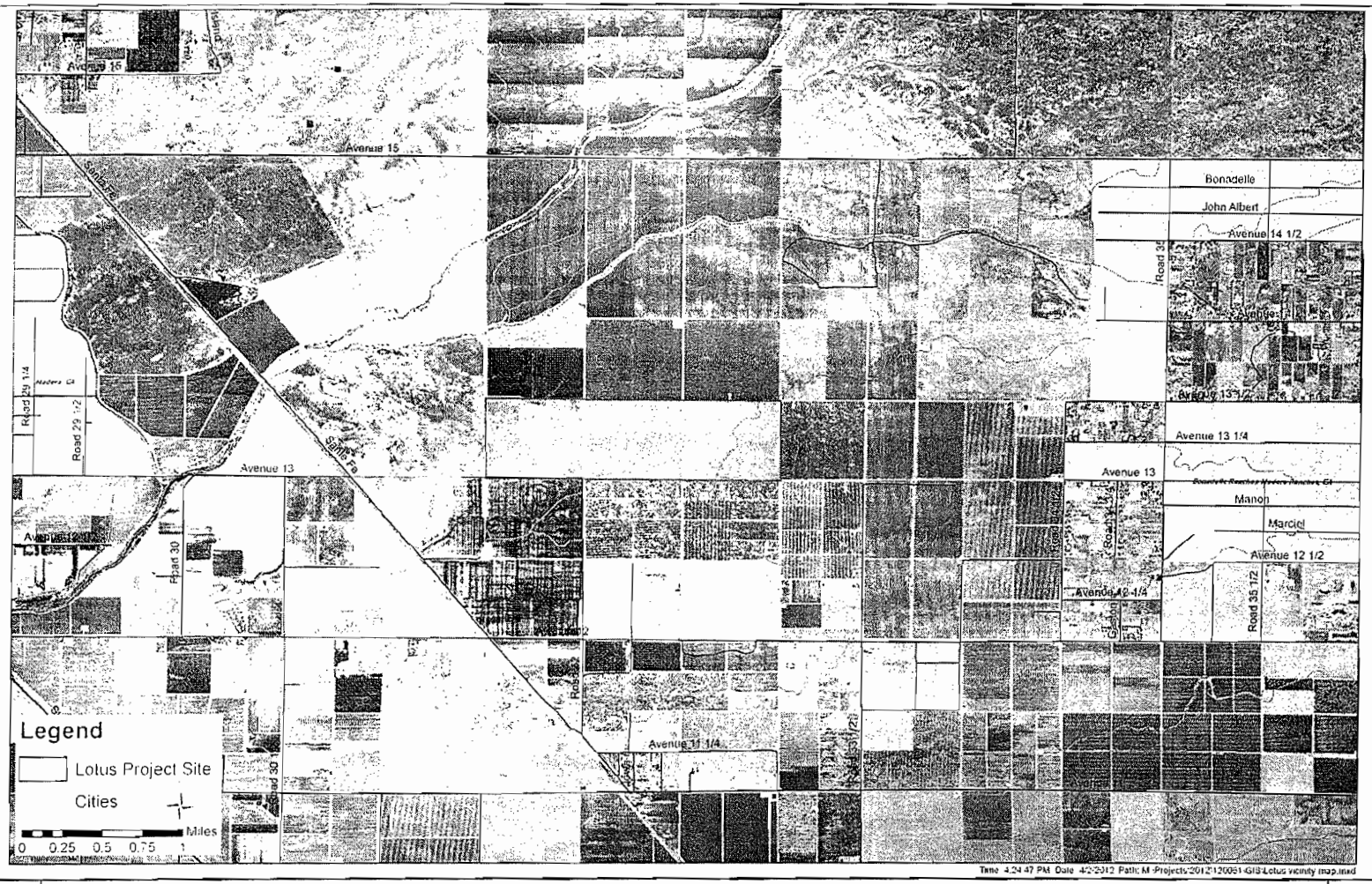
Quad Knopf, Inc. conducted a delineation of wetlands and Waters of the United States within the Lotus Solar Project. The site is contained within the Gregg 7.5-minute U.S. Geological Survey Map, in Township 11S, 18E, Sections 25, 26, 35, and 36.



Quad Knopf

REGIONAL MAP OF THE LOTUS SOLAR PROJECT

Figure 1



Quad Knopf

VICINITY MAP OF THE LOTUS SOLAR PROJECT

Figure 2

This wetland delineation report includes a delineation of wetlands and other waters conducted April 3, 2012. The objectives of the delineation were to:

- Document existing site conditions;
- Determine the presence of wetlands and waters within and adjacent to the Project using standardized wetland characteristics; and
- Delineate wetland boundaries and boundaries of Ordinary High Water for those features that may be under the jurisdictional authority of the USACE and the Environmental Protection Agency (EPA).

Tasks completed include:

- Reviewing topographic maps and aerial photography;
- Reviewing National Wetland Inventory (NWI) data and maps and published Soil Survey data and maps;
- Conducting a field survey of the Project site to locate all potential wetlands and other waters;
- Documenting soil conditions, hydrological conditions, and plant community composition of potential wetlands following the *Corps of Engineers Wetland Delineation Manual* (USACE 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008); and
- Determining the presence and distribution of wetlands and other waters located within and adjacent to the Project site based upon standardized wetland characteristics.

The purpose of this report is to provide sufficient data and information to the USACE so that they may conduct a wetland verification and prepare a jurisdictional determination for the Project. Following the jurisdictional determination, and based upon an analysis of impacts to wetlands and Waters of the United States, an application for a 404 permit, pursuant to the requirement of the Clean Water Act (CWA), may be required.

2.0 METHODS

Prior to conducting field investigations, a review of available literature and a search of the National Wetlands Inventory (NWI) (USFWS 2012) were conducted. Information on regional hydrology was obtained from the Geospatial Data Gateway website of the Natural Resources Conservation Service (http://datagateway.nrcs.usda.gov/GDGHome.aspx). Weather and precipitation data were obtained from http/www.wunderground.com and soils data were obtained from the Web Soil Survey (USDA-NRCS 2012).

Quad Knopf biologists Eugene (Woody) Moise and Ginger White conducted wetland field investigations within and adjacent to the Project site on April 3, 2012. The entire Project site was inspected for the presence of wetlands, and each potential wetland feature located was delineated using standard methods described in the *1987 Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the most recent version of the *Arid West Supplement* (Version 2 2008). The Project site is defined by Road 33 on the eastern boundary, Avenue 13 ½ on the northern boundary, and unnamed dirt roadways to the west and south. The entire site was evaluated for the presence of potential wetlands by studying aerial photographs and the Gregg topographic map, and by conducting a reconnaissance survey by vehicle. Selected areas which could potentially support wetlands were surveyed on foot to ensure 100 percent coverage of the site. Roadside ditches, culverts, and other wetlands and non-wetland water features that were encountered were mapped and evaluated. Paired sample points were located on either side of each feature boundary to obtain information from both wetland and upland conditions. The locations of sample points were mapped using a Trimble GeoXH GPS with WAAS augmentation and real-time sub-meter accuracy.

At each sample point, the presence or absence of hydrologic indicators was noted, soils were characterized, and vegetation was analyzed following standard procedures. Hydrologic indicators include the presence of standing water, fresh alluvial deposits, root zone oxidation, drainage patterns, and other diagnostic characteristics. Soil samples were excavated and soils inspected to characterize soil profiles and soil/water conditions at each sample plot, and to compare site observations with soil conditions described in the *Web Soil Survey* (USDA-NRCS 2012). Soil horizonation, texture, moisture content, depth to saturation, and/or standing water were noted for each soil pit. The presence or absence of particulate organic matter, organic matter staining, redoximorphic features, and gleying were noted. Soil colors were determined (*sensu* Munsell 2000). The percent cover of observed plant species was visually estimated and recorded. Dominant plant species were identified in accordance with the USACE 50/20 Rule. Plant identification was determined using *the Jepson Manual of Higher Plants* (Hickman 1993). The wetland indicator status of plant species was determined using the *National List of Plant Species that Occur in Wetlands: Northwest (Region 8)* (USFWS 1988). Plant communities occurring on and near the transmission line corridor were classified using the Holland Classification system (Holland, 1986). The hydrologic, soil, and vegetative data recorded at the sample points were transcribed onto standard USACE Wetland Determination Data Forms (Appendix A).

All wetland boundaries and other features were flagged and delineated using a Trimble GeoXH GPS with WAAS augmentation and real-time sub-meter accuracy. Wetland delineation maps were produced by overlaying wetland delineation survey data with 2010 ortho-rectified one foot pixel resolution color aerial imagery (Bing Maps aerial imagery web mapping service 2010). The Cowardin system was used to classify wetland types (*Sensu* Cowardin et al 1979).

Bank to Bank measurements and other data were collected for the one wet ditch that occurs on the Project site to allow for appropriate permitting through the California Department of Fish and Game (CDFG) and the State Regional Water Quality Control Board (RWQCB).

3.0 RESULTS

This section describes various characteristics of the Project site including topographic relief, the presence and distribution of plant communities, the presence and distribution of soils types, precipitation and growing season, and wetlands information based upon the National Wetlands Inventory, and field studies.

3.1 Topographic Relief

The proposed solar Project site is located on flat or slightly sloped, undulating rural lands, which are currently used for grazing sheep. The ground has been highly disturbed in the past, with indicators of irrigation (well stands, tanks, culverts). The site has not been laser-leveled or significantly tilled, but appears to have historically been used as irrigated pastureland. The land includes a shallow swale running from north to south through the site with higher ground separating two swales. Except for ditches and the two shallow swales, the topography is relatively flat, with a slope of approximately two to three percent overall. The elevation of the site ranges from 283 feet AMSL in the southwest corner to 300 to 305 feet AMSL on the northern boundary of the site.

The Atchison Topeka and Santa Fe Railroad is located approximately 0.75 mile to the west of the site. The railway line was originally a part of the Southern Pacific Railroad, constructed in 1872 above the grade of the surrounding lands that isolates surface water from areas to the west.

There are no rivers or tributaries within the Project site. A man-made ditch originates at the northeastern corner of the site and terminates at an intermittent, seasonal swale (designated as SW1B) that flows from north to south through the site. The topographic map indicates that this intermittent swale originates north of the site, but the area to the north of the site has been leveled and is now an almond orchard. Two other minor drainages are indicated on the topographic map as originating within the Project site, and flowing south off the property, through irrigated pistachio orchards. Except for the presence of a culvert (Culvert 2) near the center of the site, no evidence of these drainages was observed during the survey.

3.2 Watersheds and Regional Hydrology

The Lotus Solar Project site is located within the Middle San Joaquin – Lower Chowchilla Watershed, which extends from north of the City of Merced south and includes the San Joaquin River north of the City of Fresno. To the east the watershed extends from the Sierra Nevada Mountain foothills, and to the west the watershed terminates in the foothills of the Coastal Range (Figure 3). The site includes two minor drainages: one on the eastern side of the site running from north to south, and the other in the center of the site, also running from north to south. These shallow drainages are of short length with no defined bed and bank. They join just south of the Project, and from there flow into the orchards. Manmade features, including ditches that were created by the installation of culverts and now-nonfunctioning irrigation stands were located sporadically around the perimeter of the Project and outside the perimeter on the opposite side of a dirt road. The one wetland that occurs on the site was a shallow swale. Other non-wetland features included ditches and a pond resulting from irrigation runoff from adjacent properties, which was funneled through culverts under the roadways

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Quad Knopf	HYDROLOGIC REGION OF THE LOTUS SOLAR PROJECT	Figure 3

Cottonwood Creek and Little Dry Creek are located approximately one mile north of the Project site. These creeks originate in the Sierra Nevada Mountains to the east, and, after joining with a number of smaller creeks as they travel through the Sierra Foothills, join together as Cottonwood Creek to the northwest of the Project. Neither these creeks nor the San Joaquin River provide water to the Project site. There was evidence of water storage tanks on site that may have drawn groundwater from wells for use as irrigation, although no on site wells were indicated on the NWI maps.

3.3 Plant Communities

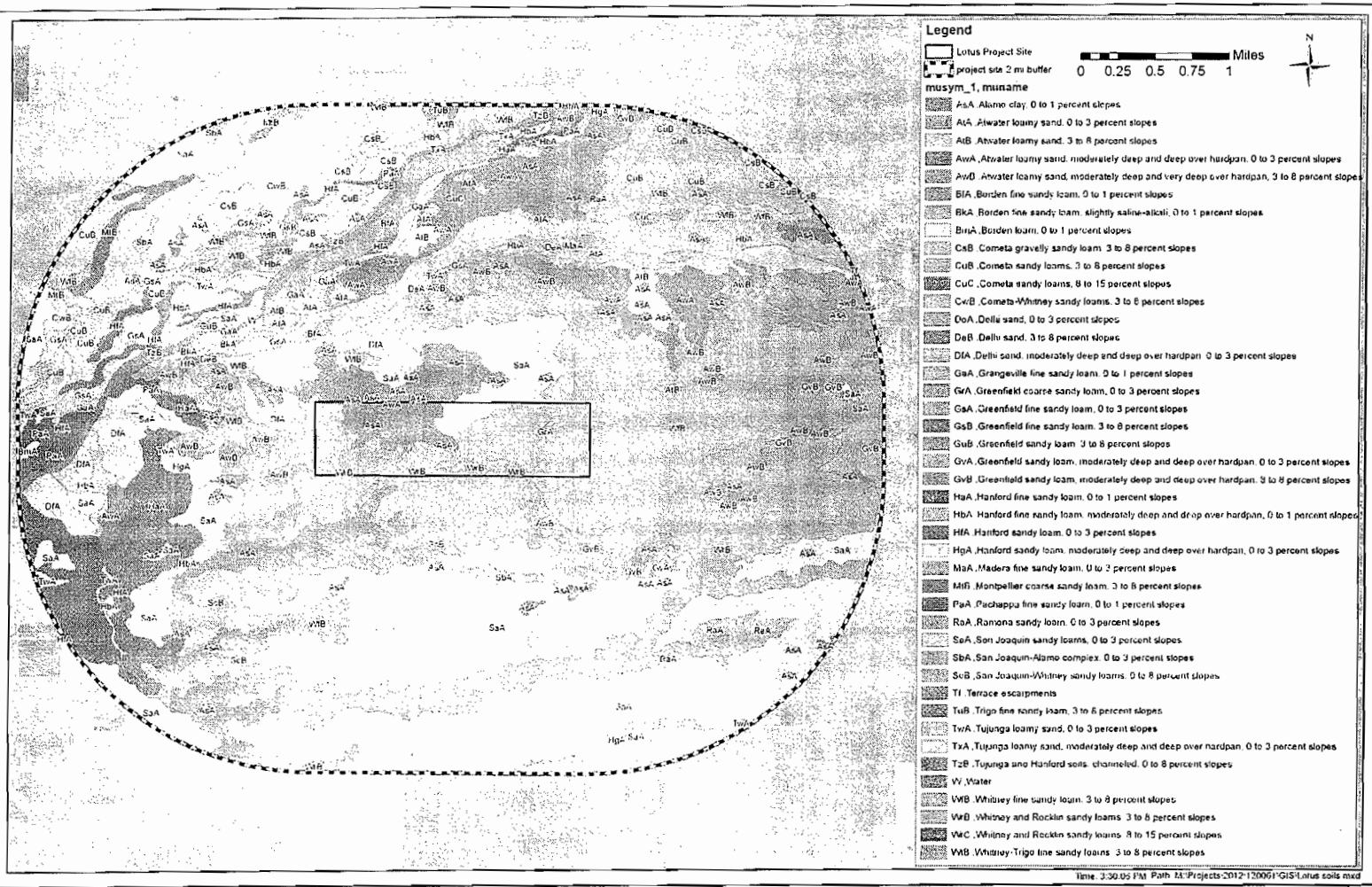
The only plant community within the Lotus Solar Project was disturbed non-native grassland that is currently used as non-irrigated grazing land. The presence of an above-ground irrigation system on the eastern portion of the site indicated that these grasslands may have been irrigated in the past, and that irrigation may continue during dry months to produce forage for grazing sheep. Lands surrounding the Project include pistachio orchards to the south, almond orchards to the north and east, dryland barley to the west, and irrigated pasture to the south and southwest.

The grassland on the Project site was dominated by non-native annual grasses and forbs, with some native forbes and grasses intermixed. Dominant grasses on the site were soft chess (*Bromus hordeacous*) and false or mouse barley *(Hordium murnium*). Dominant forbs were filaree (*Erodium cicutarium*), fiddleneck (*Amsinckia intermedia*), curly dock (*Rumes crispus*), popcorn flower (*Plagiobothrys nothofulvus*) and radish (*Raphanus setiva*). Typically this grassland flourishes during the winter and spring when precipitation occurs, but becomes dry as the heat of summer approaches.

3.4 Soils

There is a relatively high diversity of eight soils types occurring within the Project site (Figure 4). The vast majority of soil is various types of sand or sandy loam, with a small percentage of clay. Soil types include:

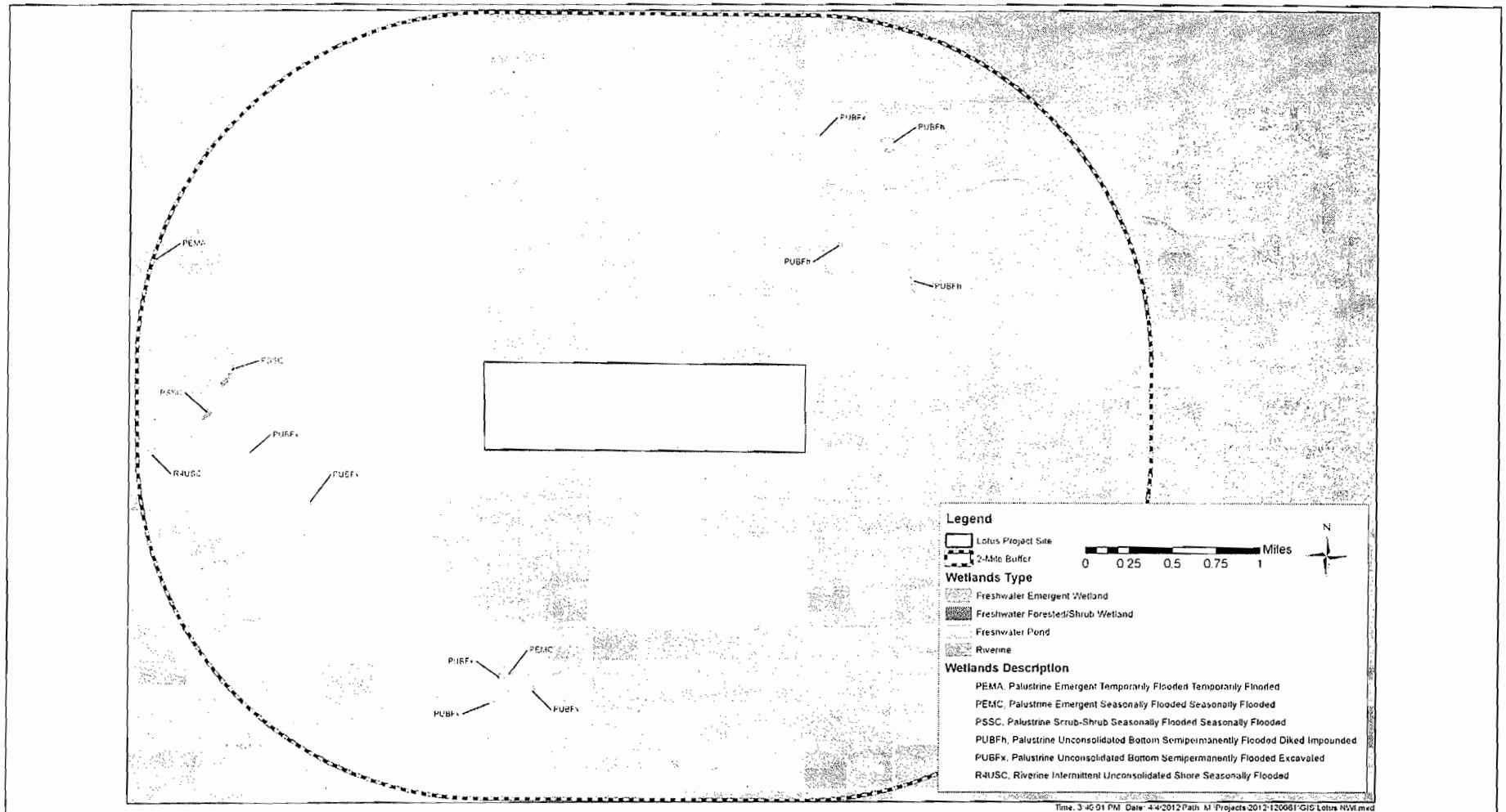
AsA	Alamo clay, 0-1% slopes	2% of AOI
AwA	Atwater loamy sand over hardpan, 0-3% slopes	16.6% of AOI
AwB	Atwater loamy sand over hardpan, 0-3% slopes	0.1% of AOI (0.8 ac)
Dfa	Delhi sand over hardpan, 0-3% slopes	0.0% of AOI (0.3 ac)
GrA	Greenfield coarse sandy loam, 0-3% slopes	0.9% of AOI
SaA	San Joaquin sandy loams, 0-3% slopes	8.3% of AOI
WfB	Whitney fine sandy loam, 3-8% slopes	48.7% of AOI
WrB	Whitney and Rocklin sandy loams, 3-8% slopes	23.3% of AOI



Quad Knopf

SOIL TYPES IN THE LOTUS SOLAR PROJECT

Figure 4



Quad Knopf

KNOWN WETLANDS MAPPED BY THE NATIONAL WETLAND INVENTORY

Figure 5

3.5 Precipitation and Growing Season

The climatic conditions of the project site are typical of the southern San Joaquin Valley. It is hot and dry in the summer and cold and moist in the winter. Winter rains are interspersed with spells of cloudy, foggy, or sunny weather. The nearest weather station to the site is located in the City of Madera, located approximately 5 miles northwest of the project site. The average daily low temperatures vary from approximately 35 degrees Fahrenheit in January to 55 degrees Fahrenheit in July. Average daily highs vary from approximately 50 degrees Fahrenheit in January to 98 degrees in July. The annual average precipitation is 14.50 inches, with virtually all of the precipitation falling as rain. In 2012 when this delineation was completed, the area had received only 43 percent of the average annual precipitation (as measured from October 1, 2011).

3.6 National Wetlands Inventory Data

Existing data from the NWI indicates the presence of no wetland features within the Project site (Figure 5). This finding is not consistent with findings of the field studies as it did not include the wetland swale or additional features that occur on the site. The swale flowed through the Project site from north to south, interrupted by slightly higher ground in the center of the site. This topography divided the swale into two sections, with the portion between not meeting wetland hydrology or vegetation criterion. There was a recently created, man-made ditch originating on the northeast corner, and another on the southern perimeter of the site. Another ditch, recognized on the topographic map but not the NWI, was barely discernable during the field study, but was easy to locate by a culvert crossing. A fourth ditch that was located north of the Project was the only wet ditch. This large ditch was not included on the NWI, and was wet due to irrigation runoff. A small pond was located on the northern perimeter of the site. This shallow pond was fed by irrigation water delivered through a culvert.

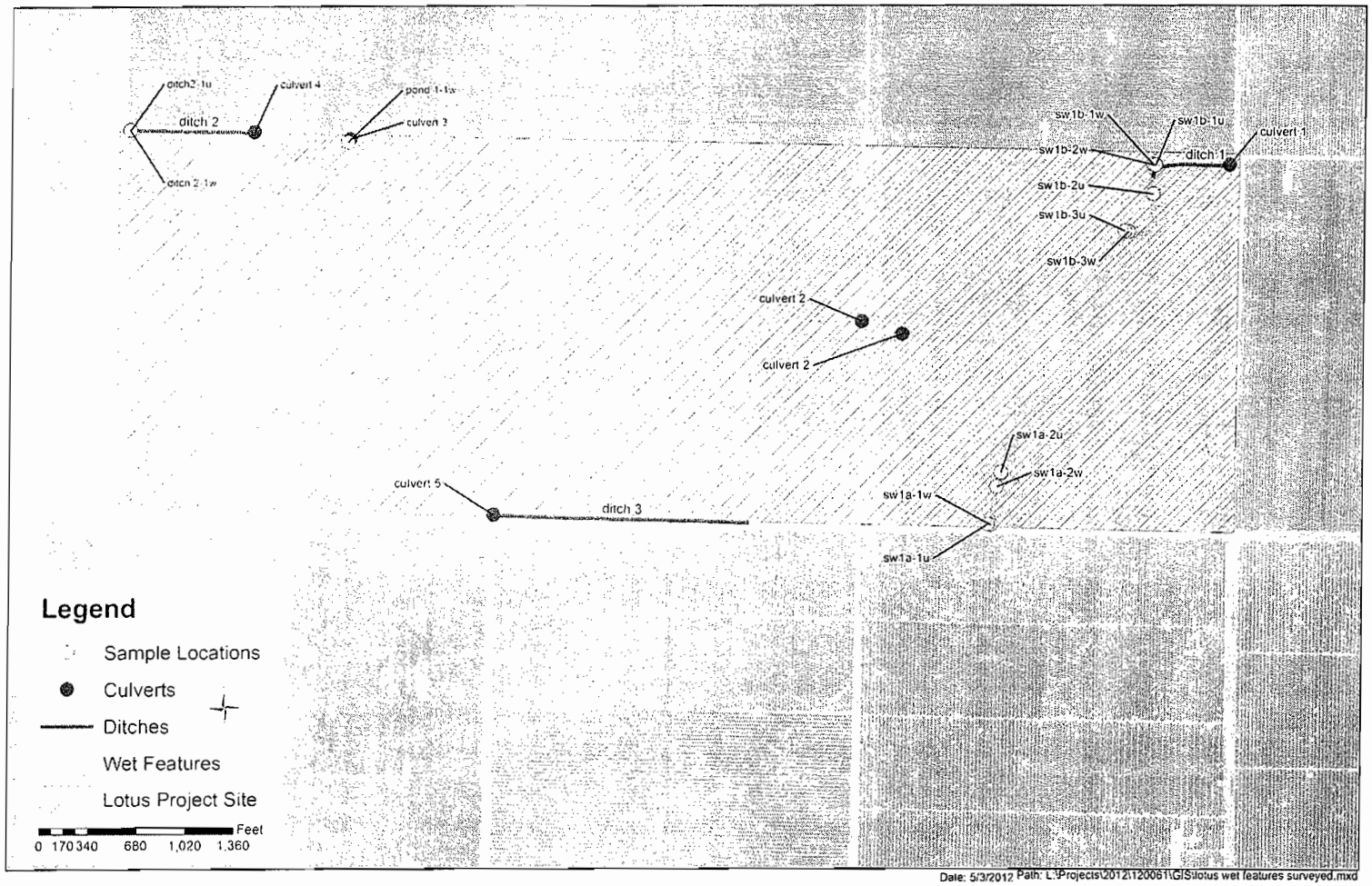
Although apparent on aerial photographs, this pond was not included on the NWI.

3.7 Wetlands and Other Waters

There are four types of wetlands and other waters that were identified to occur within the Project site and in the areas adjacent to the Project site. The one wetland present on the site included two sections of one swale. There was also one wet ditch that occurs to the north of the site. Non-wetland features that were present included manmade drainage ditches and a shallow pond fed by irrigation overflow water through culverts crossing under the roadways. The wetland and non-wetland features are described below. Representative photographs of the wetland swale are provided in Appendix B. Table I describes each of the wetlands and other features found within and adjacent to the Project, while Figure 6 includes the location of each. Additionally, Appendix C contains a map of the wetland and non-wetland features at the scale required by the U.S. Army Corps of Engineers (ACOE).

Table 1
Wetlands and Other Features in the Vicinity of the Lotus Solar Project

Feature	ID	Description	Acreage/ Length
Swales	SW1A	Swale at southeastern end of Project, separated from SW1B by topography. This swale meets wetland criteria.	
	SW1B	Swale at northeastern end of the Project, fed by irrigation runoff, and from natural drainage. Linked to Ditch 1.	
Ditches	Ditch1	Inlet of Culvert1 is not visible, but is apparently under the dirt road north of the Project. This non-wetland, dry ditch is approximately 24-inch wide, and flows from the northeast corner of the site into SW1B, although it is filled with silt at the southern end.	578 feet
	Ditch2	Man-made ditch 12 to 15 feet wide on the northern side of the dirt road, immediately north of the Project site. This ditch was flooded on its western end. This ditch was fed by Culvert4 and meets wetland criteria.	878 feet
	Ditch3	Non-wetland, dry ditch on southern end of the site, fed by Culvert5.	1,801 feet
Pond	Pond1	Appears to be created from overflow of irrigation of orchard to north of the Project site. Fed by Culvert3. Does not meet wetland criteria.	
Culverts	Culvert1	25 feet, 24-inch diameter, plastic culvert associated with Ditch 1, at the northeastern corner of the site. Culvert was apparently situated to divert irrigation overflow from the orchard north of the site.	
	Culvert2	In center of the site. This cast iron culvert was placed under a dirt access road. The topographic map indicated the presence of a ditch flowing from the north, but no signs of a ditch are visible at this culvert location.	
	Culvert3	Originates in orchard to north of the Project. Feeds Pond1. Constructed of cast iron, 24-inch in diameter.	
	Culvert4	Feeds Ditch2 north of the site. Culvert is on the eastern side of the ditch, and diverts irrigation overflow from the orchard.	
	Culvert5	Feeds Ditch3 on the southwestern side of the Project. This 30-inch diameter, corrugated metal culvert diverts the flow under a dirt road, where it is fed to a pipe stand.	



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WETLAND AND NON-WETLAND FEATURES OBSERVED DURING APRIL 2012 SURVEY

Figure 6

WETLAND FEATURES

Vernal Swale/Seasonal Wetland

One vernal swale or seasonal wetland was found within the Project site (Figure 6). This wetland feature occurs in the non-native grassland habitat on the eastern section of the site. This feature was originally a natural feature that was amplified with an artificial drainage, so that irrigation overflow contributes to seasonal inundation on the northern end (SW1B). During periods of high flow, the entire swale fills with water. When the flow decreases, water remains longest at the northern and southern ends (SW1A and SW1B). Soil within the swales is Whitney fine sandy loam. The center of the swale does not include wetland hydrology, hydric soils, or hydrophytic vegetation. The soils in this non-wetland section are of Greenfield coarse sandy loam. As indicated on Figure 4, this swale terminates at the southern end of the Project site.

Ditch

A wet ditch adjacent to the Project site was approximately 12 to 15 feet in width, with algae and curley dock being the dominant vegetation (Ditch2, Figure 6). This ditch was deepest on the western end and dry on the eastern end, where it was fed irrigation overflow by a culvert. This ditch was located in an area of Atwater loamy sand over hardpan, except at its western end, which was in Whitney and Rocklin sandy loam. This ditch met all three criteria for a wetland, but it is not located on the Project site.

NON-WETLAND FEATURES

Non-wetland Pond

One pond was located to the north of the site (Pond1, Figure 6). This pond was fed by irrigation overflow. Although this pond included wetland vegetation (*eliocris macrostaychs*) and hydrology, it did not display hydric soils. Surface water was present the day the field survey was conducted, but was not present the day before during a site visit, further indicating the sporadic presence of water here. Soils here are Atwater loamy sand over hardpan.

Ditches

Two ditches were located within the Project site. One recently-installed, non-wetland dry ditch was located on the northeastern corner of the Project site (Ditch1, Figure 6). This ditch was approximately 24 inches in width and depth, and transported irrigation overflow water from Culvert1 into SW1B. This ditch was only recently constructed, lacked vegetation of any kind, and had no indications of a wetland feature. The southern end of this ditch was filled with silt, although fed into SW1B at an earlier time. As with the swale, soils in this area are Whitney fine sandy loam.

The second ditch within the Project site was located along the southern boundary of the site, at the western corner (Ditch3, Figure 6). This non-wetland dry ditch appeared to carry water from the site through a culvert and to the west, off the site. Soils within this ditch were of Whitney and Rocklin sandy loam. Except for the presence of some hydrophilic vegetation (curly dock), the ditch lacked evidence of wetland indicators.

The topographic map indicted the presence of a fourth ditch in the approximate center of the site. The only evidence of this ditch was the presence of a cast iron culvert (Culvert2, Figure 6). The topography showed no indication of a channel, and only the upland grasses and forbs found elsewhere on the site were observed. This ditch was not recorded as a feature on the site.

4.0 CONCLUSIONS

One wetland and a variety of non-wetland features occur within the Lotus Solar Project, and one wet ditch is adjacent to the Project. It is anticipated that some impacts to these features will be necessary, but avoidance and minimization of impacts can result from judicious project design, access road development, and careful construction.

Most of these features will not fall within the jurisdictional authority of the USACE because they do not meet wetland criteria, would be considered isolated features, or would be exempt from the permitting process. The State RWQCB may take jurisdictional authority over some of the features that are excluded from USACE jurisdiction. There are no riparian areas or riverine systems that are likely to be within the jurisdiction of the CDFG.

This wetland delineation report is intended to be submitted to the USACE for verification, and a jurisdictional determination may be requested. Permits for impacts to wetland and non-wetland features may be required. A 401 Water Quality Certification may be needed from the State RWQCB, although a 1600 Streambed Alteration Agreement from the CDFG would not be needed.

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APPENDICES

Appendix A

Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar City/County: Madera Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy State: CA Sampling Point: Ditch 2-1W

Investigator(s): W. Moise, G. White Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 36° 56' 42.118"N Long: 119° 58' 26.769"W Datum:

Soil Map Unit Name: NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Hydric Soil Present? Yes (•) No ( )

Wetland Hydrology Present? Yes ( ) No (•)

Is the Sampled Area within a Wetland? Yes ( ) No (•)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus Diandrus*	80	Yes	
2. *Bromus hordeaceus*	10		
3. *Hordeum murinum*	10		
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0

[ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ( ) No (•)

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL

Sampling Point: Ditch 2-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	7.5 YR 3/2	95	7.5 YR 5/6	5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Berm created on S. side ditch, with soils mixed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: Ditch 2-1W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 42.156"N | Long: 119° 58' 25.827"W | Datum:

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	Is the Sampled Area
Wetland Hydrology Present?	Yes (•)	No ( )	within a Wetland? Yes ( ) No (•)

Remarks: Artificially created ditch 12-15' wide. Created for irrigation runoff.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Rumex acetosella*	40	Yes	Yes
2. *Algae*	60	Yes	
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	40	x 3 =	120
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	40 (A)		120 (B)
Prevalence Index = B/A =			3.00

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

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SOIL

Sampling Point: Ditch 2-

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-8	7.5 YR 3/2	98	7.5 YR 4/6	2	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [x] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes (•) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes (•) No ( ) Depth (inches): 12"

Water Table Present? Yes (•) No ( ) Depth (inches):

Saturation Present? (includes capillary fringe) Yes (•) No ( ) Depth (inches)

Wetland Hydrology Present? Yes (•) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: Pond 1-1W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage/Pond | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 41.476"N | Long: 119° 50' 07.022" W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes ( )	No (•)	Is the Sampled Area
Wetland Hydrology Present?	Yes (•)	No ( )	within a Wetland? Yes ( ) No (•)

Remarks: Does not display hydric soils - not a wetland. Artificially created by irrigation runoff.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eliocris macrostachys*	90	Yes	[illegible]
2. *Cyperus sp.*	10		[illegible]
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	10	x 2 =	20
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		110 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

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SOIL

Sampling Point: Pond 1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	7.5 YR 4/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ● No ○ Depth (inches): 4"

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology not present yesterday. Recently flooded from irrigation runoff.

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SWIA-1U

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 15.545"N | Long: 119° 57' 10.823"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	Is the Sampled Area
Wetland Hydrology Present?	Yes ( )	No (•)	within a Wetland? Yes ( ) No (•)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus hordeaceus*	10		
2. *Erodium cicutarium*	10		
3. *Hordeum murinum*	75	Yes	
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0

[ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ( ) No (•)

US Army Corps of Engineers

Arid West - Version 11-1-2008

SOIL

Sampling Point: SW1A-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	7.5 YR 3/3	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1A-1W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 15.474"N | Long: 119° 57' 10.54"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	Is the Sampled Area
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? Yes (●) No ( )

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordium marinum*	50	Yes	FACW
2. *Rumex Crispus*	25	Yes	FACW
3. *Bromus hordeaceus*	5		
4			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	75	x 2 =	150
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	75 (A)		150 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

US Army Corps of Engineers

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SOIL

Sampling Point: SW1A-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5 YR 3/2	95	7.5 YR 4/6	5	C	RC	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ( ) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No ( ) Depth (inches):

Water Table Present? Yes ( ) No ( ) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No ( ) Depth (inches):

Wetland Hydrology Present? Yes ( ) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012
Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1A-2U
Investigator(s): W. Moise, G. White | Section, Township, Range:
Landform (hillslope, terrace, etc.): Shallow Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%
Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 19.054"N | Long: 119° 57' 09.764"W | Datum: WGS 1984
Soil Map Unit Name: | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )
Hydric Soil Present?	Yes ( )	No (•)
Wetland Hydrology Present?	Yes ( )	No (•)

Is the Sampled Area within a Wetland? Yes ( ) No (•)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Rumex crispus*	15		
2. *Plagiobothrys leptocladus*	1		
3. *Bromus hordeaceus*	60	Yes	FACW
4. *Hordium murinum*	10		
5. *Capsella bursa-pastoris*	5		
6.			
7.			
8.			
Total Cover	91 %		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 9 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	60	x 2 =	120
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals	60 (A)		120 (B)
Prevalence Index = B/A =			2.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

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SOIL

Sampling Point: SW1A-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	7.5 YR 3/8	95	7.5 YR 5/8	5	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Remarks:

Hydric Soil Present? Yes ○ No ●

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012
Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1A-2W
Investigator(s): W. Moise, G. White | Section, Township, Range:
Landform (hillslope, terrace, etc.): Shallow Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%
Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 18.019"N | Long: 119° 57' 10.058"W | Datum: WGS 1984
Soil Map Unit Name: | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes (●) No ( )
Hydric Soil Present? Yes (●) No ( )
Wetland Hydrology Present? Yes (●) No ( )
Is the Sampled Area within a Wetland? Yes (●) No ( )
Remarks:

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	40	Yes	FACW
2. *Hordeum marinum*	30	Yes	FACW
3. *Bromus hordeaceus*	20	Yes	
4. *Plagiobothrys leptocladus*	15		
5.			
6.			
7.			
8.			
Total Cover:	105%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	70	x 2 =	140
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals	70 (A)		140 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

[X] Dominance Test is >50%
[X] Prevalence Index is ≤3.0
[ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
[ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

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SOIL

Sampling Point: SW1A-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5 YR 2.5/2	95	7.5 YR 5/8	5	C	M	SL	
6-14	7.5 YR 2.5/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Remarks:

Hydric Soil Present? Yes ( ) No ( )

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No ( ) Depth (inches):

Water Table Present? Yes ( ) No ( ) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No ( ) Depth (inches):

Wetland Hydrology Present? Yes ( ) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4-3-2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SWIB-1U

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 40.446"N | Long: 119° 56' 56.877"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	Is the Sampled Area
Wetland Hydrology Present?	Yes ( )	No (•)	within a Wetland? Yes ( ) No (•)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1 *Amsinkia intermedia*	50	Yes	UPL
2. *Raphanus sativus*	30	Yes	UPL
3 *Bromus hordeaceus*	15		
4 *Hordium murinum*	5		
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	80	x 5 =	400
Column Totals	80 (A)		400 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

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SOIL

Sampling Point: SWIB-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 3/3	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012
Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1B-1W
Investigator(s): W. Moise, G. White | Section, Township, Range:
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%
Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 40.500"N | Long: 119° 56' 57.115"W | Datum: WGS 1984
Soil Map Unit Name: | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes (•) No ( )
Hydric Soil Present? Yes (•) No ( )
Wetland Hydrology Present? Yes (•) No ( )
Is the Sampled Area within a Wetland? Yes (•) No ( )
Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Rumex crispes*	25	Yes	FACW
2. *Plagiobothrys leptocladus*	5		OBL
3. *Lythrum hyssopifolium*	20	Yes	FACW
4. *Poa annua*	20	Yes	FAC
5. *Hordium marinum*	10		
6.			
7.			
8.			
Total Cover	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %
Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	5	x 1 =	5	
FACW species	65	x 2 =	130	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals	70 (A)		135	(B)
Prevalence Index = B/A =			1.93	

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- X Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

US Army Corps of Engineers | Arid West - Version 11-1-2006

SOIL

Sampling Point: SW1B-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8"	10 YR 3/2	90	10 YR	10	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [x] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes (•) No ( )

Remarks.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (•) Depth (inches):

Water Table Present? Yes ( ) No (•) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (•) Depth (inches):

Wetland Hydrology Present? Yes (•) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1B-2U

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 38.463"N | Long: 119° 56' 57.047"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	Is the Sampled Area
Wetland Hydrology Present?	Yes ( )	No (•)	within a Wetland? Yes ( ) No (•)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Bromus hordeaceus*	95	Yes	FACW
2. *Erodium Cicutarium*	5		
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	95	x 2 =	190
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	95 (A)		190 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL Sampling Point: SW1B-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 3/4	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SWIB-2W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 1%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 40.445"N | Long: 119° 56' 56.876"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	Is the Sampled Area
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? Yes (●) No ( )

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eleocharis macrostachya*	90	Yes	OBL
2. *Rumex crispus*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Remarks

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	10	x 2 =	20
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		110 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL Sampling Point: SWIB-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 4/2	98	7.5 YR 5/6	2	C	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [x] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes (•) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (•) Depth (inches):

Water Table Present? Yes ( ) No (•) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (•) Depth (inches):

Wetland Hydrology Present? Yes (•) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SWIB-3U

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 35.847"N | Long: 119° 56' 59.445"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)			
Hydric Soil Present?	Yes ( )	No (●)	Is the Sampled Area		
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland?	Yes ( )	No (●)

Remarks: Down stream vegetation is non hydro phic until N end of SWI-8.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus hordeaceus*	90	Yes	FACU
2. *Poa annua*	10		
3. *Rumex crispes*	2		
4.			
5.			
6.			
7.			
8.			
Total Cover:	102%		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species		x 2 =	0	
FAC species		x 3 =	0	
FACU species	90	x 4 =	360	
UPL species		x 5 =	0	
Column Totals	90 (A)		360	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0

[ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ( ) No (●)

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL

Sampling Point: SWIB-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 3/4	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ( ) No (•)

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (•) Depth (inches):

Water Table Present? Yes ( ) No (•) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (•) Depth (inches):

Wetland Hydrology Present? Yes (•) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar City/County: Madera Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy State: CA Sampling Point: SW1B-3W

Investigator(s): W. Moise, G. White Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 2%

Subregion (LRR): C - Mediterranean California Lat: 36° 56' 35.926"N Long: 119° 56' 56.090"W Datum: WGS 1984

Soil Map Unit Name: NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	Is the Sampled Area
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? Yes ( ) No (●)

Remarks: Down stream vegetation is non-hydrophic until N end of SW1A

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eliocris cicutarius*	95	Yes	[illegible]
2. *Bromus hordeaceus*	5		
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	95	x 1 =	95	
FACW species		x 2 =	0	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals	95 (A)		95	(B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

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SOIL Sampling Point: SWIB-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 3/2	98	10 YR 4/4	2	C	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [x] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes (•) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (•) Depth (inches):

Water Table Present? Yes ( ) No (•) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (•) Depth (inches):

Wetland Hydrology Present? Yes (•) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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Appendix B

Representative Photos

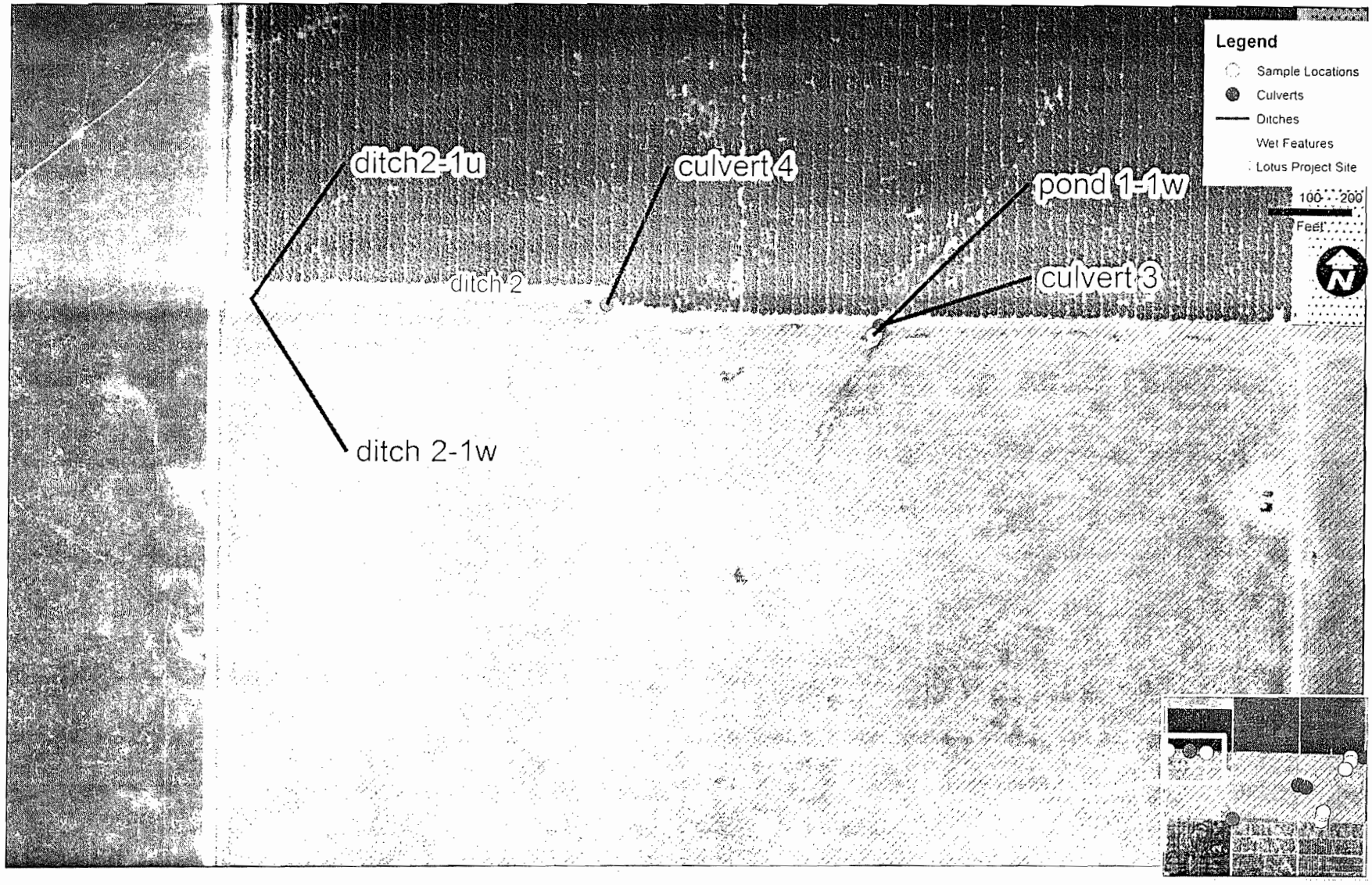
Photograph 1 - South view of SW1A

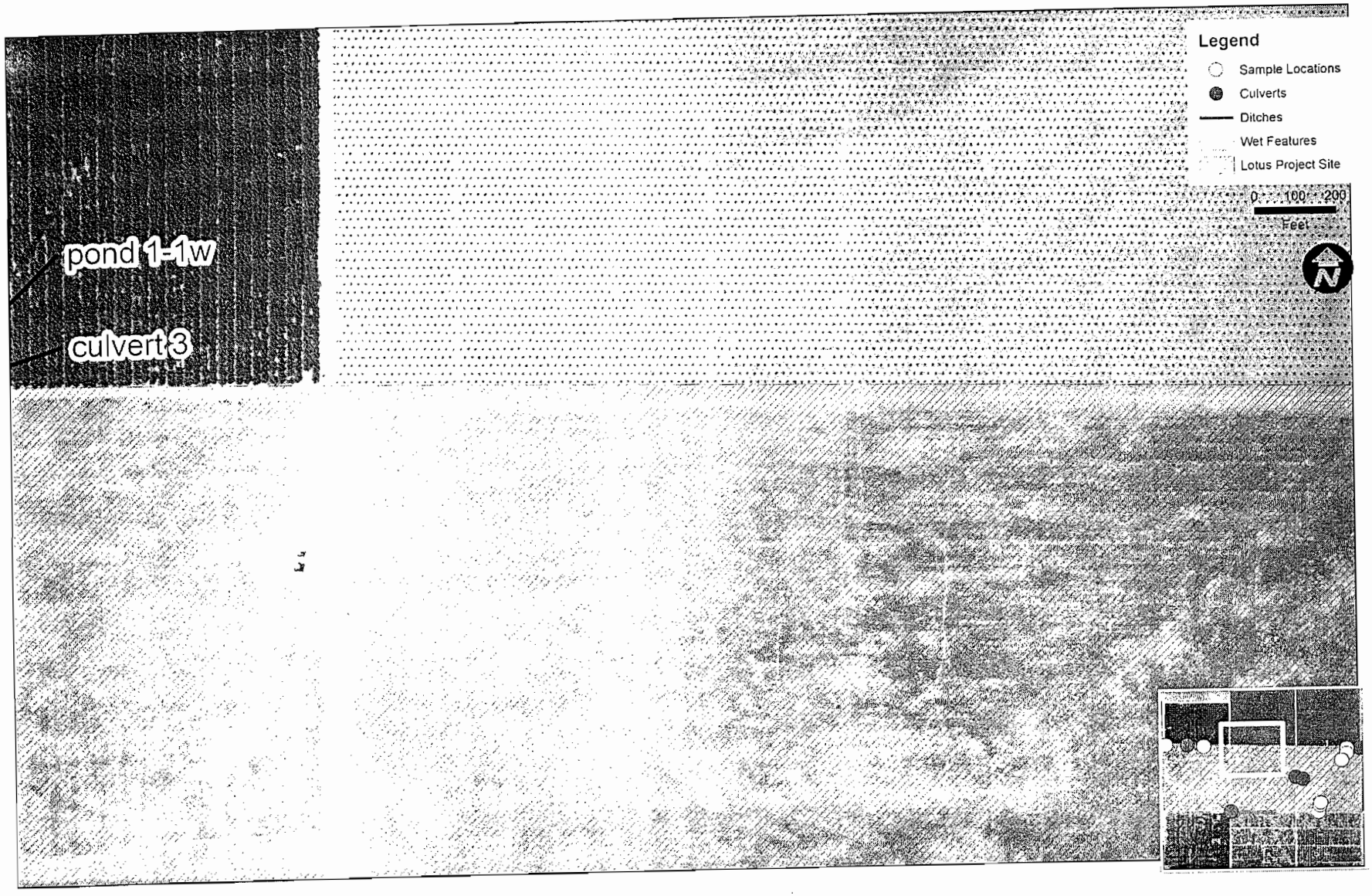
Photograph 2 - South view of SW1B

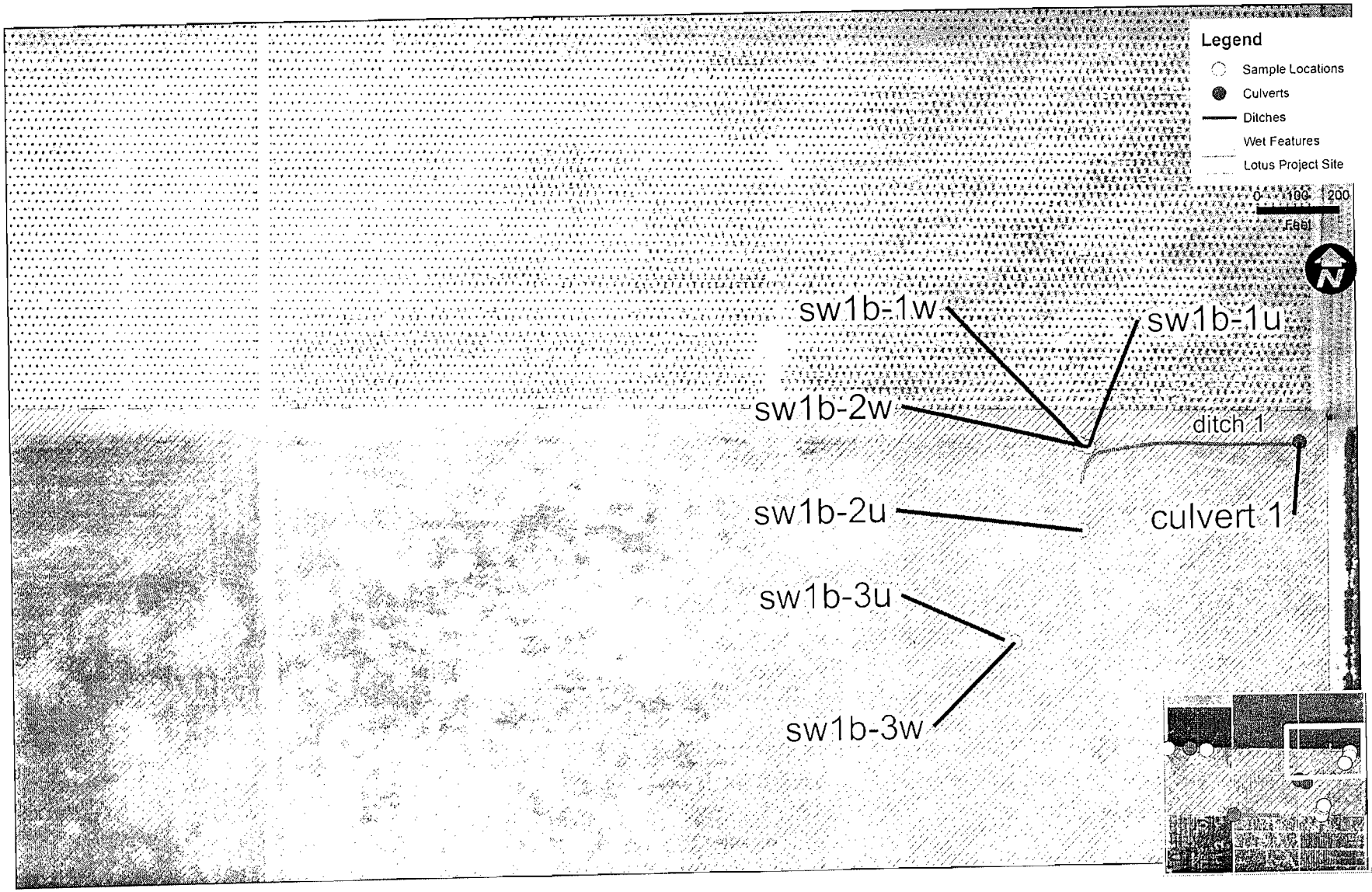
Quad Knopf	REPRESENTATIVE PHOTOS	Photo Plate 1

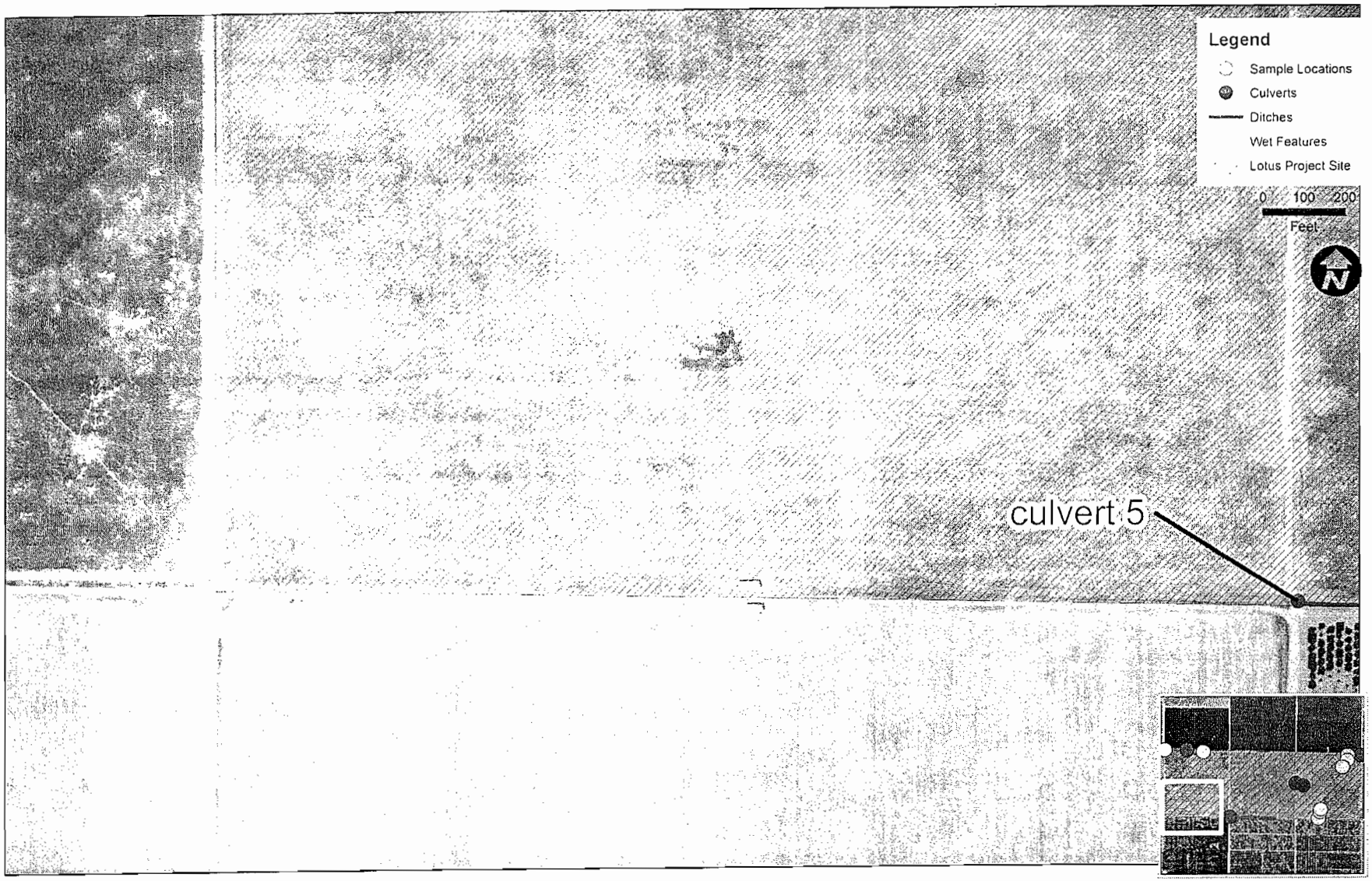
Appendix C

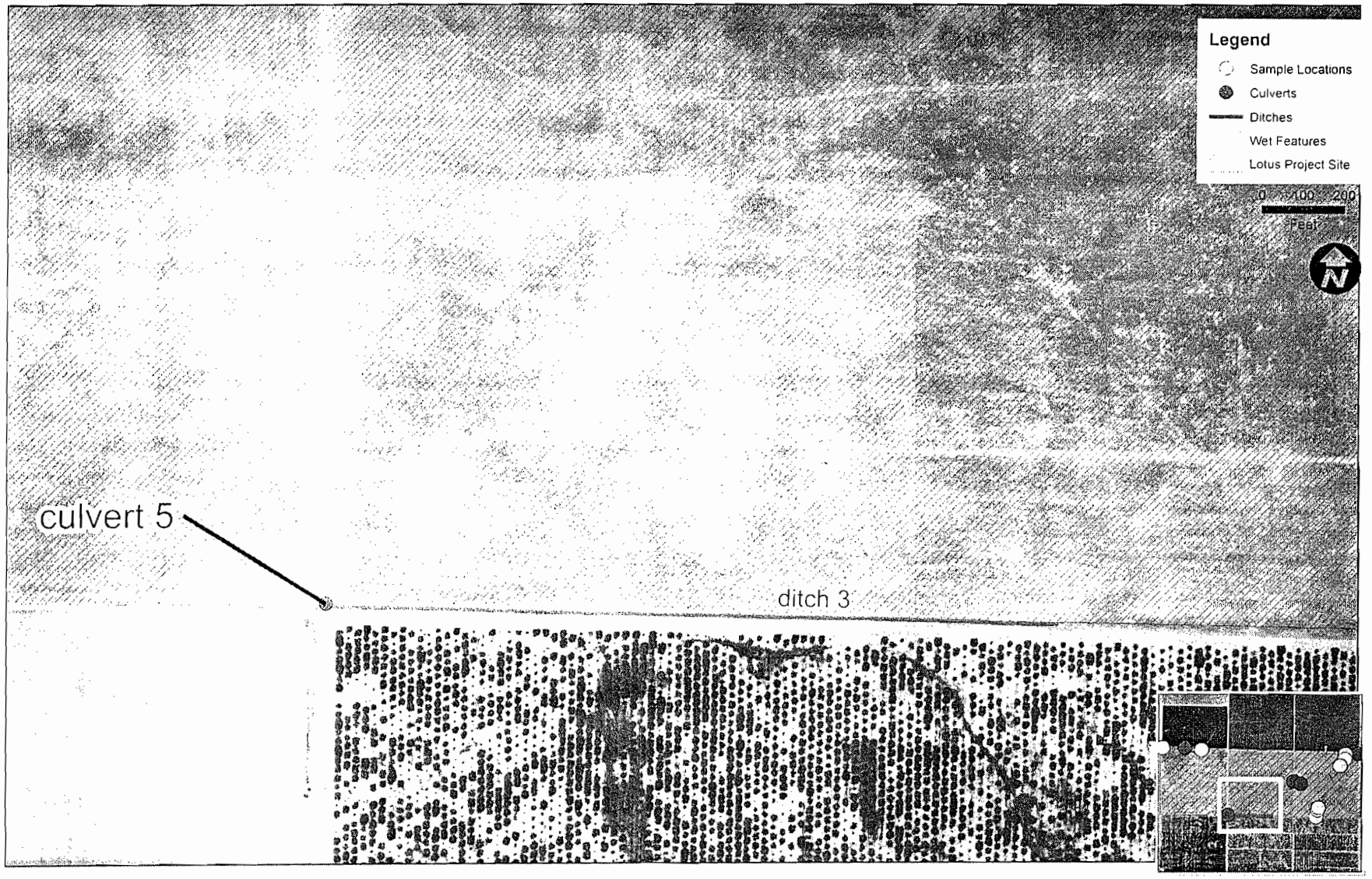
Wetland and Non-Wetland Features for Use by ACOE

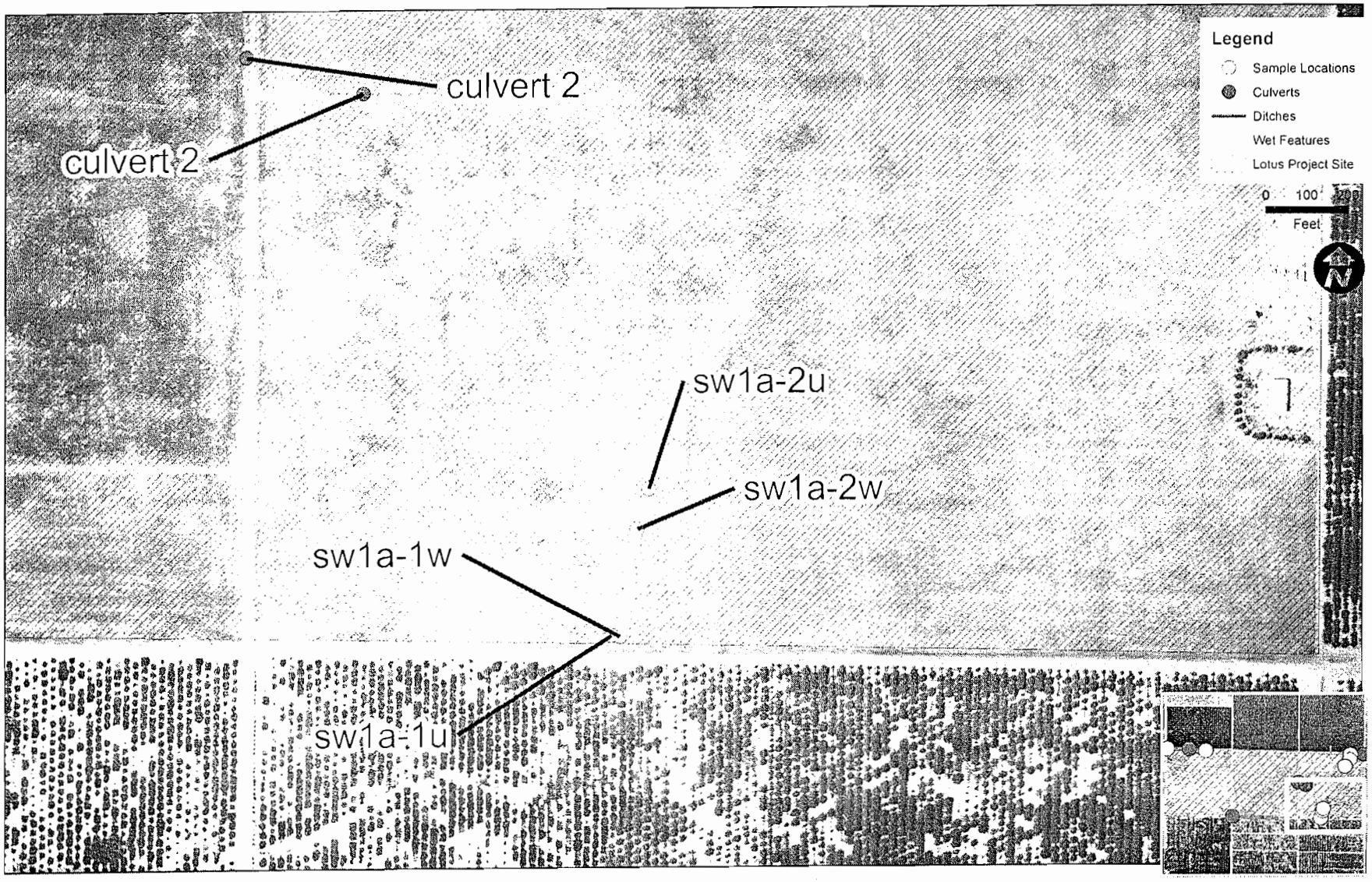

Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
100
200
Feet
N
ditch2-1u
culvert 4
pond 1-1w
culvert 3
ditch 2
ditch 2-1w


pond 1-1w
culvert 3
Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N


Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N
sw1b-1w
sw1b-1u
sw1b-2w
ditch 1
culvert 1
sw1b-2u
sw1b-3u
sw1b-3w


Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N
culvert 5


Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N
culvert 5
ditch 3


culvert 2
culvert 2
sw1a-2u
sw1a-2w
sw1a-1w
sw1a-1u
Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N

Appendix D

U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance

U.S. FISH AND WILDLIFE SERVICE STANDARDIZED RECOMMENDATIONS FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE

Prepared by the Sacramento Fish and Wildlife Office
January 2011

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) and does not preclude the need for section 7 consultation or a section 10 incidental take permit for the proposed project.** 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. 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). These 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.

IS A PERMIT NECESSARY?

Certain acts need a permit from the Service which includes destruction of any known (occupied or unoccupied) or natal/pupping kit fox dens. Determination of the presence or absence of kit foxes and /or their dens should be made during the environmental review process. All surveys and monitoring described in this document must be conducted by a qualified biologist and these activities do not require a permit. 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, the 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. Resumes of biologists should be submitted to the Service for review and approval prior to an6y survey or monitoring work occurring.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints, of approximately one acre or less, such as an individual in-fill oil well, communication tower, or bridge repairs. 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 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 utilize this information as guidance to situate the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then surveys should be conducted and the Service should be contacted for technical assistance to determine the extent of possible take.

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. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, 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 and under no circumstances should the den be disturbed or destroyed without prior authorization. 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 the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, 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

In order to avoid impacts, construction activities must avoid their dens. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances due to the length of dens underground. The following distances are **minimums**, and if they cannot be followed the Service must be contacted. Adult and pup kit foxes are known to sometimes rest and play near the den entrance in the afternoon, but most above-ground activities begin near sunset and continue sporadically throughout the night. Den definitions are attached as Exhibit A.

Potential den**	50 feet
Atypical den**	50 feet
Known den*	100 feet
Natal/pupping den (occupied and unoccupied)	Service must be contacted

*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. Acceptable fencing includes untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the Service as long as it has openings for kit fox ingress/egress and keeps humans and equipment out. 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.

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 or greatly restricted within the exclusion zones.

DESTRUCTION OF DENS

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.**

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 judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den.

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.

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 all construction activities shall cease and the Service shall be notified immediately.

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities should be minimized by adhering to the following activities. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. 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 daytime speed limit of 20-mph throughout the site 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. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. 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. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. 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 Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become 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 only 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 securely 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. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.

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 a 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 kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has anticipated 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/or 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 previously referenced 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 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 guidance.

12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring 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 Mr. Paul Hoffman, the wildlife biologist, at (530)934-9309. The Service should be contacted at the numbers below.

13. The Sacramento Fish and Wildlife Office and CDFG shall 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 below. The CDFG contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.

14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

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 or (916) 414-6600

EXHIBIT "A" - DEFINITIONS

"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.

Appendix E

Burrowing Owl Survey Protocol and Mitigation Guidelines

BURROWING OWL SURVEY PROTOCOL AND MITIGATION GUIDELINES

Prepared by:

The California Burrowing Owl Consortium

April 1993

INTRODUCTION

The California Burrowing Owl Consortium developed the following Survey Protocol and Mitigation Guidelines to meet the need for uniform standards when surveying burrowing owl *(Speotyto cunicularia)* populations and evaluating impacts from development projects. The California Burrowing Owl Consortium is a group of biologists in the San Francisco Bay area who are interested in burrowing owl conservation. The following survey protocol and mitigation guidelines were prepared by the Consortium's Mitigation Committee. These procedures offer a decision-making process aimed at preserving burrowing owls in place with adequate habitat.

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, Zam 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

April 1993

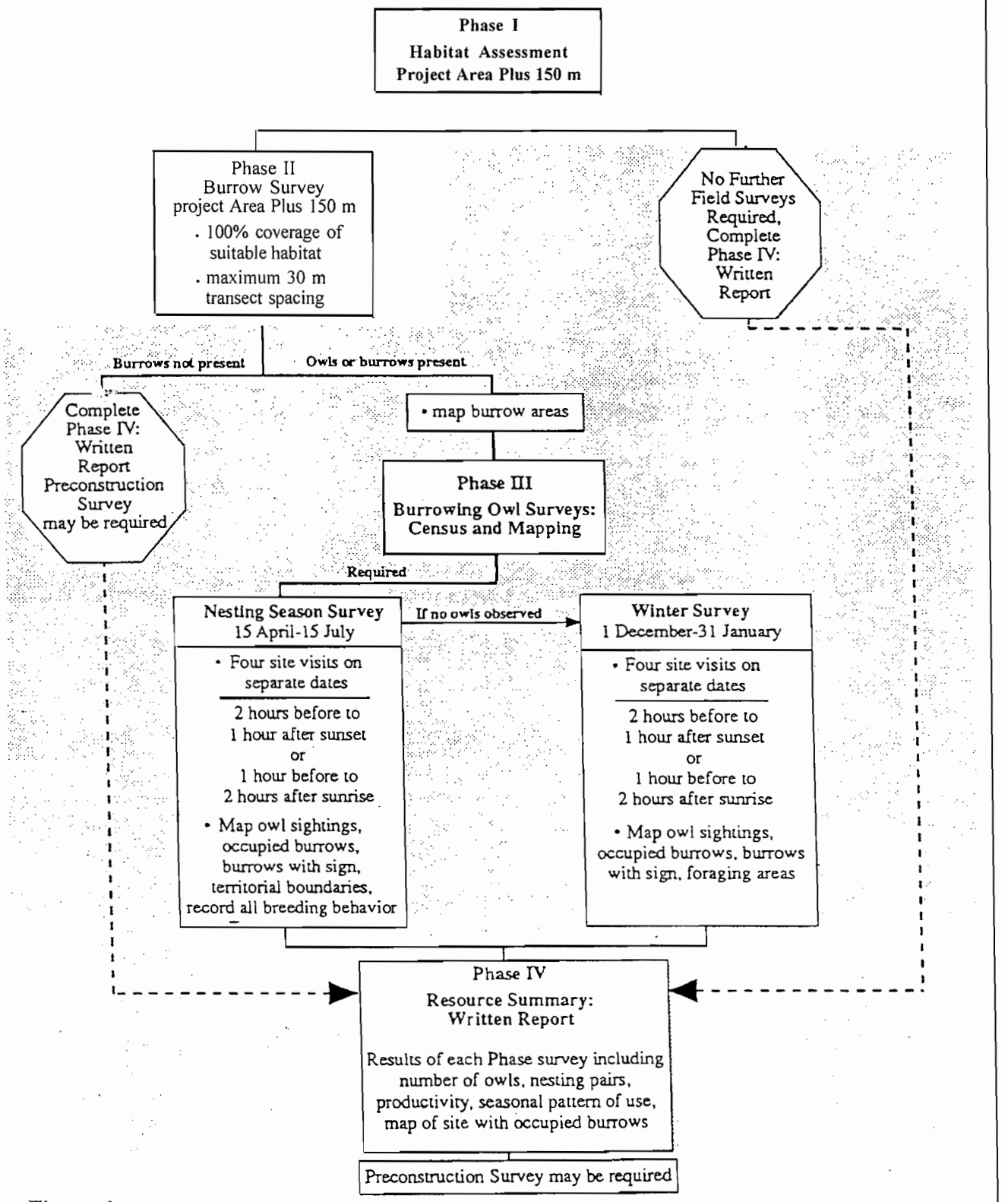


Figure 1.

SECTION 2 BURROWING OWL MITIGATION GUIDELINES

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 (Figure 2).

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

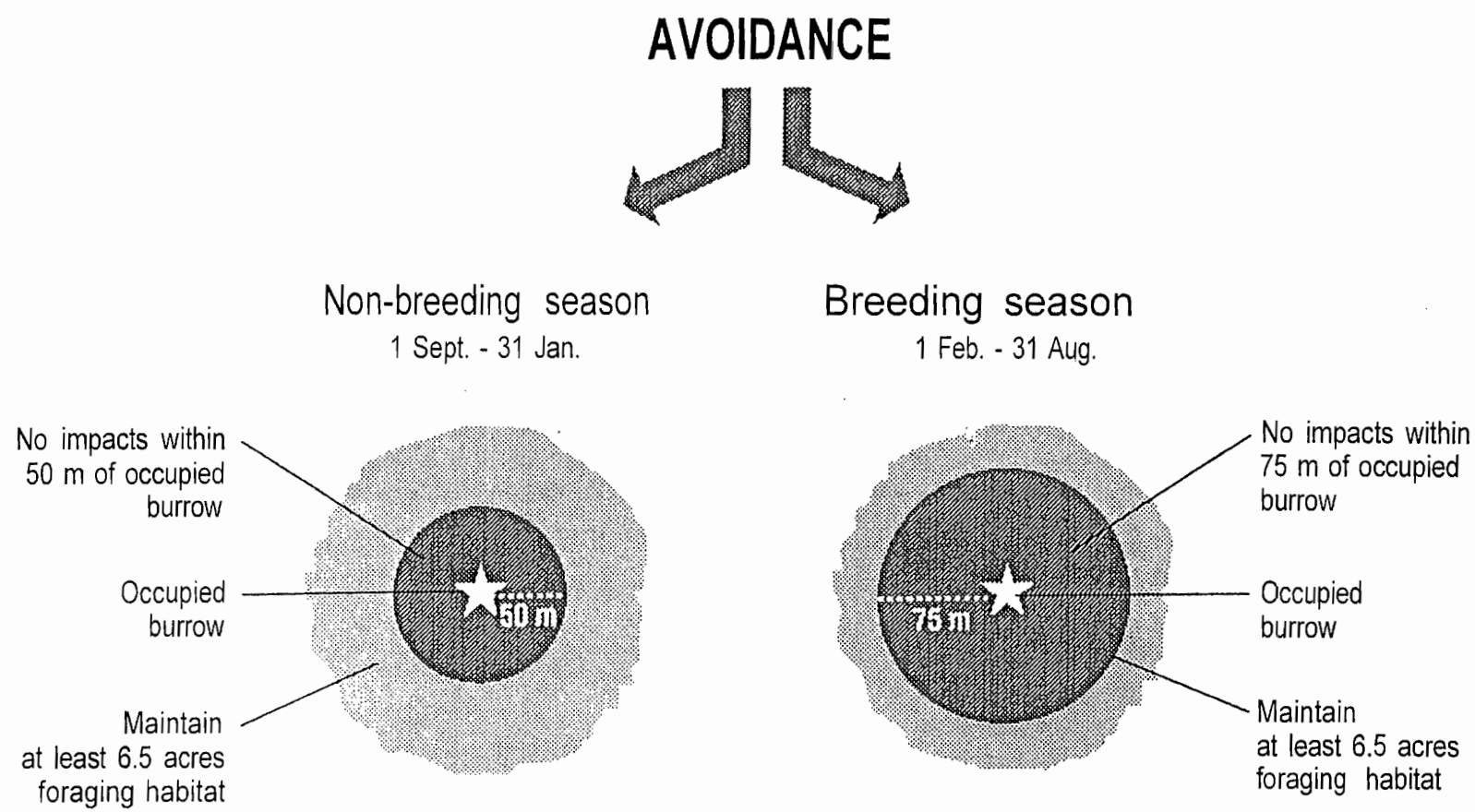


Figure 2. Burrowing owl mitigation guidelines.

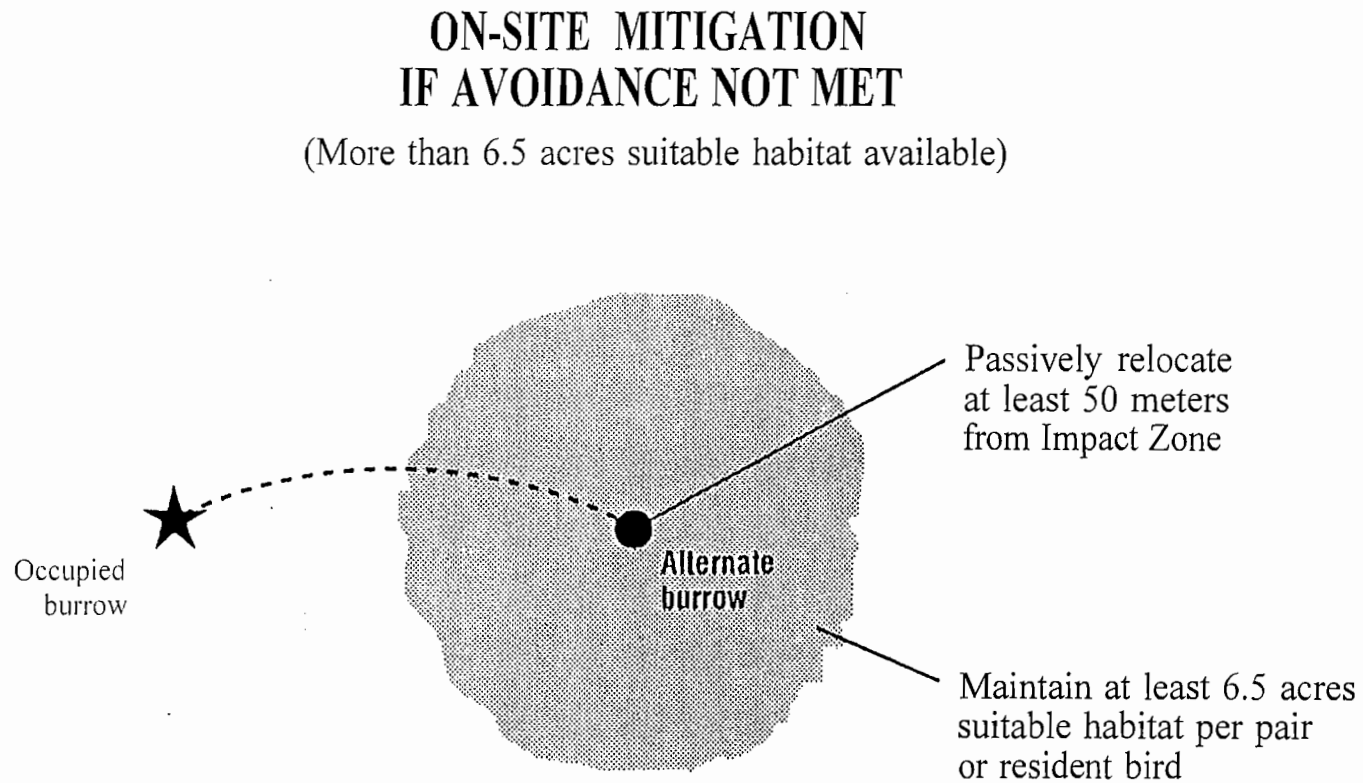


Figure 3. Burrowing owl mitigation guidelines.

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 15.370).

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 66174 is in addition to the requirements for the preparation of an EIR or Negative Declaration.

LITERATURE CITED

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Martin, D. J. 1973. Selected aspects of burrowing owl ecology and behavior. Condor 75:446-456.

Rich, T. 1984. Monitoring burrowing owl populations: Implications of burrow re-use. Wildlife Society Bulletin 12: 178- 180.

Thomsen, L. 1971. Behavior and ecology of burrowing owls on the Oakland Municipal Airport. Condor 73: 177-192.

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Appendix F

California Department of Fish and Game Staff Report on Burrowing Owl Mitigation

Appendix F

California Department of Fish and Game Staff Report on Burrowing Owl Mitigation

State of California

Memorandum

To : "Div. Chiefs - IFD, BDD, NED, & WMD
Reg. Mgrs. - Regions 1, 2, 3, 4, & 5

Date : October 17, 1995

From : Department of Fish and Game

Subject :
Staff Report on Burrowing Owl Mitigation

I am hereby transmitting the Staff Report on Burrowing Owl Mitigation for your use in reviewing projects (California Environmental Quality Act [CEQA] and others) which may affect burrowing owl habitat. The Staff Report has been developed during the last several months by the Environmental Services Division (ESD) in cooperation with the Wildlife Management Division (WMD) and regions 1, 2, and 4. It has been sent out for public review and redrafted as appropriate.

Either the mitigation measures in the staff report may be used or project specific measures may be developed. Alterative project specific measures proposed by the Department divisions/regions or by project sponsors will also be considered. However, such mitigation measures must be submitted to ESD for review. The review process will focus on the consistency of the proposed measure with Department, Fish and Game Commission, and legislative policy and with laws regarding raptor species. ESD will coordinate project specific mitigation measure review with WMD.

If you have any questions regarding the report, please contact Mr. Ron Rempel, Supervising Biologist, Environmental Services Division, telephone (916) 654-9980.

COPY Original signed by C.F. Raysbrook

C. F. Raysbrook
Interim Director

Attachment

cc: Mr. Ron Rempel
Department of Fish and Game
Sacramento

STAFF REPORT ON BURROWING OWL MITIGATION

Introduction

The Legislature and the Fish and Game Commission have developed the policies, standards and regulatory mandates to protect native species of fish and wildlife. In order to determine how the Department of Fish and Game (Department) could judge the adequacy of mitigation measures designed to offset impacts to burrowing owls *(Speotyto cunicularia;* A.O.U. 1991) staff (WMD, ESD, and Regions) has prepared this report. To ensure compliance with legislative and commission policy, mitigation requirements which are consistent with this report should be incorporated into: (1) Department comments to Lead Agencies and project sponsors pursuant to the California Environmental Quality Act (CEQA); and (2) other authorizations the Department gives to project proponents for projects impacting burrowing owls.

This report is designed to provide the Department (including regional offices and divisions), CEQA Lead Agencies and project proponents the context in which the Environmental Services Division (ESD) will review proposed project specific mitigation measures. This report also includes preapproved mitigation measures which have been judged to be consistent with policies, standards and legal mandates of the Legislature,. the Fish and Game Commission and the Department's public trust responsibilities. Implementation of mitigation measures consistent with this report are intended to help achieve the conservation of burrowing owls and should compliment multi-species habitat conservation planning efforts currently underway. The *Burrowing Owl Survey Protocol and Mitigation Guidelines* developed by The California Burrowing Owl Consortium (CBOC 1993) were taken into consideration in the preparation of this staff report as were comments from other interested parties.

A range-wide conservation strategy for this species is needed. Any range-wide conservation strategy should establish criteria for avoiding the need to list the species pursuant to either the California or federal Endangered Species Acts through preservation of existing habitat, population expansion into former habitat, recruitment of young into the population, and other specific efforts.

California's burrowing owl population is clearly declining and, if declines continue, the species may qualify for listing. Because of the intense pressure for urban development within suitable burrowing owl nesting and foraging habitat (open, flat and gently rolling grasslands and grass/shrub lands) in California, conflicts between owls and development projects often occur. Owl survival can be adversely affected by disturbance and foraging habitat loss even when impacts to individual birds and nests/burrows are avoided. Adequate information about the presence of owls is often unavailable prior to project approval. Following project approval there is no legal mechanism through which to seek mitigation other than avoidance of occupied burrows or nests. The absence of standardized survey methods often impedes consistent impact assessment.

Burrowing Owl Habitat Description

Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and arid 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 detecting a burrowing owl, 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).

CEQA Project Review

The measures included in this report are intended to provide a decision-making process that should be implemented whenever-there is potential for-an action or project to adversely affect burrowing owls. For projects subject to the California Environmental Quality Act (CEQA), the process begins by conducting surveys to determine if burrowing owls are foraging or nesting on or adjacent to the project site. If surveys confirm that the site is occupied habitat, mitigation measures to minimize impacts to burrowing owls, their burrows and foraging habitat should be incorporated into the CEQA document as enforceable conditions. The measures in this document are intended to conserve the species by protecting and maintaining viable' populations of the species throughout their range in California. This may often result in protecting and managing habitat for the species at sites away from rapidly urbanizing/developing areas. Projects and situations vary and mitigation measures should be adapted to fit specific circumstances.

Projects not subject to CEQA review may have to be handled separately since the legal authority the Department has with respect to burrowing owls in this type of situation is often limited. The burrowing owl is protected from "take" (Section 3503.5 of the Fish and Game Code) but unoccupied habitat is likely to be lost for activities not subject to CEQA.

Legal Status

The burrowing owl is a migratory 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 3505, 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. To avoid violation of the take provisions of these laws generally requires that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle (February 1 to August 31). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered "take"' and is potentially punishable by fines and/or imprisonment.

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), 2103; Guidelines 15380, 15064, 15065). 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). Avoidance or mitigation to reduce impacts to less than significant levels must be included in a project or the CEQA lead agency must make and justify findings of overriding considerations.

Impact Assessment

Habitat Assessment

The project site and a 150 meter (approximately 500 ft.) buffer (where possible and appropriate based on habitat) should be surveyed to assess the presence of burrowing owls and their habitat (Thomsen 1971, Martin 1973). If occupied habitat is detected on or adjacent to the site, measures to avoid, minimize, or mitigate the project's impacts to the species should be incorporated into the project, including burrow preconstruction surveys to ensure avoidance of direct take. It is also recommended that preconstruction surveys be conducted if the species was not detected but is likely to occur on the project site.

Burrowing Owl and Burrow Surveys

Burrowing owl and burrow surveys should be conducted during both the wintering and nesting seasons, unless the species is detected on the first survey. If possible, the winter survey should be conducted between December 1 and January 31 (when wintering owls are most likely to be present) and the nesting season survey should be conducted between April 15 and July 15 (the peak of the breeding season). Surveys conducted from two hours before sunset to one hour after, or from one hour before to two hours after sunrise, are also preferable.

Surveys should be conducted by walking suitable habitat on the entire project site and (where possible) in areas within 150 meters (approx. 500 ft.) of the project impact zone. The 150-meter buffer zone is surveyed to identify burrows and owls outside of the project area which may be impacted by factors -such as noise and vibration (heavy equipment, etc.) during project construction. 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 effectively survey large projects (100 acres or larger), two or more surveyors should be used to walk adjacent transects. To avoid impacts to owls from surveyors, owls and/or occupied burrows should be avoided by a minimum of 50 meters (approx. 160 ft.) wherever practical. Disturbance to occupied burrows should be avoided during all seasons.

Definition of Impacts

The following should be considered impacts to the species:

- Disturbance within 50 meters (approx. 160 ft.) Which may result in harassment of owls at occupied burrows;
- Destruction of natural and artificial burrows (culverts, concrete slabs and debris piles that provide shelter to burrowing owls); and
- Destruction and/or degradation of foraging habitat adjacent (within 100 m) of an occupied burrow(s).

Written Report

A report for the project should be prepared for the Department and copies should be submitted to the Regional contact and to the Wildlife Management Division Bird and Mammal Conservation Program. The report should include the following information:

- Date and time of visit(s) including name of the qualified biologist conducting surveys, weather and visibility conditions, and survey methodology;

- Description of the site including location, size, topography, vegetation communities, and animals observed during visit(s);

- Assessment of habitat suitability for burrowing owls;

- Map and photographs of the site;

- Results of transect surveys including a map showing the location of all burrow(s) (natural or artificial) and owl(s), including the numbers at each burrow if present and tracks, feathers, pellets, or other items (prey remains, animal scat);

- Behavior of owls during the surveys;

- Summary of both winter and nesting season surveys including any productivity information and a map showing territorial boundaries and home ranges; and

- Any historical information (Natural Diversity Database, Department regional files? Breeding Bird Survey data, American Birds records, Audubon Society, local bird club, other biologists, etc.) regarding the presence of burrowing owls on the site.

Mitigation

The objective of these measures is to avoid and minimize impacts to burrowing owls at a project site and preserve habitat that will support viable owls populations. If burrowing owls are detected using the project area, mitigation measures to minimize and offset the potential impacts should be included as enforceable measures during the CEQA process.

Mitigation actions should be carried out from September 1 to January 31 which is prior to the nesting season (Thomsen 1971, Zam 1974). Since the timing of nesting activity may vary with latitude and climatic conditions, this time frame should be adjusted accordingly. Preconstruction surveys of suitable habitat at the project site(s) and buffer zone(s) should be conducted within the 30 days prior to construction to ensure no additional, burrowing owls have established territories since the initial surveys. If ground disturbing activities are delayed or suspended for more than 30 days after the preconstruction survey, the site should be resurveyed.

Although the mitigation measures may be included as enforceable project conditions in the CEQA process, it may also be desirable to formalize them in a Memorandum of Understanding (MOU) between the Department and the project sponsor. An MOU is needed when lands (fee title or conservation easement) are being transferred to the Department.

Specific Mitigation Measures

1. Occupied burrows should not be disturbed during the nesting season (February 1 through August 3 1) unless a qualified biologist approved by the Department verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

2. To offset the loss of foraging and burrow habitat on the project site, a minimum of 6.5 acres of foraging habitat (calculated on a 100 m {approx. 300 ft.} foraging radius around the burrow) per pair or unpaired resident bird, should be acquired and permanently protected. The protected lands should be adjacent to occupied burrowing owl habitat and at a location acceptable to the Department. *Protection of additional habitat acreage per pair or unpaired resident bird may be applicable in some instances.* The CBOC has also developed mitigation guidelines (CBOC 1993) that can be incorporated by CEQA lead agencies and which are consistent with this staff report.

3. When destruction of occupied burrows is unavoidable, existing unsuitable burrows should be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on the protected lands site. One example of an artificial burrow design is provided in Attachment A.

4. If owls must be moved away from the disturbance area, passive relocation techniques (as described below) should be used rather than trapping. At least one or more weeks will be necessary to accomplish this and allow the owls to acclimate to alternate burrows.

5. The project sponsor should provide funding for long-term management and monitoring of the protected lands. The monitoring plan should include success criteria, remedial measures, and an annual report to the Department.

Impact Avoidance

If avoidance is the preferred method of dealing with potential project impacts, then no disturbance should occur within 50 meters (approx. 160 ft.) of occupied burrows during the nonbreeding season of September 1 through January 31 or within 75 meters (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 *permanently* preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird. The configuration of the protected habitat should be approved by the Department.

Passive Relocation - With One-Way Doors

Owls should be excluded from burrows in the immediate impact zone and within a 50 meter (approx. 160 ft.) buffer zone by installing one-way doors in burrow entrances. One-way doors (e.g., modified dryer vents) should be left in place 48 hours to insure owls have left the burrow before excavation. Two natural or artificial burrows should be provided for each burrow in the project area that will be rendered biologically unsuitable. The project area should be *monitored daily for one* week to confirm owl use of 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 should be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

Passive Relocation - Without One-Way Doors

Two natural or artificial burrows should be provided for each burrow in the project area that will be rendered biologically unsuitable. The project area should be *monitored daily until the owls have relocated to the new burrows.* The formerly occupied burrows may then. be excavated. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe should be inserted into burrows during excavation to maintain an escape route for any animals inside the burrow.

Projects Not Subject to CEQA

The Department is often contacted regarding the presence of burrowing owls on construction sites, parking lots and other areas for which there is no CEQA action or for which the CEQA process has been completed. In these situations, the Department should seek to reach agreement with the project sponsor to implement the specific mitigation measures described above. If they are unwilling to do so, passive relocation without the aid of one-way doors is their only option based upon Fish and Game Code 3503.5.

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Eyas 10(1):38 Spring 1987

Reproductive Success of Burrowing Owls Using Artificial Nest Burrows in Southeastern Idaho

by Bruce Olenick

Artificial nest burrows were implanted in southeastern Idaho f'or burrowing owls in the spring of 1986. These artificial burrows consisted of a 12" x 12" x 8" wood nesting chamber with rernovable top and a 6 foot corrugated and perforated plastic drainage pipe 6 inches in diameter (Fig. 1). Earlier investigators claimed that artificial burrows must provide a natural dirt floor to allow burrowing owls to modify the nesting tunnel and chamber. Contrary to this, the artificial burrow introduced here does not allow owls to modify the entrance or tunnel. The inability to change the physical dimensions of the burrow tunnel does not seem to reflect the owls' breeding success or deter them from using this burrow design.

In 1936, 22 artificial burrows were inhabited. Thirteen nesting attempts yielded an average clutch size of 8.3 eggs per breeding pair. Eight nests successfully hatched at least 1 nestling. In these nests, *67 of 75* eggs hatched (59.3%) and an estimated 61 nestlings (91.0%) fledged. An analysis of the egg laying and incubation periods showed that incubation commenced well after egg laying bega. Average clutch size at the start of incubation was 5.6 eggs. Most eggs tended to hatch synchronously in all successful nests.

Although the initial cost of constructing this burrow design may be slightly higher than a burrow consisting entirely of wood, the plastic pipe burrow offers the following advantages: (1) it lasts several field seasons without rotting or collapsing; (2) it may prevent or retard predation; (3) construction time is minimal; (4) it is easy to transport, especially over long distances; and (5) the flexible tunnel simplifies installation. The use of this artificial nest burrow design was highly successful and may prove to be a great resource technique for future management of this species.

For additional information on constructing this artificial nest burrow, contact Bruce Olenick, Department of Biology, Idaho State University, Pocatello, ID 83209.

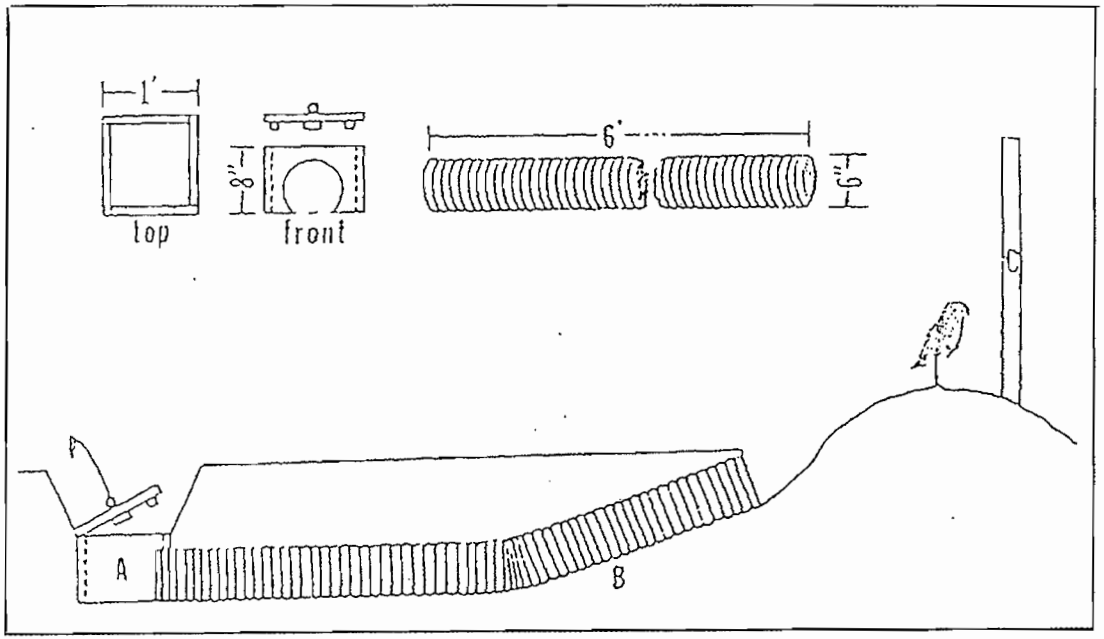


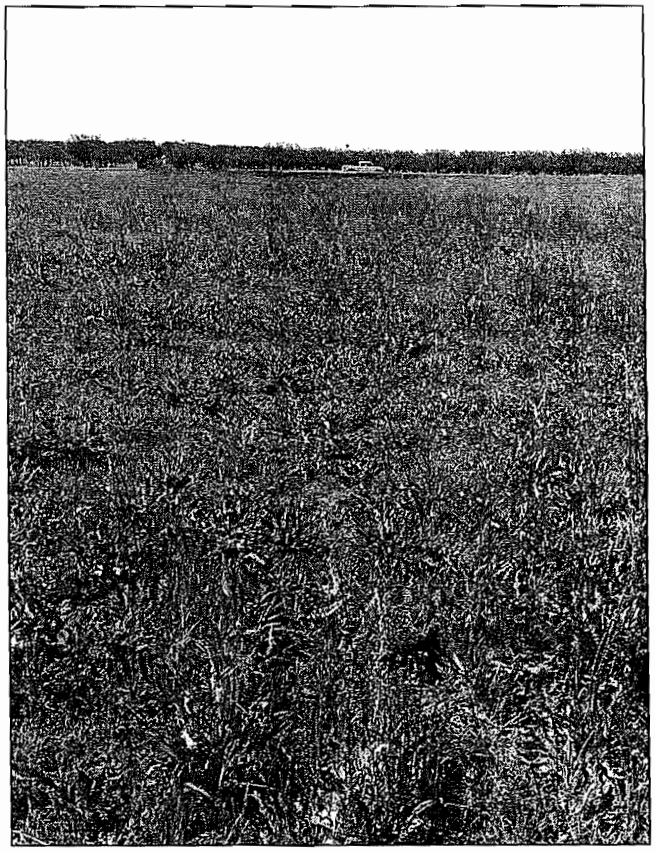
fig. 1 Artificial nest burrow design for burrowing owls Entire unit (including nest chamber) is buried 12" -- 18" below ground for maintaining thermal stability of the nest chamber. A= nest chamber, B = plastic pipe. C = perch.

EXHIBIT S

DELINEATION OF WETLANDS AND WATERS OF THE UNITED STATES

41MB 8ME, LLC

LOTUS SOLAR PROJECT SITE
MADERA COUNTY, CA



April 2012

Delineation of Wetlands and Waters of the United States
41MB 8ME, LLC
Lotus Solar Project Site
Madera County, California

Prepared for:
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April 2012

120061

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EXECUTIVE SUMMARY

41MB 8ME, LLC is investigating the potential to develop a utility-scale photovoltaic (PV) solar farm (up to 90 mw) in Madera County, California. The proposed Project site is located west of Madera Ranchos and southeast of the City of Madera. The project is known as the Lotus Solar Project (Project).

The proposed Project site is located on lands currently zoned as Public Open Space/Agricultural Exclusive (POS/AE) on an agricultural grazing site. The proposed Project site would be situated on up to 458 acres of a 634-acre parcel.

Quad Knopf, Inc. conducted a delineation of wetlands and Waters of the United States within the Lotus Solar Project on April 3, 2012. The site contained one swale meeting the US Army Corps of Engineers (USACE) standard criteria of a wetland. Other non-wetland features on the site included two dry ditches and one small pond. Irrigation runoff from orchards north of the site fed one of these ditches, the swale, and the pond. A third ditch and the only wet ditch in the vicinity was located north of the Project site. This ditch was also fed by irrigation runoff. The site is isolated from other wetlands by topography and alterations to the land from humans. These include a railway line to the west of the Project, and agricultural lands to the north, east, and south of the Project.

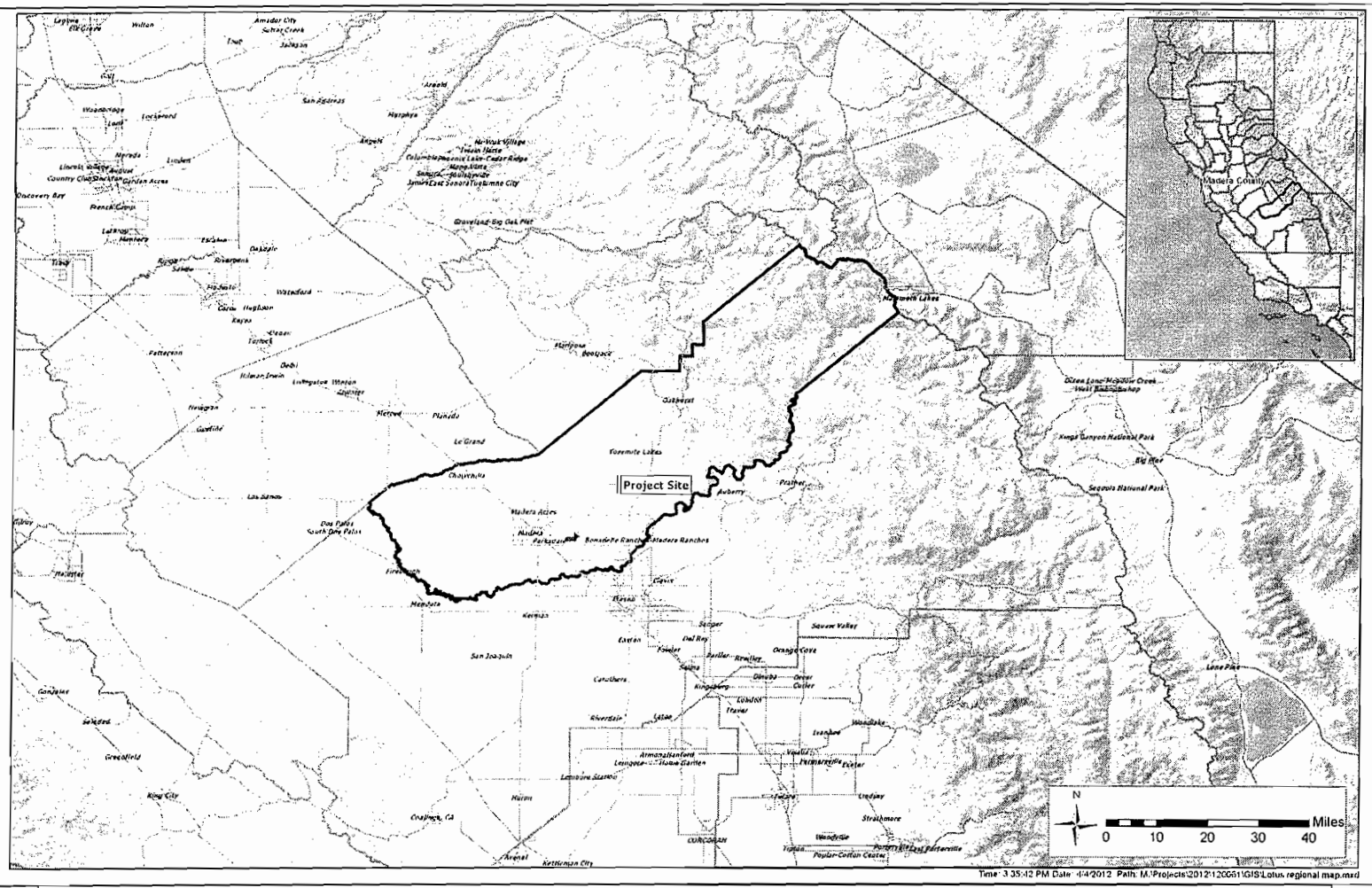
Most of these features will not fall within the jurisdictional authority of the USACE because they do not meet wetland criteria, would be considered isolated features, or would be exempt from the permitting process. The State RWQCB may take jurisdictional authority over some of the features that are excluded from USACE jurisdiction. There are no riparian areas or riverine systems that are likely to be within the jurisdiction of the CDFG.

1.0 INTRODUCTION

41MB 8ME, Inc. is investigating the potential to develop a utility-scale photovoltaic (PV) solar farm project in Madera County, California. The proposed Project site is located west of Madera Ranchos, between State Route 41 and State Route 99, north of Avenue 13 and west of Road 33 (Figure 1). The project is known as the Lotus Solar Project (Project).

The proposed Project is located on lands currently zoned as Public Open Space/Agricultural Exclusive (POS/AE). The site consists primarily of grasslands used for sheep grazing, some of which was formerly used for crop production. The proposed Project site is situated on up to 458 acres of APN 034-210-038 (Figure 2).

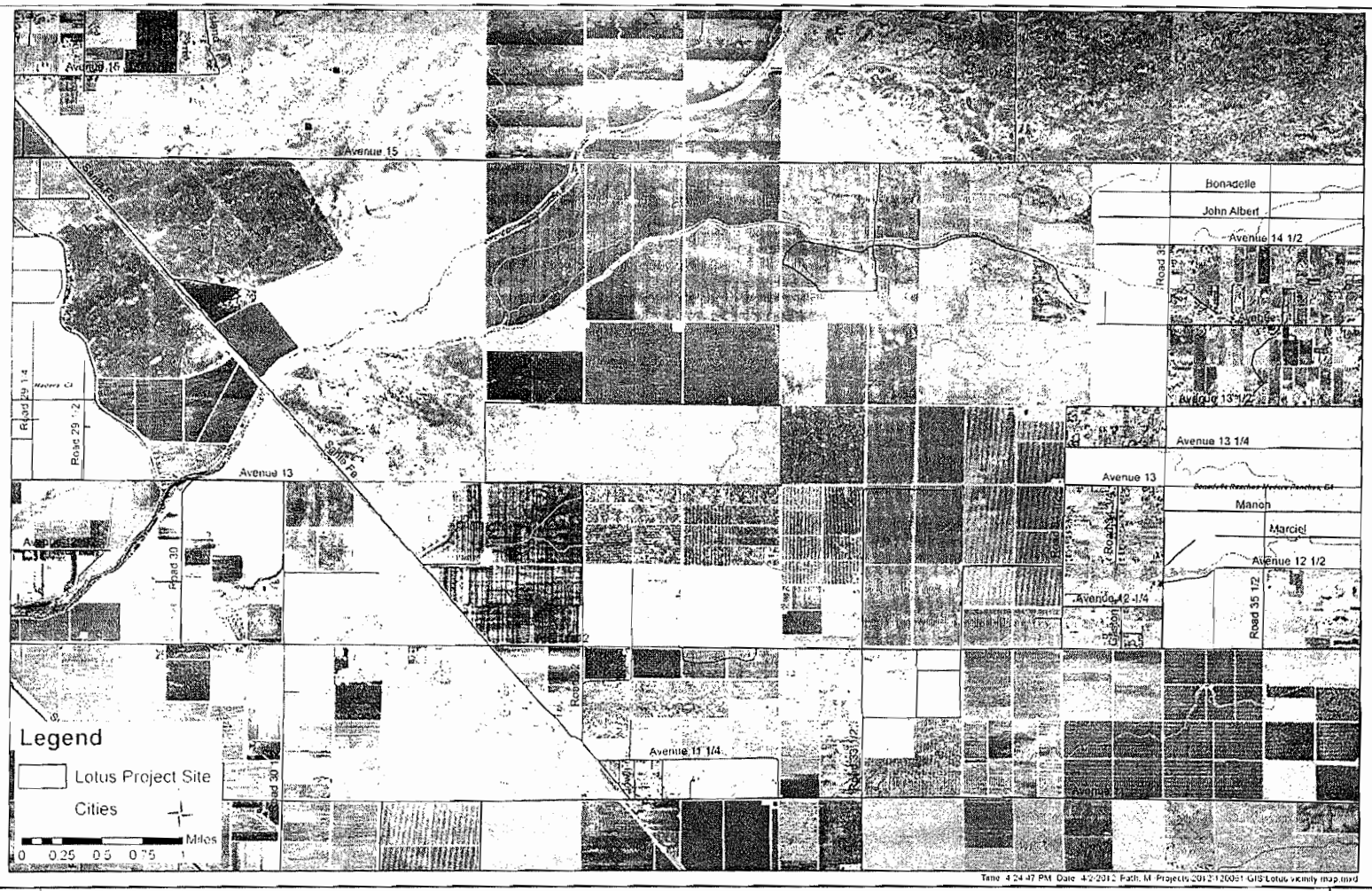
Quad Knopf, Inc. conducted a delineation of wetlands and Waters of the United States within the Lotus Solar Project. The site is contained within the Gregg 7.5-minute U.S. Geological Survey Map, in Township 11S, 18E, Sections 25, 26, 35, and 36.



Quad Knopf

REGIONAL MAP OF THE LOTUS SOLAR PROJECT

Figure 1



Quad Knopf

VICINITY MAP OF THE LOTUS SOLAR PROJECT

Figure 2

This wetland delineation report includes a delineation of wetlands and other waters conducted April 3, 2012. The objectives of the delineation were to:

- Document existing site conditions;
- Determine the presence of wetlands and waters within and adjacent to the Project using standardized wetland characteristics; and
- Delineate wetland boundaries and boundaries of Ordinary High Water for those features that may be under the jurisdictional authority of the USACE and the Environmental Protection Agency (EPA).

Tasks completed include:

- Reviewing topographic maps and aerial photography;
- Reviewing National Wetland Inventory (NWI) data and maps and published Soil Survey data and maps;
- Conducting a field survey of the Project site to locate all potential wetlands and other waters;
- Documenting soil conditions, hydrological conditions, and plant community composition of potential wetlands following the *Corps of Engineers Wetland Delineation Manual* (USACE 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008); and
- Determining the presence and distribution of wetlands and other waters located within and adjacent to the Project site based upon standardized wetland characteristics.

The purpose of this report is to provide sufficient data and information to the USACE so that they may conduct a wetland verification and prepare a jurisdictional determination for the Project. Following the jurisdictional determination, and based upon an analysis of impacts to wetlands and Waters of the United States, an application for a 404 permit, pursuant to the requirement of the Clean Water Act (CWA), may be required.

2.0 METHODS

Prior to conducting field investigations, a review of available literature and a search of the National Wetlands Inventory (NWI) (USFWS 2012) were conducted. Information on regional hydrology was obtained from the Geospatial Data Gateway website of the Natural Resources Conservation Service (http://datagateway.nrcs.usda.gov/GDGHome.aspx). Weather and precipitation data were obtained from http/www.wunderground.com and soils data were obtained from the Web Soil Survey (USDA-NRCS 2012).

Quad Knopf biologists Eugene (Woody) Moise and Ginger White conducted wetland field investigations within and adjacent to the Project site on April 3, 2012. The entire Project site was inspected for the presence of wetlands, and each potential wetland feature located was delineated using standard methods described in the *1987 Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the most recent version of the *Arid West Supplement* (Version 2 2008). The Project site is defined by Road 33 on the eastern boundary, Avenue 13 ½ on the northern boundary, and unnamed dirt roadways to the west and south. The entire site was evaluated for the presence of potential wetlands by studying aerial photographs and the Gregg topographic map, and by conducting a reconnaissance survey by vehicle. Selected areas which could potentially support wetlands were surveyed on foot to ensure 100 percent coverage of the site. Roadside ditches, culverts, and other wetlands and non-wetland water features that were encountered were mapped and evaluated. Paired sample points were located on either side of each feature boundary to obtain information from both wetland and upland conditions. The locations of sample points were mapped using a Trimble GeoXH GPS with WAAS augmentation and real-time sub-meter accuracy.

At each sample point, the presence or absence of hydrologic indicators was noted, soils were characterized, and vegetation was analyzed following standard procedures. Hydrologic indicators include the presence of standing water, fresh alluvial deposits, root zone oxidation, drainage patterns, and other diagnostic characteristics. Soil samples were excavated and soils inspected to characterize soil profiles and soil/water conditions at each sample plot, and to compare site observations with soil conditions described in the *Web Soil Survey* (USDA-NRCS 2012). Soil horizonation, texture, moisture content, depth to saturation, and/or standing water were noted for each soil pit. The presence or absence of particulate organic matter, organic matter staining, redoximorphic features, and gleying were noted. Soil colors were determined (*sensu* Munsell 2000). The percent cover of observed plant species was visually estimated and recorded. Dominant plant species were identified in accordance with the USACE 50/20 Rule. Plant identification was determined using *the Jepson Manual of Higher Plants* (Hickman 1993). The wetland indicator status of plant species was determined using the *National List of Plant Species that Occur in Wetlands: Northwest (Region 8)* (USFWS 1988). Plant communities occurring on and near the transmission line corridor were classified using the Holland Classification system (Holland, 1986). The hydrologic, soil, and vegetative data recorded at the sample points were transcribed onto standard USACE Wetland Determination Data Forms (Appendix A).

All wetland boundaries and other features were flagged and delineated using a Trimble GeoXH GPS with WAAS augmentation and real-time sub-meter accuracy. Wetland delineation maps were produced by overlaying wetland delineation survey data with 2010 ortho-rectified one foot pixel resolution color aerial imagery (Bing Maps aerial imagery web mapping service 2010). The Cowardin system was used to classify wetland types (*Sensu* Cowardin et al 1979).

Bank to Bank measurements and other data were collected for the one wet ditch that occurs on the Project site to allow for appropriate permitting through the California Department of Fish and Game (CDFG) and the State Regional Water Quality Control Board (RWQCB).

3.0 RESULTS

This section describes various characteristics of the Project site including topographic relief, the presence and distribution of plant communities, the presence and distribution of soils types, precipitation and growing season, and wetlands information based upon the National Wetlands Inventory, and field studies.

3.1 Topographic Relief

The proposed solar Project site is located on flat or slightly sloped, undulating rural lands, which are currently used for grazing sheep. The ground has been highly disturbed in the past, with indicators of irrigation (well stands, tanks, culverts). The site has not been laser-leveled or significantly tilled, but appears to have historically been used as irrigated pastureland. The land includes a shallow swale running from north to south through the site with higher ground separating two swales. Except for ditches and the two shallow swales, the topography is relatively flat, with a slope of approximately two to three percent overall. The elevation of the site ranges from 283 feet AMSL in the southwest corner to 300 to 305 feet AMSL on the northern boundary of the site.

The Atchison Topeka and Santa Fe Railroad is located approximately 0.75 mile to the west of the site. The railway line was originally a part of the Southern Pacific Railroad, constructed in 1872 above the grade of the surrounding lands that isolates surface water from areas to the west.

There are no rivers or tributaries within the Project site. A man-made ditch originates at the northeastern corner of the site and terminates at an intermittent, seasonal swale (designated as SW1B) that flows from north to south through the site. The topographic map indicates that this intermittent swale originates north of the site, but the area to the north of the site has been leveled and is now an almond orchard. Two other minor drainages are indicated on the topographic map as originating within the Project site, and flowing south off the property, through irrigated pistachio orchards. Except for the presence of a culvert (Culvert 2) near the center of the site, no evidence of these drainages was observed during the survey.

3.2 Watersheds and Regional Hydrology

The Lotus Solar Project site is located within the Middle San Joaquin – Lower Chowchilla Watershed, which extends from north of the City of Merced south and includes the San Joaquin River north of the City of Fresno. To the east the watershed extends from the Sierra Nevada Mountain foothills, and to the west the watershed terminates in the foothills of the Coastal Range (Figure 3). The site includes two minor drainages: one on the eastern side of the site running from north to south, and the other in the center of the site, also running from north to south. These shallow drainages are of short length with no defined bed and bank. They join just south of the Project, and from there flow into the orchards. Manmade features, including ditches that were created by the installation of culverts and now-nonfunctioning irrigation stands were located sporadically around the perimeter of the Project and outside the perimeter on the opposite side of a dirt road. The one wetland that occurs on the site was a shallow swale. Other non-wetland features included ditches and a pond resulting from irrigation runoff from adjacent properties, which was funneled through culverts under the roadways

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Quad Knopf	HYDROLOGIC REGION OF THE LOTUS SOLAR PROJECT	Figure 3

Cottonwood Creek and Little Dry Creek are located approximately one mile north of the Project site. These creeks originate in the Sierra Nevada Mountains to the east, and, after joining with a number of smaller creeks as they travel through the Sierra Foothills, join together as Cottonwood Creek to the northwest of the Project. Neither these creeks nor the San Joaquin River provide water to the Project site. There was evidence of water storage tanks on site that may have drawn groundwater from wells for use as irrigation, although no on site wells were indicated on the NWI maps.

3.3 Plant Communities

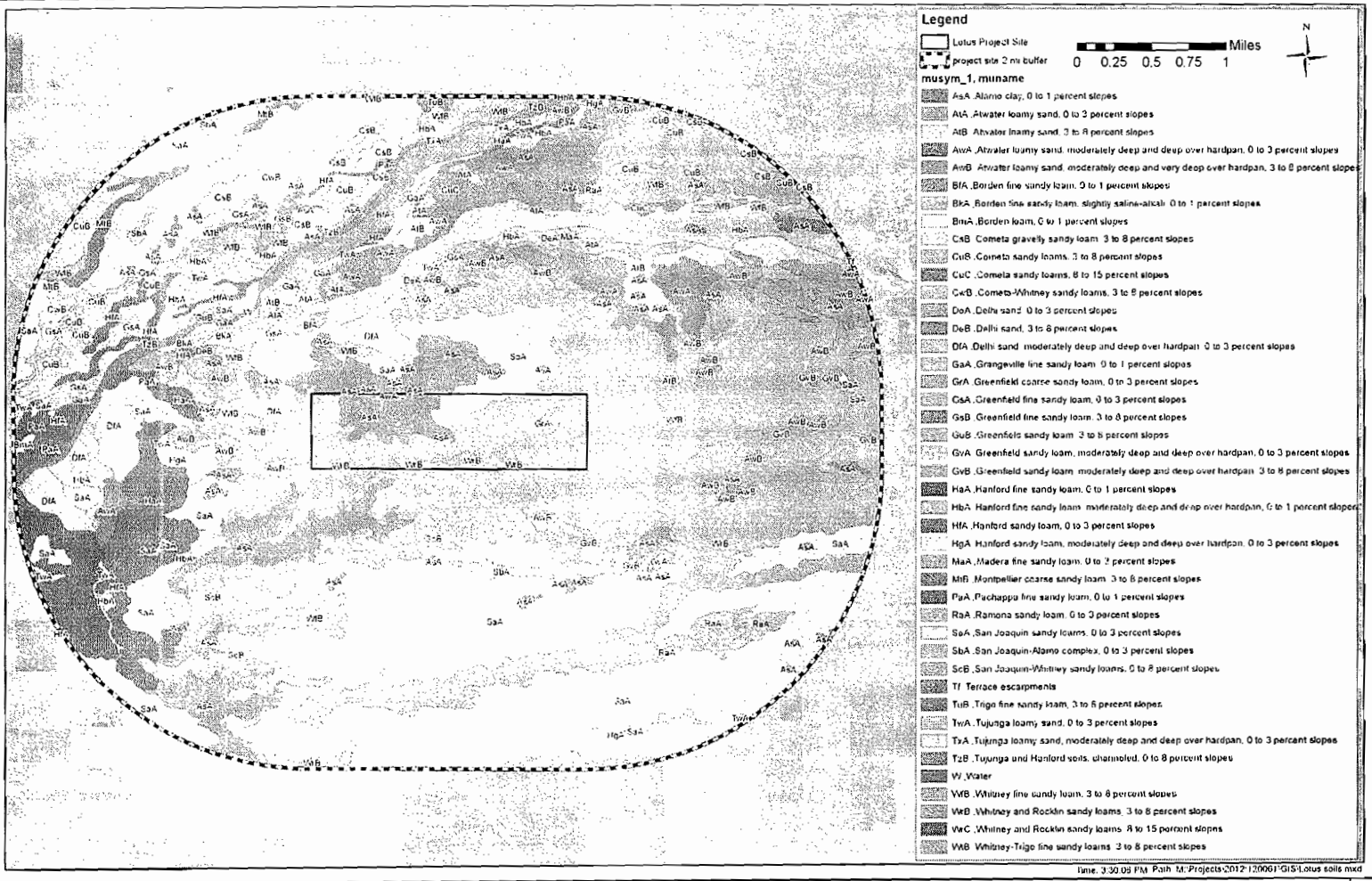
The only plant community within the Lotus Solar Project was disturbed non-native grassland that is currently used as non-irrigated grazing land. The presence of an above-ground irrigation system on the eastern portion of the site indicated that these grasslands may have been irrigated in the past, and that irrigation may continue during dry months to produce forage for grazing sheep. Lands surrounding the Project include pistachio orchards to the south, almond orchards to the north and east, dryland barley to the west, and irrigated pasture to the south and southwest.

The grassland on the Project site was dominated by non-native annual grasses and forbs, with some native forbes and grasses intermixed. Dominant grasses on the site were soft chess (*Bromus hordeacous*) and false or mouse barley *(Hordium murnium*). Dominant forbs were filaree (*Erodium cicutarium*), fiddleneck (*Amsinckia intermedia*), curly dock (*Rumes crispus*), popcorn flower (*Plagiobothrys nothofulvus*) and radish (*Raphanus setiva*). Typically this grassland flourishes during the winter and spring when precipitation occurs, but becomes dry as the heat of summer approaches.

3.4 Soils

There is a relatively high diversity of eight soils types occurring within the Project site (Figure 4). The vast majority of soil is various types of sand or sandy loam, with a small percentage of clay. Soil types include:

AsA	Alamo clay, 0-1% slopes	2% of AOI
AwA	Atwater loamy sand over hardpan, 0-3% slopes	16.6% of AOI
AwB	Atwater loamy sand over hardpan, 0-3% slopes	0.1% of AOI (0.8 ac)
Dfa	Delhi sand over hardpan, 0-3% slopes	0.0% of AOI (0.3 ac)
GrA	Greenfield coarse sandy loam, 0-3% slopes	0.9% of AOI
SaA	San Joaquin sandy loams, 0-3% slopes	8.3% of AOI
WfB	Whitney fine sandy loam, 3-8% slopes	48.7% of AOI
WrB	Whitney and Rocklin sandy loams, 3-8% slopes	23.3% of AOI



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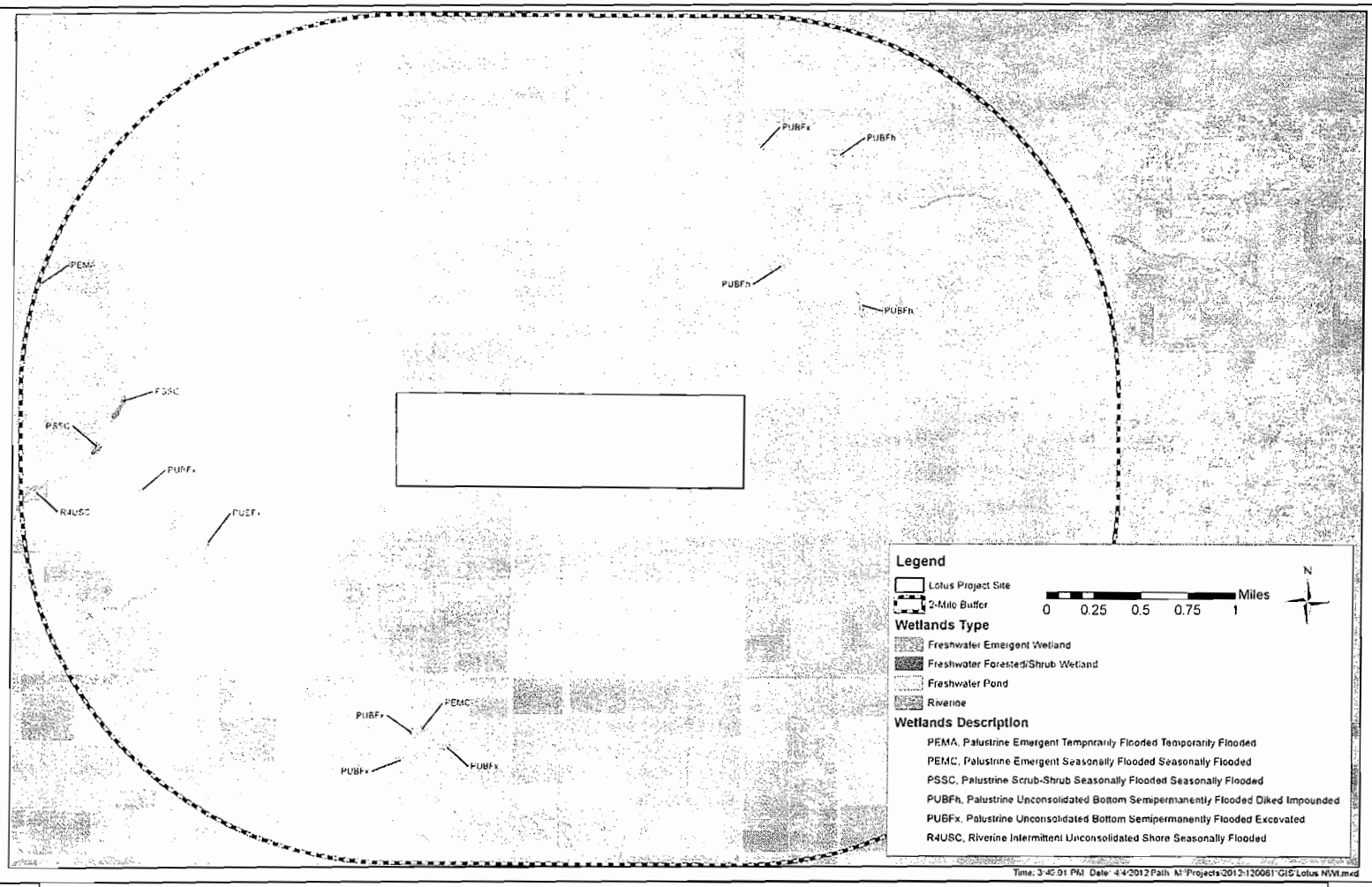
SOIL TYPES IN THE LOTUS SOLAR PROJECT

Figure 4



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KNOWN WETLANDS MAPPED BY THE NATIONAL WETLAND INVENTORY

Figure 5

3.5 Precipitation and Growing Season

The climatic conditions of the project site are typical of the southern San Joaquin Valley. It is hot and dry in the summer and cold and moist in the winter. Winter rains are interspersed with spells of cloudy, foggy, or sunny weather. The nearest weather station to the site is located in the City of Madera, located approximately 5 miles northwest of the project site. The average daily low temperatures vary from approximately 35 degrees Fahrenheit in January to 55 degrees Fahrenheit in July. Average daily highs vary from approximately 50 degrees Fahrenheit in January to 98 degrees in July. The annual average precipitation is 14.50 inches, with virtually all of the precipitation falling as rain. In 2012 when this delineation was completed, the area had received only 43 percent of the average annual precipitation (as measured from October 1, 2011).

3.6 National Wetlands Inventory Data

Existing data from the NWI indicates the presence of no wetland features within the Project site (Figure 5). This finding is not consistent with findings of the field studies as it did not include the wetland swale or additional features that occur on the site. The swale flowed through the Project site from north to south, interrupted by slightly higher ground in the center of the site. This topography divided the swale into two sections, with the portion between not meeting wetland hydrology or vegetation criterion. There was a recently created, man-made ditch originating on the northeast corner, and another on the southern perimeter of the site. Another ditch, recognized on the topographic map but not the NWI, was barely discernable during the field study, but was easy to locate by a culvert crossing. A fourth ditch that was located north of the Project was the only wet ditch. This large ditch was not included on the NWI, and was wet due to irrigation runoff. A small pond was located on the northern perimeter of the site. This shallow pond was fed by irrigation water delivered through a culvert.

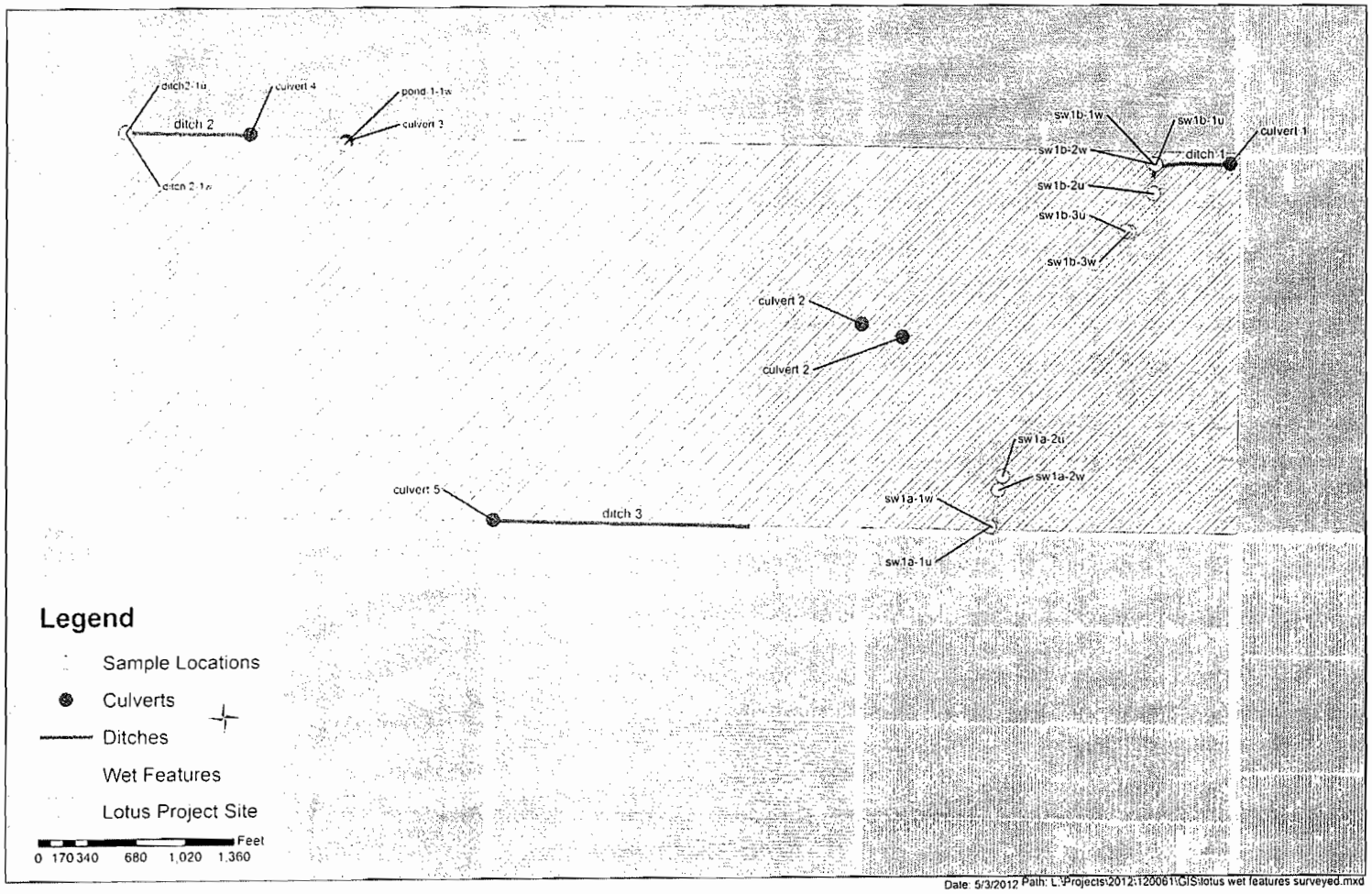
Although apparent on aerial photographs, this pond was not included on the NWI.

3.7 Wetlands and Other Waters

There are four types of wetlands and other waters that were identified to occur within the Project site and in the areas adjacent to the Project site. The one wetland present on the site included two sections of one swale. There was also one wet ditch that occurs to the north of the site. Non-wetland features that were present included manmade drainage ditches and a shallow pond fed by irrigation overflow water through culverts crossing under the roadways. The wetland and non-wetland features are described below. Representative photographs of the wetland swale are provided in Appendix B. Table 1 describes each of the wetlands and other features found within and adjacent to the Project, while Figure 6 includes the location of each. Additionally, Appendix C contains a map of the wetland and non-wetland features at the scale required by the U.S. Army Corps of Engineers (ACOE).

Table 1
Wetlands and Other Features in the Vicinity of the Lotus Solar Project

Feature	ID	Description	Acreage/ Length
Swales	SW1A	Swale at southeastern end of Project, separated from SW1B by topography. This swale meets wetland criteria.	
	SW1B	Swale at northeastern end of the Project, fed by irrigation runoff, and from natural drainage. Linked to Ditch 1.	
Ditches	Ditch1	Inlet of Culvert1is not visible, but is apparently under the dirt road north of the Project. This non-wetland, dry ditch is approximately 24-inch wide, and flows from the northeast corner of the site into SW1B, although it is filled with silt at the southern end.	578 feet
	Ditch2	Man-made ditch 12 to 15 feet wide on the northern side of the dirt road, immediately north of the Project site. This ditch was flooded on its western end. This ditch was fed by Culvert4 and meets wetland criteria.	878 feet
	Ditch3	Non-wetland, dry ditch on southern end of the site, fed by Culvert5.	1,801 feet
Pond	Pond1	Appears to be created from overflow of irrigation of orchard to north of the Project site. Fed by Culvert3. Does not meet wetland criteria.	
Culverts	Culvert1	25 feet, 24-inch diameter, plastic culvert associated with Ditch 1. at the northeastern corner of the site. Culvert was apparently situated to divert irrigation overflow from the orchard north of the site.	
	Culvert2	In center of the site. This cast iron culvert was placed under a dirt access road. The topographic map indicated the presence of a ditch flowing from the north, but no signs of a ditch are visible at this culvert location.	
	Culvert3	Originates in orchard to north of the Project. Feeds Pond1. Constructed of cast iron, 24-inch in diameter.	
	Culvert4	Feeds Ditch2 north of the site. Culvert is on the eastern side of the ditch, and diverts irrigation overflow from the orchard.	
	Culvert5	Feeds Ditch3 on the southwestern side of the Project. This 30-inch diameter, corrugated metal culvert diverts the flow under a dirt road, where it is fed to a pipe stand.	



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WETLAND AND NON-WETLAND FEATURES OBSERVED DURING APRIL 2012 SURVEY

Figure 6

WETLAND FEATURES

Vernal Swale/Seasonal Wetland

One vernal swale or seasonal wetland was found within the Project site (Figure 6). This wetland feature occurs in the non-native grassland habitat on the eastern section of the site. This feature was originally a natural feature that was amplified with an artificial drainage, so that irrigation overflow contributes to seasonal inundation on the northern end (SW1B). During periods of high flow, the entire swale fills with water. When the flow decreases, water remains longest at the northern and southern ends (SW1A and SW1B). Soil within the swales is Whitney fine sandy loam. The center of the swale does not include wetland hydrology, hydric soils, or hydrophytic vegetation. The soils in this non-wetland section are of Greenfield coarse sandy loam. As indicated on Figure 4, this swale terminates at the southern end of the Project site.

Ditch

A wet ditch adjacent to the Project site was approximately 12 to 15 feet in width, with algae and curley dock being the dominant vegetation (Ditch2, Figure 6). This ditch was deepest on the western end and dry on the eastern end, where it was fed irrigation overflow by a culvert. This ditch was located in an area of Atwater loamy sand over hardpan, except at its western end, which was in Whitney and Rocklin sandy loam. This ditch met all three criteria for a wetland, but it is not located on the Project site.

NON-WETLAND FEATURES

Non-wetland Pond

One pond was located to the north of the site (Pond1, Figure 6). This pond was fed by irrigation overflow. Although this pond included wetland vegetation (*eliocris macrostaychs*) and hydrology, it did not display hydric soils. Surface water was present the day the field survey was conducted, but was not present the day before during a site visit, further indicating the sporadic presence of water here. Soils here are Atwater loamy sand over hardpan.

Ditches

Two ditches were located within the Project site. One recently-installed, non-wetland dry ditch was located on the northeastern corner of the Project site (Ditch1, Figure 6). This ditch was approximately 24 inches in width and depth, and transported irrigation overflow water from Culvert1 into SW1B. This ditch was only recently constructed, lacked vegetation of any kind, and had no indications of a wetland feature. The southern end of this ditch was filled with silt, although fed into SW1B at an earlier time. As with the swale, soils in this area are Whitney fine sandy loam.

The second ditch within the Project site was located along the southern boundary of the site, at the western corner (Ditch3, Figure 6). This non-wetland dry ditch appeared to carry water from the site through a culvert and to the west, off the site. Soils within this ditch were of Whitney and Rocklin sandy loam. Except for the presence of some hydrophilic vegetation (curly dock), the ditch lacked evidence of wetland indicators.

The topographic map indicted the presence of a fourth ditch in the approximate center of the site. The only evidence of this ditch was the presence of a cast iron culvert (Culvert2, Figure 6). The topography showed no indication of a channel, and only the upland grasses and forbs found elsewhere on the site were observed. This ditch was not recorded as a feature on the site.

4.0 CONCLUSIONS

One wetland and a variety of non-wetland features occur within the Lotus Solar Project, and one wet ditch is adjacent to the Project. It is anticipated that some impacts to these features will be necessary, but avoidance and minimization of impacts can result from judicious project design, access road development, and careful construction.

Most of these features will not fall within the jurisdictional authority of the USACE because they do not meet wetland criteria, would be considered isolated features, or would be exempt from the permitting process. The State RWQCB may take jurisdictional authority over some of the features that are excluded from USACE jurisdiction. There are no riparian areas or riverine systems that are likely to be within the jurisdiction of the CDFG.

This wetland delineation report is intended to be submitted to the USACE for verification, and a jurisdictional determination may be requested. Permits for impacts to wetland and non-wetland features may be required. A 401 Water Quality Certification may be needed from the State RWQCB, although a 1600 Streambed Alteration Agreement from the CDFG would not be needed.

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APPENDICES

Appendix A

Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: Ditch 2-1W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 42.118"N | Long: 119° 58' 26.769"W | Datum:

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes (•)	No ( )	Is the Sampled Area
Wetland Hydrology Present?	Yes ( )	No (•)	within a Wetland? Yes ( ) No (•)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Bromus Diandrus*	80	Yes	
2. *Bromus hordeaceus*	10		
3. *Hordeum murinum*	10		
4.			
5.			
6.			
7.			
8.			
Total Cover	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Remarks

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

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SOIL

Sampling Point: Ditch 2-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	7.5 YR 3/2	95	7.5 YR 5/6	5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Berm created on S. side ditch . with soils mixed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: Ditch 2-1W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 42.156"N | Long: 119° 58' 25.827"W | Datum:

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	Is the Sampled Area
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? Yes ( ) No (●)

Remarks: Artificially created ditch 12-15' wide. Created for irrigation runoff.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1			
2.			
3			
4			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex acetosella*	40	Yes	[illegible]
2. *Algae*	60	Yes	
3.			
4			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2			
Total Cover:	%		

% Bare Ground in Herb Stratum [illegible] % | % Cover of Biotic Crust %

Remarks

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species		x 2 =	0	
FAC species	40	x 3 =	120	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	40 (A)		120	(B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

X Prevalence Index is ≤3.0

[ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

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SOIL

Sampling Point: Ditch 2-

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-8	7.5 YR 3/2	98	7.5 YR 4/6	2	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [x] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes (•) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes (•) No ( ) Depth (inches): 12"

Water Table Present? Yes (•) No ( ) Depth (inches):

Saturation Present? (includes capillary fringe) Yes (•) No ( ) Depth (inches):

Wetland Hydrology Present? Yes (•) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: Pond 1-1W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage/Pond | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 41.476"N | Long: 119° 50' 07.022" W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )			
Hydric Soil Present?	Yes ( )	No (●)	Is the Sampled Area		
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland?	Yes ( )	No (●)

Remarks: Does not display hydric soils - not a wetland. Artificially created by irrigation runoff.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eliocris macrostachys*	90	Yes	OBL
2. *Cyperus sp.*	10		FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Remarks

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	10	x 2 =	20
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals	100 (A)		110 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

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SOIL

Sampling Point: Pond 1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	7.5 YR 4/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ● No ○ Depth (inches): 1"

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology not present yesterday. Recently flooded from irrigation runoff.

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Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar City/County: Madera Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy State: CA Sampling Point: SW1A-1U

Investigator(s): W. Moise, G. White Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Concave Slope (%): 2%

Subregion (LRR): C - Mediterranean California Lat: 36° 56' 15.545"N Long: 119° 57' 10.823"W Datum: WGS 1984

Soil Map Unit Name: NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	Is the Sampled Area
Wetland Hydrology Present?	Yes ( )	No (●)	within a Wetland? Yes ( ) No (●)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus hordeaceus*	10		
2. *Erodium cicutarium*	10		
3. *Hordeum murinum*	75	Yes	
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

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SOIL

Sampling Point: SW1A-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	7.5 YR 3/3	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012
Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1A-1W
Investigator(s): W. Moise, G. White | Section, Township, Range:
Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): Concave | Slope (%): 2%
Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 15.474"N | Long: 119° 57' 10.54"W | Datum: WGS 1984
Soil Map Unit Name: | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	Is the Sampled Area		
Hydric Soil Present?	Yes (•)	No ( )	within a Wetland?	Yes (•)	No ( )
Wetland Hydrology Present?	Yes (•)	No ( )			

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Hordium marinum*	50	Yes	FACW
2. *Rumex Crispus*	25	Yes	FACW
3. *Bromus hordeaceus*	5		
4.			
5.			
6.			
7.			
8.			
Total Cover	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	75	x 2 =	150	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals	75 (A)		150	(B)
Prevalence Index = B/A =			2.00	

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

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SOIL

Sampling Point: SW1A-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5 YR 3/2	95	7.5 YR 4/6	5	C	RC	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ( ) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No ( ) Depth (inches):

Water Table Present? Yes ( ) No ( ) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No ( ) Depth (inches):

Wetland Hydrology Present? Yes ( ) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2008

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1A-2U

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Shallow Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 19.054"N | Long: 119° 57' 09.764"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	Is the Sampled Area
Wetland Hydrology Present?	Yes ( )	No (●)	within a Wetland? Yes ( ) No (●)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Rumex crispus*	15		
2. *Plagiobothrys leptocladus*	1		
3. *Bromus hordeaceus*	60	Yes	[illegible]
4. *Hordium murinum*	10		
5. *Capsella bursa-pastoris*	5		
6.			
7.			
8.			
Total Cover	91 %		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 9 % % Cover of Biotic Crust %

Remarks.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	60	x 2 =	120
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	60 (A)		120 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

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SOIL

Sampling Point: SW1A-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	7.5 YR 3/8	95	7.5 YR 5/8	5	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1A-2W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Shallow Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 18.019"N | Long: 119° 57' 10.058"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )			
Hydric Soil Present?	Yes (●)	No ( )	Is the Sampled Area		
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland?	Yes (●)	No ( )

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	40	Yes	FACW
2. *Hordium marinum*	30	Yes	FACW
3. *Bromus hordeaceus*	20	Yes	
4. *Plagiobothrys leptocladus*	15		
5.			
6.			
7.			
8.			
Total Cover:	105%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	70	x 2 =	140
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals	70 (A)		140 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes (●) No ( )

US Army Corps of Engineers

Arid West - Version 11-1-2008

SOIL

Sampling Point: SW1A-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5 YR 2.5/2	95	7.5 YR 5/8	5	C	M	SL	
6-14	7.5 YR 2.5/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ( ) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (•) Depth (inches):

Water Table Present? Yes ( ) No (•) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (•) Depth (inches)

Wetland Hydrology Present? Yes (•) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar City/County: Madera Sampling Date: 4-3-2012

Applicant/Owner: 8 Minute Energy State: CA Sampling Point: SWIB-1U

Investigator(s): W. Moise, G White Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 2%

Subregion (LRR): C - Mediterranean California Lat: 36° 56' 40.446"N Long: 119° 56' 56.877"W Datum: WGS 1984

Soil Map Unit Name: NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)			
Hydric Soil Present?	Yes ( )	No (•)	Is the Sampled Area		
Wetland Hydrology Present?	Yes ( )	No (•)	within a Wetland?	Yes ( )	No (•)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Amsinkia intermedia*	50	Yes	UPL
2. *Raphanus sativus*	30	Yes	UPL
3. *Bromus hordeaceus*	15		
4. *Hordeum murinum*	5		
5.			
6.			
7.			
8.			
Total Cover	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species		x 2 =	0	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species	80	x 5 =	400	
Column Totals	80	(A)	400	(B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0

[ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ( ) No (•)

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL

Sampling Point: SWIB-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 3/3	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1B-1W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): C - Mediterrancan California | Lat: 36° 56' 40.500"N | Long: 119° 56' 57.115"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	Is the Sampled Area
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? Yes (●) No ( )

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Rumex crispes*	25	Yes	
2. *Plagiobothrys leptocladus*	5		
3. *Lythrum hyssopifolium*	20	Yes	
4. *Poa annua*	20	Yes	
5. *Hordium marinum*	10		
6.			
7.			
8.			
Total Cover	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	65	x 2 =	130
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals	70 (A)		135 (B)

Prevalence Index = B/A = 1.93

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- X Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

US Army Corps of Engineers

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SOIL Sampling Point: SWIB-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8"	10 YR 3/2	90	10 YR	10	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [x] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ( ) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No ( ) Depth (inches):

Water Table Present? Yes ( ) No ( ) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No ( ) Depth (inches):

Wetland Hydrology Present? Yes ( ) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012
Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1B-2U
Investigator(s): W. Moise, G. White | Section, Township, Range:
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%
Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 38.463"N | Long: 119° 56' 57.047"W | Datum: WGS 1984
Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ( ) No (•)
Hydric Soil Present? Yes ( ) No (•)
Wetland Hydrology Present? Yes ( ) No (•)
Is the Sampled Area within a Wetland? Yes ( ) No (•)
Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1			
2			
3			
4			
5.			
Total Cover	%		
Herb Stratum			
1. *Bromus hordeaceus*	95	Yes	FACU
2. *Erodium Cicutarium*	5		
3.			
4			
5.			
6			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %
Remarks:

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	95	x 2 =	190	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals	95 (A)		190	(B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
[ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
[ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ( ) No (•)

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SOIL

Sampling Point: SW1B-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 3/4	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SWIB-2W

Investigator(s): W. Moise, G. White | Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 1%

Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 40.445"N | Long: 119° 56' 56.876"W | Datum: WGS 1984

Soil Map Unit Name: | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	Is the Sampled Area within a Wetland? Yes (●) No ( )
Hydric Soil Present?	Yes (●)	No ( )	
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eleocharis macrostachya*	90	Yes	OBL
2. *Rumex crispus*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	10	x 2 =	20
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		110 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes (●) No ( )

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL

Sampling Point: SW1B-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 4/2	98	7.5 YR 5/6	2	C	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [x] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ( ) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No ( ) Depth (inches):

Water Table Present? Yes ( ) No ( ) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No ( ) Depth (inches):

Wetland Hydrology Present? Yes ( ) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar | City/County: Madera | Sampling Date: 4/3/2012
Applicant/Owner: 8 Minute Energy | State: CA | Sampling Point: SW1B-3U
Investigator(s): W. Moise, G. White | Section, Township, Range:
Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2%
Subregion (LRR): C - Mediterranean California | Lat: 36° 56' 35.847"N | Long: 119° 56' 59.445"W | Datum: WGS 1984
Soil Map Unit Name: | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ( ) No (•)
Hydric Soil Present? Yes ( ) No (•)
Wetland Hydrology Present? Yes (•) No ( )
Is the Sampled Area within a Wetland? Yes ( ) No (•)
Remarks: Down stream vegetation is non hydro phic until N end of SW1-8.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Bromus hordeaceus*	90	Yes	FACU
2. *Poa annua*	10		
3. *Rumex crispus*	2		
4.			
5.			
6.			
7.			
8.			
Total Cover	102%		
Woody Vine Stratum			
1.			
2.			
Total Cover	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %
Remarks:

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	90	x 4 =	360
UPL species		x 5 =	0
Column Totals	90 (A)		360 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0
[ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
[ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL

Sampling Point: SW1B-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture[3]	Remarks
1-14	10 YR 3/4	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ( ) No (•)

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (•) Depth (inches):

Water Table Present? Yes ( ) No (•) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (•) Depth (inches)

Wetland Hydrology Present? Yes (•) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lotus Solar City/County: Madera Sampling Date: 4/3/2012

Applicant/Owner: 8 Minute Energy State: CA Sampling Point: SW1B-3W

Investigator(s): W. Moise, G. White Section, Township, Range:

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 2%

Subregion (LRR): C - Mediterranean California Lat: 36° 56' 35.926"N Long: 119° 56' 56.090"W Datum: WGS 1984

Soil Map Unit Name: NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )			
Hydric Soil Present?	Yes (●)	No ( )	Is the Sampled Area		
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland?	Yes ( )	No (●)

Remarks: Down stream vegetation is non-hydrophic until N end of SW1A

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover	%		
Herb Stratum			
1. *Eliocris cicutarius*	95	Yes	FAC
2. *Bromus hordeaceus*	5		
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	95	x 1 =	95	
FACW species		x 2 =	0	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals	95 (A)		95	(B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

US Army Corps of Engineers Arid West - Version 11-1-2008

SOIL Sampling Point: SW1B-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
1-14	10 YR 3/2	98	10 YR 4/4	2	C	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [x] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- [ ] 1 cm Muck (A9) (LRR C)
- [ ] 2 cm Muck (A10) (LRR B)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

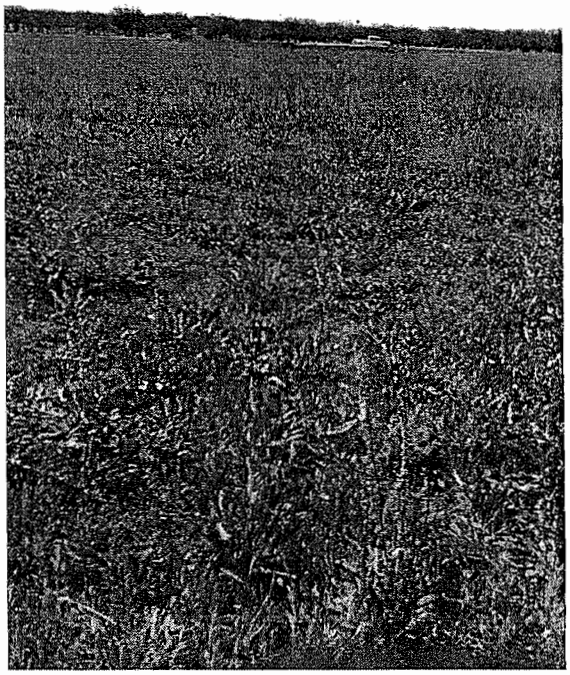
Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

Appendix B

Representative Photos



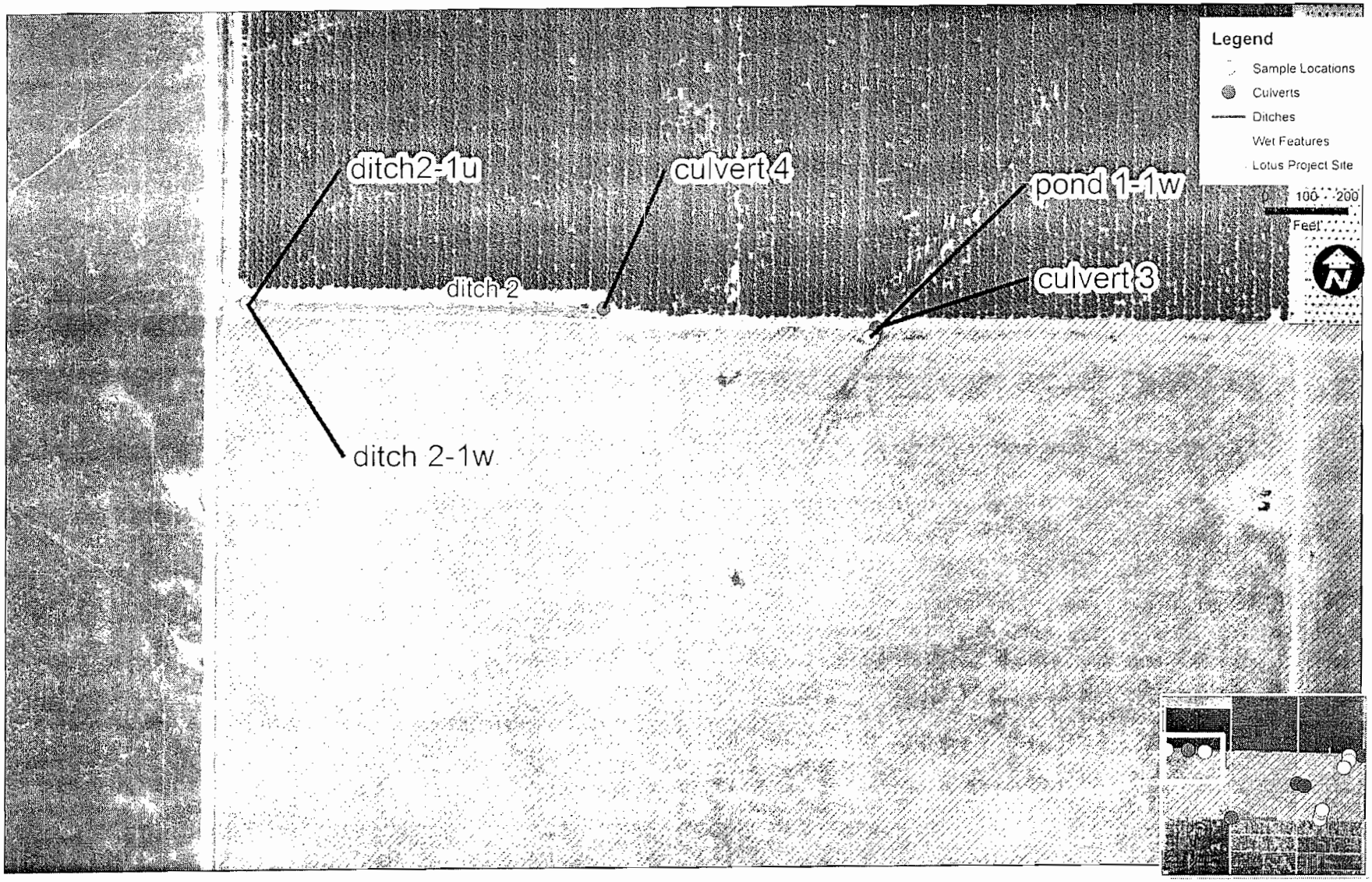
Photograph 1 - South view of SW1A

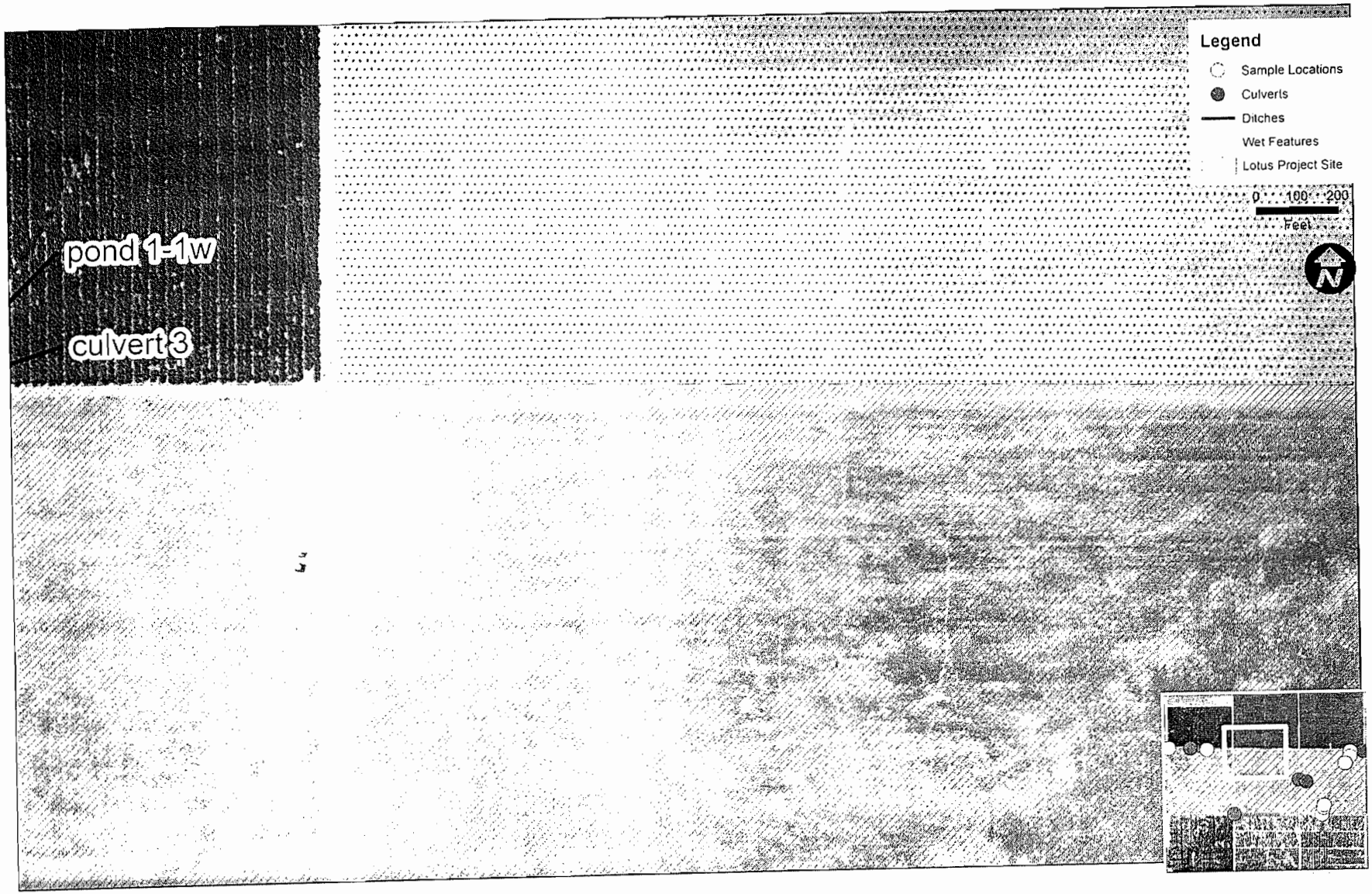
Photograph 2 - South view of SW1B

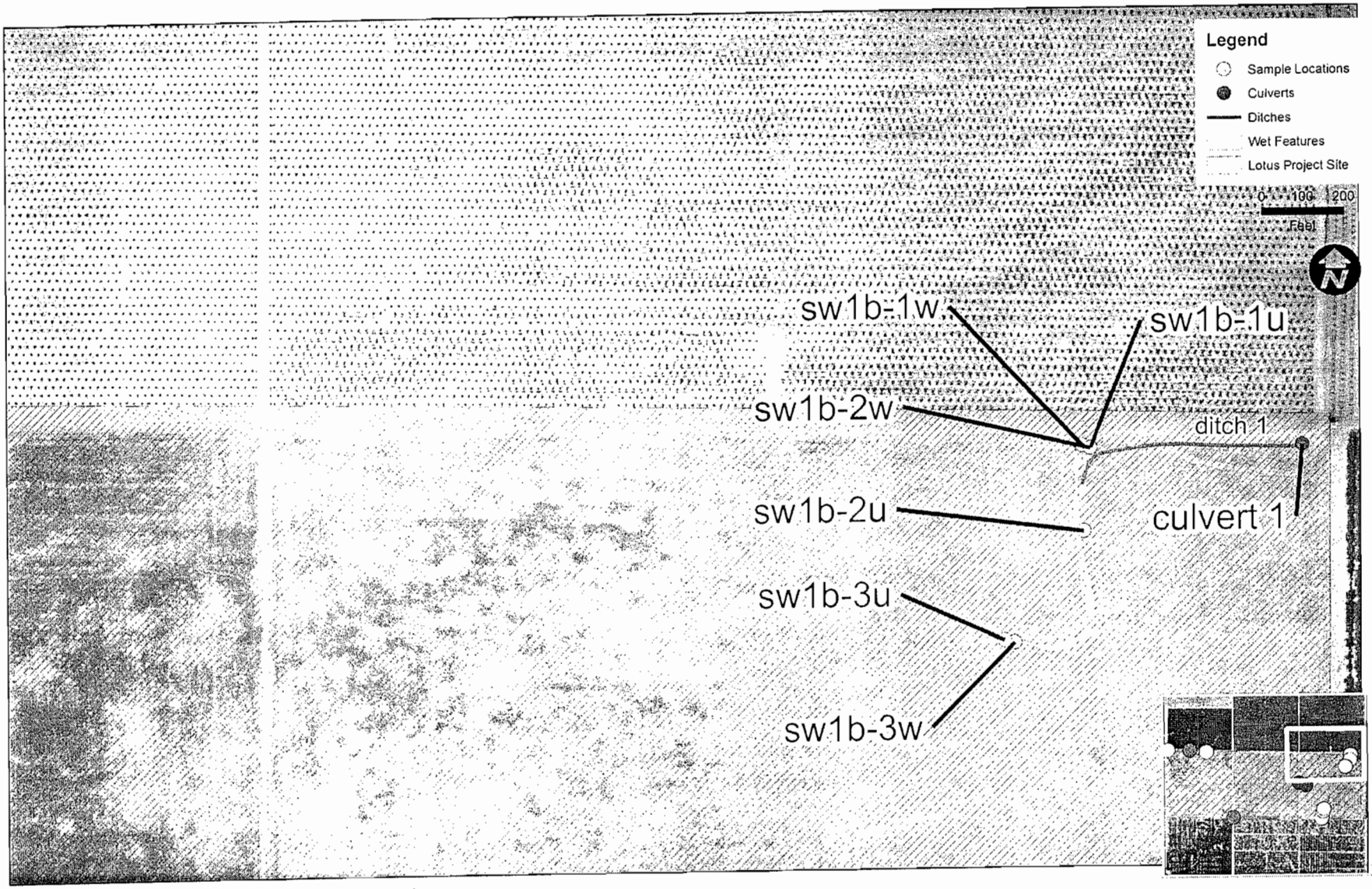
Quad Knopf	REPRESENTATIVE PHOTOS	Photo Plate 1

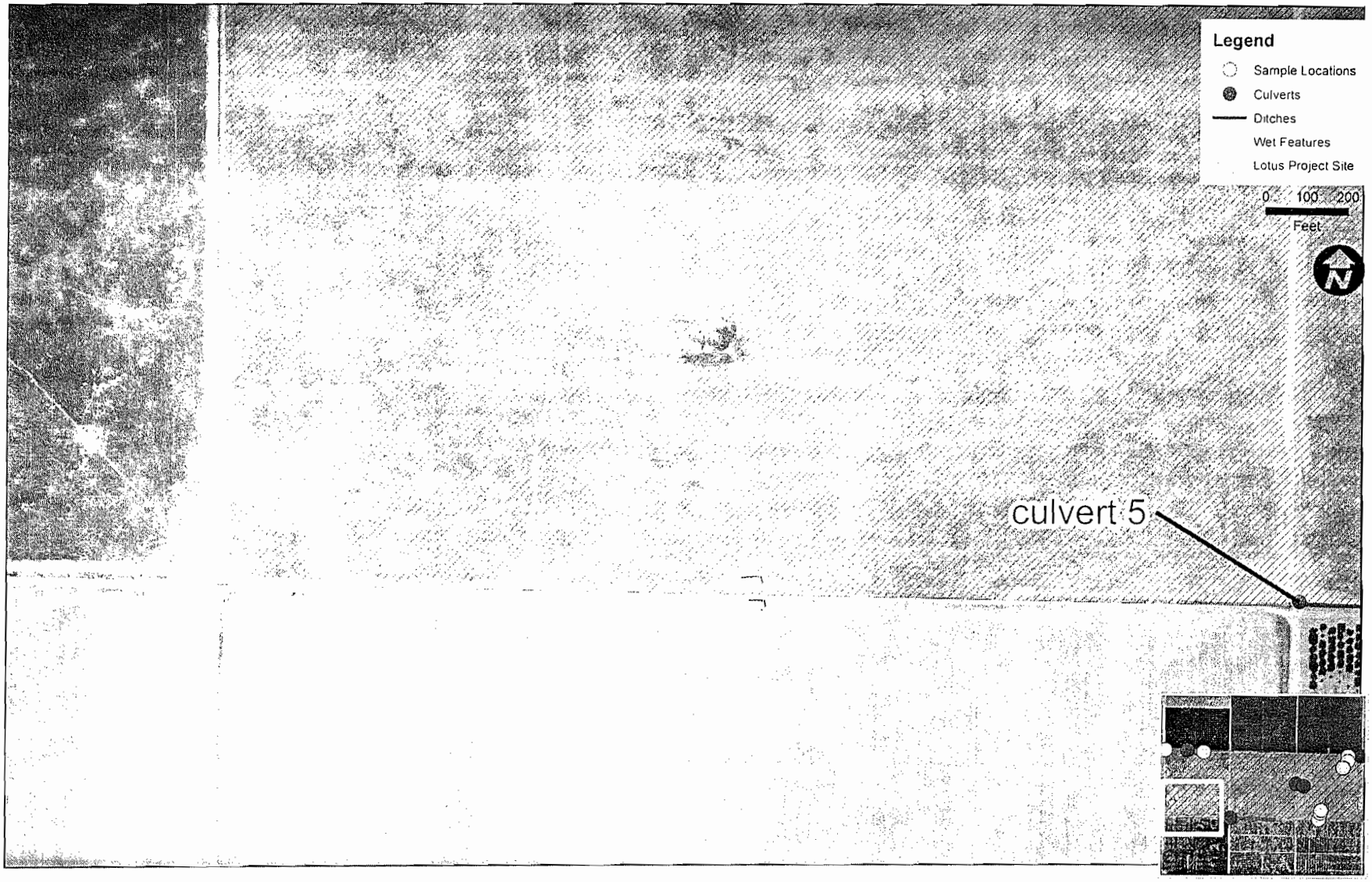
Appendix C

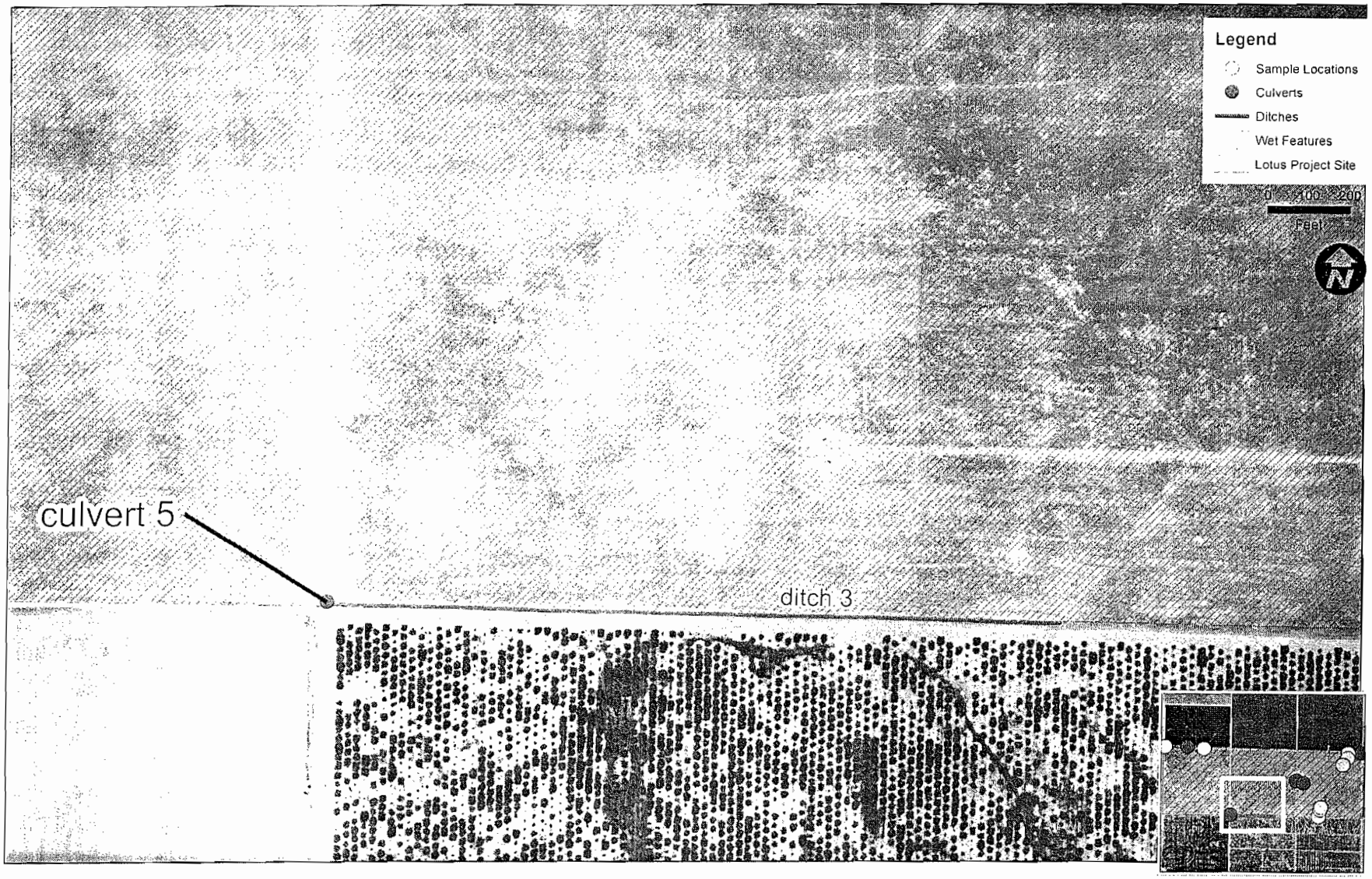
Wetland and Non-Wetland Features for Use by ACOE


ditch2-1u
culvert 4
pond 1-1w
culvert 3
ditch 2
ditch 2-1w
Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N


pond 1-1w
culvert 3
Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N


Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N
sw1b-1w
sw1b-1u
sw1b-2w
ditch 1
culvert 1
sw1b-2u
sw1b-3u
sw1b-3w


Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
culvert 5


Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N
culvert 5
ditch 3

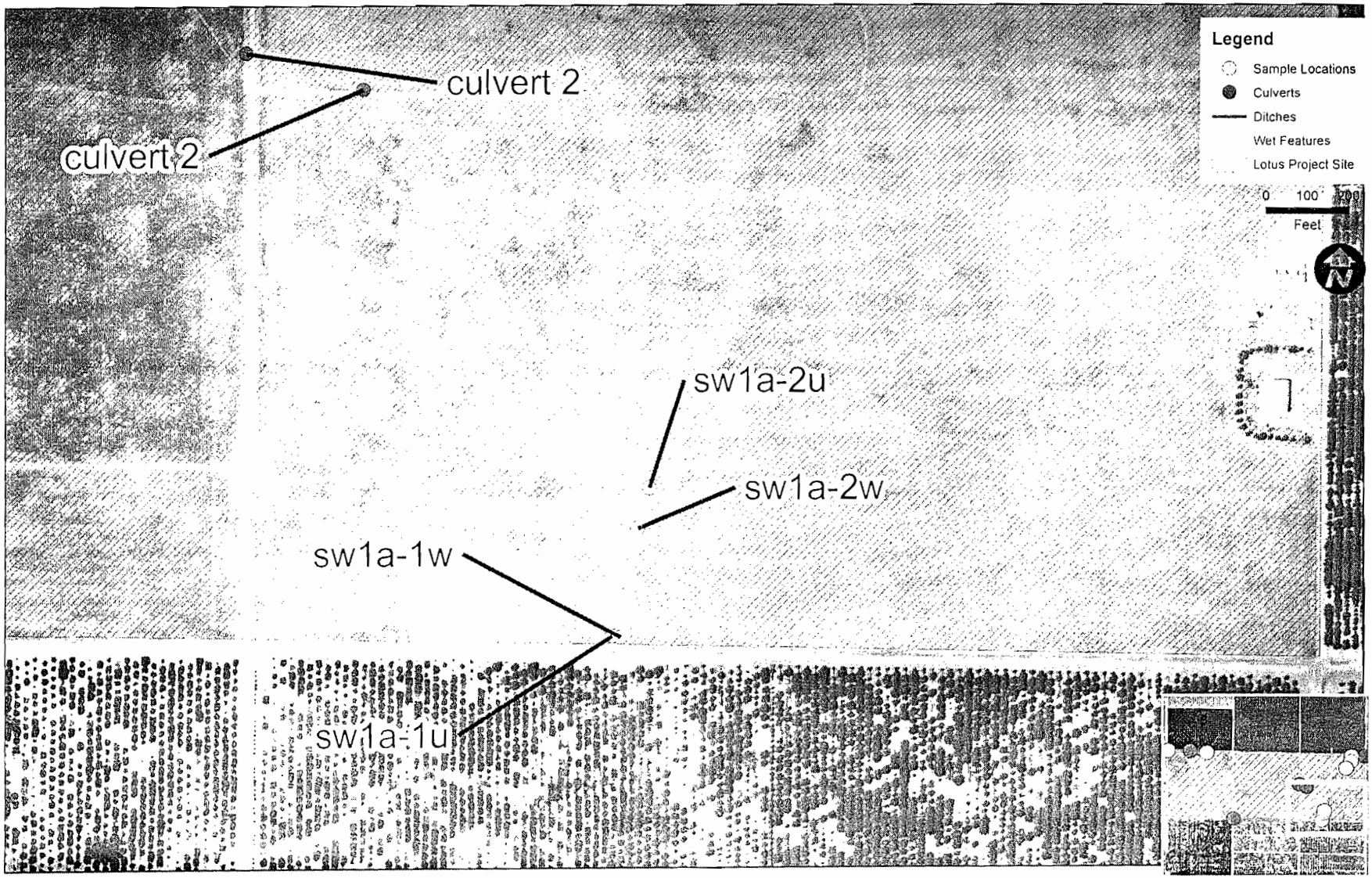
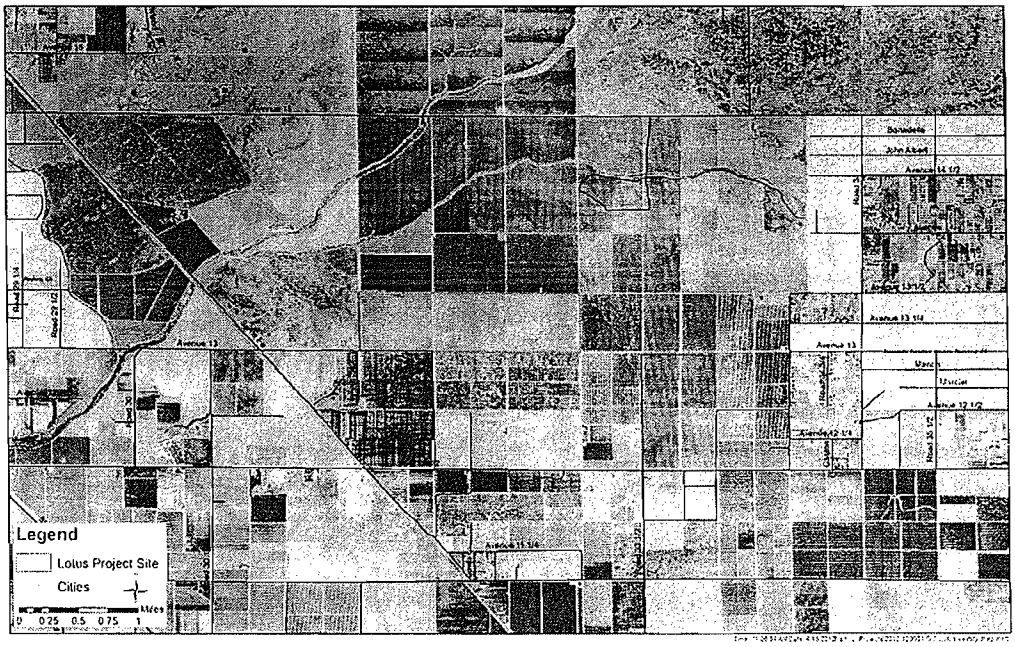

culvert 2
culvert 2
sw1a-2u
sw1a-2w
sw1a-1w
sw1a-1u
Legend
Sample Locations
Culverts
Ditches
Wet Features
Lotus Project Site
0 100 200
Feet
N

EXHIBIT T

INDIRECT SOURCE REVIEW
AIR IMPACT ASSESSMENT APPLICATION

41MB 8ME, LLC
Lotus Solar Farm



May 2012

Quad Knopf

INDIRECT SOURCE REVIEW
AIR IMPACT ASSESSMENT APPLICATION
Lotus Solar Farm

Prepared for:
41MB 8ME, LLC
10100 Santa Monica Boulevard, Suite 200
Los Angeles, California 90067
Contact Person: Michael Joh
Phone: (310) 906-0675
Fax: (310) 424-7112

Consultant:

Quad Knopf
5110 West Cypress Avenue
Visalia, California 93277
Contact: Amber Adams, Project Manager
Prepared by: Elena Nuño, Senior Associate Planner
Phone: (559) 449-2400
Fax: (559) 435-2905

May 2012

120061

Quad Knopf

May 24, 2012

San Joaquin Valley Air Pollution Control District
Attention: Mr. Daniel T. Barber, Ph.D.
1990 E. Gettysburg Avenue
Fresno, CA 93726

Subject: Air Impact Assessment for 41MB 8ME, LLC Lotus Solar Farm

Dear Dr. Barber:

Quad Knopf Inc. respectfully submits an Air Impact Assessment Application (AIA) on behalf of 41MB 8ME, LLC in Madera County, California. The project consists of the construction and operation of a new up to 90 megawatt (MW) solar project on 458.91 acres.

The proposed project will be constructed over a two year period as follows:

Year	Construction Phase
One	Site Preparation Grading and Earthwork Concrete Foundations Structural Steel Work
Two	Electrical Instrumentation Architectural and Landscape Gen-Tie Installation

It is estimated that the first year of construction will begin in the fourth quarter of 2012 and that the project would become operational in 2013.

The project applicant will be utilizing a clean fleet to achieve the required reductions of 20 percent of NOx from statewide average and 45 percent of PM10 from construction equipment.

The AIA, required attachments, detailed spreadsheets with modeling and supporting documentation are included in the application package. The $700 application filing fee and a letter of authorization from 41MB 8ME, LLC for Quad Knopf to act on their behalf for the project's AIA review process is also included in the submittal.

6051 North Fresno Street, Suite 200 • Fresno, California 93710 • Tel (559) 449-2400 • Fax (559) 435-2905
www.quadknopf.com

If you have any questions or concerns regarding this application, please call me at (559) 449-2400 ext. 6006 or email me at elenan@quadknopf.com. Quad Knopf will expedite any request for additional information or clarification and is available to meet any time to quickly resolve issues if they arise.

Best Regards,

Elena Nuño, Senior Associate Planner
Quad Knopf, Inc.
6051 N. Fresno Street, Suite 200
Fresno, CA 93710

Enclosures: Letter of Authorization
Air Impact Assessment Application Package

San Joaquin Valley Air Pollution Control District

Indirect Source Review (ISR) - Air Impact Assessment (AIA)
Non-Residential Project Application Form

HEALTHY AIR LIVING

A. Applicant Information

Applicant/Business Name: 41MB 8ME, LLC			
Mailing Address: 10100 Santa Monica Blvd, Suite 300	City: Los Angeles	State: CA	Zip: 90067
Contact: Michael Joh	Title:		
Phone: 310-906-0675 / Fax: 310-424-7112	Email: Mjoh@8minutenergy.com		

B. Agent Information (if applicable)

Agent/Business Name: Quad Knopf, Inc.			
Mailing Address: 6051 N. Fresno Street, Suite 200	City: Fresno	State: CA	Zip: 93710
Contact: Elena Nuño	Title: Senior Associate Planner		
Phone: 559-449-2400 / Fax: 559-435-2905	Email: elenan@quadknopf.com		

C. Project Information

Project Name: Lotus Solar Farm	Tract Number(s) (if known):		
Project Location — Street: West of Madera Ranchos	City: unincorporated		Zip: 93638
Cross Streets: Bound by Ave 13 1/2 (alignment) to the north, Ave 13 to the south, between Road 31 1/2 (alignment) and Road 33	County: Madera		
Permitting Agency Name: Madera County Resource Management Agency			
Mailing Address: 2037 W. Cleveland Ave, MS G	City: Madera	State: CA	Zip: 93637
Permit Type and Number (if known): CUP			

D. Project Description

Please briefly describe project (e.g.: 12,000 square foot supermarket and 10,000 square foot of office space): Up to 90 MW Photovoltaic facility utilizing 450 +/- acres of a 634 acre parcel in Madera County.

Please check the box next to each applicable land use below:

- ☐ Commercial / Retail
- ☐ Office
- ☐ Educational
- ☐ Recreational
- ☐ Light Industrial
- ☐ Heavy Industrial
- ☐ Government
- ☐ Medical
- ☒ Other

E. Notice of Violation

Is this application being submitted as a result of receiving a Notice of Violation (NOV) from the District?

☐ Yes ☒ No

NOV # _____

F. Voluntary Emission Reduction Agreement

Is this project part of a larger project for which there is a Voluntary Emission Reduction Agreement (VERA) with the District?

☐ Yes ☒ No

VERA agreement # _____

Optional Section

Do you want to receive information about the Healthy Air Living Business Partners Program? [ ] Yes [X] No

HEALTHY AIR LIVING

Filing Fee Received: _____	**FOR APCD USE ONLY**	Date Stamp
Date Paid: _____	Check #: _____	
Applicant #: _____	Project #: _____	

G. Parcel and Land Owner Information

	APN (000-000-00 Format)	Gross Acres	Land Owner
1.	034-210-038	633.64	41MB 8ME, LLC
2.			
3.			

Additional sheets for listing APN numbers can be found on the District's website at www.valleyair.org.

H. Project Development and Operation

Please note that development timelines provided within this section should reflect actual work time, and should not account for possible project delays.

Will the project require demolition of existing structures? ☐ Yes, *complete H-1* ☒ No, *complete H-2*

H-1. Demolition

Total volume of the building(s) being demolished (in cubic feet):

Demolition Start Date (Month/Year):	Length of Demolition (Months):

H-2. Timing

Will the project be developed in multiple phases? ☐ Yes, *complete II-3* ☒ No, *complete II-6 only*

H-3. Multiple Phase Development

How many total acres will be site graded for this project?

Will **site grading** be completed for the entire project before beginning any building construction? ☐ Yes, *complete II-4 only* ☐ No, *complete H-5 only*

H-4. Preliminary Site Development and Phased Building Construction

Site Grading Start Date (Month/Year):		Length of Site Grading (Months):
Phase		
1	Building Const. Start Date (Month/Year):	Length of Construction (Months):
	Gross Acres:	Square Footage: N/A – Solar Farm Project
	First Date of Occupation (Month/Year):	
2	Building Const. Start Date (Month/Year):	Length of Construction (Months):
	Gross Acres:	Square Footage:
	First Date of Occupation (Month/Year):	
3	Building Const. Start Date (Month/Year):	Length of Construction (Months):
	Gross Acres:	Square Footage:
	First Date of Occupation (Month/Year):	
4	Building Const. Start Date (Month/Year):	Length of Construction (Months):
	Gross Acres:	Square Footage:
	First Date of Occupation (Month/Year):	

Additional sheets for phasing information can be found on the District's website at www.valleyair.org.

H-5. Phased Site Development and Building Construction

Phase		
1	Site Grading Start Date (Month/Year):	Length of Construction (Months):
	Gross Acres:	Building Square Footage:
	First Date of Occupation (Month/Year):	
2	Site Grading Start Date (Month/Year):	Length of Construction (Months):
	Gross Acres:	Building Square Footage:
	First Date of Occupation (Month/Year):	
3	Site Grading Start Date (Month/Year):	Length of Construction (Months):
	Gross Acres:	Building Square Footage:
	First Date of Occupation (Month/Year):	
4	Site Grading Start Date (Month/Year):	Length of Construction (Months):
	Gross Acres:	Building Square Footage:
	First Date of Occupation (Month/Year):	

Additional sheets for phasing information can be found on the District's website at www.valleyair.org.

H-6. Single Phase Development

Site Grading Start Date (Month/Year): **Fourth Quarter 2012** **Earliest Date = 9/2012** **Note: This includes Site Preparation**	Length of Construction (Months): **9**
Gross Acres: **633.64**	Building Square Footage: **3,200 (O&M Building)**
First Date of Occupation (Month/Year): **Earliest Date = 6/2013**	

I. On-Site Air Pollution Reductions (Mitigations)

Listed below are categories of possible mitigation measures that will reduce a project's impact on air quality. If a category is applicable to the project, check "Yes", and please complete the corresponding page to identify specific measures within that category. If a category is not applicable to the project, check "No", and please provide a brief explanation as to why not, and do not fill out the corresponding page(s) for that category.

1. Construction Fleet (Will you be using a construction fleet that will achieve the emission reductions required by District Rule 9510?)

☒ Yes, applicable to project, *please complete this section on page 5*

☐ No, not applicable to project, *brief explanation*:

2. Building Design (e.g. increased energy effeciency, electrical outlets, parking space reduction, etc.)

☐ Yes, applicable to project, *please complete this section on pages 5 and 6*

☒ No, not applicable to project, *brief explanation*: small building size

3. Demographics (e.g. presence of local serving retail, jobs to housing ratio, affordable housing, etc.)

☐ Yes, applicable to project, *please complete this section on pages 6 and 7*

☒ No, not applicable to project, *brief explanation*: project is located in a rural setting

4. Transportation / Transit (e.g. bus service, shuttle service, transit passes, public transportation, etc.)

☐ Yes, applicable to project, *please complete this section on pages 7 and 8*

☒ No, not applicable to project, *brief explanation*: project is located in a rural setting

5. Bicycle / Pedestrian Design (e.g. bicycle lanes, sidewalks, intersection density, bicycle parking, etc.)

☐ Yes, applicable to project, *please complete this section on pages 9 and 10*

☒ No, not applicable to project, *brief explanation*: project is located in a rural setting

6. Operational (e.g. parking charges, alternative work schedules, telecommuting, carpooling, etc.)

☐ Yes, applicable to project, *please complete this section on pages 10 through 14*

☒ No, not applicable to project, *brief explanation*: project is located in a rural setting

J. Review Period

You may request a five (5) day period to review a draft of the District's analysis of your project before it is finalized. However, if you choose this option, it will delay the project's finalization by five (5) business days.

☒ **I request to review a draft of the District's analysis.**

K. Fee Deferral Schedule

If the project's on-site air pollution reductions (mitigation) insufficiently reduced air pollution as outlined in Rule 9510, an off-site fee is assessed based on the excess air pollution. The money collected from this fee will be used by the District to reduce air pollution emissions 'off-site' on behalf of the project.

An Applicant may request a deferral of all or part of the 'off-site' fees up to, but not to exceed, the start date of construction. The start of construction is any of the following, whichever occeurs first: start of grading, start of demolition, or any other site development activities not mentioned above.

☐ **I request a Fee Deferral Schedule, and have enclosed the Fee Deferral Schedule Application.**

The Fee Deferral Schedule Application, can be found on the District's website at www.valleyair.org.

L. Change of Project Developer

The Applicant assumes all responsibility for ISR compliance for this project. If the project developer changes, the Applicant must notify the Buyer, and both Buyer and Applicant must file a 'Change of Project Developer' form with the District. If there is a change of project developer, and a 'Change of Project Developer' form is not filed with the District, the Applicant will remain liable for ISR compliance.

The Change of Project Developer form can be found on the District's website at www.valleyair.org.

M. Required Attachments

I am enclosing the following required documents:

☒ Monitoring & Reporting Schedule, *if applicable*

☒ Tract Map or Project Design Map

☒ Vicinity Map

☒ Letter from Applicant granting Agent authorization (if necessary)

☒ Application Filing Fee $700.00

N. Certification Statement

I certify that I have reviewed and completed the entire application and hereby attest that the information relayed within is true and correct to the best of my knowledge. I commit to implementation of those on-site measures that I have selected above. I am responsible for notifying the District if I will be unable to implement these measures. If a committed measure is not implemented, the project may be re-assessed for air quality impacts.

(An authorized Agent may sign the form in lieu of the Applicant if an authorization letter **signed by the Applicant** is provided).

Name (printed):Elena Nuño	Title: Senior Associate Planner
Signature:	Date: 5/24/12

Construction Fleet Details

A. Construction – Detailed Fleet

Will the project use a construction fleet that will achieve the emission reductions required by District Rule 9510?	☒ Yes	☐ No

Daily records of the total hours of operation for each piece of equipment greater than 50-horsepower being used on the project site during construction shall be maintained. Within 30-days of completing construction of each project phase, a report summarizing total hours of operation of each piece of construction equipment greater than 50-horsepower shall be submitted to the District. The *Construction – Detailed Fleet Template* may be used as an outline.

For each project phase, the District will verify that the fleet details achieved the required emission reductions. If the reductions are not met, the District will notify applicant of the mitigation fee amount to cover any remaining emissions after on-site mitigation has been applied.

Building Design Mitigation

A. Energy Efficiency

Will the energy efficiency rating of the project's buildings be greater than required by California Title 24 requirements?	☐ Yes* *(Please complete sections below)*	☒ No

Percent of increase greater than California Title 24 requirements: _____%

Please attach relevant analysis or summary pages of Title 24 documentation.

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

B. Outside Electrical Outlets for Landscape Equipment

Will the project provide electrical outlets on the front and rear of all buildings, and /or provide the use of electrical maintenance equipment including but not limited to electric lawn mowers, electric leaf blowers, etc.?	☐ Yes* *(Please complete sections below)*	☒ No

Percent of landscape equipment that will be electrically powered: _____%

3% is the assumed statewide average for landscape equipment, provide documentation if claiming greater than 3%.

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

C. Preferential Parking Spaces

Will the project provide spaces near the entrance of the building for those who carpool, vanpool or rideshare, and signs designating those parking spaces?	☐ Yes* *(Please complete sections below)*	☒ No

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

* ***Note: Select the applicable Enforcement Agency below. Each mitigation measure that is selected, and not required or enforced by another public agency will require District enforcement.***

Building Design Mitigation (continued)	
D. Showers / Changing / Locker Facilities	
Will the project provide shower / changing / locker facilities to encourage employees to bike and/or walk to work (typically one shower and three lockers for every 25 employees)?	☐ Yes* *(Please complete sections below)* ☒ No
☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	
E. Parking Space Reduction	
Will the project provide fewer parking spaces than the rate provided by the Institute of Transportation and Engineering (ITE) Parking Generation Handbook?	☐ Yes* *(Please complete sections below)* ☒ No
☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

Demographics Mitigation	
A. Local Serving Retail	
Is the project center located within **1/2 mile** of residential facilities?	☐ Yes* *(Please complete sections below)* ☒ No
☐ Local Serving Retail is already in place. Please **attach** relevant reference material or the project's vicinity map or aerial photograph in relation to the project and include a distance legend. Please identify location of existing local retail/commercial facilities uses. Use terminology such as retail, office, etc. or show the zoning type to identify the retail/commercial facilities.	
☐ Planned	1. *Please attach a copy of the relevant section of the planning document*
	2. Planning Document:
	3. Implementing Agency:
	4. Date Adopted:
☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

* *Note: Select the applicable Enforcement Agency below. Each mitigation measure that is selected, and not required or enforced by another public agency will require District enforcement.*

Demographics Mitigation (continued)

B. Jobs to Housing Ratio

Is the project center located within **1/2 mile** of a mix of uses that includes employment?	☐ Yes* *(Please complete sections below)*	☒ No
Number of dwelling units within **1/2 mile** radius of the project's center: _____		
Number of jobs within **1/2 mile** radius of the project: _____		
☐ Existing Jobs and Housing (including planned housing from this project). Please **attach** supporting documentation to justify the provided number of jobs and housing within a ½ mile radius of the project.		
☐ Planned	1. *Please **attach** a copy of the relevant section of the planning document*	
	2. Planning Document:	
	3. Implementing Agency:	
	4. Date Adopted:	
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

Transportation / Transit Mitigation

A. Bus Service

Is the project within 1/4 mile of an existing or planned bus stop?	☐ Yes* *(Please complete sections below)*	☒ No
Number daily Weekday Buses stopping within ¼ mile of the site boundaries:		
☐ Bus Service is already in place. Please **attach** a copy of the transportation agency's bus service schedule and identify the location of bus stops on tract, design or aerial map.		
☐ Transit is planned	1. *Please **attach** a copy of the relevant section of the planning document*	
	2. Planning Document:	
	3. Implementing Agency:	
	4. Date Adopted:	
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

B. Transit Passes

Will the project make available free annual transit pass subsidies to all residents for first 10 years of operation?	☐ Yes* *(Please complete sections below)*	☒ No
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

Note: Select the applicable Enforcement Agency below. Each mitigation measure that is selected, and not required or enforced by another public agency will require District enforcement.

Transportation / Transit Mitigation (continued)

C. Rail, Light-Rail, or Bus Rapid Transit Service

Is the project within 1/2 mile of an existing or planned daily rail or rapid transit bus stop?	☐ Yes* *(Please complete sections below)*	☒ No
Number of daily Rail or Rapid Transit Buses stopping within ½ mile of the site boundaries:		
☐ Rail, Light-Rail, or Rapid Transit Bus Service is already in place. Please **attach** a copy of the transportation agency's daily rail or rapid transit service schedule and identify the location of rail or rapid transit stops on tract, design or aerial map.		
☐ Transit is planned	1. *Please **attach** a copy of the relevant section of the planning document*	
	2. Planning Document:	
	3. Implementing Agency:	
	4. Date Adopted:	
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

D. Shuttle Service

Does the project site have, or will have, a dedicated daily shuttle service?	☐ Yes* *(Please complete sections below)*	☒ No
Number of dedicated Daily Shuttle Trips:		
☐ Shuttle Service already in place. Please **attach** a copy of the transportation agency's shuttle service schedule and identify the location of shuttle stops on tract, design or aerial map.		
☐ Transit is planned	1. *Please **attach** a copy of the relevant section of the planning document*	
	2. Planning Document:	
	3. Implementing Agency:	
	4. Date Adopted:	
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

E. Signage/Kiosk

Will the project provide a display case or kiosk displaying transportation information in a prominent area accessible to residents?	☐ Yes* *(Please complete sections below)*	☒ No
Please attach and identify the location of the planned or existing transportation signage on the project's tract map, project design map, or aerial photograph.		
Transportation Signage Description (information to be posted, i.e. bus schedules):		
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

* ***Note: Select the applicable Enforcement Agency below. Each mitigation measure that is selected, and not required or enforced by another public agency will require District enforcement.***

Bicycle / Pedestrian Mitigation

A. Intersection Density

1. Square Miles within the Study Area: **a.** If the distance from the center of the project out to its farthest boundary is less than or equal to ½ mile then the Square Miles within the Study Area will be 0.79. Enter this value in the blank to the right. **b.** If the distance from the center of the project out to its farthest boundary is greater than ½ mile then calculate the area value by: Study Area Square Miles = 3.14 x radius$^{(squared)}$. (Enter this value in the blank to the right.)	0.79 Square Miles

2. Intersection within the Study Area: Number and type of intersections within the project area:	Number of 3-Way Intersections:	0	x 3 =	0
	Number of 4-Way Intersections:	0	x 4 =	0
	Number of 5-Way Intersections:	0	x 5 =	0
	Total Intersections (sum of above) = 0			
3. Intersection Density within the Study Area: Intersection Density is the Study Area's 'Total Intersections' value (B.) divided by the 'Square Miles' value (A.):	0 Intersections / sq. mi.			

Please **attach** the project's vicinity map or aerial photograph identifying the intersections and intersection count within the study area.

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

B. Sidewalk Coverage

Study Area Sidewalks:

1. 0% of streets that have sidewalks on **One (1)** side of the street (0% if sidewalks are on both sides of the street).
2. 0% of streets that have sidewalks on **Two (2)** sides of the street (100% if sidewalks are on both sides of the street).

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

C. Bicycle Parking

Will bicycle parking be provided within the project?	☐ Yes* *(Please complete sections below)*	☒ No
Number of Bicycle Spaces:		
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

* ***Note: Select the applicable Enforcement Agency below. Each mitigation measure that is selected, and not required or enforced by another public agency will require District enforcement.***

Bicycle / Pedestrian Mitigation (continued)

D. Existing and Planned Bicycle Lanes

Does the project Study Area contain existing or planned Class I or Class II bicycle lanes?	☐ Yes* *(Please complete sections below)*	☒ No
Bicycle Lane Location *(Street, etc)*:		
Bicycle Lanes: _____% Calculate this value by counting the number of individual Class I and Class II Bicycle Lanes and the number of individual Collector and Arterial streets within ½ mile radius of the project center. Then divide the total number of Class I and Class II Bicycle Lanes by the total number of Collector and Arterial streets.		
☐ Bicycle Lanes are already in place - Please **attach** a copy of the applicable section of the area's Bicycle Plan showing/describing the bicycle lane location and type (including a distance legend)		
☐ Planned Bicycle Lanes	1. *Please attach a copy of the relevant section of the planning document*	
	2. Planning Document:	
	3. Implementing Agency:	
	4. Date Adopted:	
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

Operational Mitigation

A. Parking Charges

Will the project implement parking charges?	☐ Yes* *(Please complete sections below)*	☒ No
Please provide Daily Parking Charge (in dollars):		
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

B. Telecommuting

Will the project implement an employee telecommuting policy for the first 10 years of operation.	☐ Yes* *(Please complete sections below)*	☒ No
Percent of employees anticipated to participate in the employee Telecommuting Program:		
Average number of days per week employees will participate:		
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		

Note: Select the applicable Enforcement Agency below. Each mitigation measure that is selected, and not required or enforced by another public agency will require District enforcement.

Operational Mitigation (continued)

C. Alternative Work Schedules

Will the project implement alternative work schedules, such as compressed workweek schedules (where weekly work hours are compressed into fewer than five days), for the first 10 years of operation?	☐ Yes* *(Please complete the sections below)*	☒ No

Identify all that may apply:
1. Percent of employees to participate in a 3/36 work schedule: _____%
2. Percent of employees to participate in a 4/40 work schedule: _____%
3. Percent of employees to participate in a 9/80 work schedule: _____%

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

D. Guaranteed Ride Home

Will the project provide a guaranteed ride home for the first 10 years of operation?	☐ Yes* *(Please complete sections below)*	☒ No

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

E. Car Sharing Services

Will the project provide a guaranteed car sharing service for the first 10 years of operation?	☐ Yes* *(Please complete sections below)*	☒ No

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

F. Transportation Coordinator

Will the project employ or appoint an Employee Transportation Coordinator to work with the Transportation Management Agency and the District for the first 10 years of operation?	☐ Yes* *(Please complete sections below)*	☒ No

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

G. Carpool Matching Assistance

Will the project provide carpool-matching assistance for the first 10 years of operation?	☐ Yes* *(Please complete sections below)*	☒ No

☐ Non-District Enforcement	Name of Enforcing Agency:
	Source of Requirement:
☐ District Enforcement	

* ***Note: Select the applicable Enforcement Agency below. Each mitigation measure that is selected, and not required or enforced by another public agency will require District enforcement.***

Operational Mitigation (continued)		
H. On-Road Fleet		
Will the project obtain reductions from vehicle fleet or contracts with clean fleet operators? See **Specific Measure Selection** below for details. For more information, please contact the District at (559) 230-6000.	☐ Yes* *(Please complete sections below)*	☒ No
☐ Non-District Enforcement	Name of Enforcing Agency:	
	Source of Requirement:	
☐ District Enforcement		
This measure includes options for:	Medium Trucks	Line Haul Trucks
	Light-Heavy Trucks	Urban Buses
	Medium Heavy Trucks	School Buses
	Heavy-Heavy Trucks	
Please attach additional sheets if necessary.		

* ***Note: Select the applicable Enforcement Agency below. Each mitigation measure that is selected, and not required or enforced by another public agency will require District enforcement.***

Operational Mitigation (continued)				
Specific Measure Selection				
Vehicle Type (Weight Range)	**Selected**	**Measure**	**Number of Vehicles**	**Percent of trips mitigated by this measure**
Medium *5,751-8,500 lbs*	☐	ESW Particulate Reactor		
	☐	PuriNOx Emulsified Diesel fuel		
	☐	CCRT Particulate Filter		
	☐	CRT Particulate Filter		
	☐	Cleaire Longview (ultra low diesel)		
	☐	Other:		
Light Heavy *8,500-10,00 lbs*	☐	DCM DOC Muffler w/series 6000 or 6100 catalyst		
	☐	ESW Particulate Reactor		
	☐	PuriNOx Emulsified Diesel fuel		
	☐	CCRT Particulate Filter		
	☐	CRT Particulate Filter		
	☐	Cleaire Longview (ultra low diesel)		
	☐	Other:		
Light Heavy *10,001 -14,000 lbs*	☐	DCM DOC Muffler w/series 6000 or 6100 catalyst		
	☐	ESW Particulate Reactor		
	☐	PuriNOx Emulsified Diesel fuel		
	☐	CCRT Particulate Filter		
	☐	CRT Particulate Filter		
	☐	Cleaire Longview (ultra low diesel)		
	☐	Other:		
Medium Heavy *14,001 - 33,000 lbs*	☐	AZ Purifier & AZ Purimuffler (Cummins & Navistart: 1991-03)		
	☐	DCM DOC Muffler w/series 6000 or 6100 catalyst		
	☐	ESW Particulate Reactor		
	☐	PuriNOx Emulsified Diesel fuel		
	☐	DPM DPF muffler with/Series 6300 catalyst formulation		
	☐	CCRT Particulate Filter		
	☐	CRT Particulate Filter		
	☐	Lubrizol Engine Control Systems Purifilter		
	☐	Cleaire Longview (ultra low diesel)		
	☐	Other:		

Operational Mitigation (continued)				
Specific Measure Selection (continued)				
Vehicle Type (Weight Range)	**Selected**	**Measure**	**Number of Vehicles**	**Percent of trips mitigated by this measure**
Heavy Heavy *33,001 - 60,000 lbs*	☐	DCM DOC Muffler w/series 6000 or 6100 catalyst		
	☐	Cleaire Flash and Match oxidation catalyst		
	☐	ESW Particulate Reactor		
	☐	PuriNOx Emulsified Diesel Fuel		
	☐	DPM DPF muffler w/series 6300 catalyst formulation		
	☐	CCRT Particulate Filter		
	☐	CRT Particulate Filter		
	☐	Lubrizol Engine Control Systems Purifilter		
	☐	Cleaire Flash Match system (Cummins M11 engines only)		
	☐	Cleaire Longview (ultra low diesel)		
	☐	Other:		
Line Haul Vehicles >60,000 lbs	☐	DCM DOC Muffler w/series 6000 or 6100 catalyst		
	☐	Cleaire Flash and Match oxidation catalyst		
	☐	ESW Particulate Reactor		
	☐	PuriNOx Emulsified Diesel Fuel		
	☐	DPM DPF muffler w/series 6300 catalyst formulation		
	☐	CCRT Particulate Filter		
	☐	CRT Particulate Filter		
	☐	Lubrizol Engine Control Systems Purifilter		
	☐	Cleaire Flash Match system (Cummins M11 engines only)		
	☐	Cleaire Longview (ultra low diesel)		
	☐	Other:		
Urban Bus	☐	ESW Particulate Reactor		
	☐	PuriNOx Emulsified Diesel Fuel		
	☐	CCRT Particulate Filter		
	☐	CRT Particulate Filter		
	☐	Cleaire Longview (ultra low diesel)		
	☐	Other:		
School Bus	☐	ESW Particulate Reactor		
	☐	PuriNOx Emulsified Diesel Fuel		
	☐	CCRT Particulate Filter		
	☐	CRT Particulate Filter		
	☐	Cleaire Longview (ultra low diesel)		
	☐	Other:		

San Joaquin Valley Air Pollution Control District

www.valleyair.org

Indirect Source Review (ISR)
Non-Residential
Monitoring and Reporting Schedule Supplemental Form

This form is for on-site emission reduction measures that are subject to District monitoring and/or reporting. Each on-site mitigation measure that is selected, but is not required or enforced by another public agency will require District enforcement. The relevant sections of this form must be completed for ***each*** on-site measure that identifies the District as the "Enforcement Mechanism".

For those measures that require a Monitoring and Reporting Schedule (MRS) with the District, **please check the corresponding check box (left column) and sign this form**. The District will enforce checklist measures selected by the applicant through the compliance measures listed below. Please note—the District reserves the right to perform on-site inspections for all measures identified even if not explicitly stated under "District Monitoring".

Project Name: Lotus Solar Farm

Monitoring and Reporting Schedule			
	On-Site Measure	**Reporting Standard for Compliance**	**District Monitoring**
Construction			
☒	Detailed Fleet Information	The Construction Schedule -DETAIL Fleet Supplemental Form should be completed for all diesel powered off-road equipment, greater than 50 horsepower, being used on the project site during construction. The form shall be submitted to the District prior to start of construction. During construction, maintain daily records of the total hours of operation for diesel powered off-road equipment, greater than 50 horsepower. The detailed daily reports shall be maintained on site and shall be made available for District inspection upon request.	During Construction
Building Design			
☐	Energy Efficiency	Provide Title 24 Summary Report before start of construction.	None Required
☐	Electrical Landscape Equipment	1) If use of electrical landscape equipment is required by developer, provide a copy of compliance document (e.g. Deed Restriction or CC&Rs), before start of construction. 2) If providing electrical landscape equipment, maintain records demonstrating distribution of equipment to residences. All records shall be retained until buildout and shall be made available for District inspection upon request.	As appropriate, until buildout
☐	Shower/Lockers	Provide approved building plan before start of construction. Identify location of showers and lockers.	As appropriate, when operational
☐	Preferential Parking	Provide approved site plan before start of construction. Identify the location and quantity of preferential parking, include example of signage.	As appropriate, when operational
☐	Parking Space Reduction	Provide approved site plan before start of construction. Identify the quantity of parking.	As appropriate, when operational

Monitoring and Reporting Schedule			
	On-Site Measure	Reporting Standard for Compliance	District Monitoring
Transportation Measures			
☐	Signage	Provide approved site plan before start of construction. Identify location of signage, list contents of sign and schedule of maintenance.	As appropriate, when operational
☐	Transit Passes	Provide commitment letter at time of AIA application. Maintain records demonstrating distribution of transit passes to residences. All records shall be retained for ten years and shall be made available for District inspection upon request.	As appropriate, when operational
☐	Shuttle Service	Provide commitment letter at time of AIA application. Maintain records demonstrating operation of shuttle service for residences. All records shall be retained for ten years and shall be made available for District inspection upon request.	As appropriate, when operational
Bicycle/Pedestrian			
☐	Bicycle Infrastructure (Bike Lanes)	Submit approved site plan before start of construction. Identify location and types of bike lanes.	As appropriate, when operational
☐	Bicycle Storage	Submit approved site plan before start of construction. Identify location and types of bike storage facilities.	As appropriate, when operational
☐	Pedestrian Infrastructure (Sidewalk coverage)	Submit approved site plan before start of construction. Identify location and types of bike storage facilities.	As appropriate, when operational
Operational Measures			
☐	Parking Charges	Provide commitment letter before start of construction that identifies the Parking Charges and evidence of funding source for implementation. Maintain records demonstrating Operation of Parking Charges. All records shall be retained for ten years and shall be made available for District inspection upon request.	When operational and annually for 10 years
☐	Telework	Provide commitment letter before start of construction that identifies the percent of employees participating and the average number of days per week employees Telework. Maintain records demonstrating operation of Telework. All records shall be retained for ten years and shall be made available for District inspection upon request.	At Buildout and annually for 10 years
☐	Guaranteed Ride Home	Provide commitment letter before start of construction that identifies the Guaranteed Ride Home policy and evidence of funding source for implementation. Maintain records demonstrating operation of the Guaranteed Ride Home Policy. All records shall be retained for ten years and shall be made available for District inspection upon request.	At issuance of first occupancy permit and annually for 10 years
☐	Carpool Matching Assistance	Provide commitment letter before start of construction that identifies the Carpool Matching Assistance policy and evidence of funding source for implementation. Maintain records demonstrating operation Carpool Matching Assistance. All records shall be retained for ten years and shall be made available for District inspection upon request.	When operational and annually for 10 years
☐	Car Sharing Services	Provide commitment letter before start of construction that identifies the Car Sharing Services policy and evidence of funding source for implementation. Maintain records demonstrating operation of the Car Sharing Services. All records shall be retained for ten years and shall be made available for District inspection upon request.	When operation and annually for 10 years

Non-Residential Monitoring and Reporting Schedule Supplemental Form

☐	**Transportation Coordinator**	Provide commitment letter before start of construction that identifies the Transportation Coordinator policy and evidence of funding source for implementation. Maintain records demonstrating operation of the Transportation Coordinator. All records shall be retained for ten years and shall be made available for District inspection upon request.	When operation and annually for 10 years
☐	**Alternative Work Schedules**	Provide commitment letter before start of construction that identifies the Alternative Work Schedules and the percent of participating employees. Maintain records demonstrating operation of the Alternative Work Schedules. All records shall be retained for ten years and shall be made available for District inspection upon request.	When operation and annually for 10 years
☐	**On-Road Fleet**	Provide commitment letter before start of construction that identifies the vehicle type, the emission reduction measure, and the percent of trips mitigated by each measure. Maintain annual records demonstrating operation of the On-Road Fleet. All records shall be retained for ten years and shall be made available for District inspection upon request.	When operation and annually for 10 years

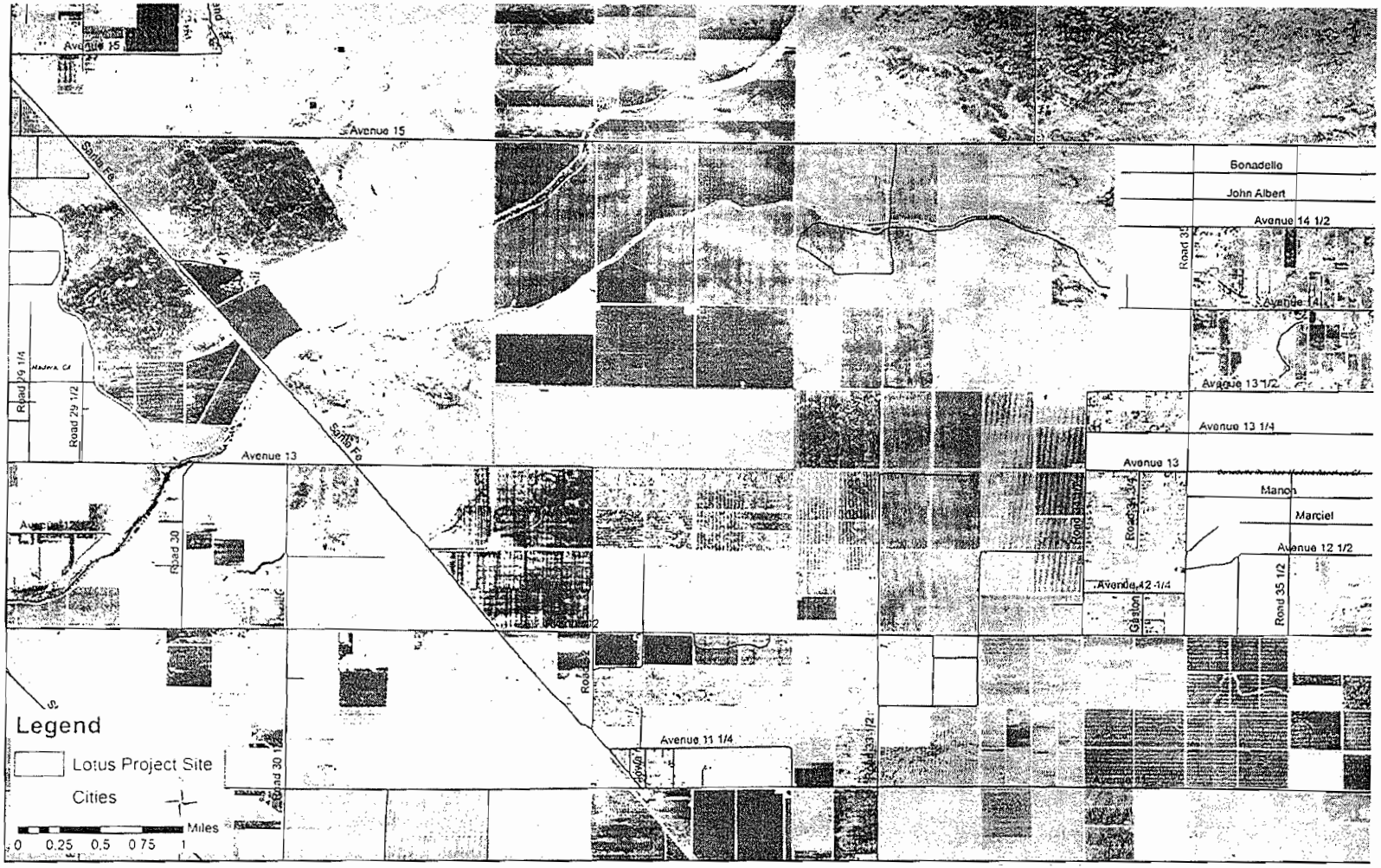
Certification Statement

I certify that I have reviewed and completed the Residential Monitoring and Reporting Schedule and hereby attest that the information relayed within is true and correct to the best of my knowledge. I commit to implementation of those on-site measures that I have selected above. I am responsible for notifying the District if I will be unable to implement these measures. If a committed measure is not implemented, the project may be re-assessed for air quality impacts.

(An authorized agent may sign the form in lieu of the applicant if an authorization letter **signed by the applicant** is provided)

Applicant/Business Name: 41MB 8ME, LLC

Name (printed): Elena Nuño	Title: Senior Associate Planner, Quad Knopf Inc. Authorized Agent
Signature:	Date (mm/dd/yy): May 24, 2012



Quad Knopf

LOCAL VICINITY MAP
AIR IMPACT ASSESSMENT APPLICATION

Figure 1

GENERAL NOTES:

LOCATION:	ALONG AVENUE 13 ALIGNMENT AND ROAD 33 IN THE UNICORPORATED AREA OF MADERA COUNTY, CALIFORNIA
A.P.N.:	034-210-038
LATITUDE:	N35° 8' 1.532"
LONGITUDE:	W119° 17' 46.920"
GROSS ACRES:	631.89 ACRES
NET BUILDABLE AREA:	458.91 ACRES
MEGA WATTS:	90 MW
APPROX. PANELS:	---

PROJECT NOTES:

ESTIMATED NET BUILDABLE ACRES ARE DETERMINED BY REMOVING SETBACKS, AREAS NOT A PART, EXCEPTIONS, ETC.

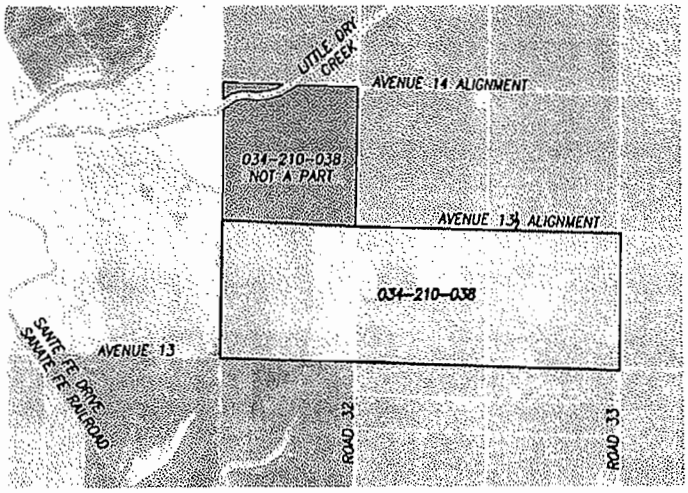
A DETAILED REVIEW OF A CURRENT TITLE REPORT AND ALL OF THE LISTED EXCEPTIONS SHOULD BE DONE TO FURTHER VERIFY THE PROPERTY BOUNDARIES AND APPLICABLE EASEMENTS.

PARCELS ARE BASED ON TAX RECORD INFORMATION NOT A BOUNDARY SURVEY.

NET BUILDABLE AREA/8.64 ACRES TO GENERATE 1 MW = X MW.
1 MW REQUIRES 15,660 SOLAR PANELS.
X MW MULTIPLIED BY 15,660 SOLAR PANELS = X PANELS.

IF IT IS DETERMINED ADDITIONAL SETBACK IS REQUIRED FOR BIOLOGICAL OR OTHER ISSUES THE SITE PLAN WILL BE MODIFIED ACCORDINGLY.

THIS SITE PLAN IS CONCEPTUAL IN NATURE AND IS SUBJECT TO FINAL SITE PLAN REVIEW.

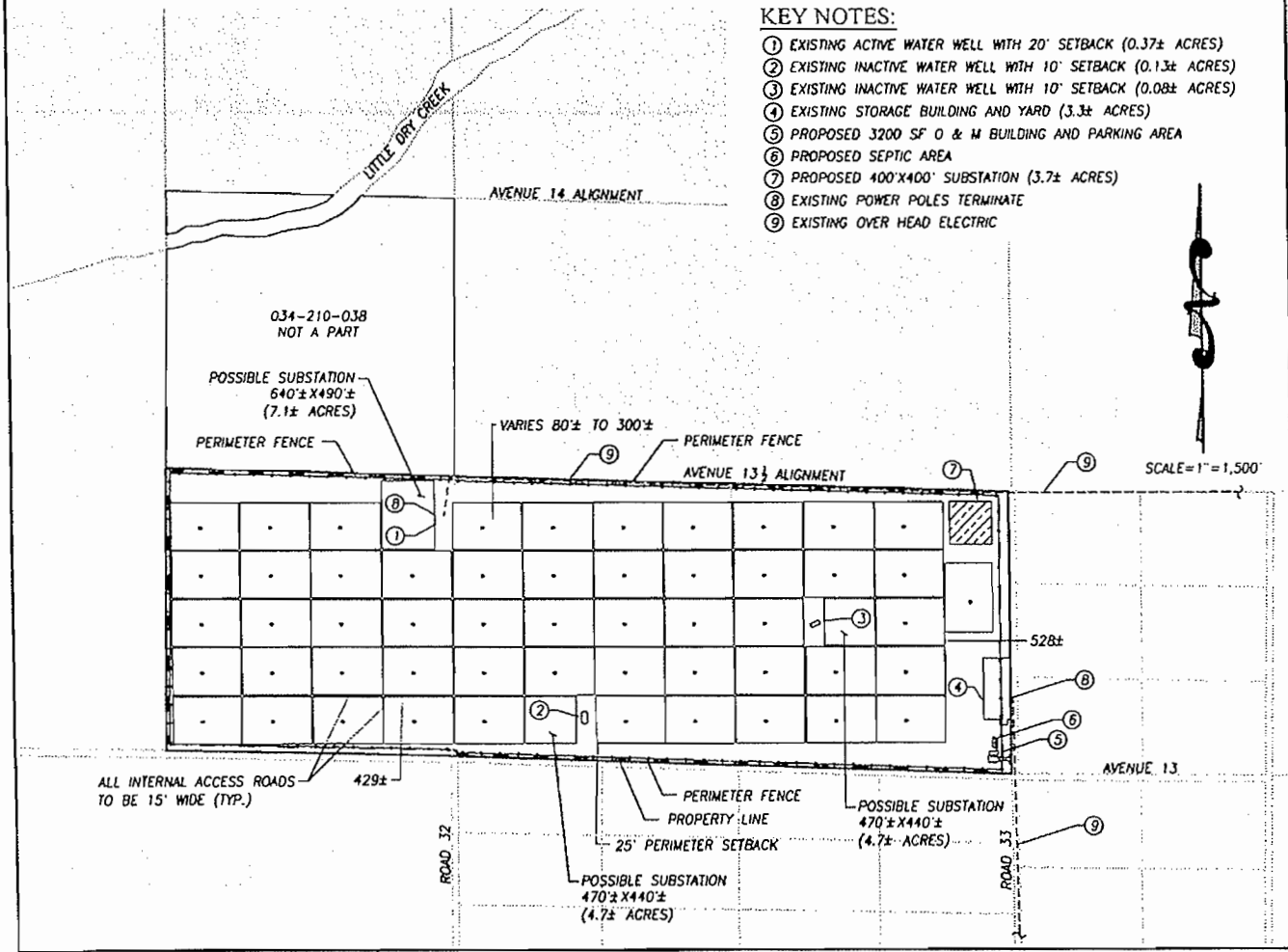


41MB LOTUS VICINITY MAP
NOT TO SCALE

NORTH

KEY NOTES:

1. EXISTING ACTIVE WATER WELL WITH 20' SETBACK (0.37± ACRES)
2. EXISTING INACTIVE WATER WELL WITH 10' SETBACK (0.13± ACRES)
3. EXISTING INACTIVE WATER WELL WITH 10' SETBACK (0.08± ACRES)
4. EXISTING STORAGE BUILDING AND YARD (3.3± ACRES)
5. PROPOSED 3200 SF O & M BUILDING AND PARKING AREA
6. PROPOSED SEPTIC AREA
7. PROPOSED 400'X400' SUBSTATION (3.7± ACRES)
8. EXISTING POWER POLES TERMINATE
9. EXISTING OVER HEAD ELECTRIC



Quad Knopf

41MB LOTUS SOLAR PROJECT

PRELIMINARY SITE PLAN

\\FR-SERVER-03\Projects\Projects\2012\120061\ACAD\Exhibits\120061-Lotus-Madera-Arrays - Copy.dwg 5/8/2012 10:44:51 AM

Emissions Calculations

Lotus Solar Farm (90MW)

Construction Phase	Duration (days)	Month 1	2	3	4	5	6	7	8	9
Site Preparation	25									
Grading and Earthwork	30									
Concrete Foundations	30									
Structural Steel Work	120									
Electrical/Instrumentation Work	90									
Gen-tie installation	30									
Architectural and Landscape	25									

Primary Equipment Description	Offroad Equip Category	HP Estimate	Load Factor	No. of Vehicles/Equipment Utilized	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization	NOx (g/bhp)	NOx (tons)	PM10 Exhaust (g/bhp)	PM10 Exhaust (tons)
Site Preparation											
Track Type Dozer	Grader	350	0.61	4	25	8	800	4.505	0.848	0.166	0.031
Excavator	Excavator	85	0.57	3	15	8	360	5.634	0.108	0.507	0.010
D8 Cats	Grader	300	0.61	3	25	8	600	4.505	0.545	0.166	0.020
Subtotal									***1.502***		***0.061***
Grading and Earthwork											
Road Grader	Grader	215	0.61	2	30	8	480	5.066	0.352	0.18	0.012
Track Type Dozer	Grader	350	0.61	4	30	8	960	4.505	1.018	0.166	0.038
Excavator	Excavator	85	0.57	3	30	8	720	5.634	0.217	0.507	0.019
4000 Gallon Water Truck	Off-highway Truck	250	0.57	1	20	8	160	4.611	0.116	0.157	0.004
Dump Trucks	Off-highway Truck	473	0.57	4	30	8	960	4.061	1.159	0.147	0.042
D8 Cats	Grader	300	0.61	3	30	8	720	4.505	0.654	0.166	0.024
Backhoe	Tractor/loader/backhoe	87	0.55	2	30	8	480	5.394	0.137	0.474	0.012
Subtotal									***3.651***		***0.151***
Concrete Foundations											
Concrete Pump	Concrete Pumps	50	0.74	2	15	8	240	5.545	0.054	0.488	0.005
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	200	0.6	2	15	8	240	4.685	0.149	0.152	0.005
Concrete Truck	Off-highway Truck	250	0.57	5	10	8	400	4.611	0.290	0.157	0.010
Welders	Welders	50	0.45	2	10	8	160	5.749	0.023	0.56	0.002
Subtotal									***0.516***		***0.022***
Structural Steel Work											
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	200	0.6	5	100	8	4000	4.685	2.479	0.152	0.080
30 Ton Crane Truck	Off-highway Truck	300	0.57	3	20	8	480	4.061	0.367	0.147	0.013
80 Ton Rough Terrain Cranes	Off-highway Truck	400	0.57	2	20	8	320	4.836	0.389	0.18	0.014
Welders	Welders	50	0.45	2	10	8	160	5.749	0.023	0.56	0.002
Subtotal									***3.258***		***0.110***

Electrical/Instrumentation Work

30 Ton Crane Truck	Crane	300	0.43	1	10	8	80	4.061	0.046	0.147	0.002
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	350	0.6	2	40	8	640	4.114	0.609	0.142	0.021
Carryall Vehicles	Off-highway Truck	180	0.57	10	75	8	6000	5.03	3.413	0.302	0.205
Subtotal									***4.069***		***0.228***
Architectural and Landscape											
Front Loader	Tractor/loader/backhoe	200	0.55	1	25	8	200	4.24	0.103	0.137	0.003
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	180	0.6	1	25	8	200	4.685	0.112	0.152	0.004
Backhoe	Tractor/loader/backhoe	85	0.55	1	25	8	200	5.394	0.056	0.474	0.005
Trencher	Trencher	75	0.75	5	25	8	1000	7.231	0.448	0.62	0.038
Manlifts	Aerial Lift	75	0.46	2	25	8	400	5.926	0.090	0.476	0.007
Subtotal									***0.808***		***0.058***
Gen-Tie Installation											
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	200	0.6	1	30	8	240	4.685	0.149	0.152	0.005
Road Grader	Grader	350	0.61	1	30	8	240	4.505	0.254	0.166	0.009
Track Type Dozer	Grader	350	0.61	1	30	8	240	4.505	0.254	0.166	0.009
Excavator	Excavator	300	0.57	1	30	8	240	3.917	0.177	0.139	0.006
Backhoe	Tractor/loader/backhoe	350	0.55	1	30	8	240	3.728	0.190	0.129	0.007
Pressure Diggers	Bore/Drill Rigs	500	0.75	1	20	8	160	2.4	0.159	0.079	0.005
Rock Drill	Bore/Drill Rig	200	0.75	1	15	8	120	2.635	0.052	0.08	0.002
Compressor Truck	Off-highway Truck	350	0.57	1	30	8	240	4.061	0.214	0.147	0.008
Sleeving Rigs	Bore/Drill Rigs	350	0.75	1	30	8	240	2.4	0.167	0.079	0.005
60lk Puller	Other Gen Indust Equipment	525	0.51	2	30	8	480	4.872	0.690	0.163	0.023
Triple Conductor Tensioner	Other Gen Indust Equipment	350	0.51	2	30	8	480	4.724	0.446	0.166	0.016
Sag Cat w2 winches	Grader	350	0.61	1	25	8	200	4.505	0.212	0.166	0.008
Subtotal									***2.965***		***0.103***
TOTAL									**16.769**		**0.733**

Year One	NOx	PM10
Phase		
Site Preparation	1.502	0.061
Grading and Earthwork	3.651	0.151
Concrete Foundations	0.516	0.022
Structural Steel Work	3.258	0.110
Subtotal	**8.927**	**0.345**

Year 2		
Phase	NOx	PM10
Electrical/Instrumentation Work	4.069	0.228
Architectural and Landscape	0.808	0.058
Gen-Tie Installation	2.965	0.103
Subtotal	**7.843**	**0.388**

Grand Total	16.769	0.733

41MB Lotus Solar Project Site
Operational Emissions

Employee Emissions - Operations and Maintenance

Assume 50 % of employees from Madera (10 miles) and 50% from Fresno (20 miles) ~ 15 miles

Assume 6 employees in light duty vehicles, emission factors from EMFAC 2011

Vehicle	# of Employees	Trip Length	Trips/Day	# of Days/Year	Total Miles/Year	NOx (g/mile)	NOx (tons)	PM10 (g/mile)	PM 10 (tons)
LDT2	6	15	2	260	46800	0.346	0.01785	0.003	0.000155
Subtotal							*0.014875*		*0.000129*

Panel Cleaning Emissions

Hours required to clean one 1 MW Panel Block

Block Length (ft)	590
Rows per Block	20
Feet traveled/Block	11800
Miles/Block	2.23
Speed (MPH)	1.00
Hours/Block	2.23
Blocks/Project	90
Hours Per Cleaning	201.14
Cleaning/Year	4
Hours/year	804.55
Miles Per Cleaning	201.14

Equipment	# of Pieces of Equipment	Horsepower	Load Factor	Hours/ Cleaning	Cleanings/Year	Total Hours	NOx (g/bhp)	NOx (tons)	PM10 Exhaust (g/bhp)	PM10 Exhaust (tons)
Water Truck	1	189	0.57	201.14	4	804.55	4.611	0.441	0.157	0.015
Subtotal								*0.441*		*0.015*
Total								**0.455**		**0.015**

Fee Estimate

Off-site Emissions Estimator Worksheet

5/24/2012

Applicant/Business Name:	41MB 8ME, LLC
Project Name:	Lotus Solar Farm
Project Location:	Madera County, California
District Project ID No.:	

Project Construction Emissions

		NOx				PM10			
Phase	Construction Start Date	Unmitigated Baseline (TPY)	Mitigated Baseline (TPY)	Achieved Onsite Reductions (tons)	Required Offsite Reductions (tons)	Unmitigated Baseline (TPY)	Mitigated Baseline (TPY)	Achieved Onsite Reductions (tons)	Required Offsite Reductions (tons)
1	9/1/2012	8.9270	7.1416	1.7854	0.0000	0.3450	0.1898	0.1553	0.0000
2	1/1/2013	7.8430	6.2744	1.5686	0.0000	0.3880	0.2134	0.1746	0.0000
3				0.0000	0.0000			0.0000	0.0000
4				0.0000	0.0000			0.0000	0.0000
5				0.0000	0.0000			0.0000	0.0000
6				0.0000	0.0000			0.0000	0.0000
7				0.0000	0.0000			0.0000	0.0000
8				0.0000	0.0000			0.0000	0.0000
9				0.0000	0.0000			0.0000	0.0000
10				0.0000	0.0000			0.0000	0.0000
	Total	16.7700	13.4160	3.3540	0.0000	0.7330	0.4032	0.3299	0.0000

Total Achieved On-Site Reductions (tons)

Phase	NOx	PM10
1	1.7854	0.1553
2	1.5686	0.1746
3	0.0000	0.0000
4	0.0000	0.0000
5	0.0000	0.0000
6	0.0000	0.0000
7	0.0000	0.0000
8	0.0000	0.0000
9	0.0000	0.0000
10	0.0000	0.0000
Total	3.3540	0.3299

Project Operations Emissions (Area + Mobile)

		NOx				PM10			
Phase	Operation Start Date	Unmitigated Baseline (TPY)	Mitigated Baseline (TPY)	Achieved Onsite Reductions (tons)	Required Offsite Reductions (tons)	Unmitigated Baseline (TPY)	Mitigated Baseline (TPY)	Achieved Onsite Reductions (tons)	Required Offsite Reductions (tons)
1				0.0000	0.0000			0.0000	0.0000
2				0.0000	0.0000			0.0000	0.0000
3	6/1/2013	0.4550	0.4550	0.0000	1.1375	0.0150	0.0150	0.0000	0.0750
4				0.0000	0.0000			0.0000	0.0000
5				0.0000	0.0000			0.0000	0.0000
6				0.0000	0.0000			0.0000	0.0000
7				0.0000	0.0000			0.0000	0.0000
8				0.0000	0.0000			0.0000	0.0000
9				0.0000	0.0000			0.0000	0.0000
10				0.0000	0.0000			0.0000	0.0000
	Total	0.4550	0.4550	0.0000	1.1375	0.0150	0.0150	0.0000	0.0750

Total Required Off-Site Reductions (tons)

Phase	NOx	PM10
1	0.0000	0.0000
2	0.0000	0.0000
3	1.1375	0.0750
4	0.0000	0.0000
5	0.0000	0.0000
6	0.0000	0.0000
7	0.0000	0.0000
8	0.0000	0.0000
9	0.0000	0.0000
10	0.0000	0.0000
Total	1.1375	0.0750

Note: TPY = Tons Per Year

Fee Estimator Worksheet

5/24/2012

Applicant/Business Name:	41MB 8ME, LLC
Project Name:	Lotus Solar Farm
Project Location:	Madera County, California
District Project ID No.:	

Scheduled Payment Date per Phase	Start Date per Phase	Phase	Pollutant	Required Reductions (tons)	Project Reductions (tons)	NO FDS 2010	FEE DEFERRAL SCHEDULE (FDS) BY PAYMENT YEAR 2010	2011	2012	2013	2014	2015	2016	2017
	9/1/2012	1	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
	1/1/2013	2	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
	6/1/2013	3	NOx	1.1375	1.1375	1.1375					1.1375			
			PM10	0.0750	0.0750	0.0750					0.0750			
		4	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
		5	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
		6	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
		7	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
		8	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
		9	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
		10	NOx	0.0000	0.0000	0.0000								
			PM10	0.0000	0.0000	0.0000								
TOTAL (tons)			NOx	1.1375	1.1375	1.1375	0.0000	0.0000	0.0000	0.0000	1.1375	0.0000	0.0000	0.0000
			PM10	0.0750	0.0750	0.0750	0.0000	0.0000	0.0000	0.0000	0.0750	0.0000	0.0000	0.0000

Rule 9510 Fee Schedule ($/ton)		
Year	NOx	PM10
2010 and beyond	$9,350	$9,011

Offsite Fee by Pollutant by Year ($)	NOx	$10,635	$0	$0	$0	$0	$10,635	$0	$0	$0
	PM10	$675	$0	$0	$0	$0	$675	$0	$0	$0
Administrative Fee by Year ($)		$452.40	$0.00	$0.00	$0.00	$0.00	$452.40	$0.00	$0.00	$0.00
Offsite Mitigation Fee by Year ($)		$11,762.40	$0.00	$0.00	$0.00	$0.00	$11,762.40	$0.00	$0.00	$0.00
Total Project Offsite Fee ($)		$11,762.40	$11,762.40							

Summary		Without Fee Deferral Schedule (A)	With Fee Deferral Schedule (B)	Amount Saved Through One-Time Payment (B-A)
Total Offsite Mitigation Fee by Pollutant ($)	NOx	$10,635	$10,635	$0
	PM10	$675	$675	$0
Total Administrative Fee ($)		$452.40	$452.40	$0.00
Total ($)		$11,762.40	$11,762.40	$0.00

Total Amount Saved Through On-Site Mitigation Measures	
NOx	$31,360
PM10	$2,973
Total Savings ($)	$34,333

(A) If you have chosen a **ONE-TIME** payment for the project, then the total amount due for ALL PHASES combined is: $11,762.40

(B) If you have chosen a **DEFERRED** payment schedule for the project, then according to the above Fee Deferral Schedule, the total amount due for ALL PHASES combined is: $11,762.40

Note: If the District did not receive a request for a Fee Deferral Schedule, an invoice is issued according to the **one-time** payment option.

EXHIBIT U

TECHNICON
ENGINEERING SERVICES, INC.

GEOLOGIC AND SEISMIC HAZARDS EVALUATION REPORT
PROPOSED "LOTUS SOLAR FARM"
NWC AVENUE 13 AND ROAD 33
MADERA COUNTY, CALIFORNIA

Prepared For:

41MB 8ME, LLC
10100 Santa Monica Blvd., Suite 300
Los Angeles, California 90067

April 24, 2012

TES#: 22139.001

TECHNICON
ENGINEERING SERVICES, INC.
GEOTECHNICAL & ENVIRONMENTAL ENGINEERING ~ CONSTRUCTION TESTING & INSPECTION

April 24, 2012 TES #: 22139.001

41MB 8ME, LLC
c/o Mr. Thomas Buttgenbach
10100 Santa Monica Blvd., Suite 300
Los Angeles, California 90067

SUBJECT: **Geologic and Seismic Hazards Evaluation Report**
Proposed "Lotus Solar Farm"
NWC Avenue 13 and Road 33
Madera County, California

Dear Mr. Buttgenbach:

The attached report presents the results of a geologic and seismic hazards evaluation for the proposed "Lotus Ranch" Solar Field to be constructed at Madera County Assessor's Parcel Number (APN) 034-210-038, located at the northwest corner of the intersection of Avenue 13 and Road 33, in Madera County, California. The report describes the study, findings, conclusions, and recommendations for use in project design and construction.

TECHNICON appreciates the opportunity to provide geotechnical engineering services to 41MB 8ME, LLC during the planning phase of this project. We trust this information meets your current needs. If there are any questions concerning the information presented in this report, please contact this office at your convenience.

Respectfully submitted,
TECHNICON ENGINEERING SERVICES, INC.

Shaun Reich, EIT
Project Engineer

Stephen P. Plauson, PE, GE
Geotechnical Engineering Manager

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TECHNICON
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GEOLOGIC AND SEISMIC HAZARDS EVALUATION REPORT
PROPOSED "LOTUS SOLAR FARM"
NWC AVENUE 13 AND ROAD 33
MADERA COUNTY, CALIFORNIA

TECHNICON PROJECT
TES #: 22139.001

Prepared by:

Shaun Reich, EIT
Project Engineer

Stephen P. Plauson, PE, GE
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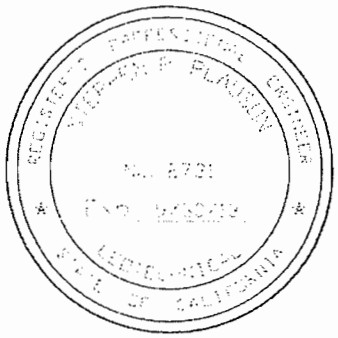

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April 24, 2012

1. INTRODUCTION

1.1 GENERAL

This report presents the results of a geologic and seismic hazards evaluation for the proposed "Lotus Solar Farm" to be constructed northwest of the intersection of Avenue 13 and Road 33, further identified as Madera County Assessor's Parcel Number (APN) 034-210-038, in Madera County, California. The Vicinity Map presented on Figure 1, shows the vicinity of the project and the Site Plan, presented on Figure 2, shows the location of the proposed improvements. References reviewed during preparation of this report are listed in Section 7, "References".

The report is intended to provide geotechnical information for use in preliminary planning and preparation of an Mitigated Negative Declaration (MND) or Environmental Impact Report (EIR) for the proposed development. This report is not intended for design of site improvements or construction. A project specific Geotechnical Investigation Report is recommended for final design and construction. When plans including site layout and building design information are more complete and design is undertaken, **TECHNICON** would be pleased to provide the necessary geotechnical engineering design services.

1.2 LOCATION

The proposed "Lotus Ranch" Solar Field is comprised of a 450-acre site located at the northwest corner of the intersection of Avenue 13 and Road 33, in Madera County, California. Based on the Fresno, California 7½-minute quadrangle topographic map, the site lies within both the southern half of Section 25 and the southeast quarter of Section 26, of Township 11 South, Range 18 East. Elevation of the site ranges from approximately 285 to 300 feet above Mean Sea Level. Using the USGS 7½-minute opographic map, the central location of the site coordinates are approximately:

Latitude:	36.9413° N
Longitude:	119.9604° W

1.3 PROPOSED CONSTRUCTION

It is understood the site will be developed into a solar energy facility (up to 90MW-AC). Details of the proposed improvements were not provided, however, it is assumed the facility will include photovoltaic cells supported on ground mounted metal racking systems. Appurtenant improvements are anticipated to include pad mounted electrical equipment and underground utilities. Cut and fill elevations are anticipated to be less than 2 to 3 feet to achieve site access, design pad grades, and proper positive site drainage.

1.4 PURPOSE AND SCOPE OF SERVICES

The purpose of the investigation was to evaluate pertinent geologic and seismic data to allow for development of opinions to aid in project planning and approval. The Geologic and Seismic Hazards Evaluation Report includes the following:

- ❑ A description of the proposed project, including a vicinity map showing the location of the site
- ❑ A description of the anticipated near surface soil based on information available from the US Department of Agriculture, National Resources Conservation Service, Web Soil Survey
- ❑ Comments on regional and site engineering geology and seismology
- ❑ Determination of peak horizontal ground surface acceleration utilizing the mapped spectral acceleration parameters of the 2010 California Building Code (CBC).
- ❑ Discussion of pertinent geologic hazards with conclusions regarding possible geologic hazards affecting the site, including potential for liquefaction, seismically induced settlement, landslides, flooding, etc.

The scope of services consisted of the preparation of this written report as described in **TECHNICON'S** revised proposal, dated April 6, 2012 (TES #GP12-074).

2. SITE AND GEOLOGIC CONDITIONS

2.1 REGIONAL GEOLOGY

The area of the site lies in the eastern portion of the San Joaquin Valley, near the boundary of the Coast Range and Great Valley geomorphic provinces in Central California. The filling of a large structural trough and downwarp in the underlying bedrock formed the Great Valley province of California. The trough is situated between the Sierra Nevada on the east and the Coast Range on the west. Both of these mountain ranges were initially formed by uplifts, which occurred during the Jurassic and Cretaceous periods of geologic time (greater than 65 million years ago). Renewed uplift began in the Sierra Nevada during late Tertiary time, and is continuing today. The trough, which underlies the Valley, is asymmetrical with the greatest depth of sediments near the western margin. The sediments, which fill the trough, originated as erosional material from the adjacent mountains and foothills. The upper and youngest sediments in the basin are continental deposits consisting of alluvial fan deposits and flood-basin, lake, and marsh deposits. Figure 3 provides a detailed Regional Geologic Map of the area by California Geologic Survey (CGS).

2.2 AREA AND SITE GEOLOGY

The majority of the native sediments in the project area have been mapped (Fresno geologic sheet) by CGS. The site is located within a Pleistocene age formation (Qc) and consisting of non-marine sediments. Figure 4 presents a geologic map of the project.

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) has mapped the soils on the project site as Atwater Loamy Sand (Awa, AwB), Greenfield Sandy Loam (GrA), San Joaquin sandy loam (SaA), Whitney fine sandy loam (WfB), Whitney and Rocklin sandy loam (WrB) and Alamo clay (AsA). The Unified Soil Classification System indicates these soils consist primarily of silty sand and sandy silt with isolated areas of sandy clay. Figure 5 presents a soil map of the project site based on information obtained from NRCS.

2.3 SURFACE CONDITIONS

The following description of the surface conditions at the site is based on review of available aerial photographs taken of the site. The proposed solar field site appears to be un-developed with open range and agricultural land surrounding on all sides. Research of aerial photography

indicates several wells and associated storage tanks are present on-site. Additionally, a portable office building, fuel storage tanks and various equipment was observed on the eastern border of the project site. Based on the USGS topographic map, the overall project site appeared to be gently rolling with a seasonal water-course on the eastern portion of the project site.

2.4 GROUNDWATER CONDITIONS

The California Department of Water Resources "Lines of Equal Elevation in Water Wells," Spring 2009, indicates the depth to groundwater exceeds 100 feet below surrounding grade (bsg). Research utilizing the California Department of Water Resources (DWR) website shows the nearest well to be approximately ¾ of a mile to the west (Well No. 11S18E34B001M). Based on the groundwater elevation data collected at this well, the historic high groundwater depth was recorded at 82 feet bsg in the mid-1970's, and the last reading was taken in 2009 with a recorded groundwater depth of 130 feet bsg. The data of several other wells within a radius of ¾ mile to the north of the site indicate periods of shallower groundwater ranging from 100 feet in the early to mid-1970's, with the last reading taken in 2006 with a recorded groundwater depth of 230 feet bsg.

It is possible that groundwater conditions at the site could change at some time in the future due to variations in rainfall, groundwater withdrawal, regional agricultural production, construction activities, or other factors not apparent at the time our test borings were made. However, groundwater is not anticipated to impact design or construction. Considering the groundwater trends noted above, it is recommended that a groundwater depth of 130 feet be used for project planning, design, and the evaluation of liquefaction and any seismically induced affects.

3. FAULTING AND SEISMICITY

3.1 HISTORICAL SEISMICITY

The project site and its vicinity are located in an area traditionally characterized by low seismic activity. Earthquakes have occurred very infrequently in this area during historic time (since 1800). Some of the significant regional earthquake events include: the 1985 (M5.9) North Kettleman Hills earthquake, located approximately 92 km to the southwest of the site; the 1983 (M6.5 and M5.7) Coalinga earthquakes, located about 84 and 89 km, respectively, to the southwest; the 1872 (M7.6) Owens Valley earthquake, located approximately 164 km to the east, and the 1857 (M8.0) San Andreas "Fort Tejon" earthquake, located approximately 140 km to the southwest.

Epicenters of significant earthquakes ($M \geq 5.5$) within the vicinity of the site are shown on Figure 6. Data for earthquakes that occurred during the period between 1800 to present has been obtained from a composite catalog by the Advanced National Seismic System (ANSS).

The ANSS catalog is a worldwide earthquake catalog which is created by merging the master earthquake catalogs from contributing ANSS member networks and then removing duplicate events, or non-unique solutions from the same event. The ANSS network includes the Northern and Southern California Seismic Networks, the Pacific Northwest Seismic Network, the University of Nevada, Reno Seismic Network, the University of Utah Seismographic Stations, and the United States National Earthquake Information Service. The earthquake database also consists of earthquake records between 1800 and 1900 from Seeburger and Bolt (1976) and Toppozada et. al. (1978, 1981).

3.2 FAULTS LOCAL TO THE PROPOSED SITE

The project site and its vicinity are located in an area traditionally characterized by relatively low seismic activity. The site is not located in an Alquist-Priolo Earthquake Fault Zone (2012) as established by the Alquist-Priolo Fault Zoning Act (Section 2622 of Chapter 7.5, Division 2 of the California Public Resources Code).

The CGS Fault Activity Map of California (2010) was reviewed to determine if identified active faults are located on or near the subject site. According to the map, no identified active faults are located on or near the subject site. Locations of the active and late Quaternary faults in the area

with respect to the subject site are shown on the Regional Fault Activity Map, Figure 7 (obtained from the Fault Activity Map of California, Jennings, Bryant and Saucedo, 2010).

The computer program, EQFAULT, Blake 2004, was also utilized to assess the location of active faults within or near the site. Active faults or fault zones with identified or recorded displacement during the last approximately 11,000 years (Holocene), and located within approximately a 124-mile (approximately 200 km) radius of the site are listed in the attached EQFAULT Summary in Appendix A.

Based on review of published data and current understanding of the geologic framework and tectonic setting of the project site, the primary sources of seismic shaking at this site are listed in Table 3.2-1. The table also provides the fault style, distance from the site, the maximum moment magnitude (M_W), and the anticipated deterministic ground acceleration (Boore 1997). A major seismic event on these or other nearby faults may cause ground shaking at the site. Based on the deterministic ground acceleration, the San Andreas Fault is considered the governing fault. The Foothills Fault System has been classified as in-active by local, state, and federal agencies [Cal Trans, County Governments, United States Geology Survey (USGS), etc.]; however, the Foothills Fault System has been included for informational purposes.

TABLE 3.2-1
PRIMARY SOURCES OF SEISMIC SHAKING

Fault Name	Fault Style	Distance from Site (km)	Magnitude (Mw)	Ground Acceleration (g)
Foothills Fault System	Normal / Right Lateral / Oblique	38	6.5	0.128
Coast Ranges Sierran Block [1]	Reverse Thrust	72	6.6	0.083
Ortigalita	Right Lateral / Strike Slip	87	6.9	0.069
Hartley Springs	Right Lateral / Strike Slip	115	6.6	0.057
San Andreas	Right Lateral / Strike Slip	117	7.8	0.088
Round Valley	Normal	123	6.8	0.061

Note: 1) The Coast Range Sierran Block Fault is not shown on 2010 Fault Activity Map of California (refer to Figure 7). The fault is not included on the referenced state map as it is a blind thrust fault

consisting of multiple segments with limited surface expression. The fault is included in Table 3.2-1 because of significant past activity within the western San Joaquin Valley.

3.3 SITE CLASS

Based on the typical relative density of the subsurface soils within the geographic vicinity of the site, Site Class D soils as presented in Table 1613A.5.2 of the 2010 CBC are assumed for the site. Site Class D is defined as a stiff soil profile with shear wave velocities between 600 feet/sec and 1,200 feet/sec, or Standard Penetration Resistance (N) equal to 15 to 50 blows/foot, or Su equal to = 1,000 to 2,000 psf for the upper 100 feet.

3.4 SEISMIC DESIGN CRITERIA

There are no geologic factors at the project site that are unique and would necessitate special seismic consideration for design of site improvements. Use of the 2010 CBC design criteria would be appropriate, unless the design engineer deems more specific data (e.g. site specific response spectra) necessary. Seismic design parameters where obtained for the project site utilizing a Site Class of D, site coordinates, and seismic hazard curves and uniform hazard response spectra found at the United States Geologic Survey (USGS) website (www.earthquake.usgs.gov/research/hazmaps/design/). Table 3.4-1 provides the recommended seismic design parameters.

TABLE 3.4-1
2010 CBC SEISMIC DESIGN PARAMETERS

Seismic Item	Design Value	Seismic Item	Design Value
Site Class	D	S_{MS}	0.718
S_S	0.518	S_{M1}	0.434
S_1	0.222	S_{DS}	0.478
Site Coefficient, F_a	1.386	S_{D1}	0.289
Site Coefficient, F_v	1.957		

3.5 EARTHQUAKE LEVEL

In accordance with CBC Section 1615A.1.2A and Section 4-317(e) of California Administrative Code (Part 1, Title 24, C.C.R.) a determination was made that the site is not located in a published Seismic Hazard Zone, Alquist-Priolo Earthquake Fault Zone (2000), or any Seismic Hazard Zone described in the Madera City General Plan (GP), 2009 or the Madera County

General Plan. As such, design peak ground acceleration for evaluation of liquefaction was based on $S_{DS}/2.5$ in accordance with Section 1803A.5.12 of the 2010 CBC, where S_{DS} is the Design Spectral Response Acceleration Parameter in Section 1613A.5.4 of the 2010 CBC. This procedure determined the code based peak ground acceleration is 0.191g.

A probabilistic seismic hazards analysis (PSHA) procedure was performed using the 2008 USGS Deaggregation Tool (Beta) to estimate the earthquake magnitude. The program allows user input of the project site coordinates and produces the expected peak ground motions for the site for selected probability of exceedance (e.g. return periods). The USGS Deaggregation Tool based on a probability of exceedance of 2 percent in 50 years determined a peak ground acceleration of 0.288 and weighted magnitude of Mw = 6.01. Output from the deaggregation analysis is presented in Appendix A.

4. GEOLOGIC AND SEISMIC HAZARDS

4.1 GENERAL

A discussion of specific geologic hazards that could impact the site is included below. The hazards considered include: surface fault rupture; seismically induced ground failures (liquefaction, lateral spreading, dynamic compaction, and landslides); general flooding and seismically induced flooding (tsunami, seiche, and dam failure); and hydrocompactive, expansive, and corrosive soils.

4.2 SURFACE FAULT RUPTURE

The site is not within an Alquist-Priolo Earthquake Fault Zone. Based upon the reviewed geologic and seismologic reports, maps, and aerial photographs, no mapped active faults cross or project toward the site.

4.3 SEISMICALLY INDUCED GROUND FAILURE

4.3.1. Liquefaction

In order for liquefaction and possible associated settlement of soils due to ground shaking to occur, it is generally accepted that four conditions will exist:

- The subsurface soils are in a relatively loose state.
- The soils are saturated.
- The soils are fine, granular, and uniform.
- Ground shaking of sufficient intensity should occur to act as a triggering mechanism.

Geologic age also influences the potential for liquefaction. Sediments deposited within the past few thousand years are generally much more susceptible to liquefaction than older Holocene sediments; Pleistocene sediments are even more resistant; and pre-Pleistocene sediments are generally immune to liquefaction (Youd, 2001). Furthermore, the absence of groundwater would preclude the occurrence of liquefaction.

4.3.2. Dynamic Compaction

Another type of seismically induced ground failure, which can occur as a result of seismic shaking, is dynamic compaction or seismic settlement. Such phenomena typically occur in unsaturated, loose granular material or uncompacted fill soils. Considering the age of sediments and that problematic soils are not typical to this area, seismically induced dry sand settlement is anticipated to be minimal.

4.4 LANDSLIDES AND GROUND FAILURE

Strong shaking has the potential for activating landslides on hillsides, slope failures on creek banks (lurch cracking) and tension cracking in areas underlain by loose, low density soil such as uncompacted fill. With the exception of a seasonal water course (shallow swale) located on the east of the site, the project site is relatively flat and there are no canal or creek banks within the immediate vicinity of the project,. Due to the relatively flat site conditions, absence of on-site canals or creek banks, and significant lateral distance to the aforementioned basin, the potential for landslides or other slope failures from earthquake-induced ground shaking is considered unlikely.

4.5 FLOODING

4.5.1. Tsunamis, Seiches, Earthquake Induced Flooding

Tsunamis are sea waves of unusual size that occur from significant earthquakes either under the ocean floor or adjacent to shorelines and can travel great distances to impact low-lying communities and developments. Considering that the Coast Ranges protects the site from the sea, the potential to be affected by a tsunami is nil.

A seiche is a free or standing wave oscillation that occurs in a confined body of water, such as a reservoir or lake. Earthquake-generated ground waves, which have a period that matches the natural period of the lake or reservoir, may cause the water to oscillate, which can cause damage to shore line improvements. Considering the distance to any lake or reservoir the chance for a seiche to occur is not likely.

4.5.2. Potential for Dam Failure

According to the City of Madera General Plan (GP) Review Draft, 2009, the Hidden Dam / Hensley Lake could cause flooding within the project area in the event of a failure. Based on an Inundation Map, Figure HS-3, included in the City of Madera General Plan (2009) Public Review Draft, the proposed project site partially lies within an inundation area. Flood elevations were not reported. Due to the proposed land use (solar field), mitigation measures, such as preparing an emergency evacuation plan and route, are not deemed necessary.

4.5.3. Flood Insurance Rate Maps

According to the Federal Emergency Management Agency (FEMA), the project site lies within a Zone X flood designation (Map Number 06039C1180E, dated September 26, 2008) indicating areas determined to be outside the 0.2 percent annual chance flood (500-year flood).

4.6 EXPANSIVE SOILS

The NRCS indicates that clay soils (Plasticity Index of 30) may be present at the site. The Geotechnical Engineering Investigation should include further testing to assess the expansion characteristics of the site soils and include mitigation measures or design recommendations to accommodate the expansion characteristics of the soils.

4.7 CORROSIVE SOILS

Review of US Department of Agriculture, Natural Resources Conservation Service (USDA NRCS) indicates the soils within the project site contain low to moderate corrosivity characteristics.

4.8 REGIONAL SUBSIDENCE

Based on the Madera County General Plan (1995) Background Report, the County states that "because there is no high water table in Madera County, the risk of subsidence is considered to be very low". Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. However, as the proposed project site is out of known subsidence zones, subsidence is not likely to occur.

5. ADDITIONAL SERVICES

5.1 DESIGN REVIEW AND CONSULTATION

TECHNICON should be contacted to perform a site investigation and prepare a Geotechnical Investigation Report to support project design. The investigation would typically include site reconnaissance, borings, laboratory testing, and preparation of a Geotechnical Engineering Investigation Report that provides recommendations for earthwork, foundations, utilities, etc.

6 LIMITATIONS

The conclusions and recommendations presented in this report are based on the information provided regarding the proposed site combined with interpretation of information available from the sources listed in the references section of this report. The nature and extent of the site conditions may not become evident until a detailed investigation of the site is performed and/or during construction. If variations or undesirable conditions are encountered during construction, our firm should be notified promptly so that these conditions can be reviewed and our recommendations reconsidered where necessary. The unexpected conditions frequently require additional expenditures for proper construction of the project.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. This report should not be construed as a Geotechnical Investigation Report or an environmental audit or study.

This report has been prepared for the sole use by 41MB 8ME, LLC and their designated consultants for the proposed "Lotus Solar Farm" to be located northwest of the intersection of Avenue 13 and Road 33, in Madera County, California. Recommendations presented in this report should not be extrapolated to other areas or used for other projects without prior review.

7 REFERENCES

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- Blake 2009, EQSEARCH Version 3.0
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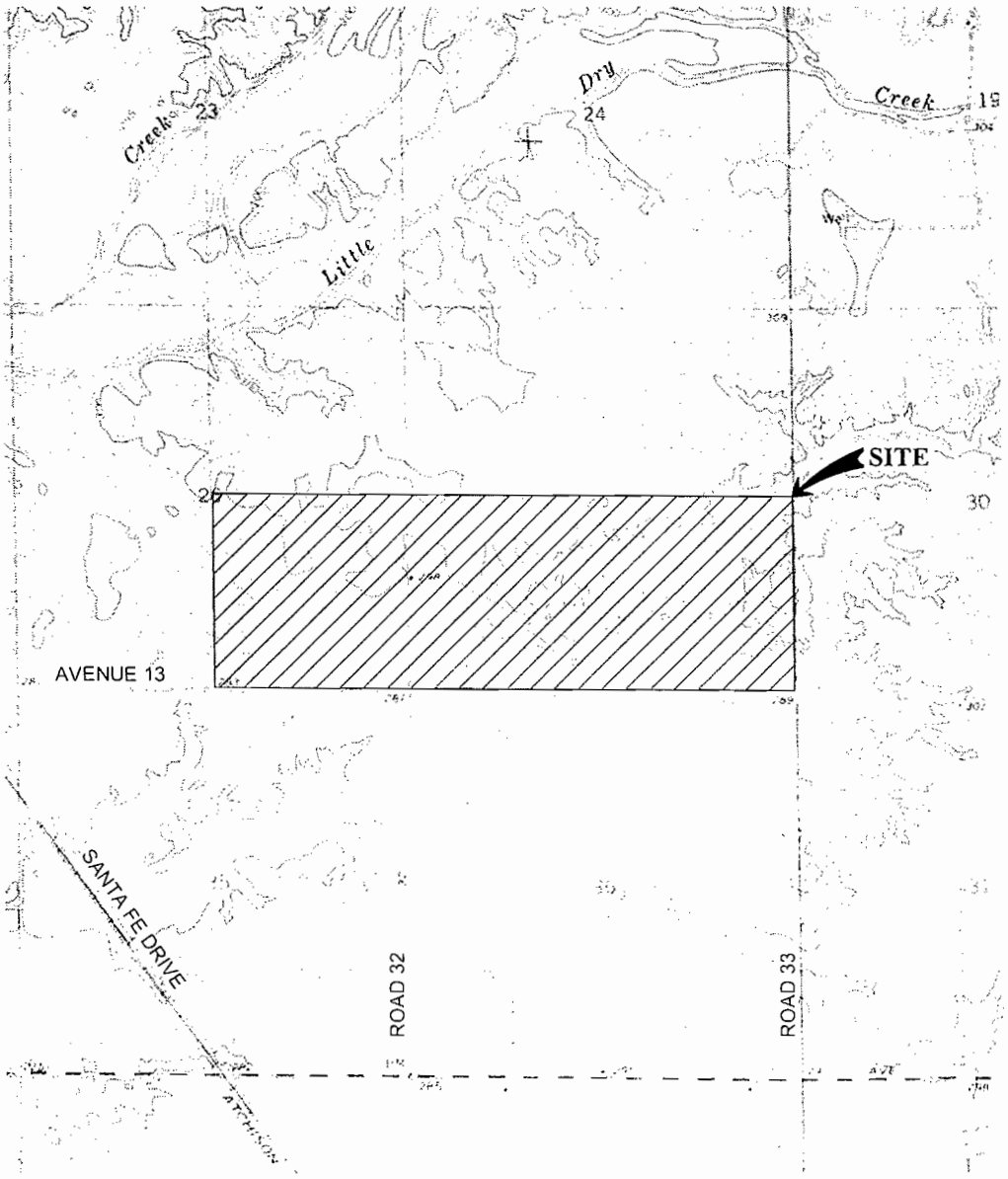
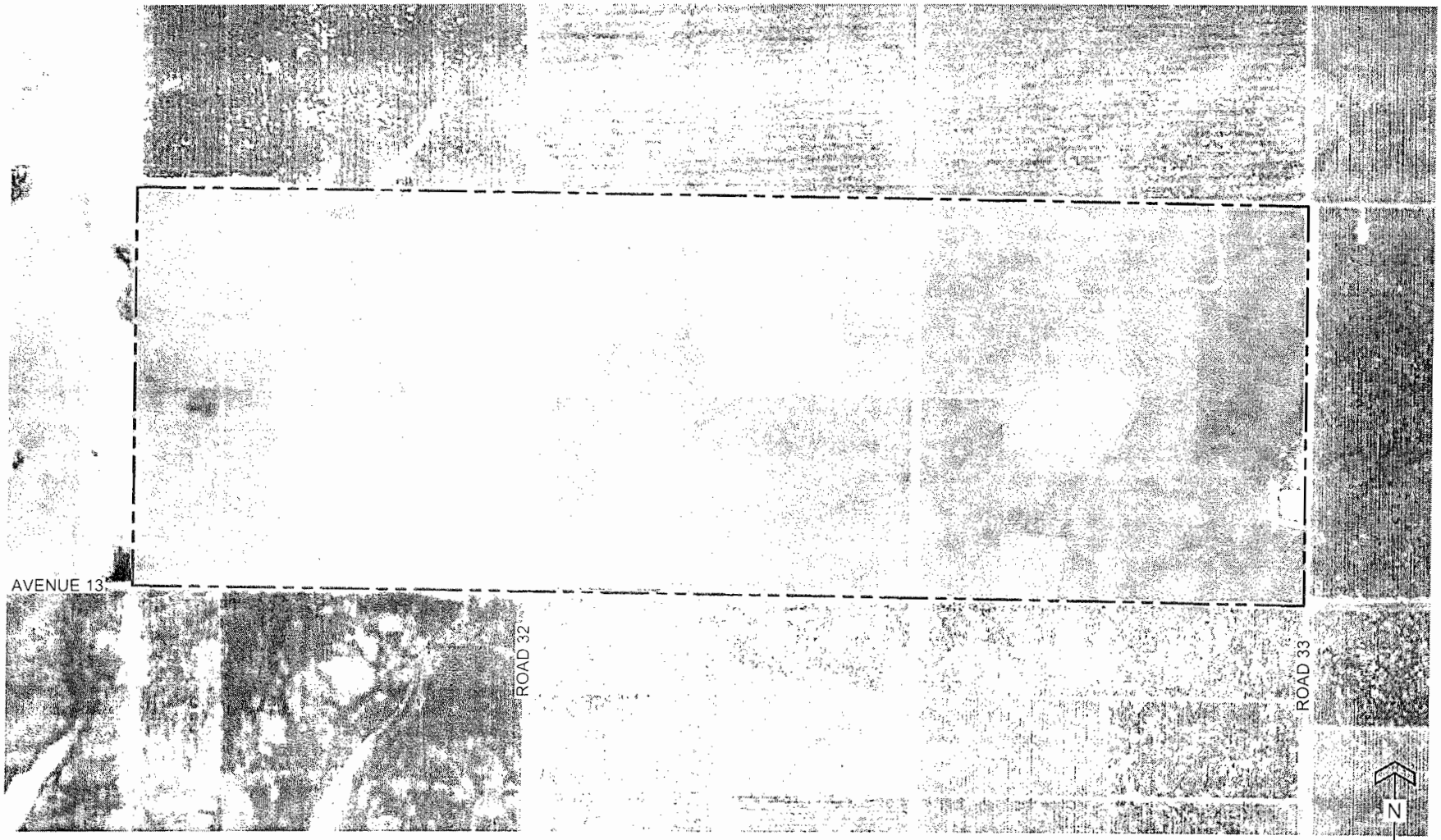
FIGURES

1, 2, 3, 4, 5, 6, & 7

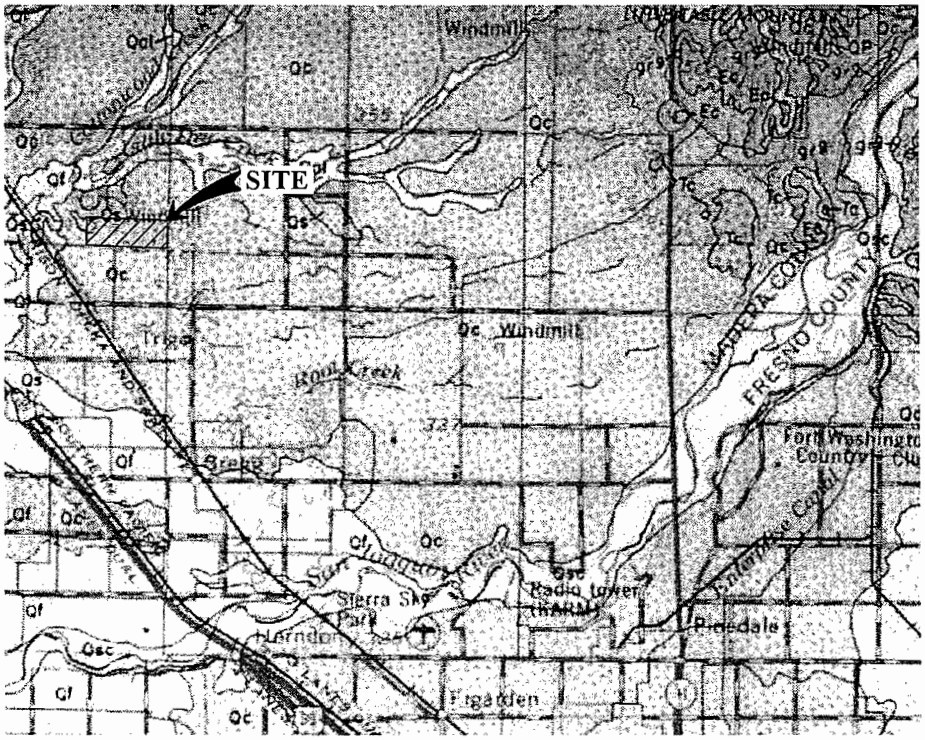


LAT.: 36.9413°N, LONG.: 119.9604°W, 25,26-T11S-R18E, MDB&M, USGS MAP: GREGG, DATE: 1965, PHOTO REV.: 1978

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 22139 SOURCE: USGS TOPOGRAPHIC MAPS	VICINITY MAP PROPOSED LOTUS SOLAR FARM 13200 ROAD 33 MADERA, CALIFORNIA	FIGURE 1 NTS



TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 22139	DATE: 05/21/12	SITE MAP PROPOSED LOTUS SOLAR FARM 13200 ROAD 33 MADERA, CALIFORNIA	FIGURE 2
	SOURCE: GOOGLE EARTH	APPROVED BY: SP		



EXPLANATION

SEDIMENTARY AND METASEDIMENTARY ROCKS — IGNEOUS AND META-IGNEOUS ROCKS

QUATERNARY

- Dune sand
- Alluvium
- Stream channel deposits
- Fan deposits
- Basin deposits
- Salt deposits
- Quaternary lake deposits
- Glacial deposits
- Quaternary nonmarine terrace deposits
- Pleistocene marine and marine terrace deposits
- Pleistocene nonmarine

Recent volcanics: rhyolite; andesite; basalt; pyroclastic rocks

Pleistocene volcanics: rhyolite; andesite; basalt; pyroclastic rocks

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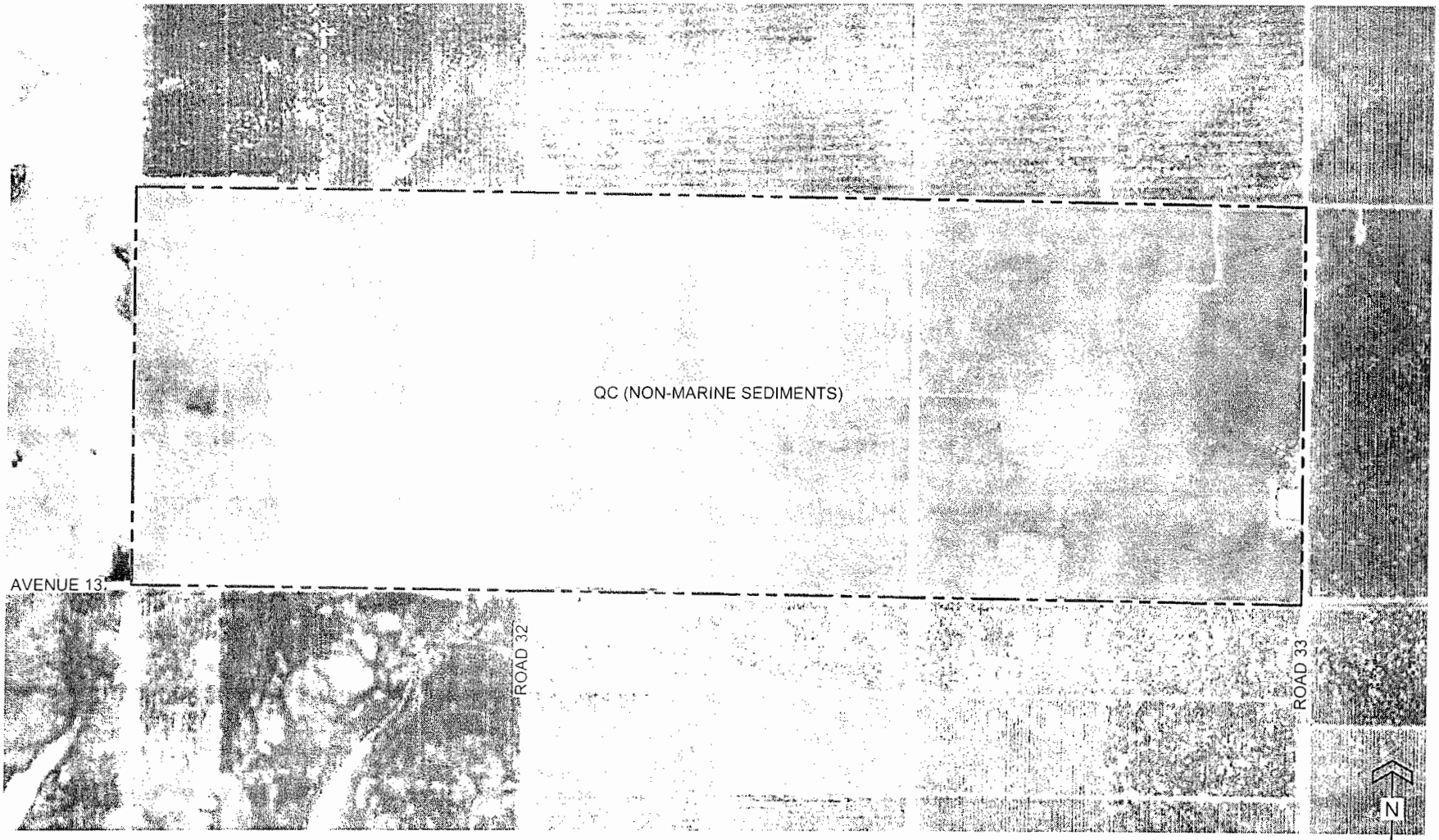
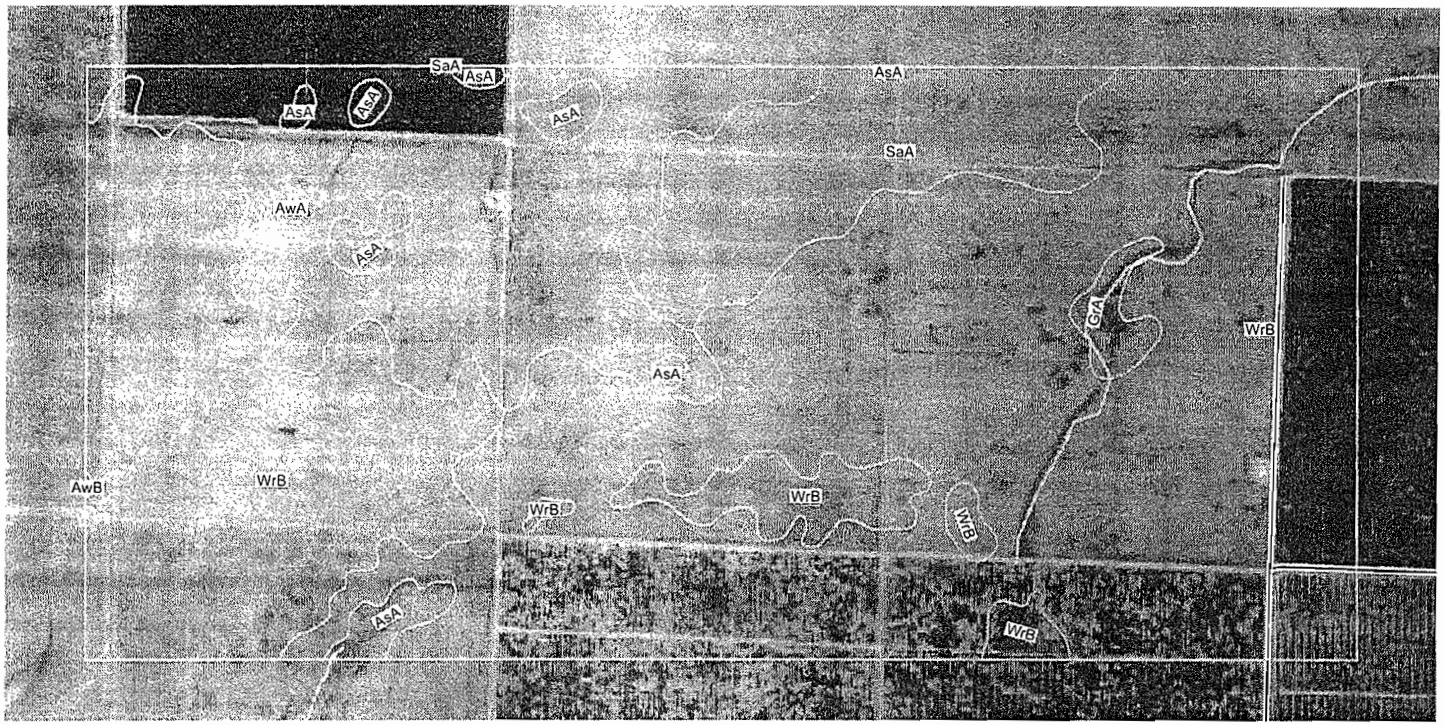
STATE OF CALIFORNIA DIVISION OF MINES AND GEOLOGY
GEOLOGIC MAP OF CALIFORNIA - FRESNO SHEET - SCALE 1:250,000 - 1965

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 22139 SOURCE: DIVISIONS OF MINES AND GEOLOGY	REGIONAL GEOLOGIC MAP PROPOSED LOTUS SOLAR FARM 13200 ROAD 33 MADERA, CALIFORNIA	FIGURE 3 NTS

R54



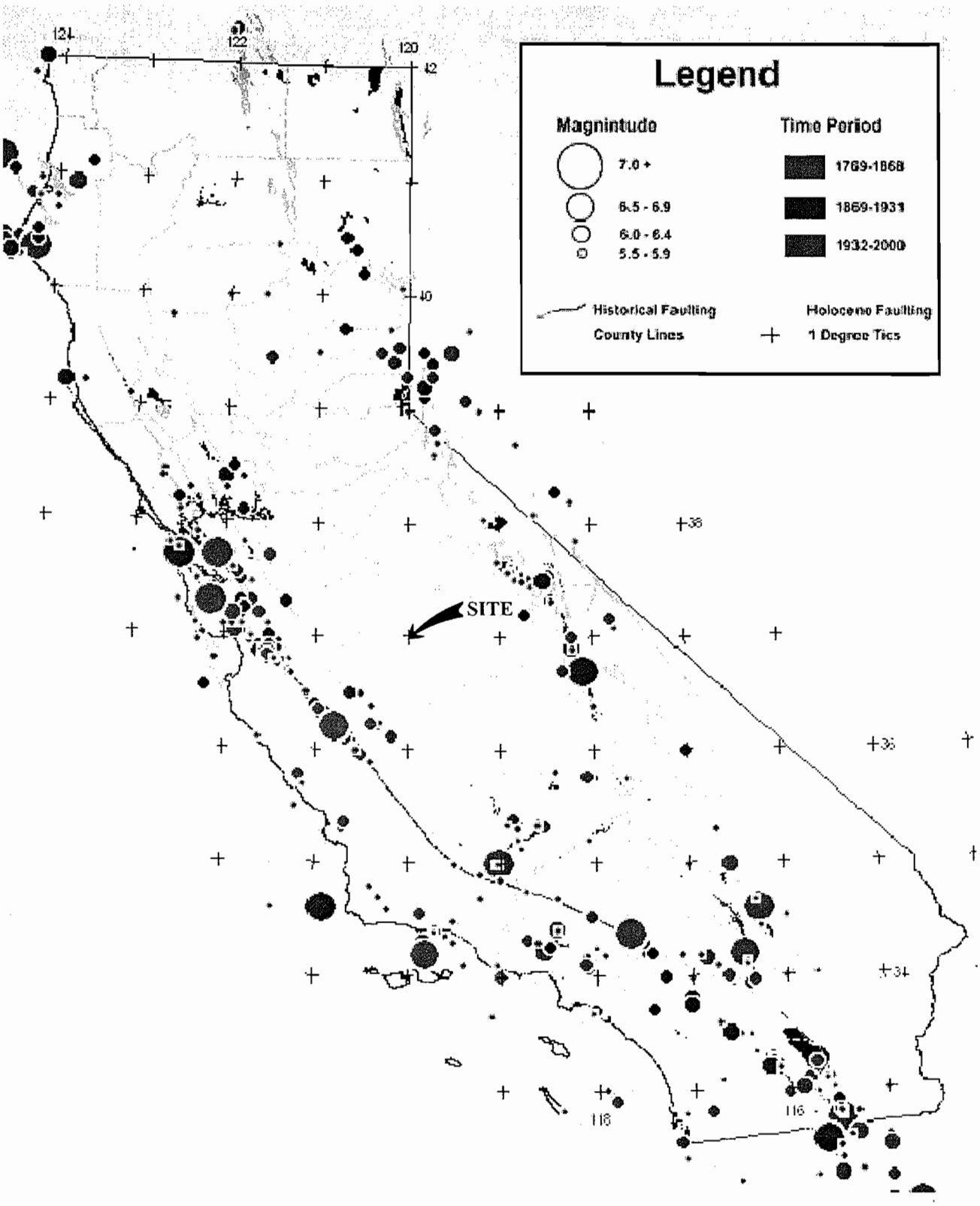
TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 22139	DATE: 05/21/12	GEOLOGIC MAP OF THE SITE PROPOSED LOTUS SOLAR FARM 13200 ROAD 33 MADERA, CALIFORNIA	FIGURE 4
	SOURCE: GOOGLE EARTH	APPROVED BY: SP		



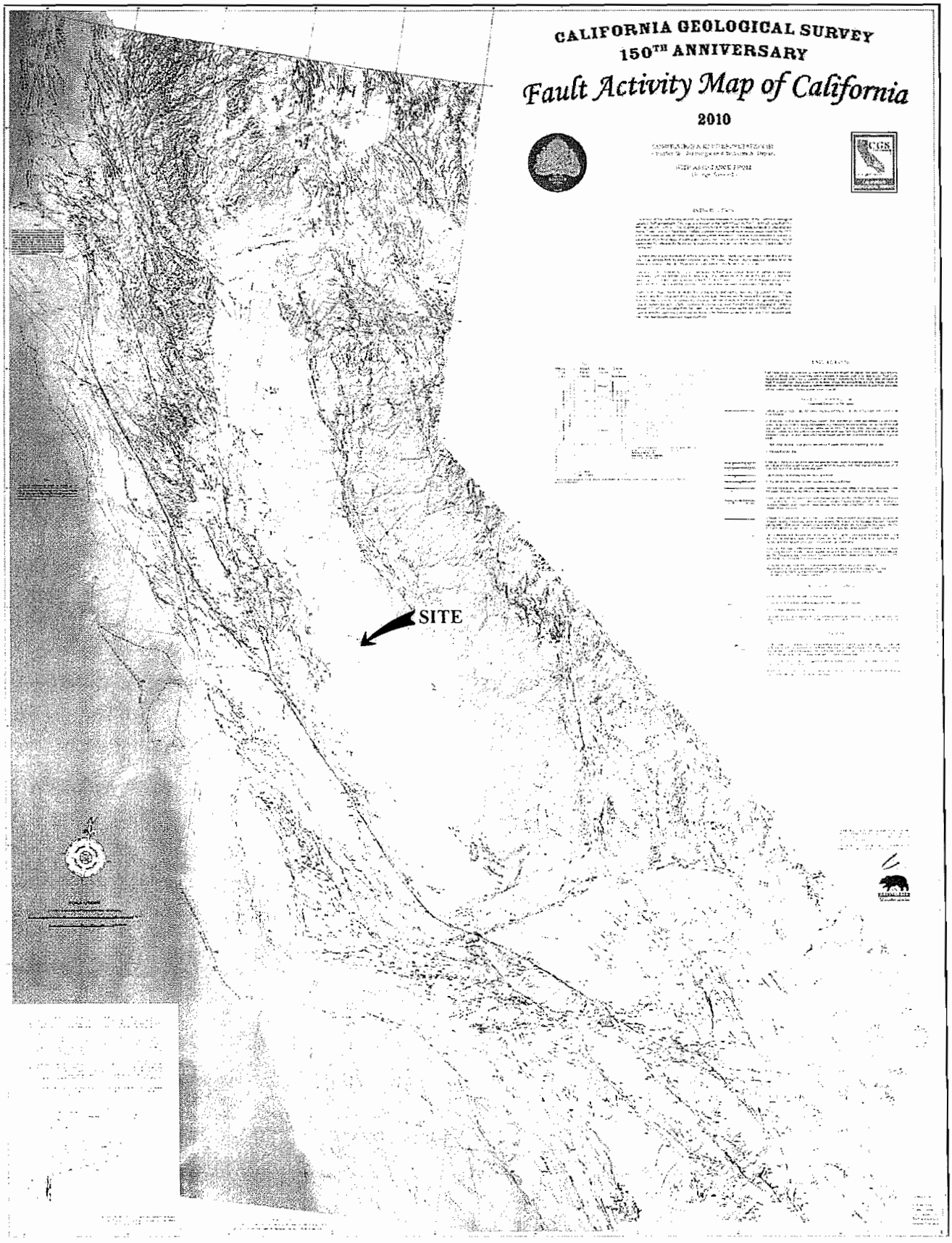
Madera Area, California (CA651)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AsA	Alamo clay, 0 to 1 percent slopes	17.4	2.2%
AwA	Atwater loamy sand, moderately deep and deep over hardpan, 0 to 3 percent slopes	135.8	17.3%
AwB	Atwater loamy sand, moderately deep and very deep over hardpan, 3 to 8 percent slopes	0.2	0.0%
GrA	Greenfield coarse sandy loam, 0 to 3 percent slopes	6.9	0.9%
SaA	San Joaquin sandy loams, 0 to 3 percent slopes	67.3	8.6%
WrB	Whitney fine sandy loam, 3 to 8 percent slopes	388.1	49.4%
WrB	Whitney and Rocklin sandy loams, 3 to 8 percent slopes	169.9	21.6%
Totals for Area of Interest		785.6	100.0%

N

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 22139	DATE: 05/21/12	NRCS SOIL MAP OF SITE PROPOSED LOTUS SOLAR FARM 13200 ROAD 33 MADERA, CALIFORNIA	FIGURE 5 NTS
	SOURCE: USDA	APPROVED BY: SP		



TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 22139	EPICENTER MAP PROPOSED LOTUS SOLAR FARM 13200 ROAD 33 MADERA, CALIFORNIA	FIGURE 6
	SOURCE: CGS		NTS



TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 22139	FAULT ACTIVITY MAP OF CALIFORNIA PROPOSED LOTUS SOLAR FARM 13200 ROAD 33 MADERA, CALIFORNIA	FIGURE 7
	SOURCE: CHARLES W. JENNINGS		NTS

EQFAULT & DEAGGREGATION SUMMARY

APPENDIX A

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*                    *
*    E Q F A U L T   *
*                    *
*    Version 3.00    *
*                    *
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DETERMINISTIC ESTIMATION OF
PEAK ACCELERATION FROM DIGITIZED FAULTS

JOB NUMBER: TES# 22139

DATE: 04-12-2012

JOB NAME: Lotus Solar Field

CALCULATION NAME: Test Run Analysis

FAULT-DATA-FILE NAME: C:\Program Files\EQFAULT1\CDMGFLTE.DAT

SITE COORDINATES:
SITE LATITUDE: 36.9410
SITE LONGITUDE: 119.9604

SEARCH RADIUS: 100 mi

ATTENUATION RELATION: 3) Boore et al. (1997) Horiz. - NEHRP D (250)
UNCERTAINTY (M=Median, S=Sigma): M Number of Sigmas: 0.0
DISTANCE MEASURE: cd_2drp
SCOND: 0
Basement Depth: 5.00 km Campbell SSR: Campbell SHR:
COMPUTE PEAK HORIZONTAL ACCELERATION

FAULT-DATA FILE USED: C:\Program Files\EQFAULT1\CDMGFLTE.DAT

MINIMUM DEPTH VALUE (km): 0.0

EQFAULT SUMMARY

DETERMINISTIC SITE PARAMETERS

Page 1

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE mi (km)	ESTIMATED MAX. EARTHQUAKE EVENT		
		MAXIMUM EARTHQUAKE MAG. (Mw)	PEAK SITE ACCEL. g	EST. SITE INTENSITY MOD.MERC.
FOOTHILLS FAULT SYSTEM	23.6(38.0)	6.5	0.128	VIII
GREAT VALLEY 11	40.9(65.8)	6.4	0.080	VII
GREAT VALLEY 12	41.4(66.6)	6.3	0.075	VII
GREAT VALLEY 10	43.6(70.1)	6.4	0.076	VII
GREAT VALLEY 9	44.5(71.6)	6.6	0.083	VII
GREAT VALLEY 13	47.0(75.6)	6.5	0.076	VII
ORTIGALITA	53.8(86.6)	6.9	0.069	VI
GREAT VALLEY 14	56.7(91.2)	6.4	0.062	VI
GREAT VALLEY 8	57.8(93.0)	6.6	0.068	VI
SAN ANDREAS (Creeping)	67.4(108.4)	6.5	0.047	VI
QUIEN SABE	70.3(113.2)	6.4	0.043	VI
CALAVERAS (So.of Calaveras Res)	70.8(114.0)	6.2	0.039	V
HARTLEY SPRINGS	71.8(115.6)	6.6	0.057	VI
SAN ANDREAS - Parkfield Segment	72.9(117.3)	6.7	0.049	VI
SAN ANDREAS - 1857 Rupture	72.9(117.3)	7.8	0.088	VII
GREAT VALLEY 7	75.2(121.0)	6.7	0.058	VI
HILTON CREEK	76.7(123.4)	6.7	0.057	VI
ROUND VALLEY	76.7(123.4)	6.8	0.061	VI
SARGENT	82.3(132.5)	6.8	0.047	VI
MONO LAKE	83.4(134.2)	6.6	0.051	VI
ZAYANTE-VERGELES	83.6(134.6)	6.8	0.047	VI
SAN ANDREAS - Cholame	84.4(135.8)	6.9	0.049	VI
MOHWAK - HONEY LAKE ZONE	85.7(138.0)	7.3	0.059	VI
SAN ANDREAS (Pajaro)	85.7(138.0)	6.8	0.046	VI
SAN ANDREAS (1906)	85.7(138.0)	7.9	0.081	VII
BIRCH CREEK	86.5(139.2)	6.4	0.045	VI
FISH SLOUGH	86.7(139.5)	6.6	0.050	VI
RINCONADA	87.1(140.1)	7.3	0.059	VI
SAN JUAN	89.1(143.4)	7.0	0.049	VI
INDEPENDENCE	90.9(146.3)	6.9	0.056	VI
GREENVILLE	91.5(147.3)	6.9	0.046	VI
OWENS VALLEY	92.4(148.7)	7.6	0.066	VI
ROBINSON CREEK	94.4(151.9)	6.4	0.042	VI
MONTEREY BAY - TULARCITOS	95.1(153.0)	7.1	0.060	VI
SAN ANDREAS (Santa Cruz Mtn.)	95.7(154.0)	7.0	0.047	VI
WHITE MOUNTAINS	96.4(155.1)	7.1	0.049	VI
HAYWARD (SE Extension)	99.7 (160.5)	6.4	0.033	V

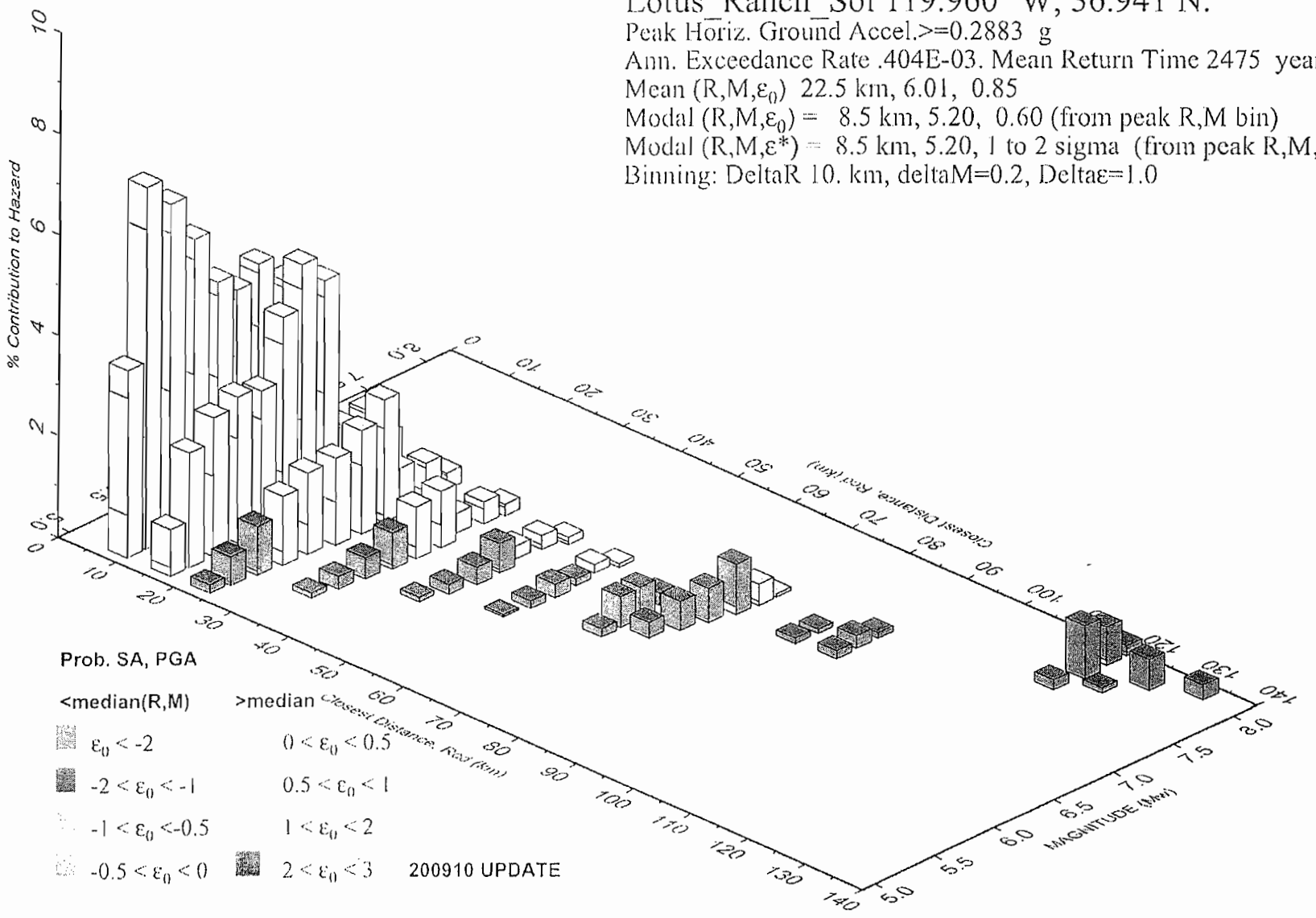
-END OF SEARCH- 37 FAULTS FOUND WITHIN THE SPECIFIED SEARCH RADIUS.

THE FOOTHILLS FAULT SYSTEM FAULT IS CLOSEST TO THE SITE.
IT IS ABOUT 23.6 MILES (38.0 km) AWAY.

LARGEST MAXIMUM-EARTHQUAKE SITE ACCELERATION: 0.1283 g

PSH Deaggregation on NEHRP D soil
Lotus_Ranch_Sol 119.960° W, 36.941 N.

Peak Horiz. Ground Accel.>=0.2883 g
Ann. Exceedance Rate .404E-03. Mean Return Time 2475 years
Mean (R,M,ε_0) 22.5 km, 6.01, 0.85
Modal (R,M,ε_0) = 8.5 km, 5.20, 0.60 (from peak R,M bin)
Modal (R,M,ε^*) = 8.5 km, 5.20, 1 to 2 sigma (from peak R,M,ε bin)
Binning: DeltaR 10. km, deltaM=0.2, Deltaε=1.0



GMT 2012 Apr 24 15:04:50 Distance (R), magnitude (M), epsilon (E0,E) deaggregation for a site on soil with average vs= 300. m/s top 30 m. USGS CGHT PSHA2008 UPDATE Bins with lt 0.05% contrib. omitted

USDA NRCS DATA

APPENDIX B

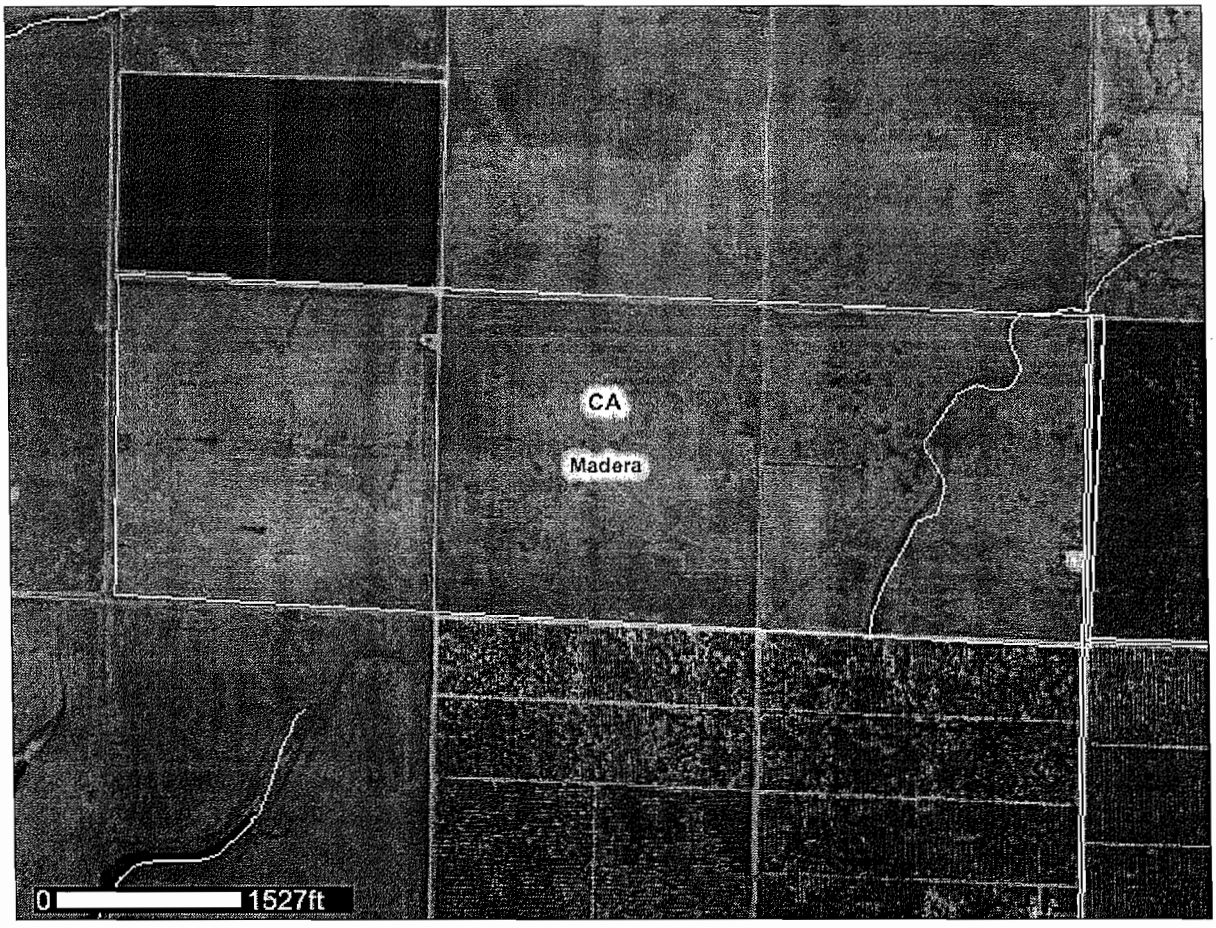
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Madera Area, California



April 17, 2012

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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EXHIBIT V

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In Reply Refer To:
08ESMF00-2012-TA-0516

SEP 04 2012

Mr. Scott Harmstead
Planning Department
2037 W. Cleveland Avenue
Madera, California 93637

SEP 07 2012

Subject: Response to Request for Comments on the Lotus Solar Project (Madera County Resource Management Planning Department Conditional Use Permit Number 2012-010)

Dear Mr. Harmstead:

The U.S. Fish and Wildlife Service (Service) has received your request for comments for the Lotus Solar Project (project). Your letter was received in our office on June 15, 2012.

The proposed project site is located west of Santa Fe Drive and north of Avenue 13, in Madera County, California. The applicant, 41MB 8ME, LLC., proposes to construct a 90 megawatt solar photovoltaic facility that will encompass approximately 458 acres of a 633-acre site. At this time there are 5 transmission line interconnection alternatives being proposed, which connect to the Borden substation located to the south of the project site along Avenue 12. The current land uses within the project area consist of fallow non-native annual grassland currently being grazed by sheep. Agricultural land surrounds the site to the north, south, and east. Based upon information available to the Service, it appears that this project may affect federally-listed species. This response is in accordance with section 9 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(Act).

A review of the California Natural Diversity Database (CNDDB) for this site and other information available to the Service reveals records for the federally-listed as threatened, central California distinct population segment of the California tiger salamander (*Ambystoma californiense*)(central California tiger salamander) within an estimated 2.5 miles of the proposed project location.

The Service has reviewed the June 2012, *Biological Analysis of the Lotus Solar Site, Madera County, California* (biological analysis), prepared by Quad Knopf. Mitigation measure Wet -2 states that if wetland features on site cannot be avoided, then the presence of special status plant species, vernal pool branchiopods, and California tiger salamander shall be determined by implementing protocol level surveys. Central California tiger salamanders are known to spend

the majority of their life cycle in small-mammal burrows in upland habitat, therefore, avoidance of potential central California tiger salamander aquatic breeding habitat may reduce the extent of take, but would not preclude it. 'Take,' as defined in the Act, is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 'Harm' has been further defined in 50 CFR 17.3 to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." Large portions of the proposed project site could provide sheltering and/or feeding habitat for the central California tiger salamander, and thus the Service believes it is reasonably likely that construction of your project would result in the take of salamanders on-site. The Service recommends a site assessment for central California tiger salamander be completed, and if warranted, surveys to determine presence of this species be completed by a Service-approved biologist. Surveys should be conducted according to the *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* which can be found at http://www.fws.gov/sacramento/.

Due to the potential for take of federally-listed species, the Service recommends that the applicant contact the Service in order to avoid the potential for violating the prohibitions of section 9 of the Act, prior to engaging in any construction activities.

Please contact Hunter Kunkel, Fish and Wildlife Biologist, or Thomas Leeman, Chief, San Joaquin Valley Division at (916) 414-6600 if you have questions regarding this response. Please refer to Service file number 08ESMF00-2012-TA-0516 in any future correspondence.

Sincerely,

Daniel Russell

Daniel Russell
Deputy Assistant Field Supervisor

cc:
Lisa Gymer, California Department of Fish and Game, Fresno, California

EXHIBIT W

CALIFORNIA
Water Boards

Central Valley Regional Water Quality Control Board

10 September 2012

Scott Harmstead, Senior Planner
Madera County
2037 W. Cleveland Ave.
Madera, CA 93637

REQUEST FOR COMMENTS, INITIAL STUDY/MITIGATED NEGATIVE DECLARATION FOR CONDITIONAL USE PERMIT #2012-010, LOTUS SOLAR FARM, MADERA COUNTY

Your request for comments on the Mitigated Negative Declaration for issuance of a conditional use permit to construct the Lotus Solar Farm (Project), a 90 megawatt solar farm on 459 acres in Madera County, was received on 27 August 2012. The application indicates the proposed Project will cover approximately 284 acres of the property that is currently in agricultural use for sheep grazing. The remaining 175 acres, described in the application as being comprised of an almond orchard, a shop building, and fallow ground, would remain undeveloped.

The Project application indicates the site contains a drainage swale, three ditches, and a ponding basin. Review of aerial photographs of the Project site and the U.S.G.S. topographic map confirm the presence of these water features. The topographic map indicates the presence of blue line streams in the Project area.

The Environmental Checklist form, section IV., indicates all of the onsite water features may meet the United States Army Corps of Engineers (ACOE) wetland criteria and are also likely within the jurisdiction of the Central Valley Regional Water Quality Control Board (Central Valley Water Board). The proposed mitigation in the checklist and in the draft Mitigated Negative Declaration, Mitigation Measure #10, requires consultation and cooperation with the ACOE, but does not include consultation with the Central Valley Water Board. Discharges to all waters of the State have been and remain subject to State regulation under the California Porter-Cologne Water Quality Control Act and the mitigation measure for this Project needs to also include consultation with the Central Valley Water Board.

Additionally, Environmental Checklist form, section IX., indicates the Project may alter the existing drainage pattern of the site and could result in substantial erosion and siltation. The proposed mitigation in the checklist and in the draft Mitigated Negative Declaration, Mitigation Measure #14, requires submission of a grading, drainage, and erosion control plan to the Madera County Engineering Department. Discharges of storm water from Projects that will disturb an acre or more require compliance with the State Water Resources Control Board National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 for Discharges of Storm Water Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ . The

SEP 13 2012

mitigation measures for this Project must require the proponent to submit a Notice of Intent to comply with the NPDES Storm water permit if the Project will disturb an acre or more. The NPDES Storm water permit requires the development and implementation of a Storm Water Pollution Prevention Plan and contains post-construction storm water discharge standards.

Thank you for the opportunity to comment on this Mitigated Negative Declaration. If you have any questions, please contact me at (559) 445-6281 or by email at dmahnke@waterboards.ca.gov.

Debra Mahnke

DEBRA MAHNKE
Water Resource Engineer