Final
Environmental Impact Statement

Panoche Valley Solar Facility
San Benito County, CA

December 2015

Volume II

NEPA Lead Federal Agency:

US Army Corps of Engineers

NEPA Cooperating Agency:

US Fish & Wildlife Service

VOLUME II
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DEPARTMENT OF DEFENSE

Department of the Army, Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement for the Proposed Panoche Valley Solar Farm in San Benito County, CA, Corps Permit Application Number SPN–2009–00443S

AGENCY : Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION : Notice of intent.

SUMMARY : The U.S. Army Corps of Engineers, San Francisco District (Corps) received a Department of the Army permit application to construct a solar photovoltaic energy plant in San Benito County, CA. The original permit application was received in April 2010 and an updated application was received in August 2010. The application was submitted by Solargen Energy, Incorporated and has since been assumed by Panoche Valley Solar LLC (Applicant). The Corps, as the lead agency responsible for compliance with the National Environmental Policy Act (NEPA), determined that the proposed project may result in significant impacts on the environment, and that the preparation of an Environmental Impact Statement (EIS) is required. The U.S. Fish and Wildlife Service is a cooperating agency for this action. The Corps may invite other Federal, State, local agencies, and tribes to be cooperating agencies.

ADDRESSES : Comments may be submitted electronically or by U.S. Mail. Written comments should be addressed to: Ms. Katerina Galacatos, U.S. Army Corps of Engineers, San Francisco District, Attn: Regulatory Division; 1455 Market Street, 16th Floor, San Francisco, CA 94103–1398. Comments may also be submitted electronically via email to: spn.eis.panoche@usace.army.mil. Please refer to identification number SPN–2009–00443S in all correspondence.

FOR FURTHER INFORMATION CONTACT : To obtain additional information about this EIS, the public scoping process, or to receive a copy of the draft EIS when it is issued, please contact Ms. Katerina Galacatos by telephone: 415–503–6778; or electronic mail: spn.eis.panoche@usace.army.mil. Requests to be placed on the project mailing list may also be submitted by these means.

SUPPLEMENTARY INFORMATION : The applicant has submitted an application for a Department of Army permit pursuant to Section 404 of the Clean Water Act to construct and operate a 399–Megawatt $_{AC}$ (MWAC) solar photovoltaic (PV) energy generating facility known as the Panoche Valley Solar Farm (the Project). The Project would be located on private lands in San Benito County, CA. The 4,885-acre (7.6-square-mile) project site is approximately three-quarters of a mile north of the intersection of Panoche Road and Little Panoche Road, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The project site is bordered by rangeland to the north and south, by the Gabilan Range to the west, and by the Panoche Hills to the east. The site elevation ranges from approximately 1,250 feet above mean sea level near the southeast end of the project to approximately 1,400 feet above mean sea level near the west end. Panoche Creek and Las Aguilas Creek flow through the project site. In addition, there are several stock ponds and stream segments in the northern portion of the project site. During the past forty years the project site has been used for grazing. Previously, crop production occurred over much of the project site.

The proposed project would be constructed in five phases and would include a substation, on-site access roads, and buried electrical collection conduit. The construction of three of the road crossings would result in 427 cubic yards of fill into Panoche Creek and Las Aguilas Creek, jurisdictional waters of the U.S. Electricity generated from the project would be transmitted on-site to the state's electrical grid through two existing Pacific Gas and Electric Company (PG&E) transmission lines.

Approximately 2,203 acres would be permanently disturbed by on-site facilities, and an additional 100 acres would be temporarily disturbed during construction. The proposed project would include development of the following components: Installation of approximately 3 million to 4 million photovoltaic panels; photovoltaic module steel support structures; electrical inverters and transformers; an electrical substation with switchyard; buried electrical collection conduit; an operations and maintenance (O&M) building; a septic system and leach field; a wastewater treatment facility and demineralization pond; on-site access roads; security fencing; and transmission support towers and line(s) to interconnect with the PG&E transmission lines that pass through the project site.

The EIS will include an evaluation of a reasonable range of alternatives. Currently, the following alternatives are expected to be analyzed in detail: The no action alternative (no permit issued), and the Applicant's proposed project (proposed action). In addition to the proposed action, the Corps may consider additional alternatives for potential detailed analysis.

Potentially significant issues to be analyzed in the EIS include, but are not limited to, impacts on biological resources (including threatened and endangered species), water resources (including wetlands), cultural resources, traffic and transportation, and air quality.

Other environmental review and consultation requirements for the proposed action include water quality certification pursuant to Section 401 of the Clean Water Act from the California Regional Water Quality Control Board; Section 7 consultation pursuant to the Endangered Species Act; and Section 106 consultation pursuant to the National Historic Preservation Act.

Scoping and Public Comment: All interested members of the public, including native communities and federally recognized Native American Tribes; federal, state, and local agencies; interest groups; and interested individuals, are invited to participate in the scoping process for the preparation of this EIS. Written comments identifying environmental issues, concerns, and opportunities to be analyzed in the EIS will be accepted for 30 days following publication of this Notice of Intent in the Federal Register .

The Corps will hold two public scoping meetings for the EIS. Notice of these meetings will be provided in local news media and on the project Web site (http://www.spn.usace.army.mil/regulatory/actionsofinterest.html) at least 15 days prior to the date of the meeting. Members of the public and representatives of organizations and Federal, state, local, and tribal agencies are invited to attend. Interested parties may provide oral and written comments at the meetings.

Jane M. Hicks,

Chief, Regulatory Division, San Francisco District.

[FR Doc. 2012–17595 Filed 7–18–12; 8:45 am]

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PROOF OF PUBLICATION
(2015.5 C.C.P.)
STATE OF CALIFORNIA
County of San Benito

I am a citizen of the United States and a resident of the County aforesaid. I am over the age of eighteen years, and not a party to or interested in the above entitled matter.

I am the printer and principal clerk of the publisher of the Free Lance, published on line, printed and published in the city of Hollister, County of San Benito, State of California. **TUESDAY, FRIDAY, AND ON LINE** for which said newspaper has been adjudicated a newspaper of general circulation by the **Superior Court of the County of San Benito, State of California, under the date of June 19, 1952, Action Number 5330,** that the notice of which the annexed is a printed copy had been published in each issue. Thereof and not in any supplement on the following dates:

July 31, August 3, 2012.

I, under penalty of perjury that the foregoing is true and correct. This declaration has been executed **ON August 3, 2012**
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Public Notice

Public Notice

US ARMY CORPS OF ENGINEERS
NOTICE OF PUBLIC SCOPING MEETINGS
Panoche Valley Solar Farm
ENVIRONMENTAL IMPACT STATEMENT

The US Army Corps of Engineers, San Francisco District (Corps) is preparing an Environmental Impact Statement (EIS) for the proposed Panoche Valley Solar Farm in San Benito County, CA. The Corps, as lead agency under the National Environmental Policy Act, will hold two public scoping meetings in support of the EIS process. Scoping provides the public the opportunity to identify environmental issues, concerns, and opportunities to be analyzed in the EIS.

Members of the public are invited to attend the scoping meetings to obtain information about the proposed project and to provide oral comments. Corps personnel will be available for informal discussions prior to the presentation of oral comments.

PUBLIC SCOPING MEETINGS

Tuesday, August 21, 2012
6:00 - 8:00 PM
(6:00 to 6:30 Open House, 6:30 to 8:00 Presentation and Oral Comments)
Panoche School, 31441 Panoche Road, Paicines, CA 95043

Wednesday, August 22, 2012
6:00 - 8:00 PM
(6:00 to 6:30 Open House, 6:30 to 8:00 Presentation and Oral Comments)
Veterans Memorial Building, 649 San Benito Street, Room 204, Hollister, CA 95023

Comments received at the meetings or submitted to the Corps in writing will be considered in preparing the EIS. Written comments should be addressed to: Ms. Katerina Galacatos, US Army Corps of Engineers, San Francisco District, Attn: Regulatory Division; 1455 Market Street, 16th Floor; San Francisco, CA 94103-1398 or e-mailed to: *spn.eis.panoche@usace.army.mil.* Please refer to identification number SPN-2009-00443S in all correspondence. The date by which comments must be received may be found on the Corps project website at:
http://www.spn.usace.army.mil/regulatory/actionsofinterest.html.

To obtain additional information about this EIS or the public scoping process, please contact Ms. Galacatos at (415) 503-6778 or at *spn.eis.panoche@usace.army.mil.*

Publish July 31, and August 3, 2012 F/11544655

US Army Corps
of Engineers ®
San Francisco District

Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

SAN FRANCISCO DISTRICT

SPECIAL PUBLIC NOTICE SCOPING MEETINGS FOR THE PANOCHE VALLEY SOLAR FARM

PUBLIC NOTICE NUMBER: 2009-00443S
PUBLIC NOTICE DATE: 08-06-2012

PERMIT MANAGER: Katerina Galacatos TELEPHONE: 415-503-6778 E-MAIL: spn.eis.panoche@usace.army.mil

The U.S. Army Corps of Engineers, San Francisco District (Corps) would like to notify you of its intent to prepare an environmental impact statement (EIS) for the proposed Panoche Valley Solar Farm in San Benito County, CA and to hold two public scoping meetings in support of the EIS process. Scoping provides the public the opportunity to identify environmental issues, concerns, and opportunities to be analyzed in the EIS. The Notice of Intent was published in the *Federal Register* on July 19, 2012, describes the proposed action and is attached.

Members of the public are invited to attend the scoping meetings to obtain information about the proposed project and to provide oral comments. Corps personnel will be available for informal discussions prior to the presentation of oral comments.

SCOPING MEETINGS

Date: Tuesday, August 21, 2012
Open House and Informal Q&A session: 6:00– 6:30 PM
Presentation and Oral Comments: 6:30–8:00 PM
Place: Panoche School, 31441 Panoche Road, Paicines, CA 95043

Date: Wednesday, August 22, 2012
Open House and Informal Q&A session: 6:00–6:30 PM
Presentation and Oral Comments: 6:30–8:00 PM
Place: Veterans Memorial Building, 649 San Benito Street, Room 204, Hollister, CA 95023

A court reporter will be present at the meetings to record all formal oral comments. If you require a reasonable accommodation at these meetings, please contact Ms. Katerina Galacatos at the phone number or email address listed in the letterhead above by Wednesday, August 15, 2012.

Written scoping comments may be mailed to the address in the letterhead above, or may be submitted electronically to *spn.eis.panoche@usace.army.mil* by Friday, September 7, 2012. Please note that this is a nearly 20-day extension from the date indicated in the attached Notice of Intent. Comments presented at the meetings or received by the Corps by September 7, 2012 will be considered in preparing the EIS.

You are receiving this notice because you have previously expressed interest in this project, or may be affected by this project. If you would like to be removed from this mailing list, please email the Corps at the email address above with REMOVE in the subject line.

From: CESPN EIS PANOCHE <SPN.EIS.PAnoche@usace.army.mil>
Sent: Monday, August 06, 2012 2:55 PM
To: CESPN EIS PANOCHE
Subject: San Francisco District, Special Public Notice, Scoping Meetings for the Panoche Valley Solar Farm (UNCLASSIFIED)
Attachments: Panoche Scoping Meetings Public Notice.pdf

Classification: UNCLASSIFIED
Caveats: NONE

Dear Interested Party:

You are receiving this attached notice because you have previously expressed interest in this project, or may be affected by this project. If you would like to be removed from this mailing list, please email the Corps at the email address below with REMOVE in the subject line.

For questions or to submit written comments, please contact:

Ms. Katerina Galacatos
U.S. Army Corps of Engineers, San Francisco District
Attn: Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398
Phone: 415-503-6778
Electronic mail: *spn.eis.panoche@usace.army.mil*

Classification: UNCLASSIFIED
Caveats: NONE

SCOPING MEETING TRANSCRIPT
AUGUST 21, 2012

PANOCHE VALLEY SOLAR FARM

ENVIRONMENTAL IMPACT STATEMENT

PUBLIC SCOPING MEETING

DATE: Tuesday, August 21, 2012

TIME: 6:30 P.M.

PLACE: Panoche School, 31441 Panoche Road
Paicines, California 95043

REPORTER: Lisa R. Maker
CSR License No. 7631

TRI-COUNTY COURT REPORTING
343 Cayuga Street
Salinas, California 93901
(831) 757-6789

A P P E A R A N C E S

CAMERON JOHNSON, JANE HICKS & KATERINA GALACATOS, U.S. Army Corps of Engineers.

ERIC CHERNISS, JOHN PIMENTEL & DANIELLE CRAIG, PV2 Energy.

DOUG COOPER & CHRIS DIEL, U.S. Fish and Wildlife Service.

MEREDITH ZACCHERIO, AMY CORDLE & JOHN KING, EMPSi.

Public: KIM WILLIAMS, RICHARD WILLIAMS, BOB MENDEZ, CLAUDIA KABLE, RANI DOUGLAS, DON DOUGLAS, COLLETTE CASSIDY, AL DEMARTINI, KATE WOODS, ROBERT MENDEZ & LARRY LOPEZ.

-oOo-

PUBLIC SPEAKERS

PAICINES, CALIFORNIA AUGUST 21, 2012

6:30 P.M.

PROCEEDINGS

MR. JOHNSON: Hi, guys. My name is Cameron Johnson. I'm with the United States Army Corps of Engineers, and I want to thank everyone for coming to listen to what we have to say. What we're going to do is kind of go through kind of the Federal Government Corps of Engineers role in the proposed project and have a chance to listen to some of the descriptions of the project from the project proponent and then we're going to have to chance listen to what some of you have to say regarding the project.

A couple things to note, we have a court reporter here tonight. The point of the meeting tonight is to hear from members of the public, and I know that some folks are very comfortable standing up and speaking and some folks aren't. And there are multiple ways that you can provide your input. Tonight if would you like to speak, you will be allowed to do so. If you would rather do so in writing, we also have comment cards and as I go through this, you'll see there will be additional points in the process of taking a look at the project like this where the public is invited to provide

input. So if you don't have anything to say or anything to add tonight, you will have additional opportunities as this process goes through.

Let me go through a couple of things. Just quickly the schedule, the first thing I want to do is a quick round of introductions. I know that the folks who live here are the public and you probably don't know the rest of us. So I would like to take an opportunity really quickly to have the folks who are not residents to introduce themselves. Again, my name is Cameron Johnson. I'm the South Branch Chief with the regulatory division of the Corps of Engineers.

MS. HICKS: I'm Jane Hicks, with the regulatory division in San Francisco of the U.S. Army Corps of Engineers.

MS. GALACATOS: I'm Katerina Galacatos, Project Manager also with the San Francisco District US Army Corps of Engineers.

MR. CHERNISS: I'm Eric Cherniss. I am part of the development team for Panoche Valley Solar.

MR. PIMENTEL: John Pimentel also with Panoche Valley Solar.

MR. COOPER: I'm Doug Cooper with US Fish and Wildlife Service. I'm the Deputy Assistant Field Supervisor overseeing the area including San Benito

County.

MR. DIEL: Chris Diel, Fish and Wildlife Services Biologist.

MR. JOHNSON: Meredith.

MS. ZACCHERIO: I'm Meredith Zaccherio. I'm with EMPSi and they are helping NEPA Process to help prepare the EIS.

MS. CORDLE: I'm Amy Cordle with EMPSi. I am the project manager.

MR. KING: I'm John King with EMPSi. I'm the project manager.

MR. JOHNSON: Introduce yourself.

MS. CRAIG: I'm Danielle Craig with PV2, Intern.

MR. JOHNSON: Thank you. Okay, so the first part of this is I'm going to give you kind of a brief description on the Corps of Engineers, who we are, why we're involved in this and what our role is and then we'll turn it over, let the applicant provide a brief presentation as well as the project that's being proposed. We'll wrap it up with the public comment part of anybody who would like to speak may do so.

Really quickly with regard to the public comment, this portion of this public part of it is designed for you to comment to the Corps of Engineers as

the lead federal agency. We are looking forward to hearing what you have to say. It's not intended to be a question and answer back and forth type of scenario. It's you providing us with input, and we're taking down that information and we use that information as we go through the decision-making process.

After the presentations are all over and everybody has had a chance to speak, my intention is to have everybody stick around for a little bit so if you do have questions you can grab us and ask those questions, and we can answer them. However, if you want questions that actually are part of the public record, you need speak or you need to provide those in writing, okay, so you can grab a comment card, provide them in writing or also in a comment period you send an E-mail to Katerina Galacatos and provide that comment to us. I'm not going to get used to this.

Okay, Who we are? The regulatory group of the Corps of Engineers isn't the typical group of engineers that folks usually think of. Usually when you think of Army Corps of Engineers, you think of the folks out there building levies. That's not who we are. The regulatory group is responsible for implementation of the Clean Water Act, National Environmental Policy Act and the Rivers and Harbors Act for the most part.

Program goals, and these are the national program goals, protect the aquatic environment, regulatory efficiency, fair and reasonable, timely decisions, no net loss of aquatic resources. This is relatively technical stuff from my prospective but maybe not from yours.

These are our authorities. Rivers and Harbor Act. The Rivers and Harbor Act of 1899 essentially is the law that started it all for the Corps of Engineers in terms of regulations on the environmental front. Basically based in navigations. For this project there is no Rivers and Harbor Act concerns. We're not doing any navigations.

Section 404 of the Clean Water Act, this is why we're involved. The Clean Water Act of 1972 requires that the Corps of Engineers regulate any placement of any fill materials into anything that's regulated waters of the United States.

Marine Protection Research Act. We're not doing that in this situation here.

The limits of our jurisdiction. This to be very straight forward. We're looking at around here things that we consider to be waters of the United States, creeks, rivers and ephemeral features that around here it's relatively arid. Even though we've got

stuff that most people in the State of California -- most people can look at and say, yeah, that is wetlands. Around here it's not quite as obvious. We have some wetland features in this valley that don't kind of jump out at you that are still regulated and we also have creeks and rivers that only flow part of the year that are also regulated. We look at those creeks and rivers and we do a delimitation of what's called ordinary high water marks. So we literally are going out in the field with pencil and paper and map in hand and verifying where the typical ordinary flow is in those ephemeral features in any given year.

Wetland boundaries. Again in this area in this part of the state a lot of these wetlands are very ephemeral. So they'll be around -- they'll be pretty clear during the winter months but not clear at all this time of year. We take a look at those in terms of three very basic criteria. We take a look at wetland soils. We look at hydrology, and we take a look at plants, and this is work that even though these things are completely desiccated this time of the year, we still take a look and evaluate and map them.

A typical slide, this is one nobody can argue about. When folks look at this, that's a wetland. Okay, so we've got a slough. We've got actually the San

Francisco Bay in the background, and we've got marshland on either side. I like to use this as a starting point because like I said this is a slide that nobody argues about. Everybody can view this slide and say, yeah, I can see ducks in there, right.

As far as the jurisdiction goes. We take a look at Rivers and Harbor Act jurisdiction is associated with a mean high water mark in navigable waters. So something like this slough, basically it's title you're taking a look at the center mean high water marks and that's where the Rivers and Harbors Act jurisdiction lies. That means as far as Rivers and Harbor Act goes work in here would be regulated.

For the Clean Water Act, it actually goes significantly further up the bank in many cases. And in tide areas, it's associated with the high tide -- high tide lines, okay. So for the Clean Water Act, jurisdiction is significantly wider and it would run significantly higher up slope. In addition to that if you've got wetland areas that are showing those three criteria that I talked about earlier soils, plants and hydrology, even if they're outside that high tide line, of course, we will regulate.

Okay, this is probably more what you guys are used to seeing around here. So here we have a typical

arid site where you've got a feature that doesn't have any water in it, but it does have clear bed and bank conditions. We've got a clear bed and clear bank, and we can go out and we can identify an ordinary high water mark on that feature. So during the winter months, we have water flowing through that thing and looks like something everybody would agree creates this kind of area like that. We would also regulate any place where there are wetlands adjacent to it. So even though the thing is completely desiccated, we can go out and evaluate and figure out what kind of plants. We figure out the hydrology. We can dig holes and figure out the soil conditions that we need to regulate. So this is what a map typically looks like associated with something like when we're done. We do this on plane view. So when we produce maps to determine what we're regulating under the Clean Water Act, that's essentially the map.

Okay, getting to the NEPA part. How does NEPA work? I just switched laws on you. I've been talking about Clean Water Act regulations is what the Corps of Engineers does. Clean Water Act, if somebody applies for a permanent that's considered to be a federal action. Any permit issued by the federal government is an action. Because it's a federal action, we're

required by law to implement NEPA, National Environmental Policy Act as well. And what NEPA does it requires the federal agencies to take a look at a whole bunch of public interest review factors. It requires the federal agencies to take into account any input from the public. And it also requires the federal agencies to consult with one another. So prior to 1969, there were a lot of instances where the federal government actions were actually directly conflicting with one another, and this forced the federal agencies to actually start to -- start to talk to one another. In this case for this project, the federal action is whether to issue a Clean Water Act permit. I need to be clear on that. What the Corps of Engineers is doing is deciding to issue a Clean Water Act permit. We're not making a decision on whether to issue a permit to build a solar plant. Okay, so the Clean Water Act permit is associated with those areas where they're going to impact the Corps regulated ephemeral waters. So those creeks that I showed you that are dry, we're looking at those areas. Because this is regulated under NEPA, we're also required to consult with other federal agencies which means the scopes of analyses get bigger. So because we're looking at the Corps of Engineers permitting very limited area, if there are other

concerns by other federal agencies that means we start to take a look at a bigger scope associated with the project, that's why we're here. This is an important piece. The Corps doesn't take an advocacy role. At the end of the day, I'm not invested in the project. We're supposed to take a look at all of the input, and we make a decision on whether or not to issue a permit based on the public interest review factors, okay.

Two major purposes, better informed decisions and citizen involvement.

These are the laws. The National Environmental Policy Act, the CEQA Regulations basically this was the law, this was the information from the federal government that said all you federal agencies need to actually comply with the law, and this was the Corps of Engineers version how we were going to comply with the law. So those were just the citations.

These are some of the public interest review factors. There is a part of the process we're taking a look whether we're going to issue a permit because we have an expanded scope. We're going to take a look at all of these things and these aren't all of them. So even though the Corps' got a small scope associated with Clean Water Act, we're required by law to look at all these additional public review factors. Some of these

things are going to be important, biological resources, threatened endangered species, cultural resources, geology and soils, environmental justice, noise, public health and safety, traffic and this is where we're -- a lot of these things are going to be reliant on public input. Some of these things we can take a look at -- whoops, pardon me. We can do our own studies, and some of these things a little more reliant on members of the public to inform us, okay.

How does NEPA work? Okay, the Corps of Engineers has different options in terms of taking a look at how to process the permit, and these are things kind of -- actually in reverse order. This is the simplest version. We take a look at a project and say this thing is excluded. This whole class of these projects, whatever, we're taking a look at doesn't even need NEPA review in categorically excluded projects. This isn't one of them.

The next step, the in between step is an environmental assessment where we're taking a look at the project and we're making -- after we review all of those public interest review factors, we make a determination what's called a FONSI, a Finding Of No Significant Impact, and we then turn around and issue a permit. So if we review factors and none of them meet a

threshold of a significant impact then we can produce that finding no significant impact and produce the permit. The highest one here -- whoops, this thing is going crazy. The highest thing in terms of analysis is an Environmental Impact Statement. That's where we are headed with the project. So what we're doing, we decided the project is likely to have a significant impact on one or more of those public interest review factors, and we're going to take a look at this in terms of doing an Environmental Impact Statement. An Environmental Impact Statement is a document to produce to inform the public. So we're requiring all the information. We use that information in making a determination on whether to issue a permit. An Environmental Impact Statement is a disclosure document.

Where are we in the process? We're right at the beginning. All right, Notice of Intent, that's the first step. Notice of Intent basically is what it sounds like. We send a notice out saying we intend to produce. An Environmental Impact Statement goes to the federal register. That was done on July 19th, thank you.

The next step is where we are right now, public scoping. This is where we take the initial run, having folks provide us with input, so we're here. We're

requesting comments. We've got a 30 day scoping period. You guys have 30 days to provide additional comments. If you feel compelled to do so, we then go into the production of the draft Environmental Impact Statement or we're taking a look at the public interest review factors. When the draft of the Environmental Impact Statement is done, there is a second comment. So we send out to make available to anybody who's interested in reading it, the Environmental Impact Statement and there's a second opportunity for folks to provide comment there as well. In the draft, EIS, it shows where we are in terms of decision making on all this public interest, okay. The final EIS, that's after review of everybody's comments, okay. We're identifying what the preferred alternative is and then finally there's a record of decision. Don't forget record of decision is whether the Corps going to issue a permit to fill.

NEPA review process, these are opportunities of public involvement. So we're at the beginning. After the comment period, after the final, you've got an additional opportunity.

Where are we in this process? We've got an application for a 404 permit, make a determination. We're looking at an EIS analysis. We issued the notice

of intent. We're in the scoping. Comments of the scoping period are due September 7th. Consider comments, again preparation. The rest of it is just the proposed scheduling. We're looking at the draft EIS, spring of 2013; final summer, fall 2013. Record of decision issued in the fall 2013.

How to provide comments? Again verbal comments tonight, written comments tonight; written comments any time between now and September 7th to this E-mail address or if you want to go really old school write a letter. You can do that as well and send it to Katerina right there.

Additional information is actually a website that the Corps' set up for this project specifically, and it will track all the information we've got coming in and where we are in the process and that is available to anybody who wants to view it.

Okay, that's the end of me.

UNKNOWN WOMAN SPEAKER: Can we get that website down?

MR. JOHNSON: Absolutely. The next part of this, Eric Cherniss is going to provide a description of the project. You need me to go back. He's going to provide a description of the project, and then we'll have an opportunity for everybody to speak. If you want

to -- if you have something you want to say verbally, we'd ask that you fill out a comment card and provide it -- who's going to take on the cards, Meredith?

MS. ZACCHERIO: Sure. Meredith will take them.

MR. JOHNSON: All right, Eric.

UNKNOWN FEMALE SPEAKER: Provide one more screen for the addresses.

MR. JOHNSON: Is that it?

UNKNOWN FEMALE SPEAKER: Is that one e-mail?

MS. ZACCHERIO: The E-mail address are on the comment cards that are available up front. Take one of those.

MR. CHERNISS: Hi, everyone. I'm Eric Cherniss. I work for PV2 Energy, and I'm with the Panoche Valley Solar Farm.

Okay, so what we have here is just a lay out when we went through the CEQA process with San Benito County, and this was the layout that came back. This is revised alternative A. We completed a CEQA process and that project with all the mitigation measures and then went in the federal process where we are at today.

Here are the 399 megawatt project which was approved by San Benito County. You see the division line running through. You can see Panoche Road actually just south this is -- running the Southern part of the

project site, and you can see where the panel is moved up. Panoche Valley is the Southeastern portion of San Benito County just west of the Fresno County border.

Okay, a couple things that have happened probably the last time since we had a public meeting. The project has been contracted with Duke Energy and so what we have here is you've got Duke Energy and what we have here is Duke Energy the corporate and then the project is a joint venture with Duke Energy Renewables division on building wind and solar farms across the U.S., not just in California or any one location.

So couple facts about Duke. Duke has about 7.1 millions customers, and their headquartered in Charlotte, North Carolina, and they have been operating for about a hundred and 50 years of service; Fortune 250 company. They have just under 30,000 employees; 58 gigawatts or 58,000 megawatts of energy, the parent company is underneath it and they have around -- that's the equivalent of a hundred billion dollars of actual assets. So they own a bunch of stuff all over the U.S. And this is the parent, so they did a merger with a company called Progress Energy which is another utility kind of ground together over time, and Duke Energy is at the corporate level. What they have is a renewable energy group which is not necessarily part of the same

group that delivers energy to customers. They go out and they build and own energy projects whether it be the renewable site solar like we talked about around the U.S. So they're a wholly owned subsidiary of Duke Energy and the folks own wind and solar PV projects. They have 1.1 gigawatts of operating capacity and just under another gigawatt which is being constructed right now. So not quite as large as the whole portfolio but they've been kind of moving the amount of generation they have and focusing on renewables in the U.S. and their stated goal of having three gigawatts of power and renewals by 2015 built and constructed and generate electricity. They've put in about three billion dollars of capital since 2007. The majority of that has actually been toward wind because of the way the subsidies work the wind business is taking off and now at the end of this year that ends. They're focusing more on additional resources on solar.

And so I think, let me go historically Solargen proposed this project and most people in the room recognize the name Solargen. What happened is in 2011, we have that Solargen -- so they were developing this project. They had rights to certain land, and they had a number of environmental surveys that were conducted since 2009 timeframe and so PV2 Energy actually acquired

the assets of Solargen, continued developing the project as a whole. And PV2 Energy did a joint venture, created a separate company where PV2 Energy was part of it, and Duke Energy Renewables was part of the company, and they called that Panoche Valley Solar, LLC, so that's really at this point in the process is the applicant and so when you see this I want you to understand it's kind of essentially the Solargen and Duke Energy, Solargen called PV2. I apologize if that's a little bit confusing. I want to make sure you understand the names seem different, a lot of it is actually kind of the same. And so you have 14 renewables, 14 operating wind facilities and a number of -- 11 operating solar facilities. We've got a couple in California on hospitals -- roof tops of hospitals and other things and PV2 and myself and John and some other people focus on the development side in California.

Just quick overview. Site control, so this is the footprint of the land that is controlled by the project, approximately 26,000 acres, and you have about 2500 acres which will actually be utilized for the solar farm itself and about 23,000 acres for mitigation for, you know, equal amount 9.1 conservation for every acre that is impacted on the solar facility, we'll put in approximately nine acres aside for mitigation for

different activities. It is located in San Benito County, California.

As far as the solar resources, everybody realizes we have a very strong solar resource here. We spent a little bit of time studying that, what generates the electricity for us. It's about 90 percent of what the Mojave Desert has from a natural solar resource.

As we all know, we're above the San Joaquin Valley and we actually get significantly less fog here. We don't get the valley fog but we also don't get the coastal fog coming from the Hollister area and the marine layer.

And transmission. One of the reasons why the project was sited here, we are a little bit north of the valley, Moss-Panoche and Coburn-Panoche transmission lines coming through. So those lines actually originate in Moss Landing and come all the way in the Panoche substation to just on the other side of Highway 5 follow out Panoche Road.

And permits, we had completed the CEQA Environmental Impact Report process. We had the CEQA signed by and a development agreement and Williamson Act contracts that were canceled that were completed at the end of 2010 with the County of San Benito.

These are things that don't necessarily pertain

to the federal process but we're in a public environment and I wanted to get a chance to reiterate a number of public benefits that have been enumerated by the development agreement. So the project and the County of San Benito have an agreement of how they're going to interact with this project in going forward with the life of the project. So one of the benefits hundreds of construction jobs, priority hiring for San Benito County residents, something that was import to the County Board of Supervisors. Solar training in coordination with One Stop Career Center which is over by the airport in Hollister. An annual contribution to the San Benito County general fund as per the development agreement. So there's monetary benefit to the County of San Benito.

The Land Use Resource, 23,000 acres of mitigation land. So 9.1 conservation to use mitigation ratio. There's nine acres of land that's being set aside permanently to cancel out that impact. We conserved the Silver Creek Ranch which is right about where the road starts to turn to a dirt road on Panoche, on the east side and west of the side -- on the east side of the road or Southern side of the road is the Silver Creek Ranch abuts and BLM surrounds it on two sides.

We did about 20,000 hours of environmental

surveys out in this valley. A lot of it was due to biological resources, but we were also looking at geological resources, drilling holes out there, trying to understand not only what the solar was on the top but as it goes down I think some people heard we had a pump test where we were pumping the wells and trying to stress the aquifer that was under the ground. If we were to draw water out, how could we do that in a sustainable fashion, and how could we do that in a way where we don't impact the aquifer permanently? You have to understand what happens in those two events.

Environment benefits. Enough power for 90,0000 average homes. We displaced 250,000 CO2 annually and when you view this calculation; we're looking at a -- compared to natural gas, if you look at the pollution that's produced by energy. You have coal at the top which produces. California has done a pretty good job when it comes to natural gas which is a cleaner resource and solar is from an operational standpoint about as clean as you can get. And so by going from natural gas which is lower here to solar, we're saving 250,000 tons of CO2 annually, equivalent to taking about 49,000 cars taken off the road. And I guess one other point no water is being used to generate electricity on this project.

Relatively quickly is an estimated timeline of the project. We started doing work in 2008 and 2009. The project was proposed by Solargen. We've been going through 2009 to 2013, going through the permitting process and so we have the Environmental Impact Report which was certified in 2010; and 2013, we expect an interconnection agreement with California ISO. They're the guys don't own the physical transition lines but they operate how energy flows on those lines. So not only do we need a permit for construction, we need a permit to put our energy on. And then 2013, in the construction time frame, we have to have a power purchase agreement to sell the power to utilities that will sell it back to residents and commercial cities and this is when we expect in 2013 to have the job fairs and 2014, we expect to start construction. These are estimated jobs before we start construction. Maybe start construction at the end of '13, maybe at the beginning of '14, it will be around that time frame drive the execution on the exact time. And then 2016 on, we're going to have operations. It's one of the reasons why we did a joint venture with Duke. Duke, when they come into the project they're not part of the development site or the construction cycle, they're also part of the long-term ownership. They own 50 or a

hundred percent of their projects. They're the guys that are going to be here for the long haul and so we are spending a bunch of time with them recently in Hollister and with the County Board of Supervisors introducing them around and that's all I have slide wise. Thank you.

MR. JOHNSON: Okay. So again guys, the operation is an opportunity now for folks to have a chance to make public comments. If you would like to do so, please fill out a public comment card to Meredith. Want to make public comments, we ask that you start with your name and any affiliation you my have and you're free to make comments. Again, it's not designed to be a question and answer period. We need to be able to make a clean record.

We will stay following public comments and allow you guys to ask questions if you have them. With that being said, I'm not trying to put anybody on the spot or anything.

MS. ZACCHERIO: Comment cards. No one has signed up to speak, a lot of questions marks. People who would like to speak --

MR. JOHNSON: Again, if you want to do something in writing, feel more comfortable with that, you're free to do that as well. Submit something to

Katerina by E-mail or tonight on a comment card in writing if you want.

MR. DOUGLAS: I don't have to --

MR. JOHNSON: Can you state your name.

MR. DOUGLAS: I'm Donald Douglas. I own a ranch right down here, and I train horses out in this valley. I ride all through these hills. If you guys look out there at some pristine lines, and it's good soil, last one soil and if you cover it with solar panels, it's going to be no good in 30 years. I guess these guys aren't going to buy here to clean up. I'm thinking 30 years down the road going to be a mess and solar panels can be made in China. What good do they do anybody if they're obsolete already? This is an insane project. This is good soil. You don't want to cover it up with solar panels. And same thing, mine that mercury and left a mess behind, and I think that's what they're going to do. There's already some land out there in the valley. They already destroyed by solar, put it down there. The lines are down there. Shouldn't be here. That's my comment.

MR. JOHNSON: State your name.

MS. DOUGLAS: Rani Douglas, and I live on the Douglas Ranch. And when Aspen Environmental was doing the first studies, environmental studies, they were

asked to rush it as fast as possible, and I want to find out what your time frame is and if you have any pressure on you? What is a typical timeframe? It was supposed to be a year or more for the project this size and they rushed it through in nineties days. What is your time frame and what's a typical timeframe on a project this size?

MR. JOHNSON: Okay. We're not supposed to be taking questions. I'm going to address it anyway. What you're asking is not specific to the project policies and our process. Typically with a project of this kind of scale, the critical path is associated not usually with the Corps of Engineers permit but with the agency -- consultation of other agencies. So on a project of this kind of scale, we're looking for a consultation with the U.S. Fish and Wildlife Service and potential -- something on statements or preservation on statements on this as well. We're not allowed to issue permits unless those processes are done. So the U.S. Fish and Wildlife has to issue a biological opinion. There needs to be a companion permit from the Regional Water Quality Control Board 401 certification also have to come in before we're legally allowed to issue a permit. So the time frame question is a big giant question mark. Some times if those other things come in relatively quickly, then

we can turn around our permit decision relatively quickly as well and sometimes it can take years. I don't know because we're dependent on other agencies' actions. Does that make sense?

Anybody else like to speak?

MS. KABLE: I would. This is what I have.

MR. JOHNSON: Your name.

MS. KABLE: My name is Claudia, last name Kale, K-a-b-l-e and I live on Panoche Road, and I'm very, very concerned about this project because of the amount of traffic that it's going to bring to these roads which is almost impassable now, very dangerous and treacherous and not maintained. They're also not only not maintained they also -- no proper road signs. You don't know which way you're going when you're coming to a dirt road at the end here, and my husband and I are getting sick and tired of carloads of people coming to our place saying how do I get here and how do I get there, and the traffic has increased. I don't know why but it's a little harrowing and I don't appreciate it.

I came here for the privacy and for scenery and to do gardening and to live peacefully and have a place for my grandchildren to come and spend -- learn about the old west and these kinds of ways of living, and I don't want a project to come here and disrupt my life,

my grandchildren's lives, the traffic in the valley. Noise is going to be horrendous. I don't want to have migraines which I get. I don't want the noise to bring on migraine headaches. I'm concerned about the children in this school having to put up with traffic and noise.

And I'm very concerned about my well, the underground aquifer here is very sensitive, and I think that anyone dittling with any water anywhere in this valley has to be very closely monitored and regulated. It's our life and without it we won't live. We won't be here. We won't farm. We won't have any crops. We won't have any animals and our wells are just so deep. So anyone pulling water out of this aquifer is going to be a big deal. And if this project is going to be buying a lot of land in this valley, they're going to have a lot of water under their feet, and I'm concerned about their possible intension for the future for the water in this valley. It's a big fear I have, not just what they're going to be doing to the land, to the animals that live on this land and the plants that grow here, what are they going to do with the water when let's just say solar energy becomes obsolete, their panels go bad and they want to do something else. They're going to own a lot of property, and they're going to want to make money, and they're not going to

want to put cows on it to make that money. That's another one of my concerns. I have a lot of concerns and all of us who live here have a lot of concerns like that which is why we don't want that project here.

This is a viable place to live and work and earn a living or retire and it's going to be totally disrupted, totally turned upside down from this project and some people are saying how can we even continue to live here alongside this project, this noise and cars going up and down all over and people all over the place and possible damage to the environment and that's my comment.

MR. JOHNSON: Thank you. Anyone else? Yes.

MS. WOODS: I'm Kate Woods, and I live in New Idria, about 25 miles away. I've been here about 32 years, and I live with the legacy, the filthy legacy, of what New Idria Mining Company did to the San Carlos Creek and all of our water up in New Idria and Vallecito and how it's never been cleaned up. So I'm a little fearful of this myself. The biggest thing I'm thinking of right now I used to be an environmental and political reporter around these parts for about a decade or so and I'm just wondering why they picked Panoche Valley which is such a stellar example of sustainable farming and ranching at this point. Over the last 30 years, I've

seen it become like the best example of that in the nation. Why can't they put this thing down in the trash fields of Fresno? I mean I just don't understand why they're going to take such perfect, pristine land and make everybody suffer for this, but you know, I may be a day late and dollar short with my comments and I guess this thing is getting on the way, but those are my concerns.

MR. JOHNSON: Thank you.

MS. CASSIDY: Here is my card.

MR. JOHNSON: Your name for the court reporter.

MS. CASSIDY: My name is Collette Cassidy. My husband is Ron Garsly (phonetic) and I own a farm down the road. We have a dairy of about a hundred 50 head of cattle and I'm not really sure what the difference between this meeting is and all the other meetings for the other permits. I don't really see the point of Army Corps of Engineers being involved and that may be my naivety or I just don't see from jurisdiction that there's any viable waterways here in the high desert here. There are creeks when it rains which it doesn't do very often, only occasionally. They certainly don't become waterways so it kind of seems like a ruse but maybe it's easier to get the project through with Army Corps involved. I don't know, it seems like fish and

wildlife is more relevant as far as endanger species and everything. But, you know, what I said in the other meetings is that the real endangered species are the farmers and ranchers in this valley that some of whom are, you know, carrying on traditions that have been around for a long time, and I think that this project will have an impact on our business, you know, particularly concerned about being downwind and all the construction and you know, wind really blows through here. So anything that's happening up valley is going to be happening on our place, and so I don't really know. We've been one of the main ones fighting the project, you know, financially, energy wise, time wise, and I suppose we'll continue to do so. We're not very happy about it. You know, I mean we -- I agree with Don Douglas, there are more appropriate places to have this project. This is a pretty amazing valley. It's been this way forever. Basically it's the same as it was a hundred years ago, and they're not very many places probably in the country where you can say that and that's a valuable thing. You know, it's not just like we don't want any change. We all know about change; but yeah, there's some things that you don't want to change that are worth preserving, and we think that the Panoche Valley is one of them.

MR. JOHNSON: Okay, thank you. Anybody else? Okay, we will stick around so -- did you want to say something?

MR. DEMARTINI: Yeah, I think might as well. I'm not really a resident, Al DeMartini. I'm a birder. I couldn't make tomorrow's meeting so I was coming through on my way to the Sierras. So my heart goes out to the people who live here because I go up and down the whole west coast, and there really isn't another place like this that I'm aware of. I used to live in Hollister, and I've birded here over the last 20 years and I love the place both for its people and what they do here and the wildlife. So I see it on both sides, but I'll stick to what I know about the wildlife, 20,000 hours of surveys. Correct me if I'm wrong, I remember it was a rush job and a lot of things were surveyed in the wrong season. I don't know if fish and wildlife can comment on that. The hours look more impressive than the reality as I recollect. I think it really needs to be gone over by all the agencies with as fine as tooth comb as possible because of the various things that will be affected, people, wildlife, uniqueness of the area. Thank you.

MR. JOHNSON: Okay. We'll, stick around. We're supposed to be around until 8:00 o'clock. My

intention is for us to be here until 8:00 o'clock in case anybody else would like to talk. Again, if you have any additional comments you want do in writing, please do so. We're going to look at them.

MS. CASSIDY: Could I say one more thing?

MR. JOHNSON: Sure.

MS. CASSIDY: I don't know a lot about Duke Energy but there was Duke Energy and then Duke Energy Renewables, so I'm assuming that, you know, most of what made them a really big company is coal, and I mean that's what we get most of our energy from. You know, I think that most of these solar projects wouldn't even be happening if it wasn't for the politics and the government money; and you know, and that's the only thing that really makes it viable is the government money and so I don't know. I mean just think about that one. It's not -- it's not -- I mean I guess I think Duke Energy is going to get a lot more bang for their buck, not any solar. And this project would not be happening unless Solargen was lining up for the government handout.

I just want to add one more line to my thing. I would be really surprised if anyone here were against means of an alternative energy. I mean I know that I feel that solar and wind and any other alternative

energy is very important in this nation. High time we did it, this is just such the wrong way to do it in this precious spot in this way. That's all I wanted to add. Thanks.

UNKNOWN FEMALE SPEAKER: Are we going to ask questions after the comment period?

MR. JOHNSON: You can stick around and ask questions of me representing the Corps, Katerina, James, Wildlife Service, the proponents of the project.

UNKNOWN FEMALE SPEAKER: Not as part of this?

MR. JOHNSON: No, because we had difficulty with the recordation part of it. So if you want to ask questions, that's fine; and if it triggers additional comments, you can do those in writing as well. So they'll get onto the record.

UNKNOWN FEMALE SPEAKER: If we want more comments, add more things, we can do it in one E-mail and one letter and list everything we want to say.

MR. JOHNSON: Yes, you can.

MR. DOUGLAS: One question as far as the Corps of Engineers, if water goes into the site that they plan, would they want to put panels there?

MR. JOHNSON: So --

MR. DOUGLAS: I've seen that whole valley flooded for miles across one time.

MR. JOHNSON: So you're asking a question with regard to the Corps jurisdiction?

MR. DOUGLAS: Is that your jurisdiction?

MR. JOHNSON: No, the jurisdiction is the ordinary high water marks. The flood, we don't have in terms of establishing that. It's the typical, what we expect to see in a typical rainy season.

Okay. All right. Thank you very much folks. And like I said, we'll be here if you have additional stuff.

(Whereupon the record was closed at 7:30 p.m.)

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STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

I, LISA R. MAKER, Certified Shorthand Reporter of the County of Monterey, State of California, do hereby certify that the foregoing pages, 1 through 38, comprise a full, true and correct transcription of my stenographic notes in the aforementioned case of the proceedings held on August 21, 2012.

Dated this 21st day of September, 2012.

LISA R. MAKER, CSR 7631

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SCOPING MEETING TRANSCRIPT
AUGUST 22, 2012

PANOCHE VALLEY SOLAR FARM

ENVIRONMENTAL IMPACT STATEMENT

PUBLIC SCOPING MEETING

DATE: Wednesday, August 22, 2012

TIME: 6:30 P.M.

PLACE: Veterans Memorial Building
649 San Benito Street, Room 204
Hollister, California 95023

REPORTER: Lisa R. Maker
CSR License No. 7631

TRI-COUNTY COURT REPORTING
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A P P E A R A N C E S

CAMERON JOHNSON, JANE HICKS & KATERINA GALACATOS, U.S. Army Corps of Engineers.

ERIC CHERNISS & JOHN PIMENTEL, PV2 Energy.

DOUG COOPER & CHRIS DIEL, U.S. Fish and Wildlife Service.

MEREDITH ZACCHERIO, AMY CORDLE & JOHN KING, EMPSi.

Public: VALENTIN LOPEZ, KEVIN DAVIS, MAXINE DAVIS, SUSAN BISKEBORN, LARRY RONNEBERG, SHANI KLEINHAUS, PATRICIA MATJCEK & NENETTE COROTTO.

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PUBLIC SPEAKERS

HOLLISTER, CALIFORNIA AUGUST 22, 2012

6:30 P.M.

PROCEEDINGS

MR. JOHNSON: Hi, folks. Is this thing working? I have to hold it really close.

Well, welcome. Thank you, everyone for showing up this evening. My name is Cameron Johnson. I'm the South Branch Chief with the regulatory group with the Army Corps of Engineers up in San Francisco. And you guys I'm assuming all know why you're here, right? The Panoche Valley project is what we're going to present on tonight. In particular, we're going to present on the role of the federal government in the process with regard to the project, the National Environmental Policy Act, the Clean Water Act and we some additional folks here from the U.S. Fish and Wildlife Services as well.

I want to kind of give you just a brief overview of what we're going to be talking about tonight and kind of talk about what the point is, why we're here, why I am giving a presentation to you and why you're listening.

The first part was just what we're going to do. A lot of people have been legitimately asking me in the past two days, why is the Corps of Engineers involved?

So that will be the first part, I will explain why the Corps of Engineers is involved, and why there is a permitting requirement and what our obligations are associated with that.

I'm going to go through the basics of NEPA and where we are in the process with regard to NEPA. We'll have a quick presentation from the project proponent as well and then at the end we will have an opportunity for any of you to provide public comment, and I want to stress before we even start that that really is the point of this evening is to get public comment. The National Environmental Policy Act basically requires the Corps of Engineers to seek input from affected parties or people who have something to say. We have not made any kind of decision associated with the project and that's the idea is that you have a chance to express yourself.

What you need to get out of tonight is you've got multiple opportunities to do that. So if you are somebody who wants to speak tonight, you will have that chance. If you are somebody who doesn't want to speak but wants to put something down in writing, you have that opportunity at well, and you will also have opportunities to provide additional input via E-mail if that's the way you would like to do it, and there will

be additional opportunities as we get further along in the process as well, okay.

Okay, quickly who are we and what's the point? The regulatory group of the Corps of Engineers has these basic program goals. So I want to present you these just so you have an idea what it is we're doing and why.

We have an obligation to protect the aquatic environment, enhance the efficiency, make fair, reasonable, timely decisions associated with permit application and achieve no net loss of aquatic resources. So this is all going to be wrapped up this evening in the Clean Water Act, and I'm going to show you some of that as well.

Is this thing working okay? I feel like I'm going in and out. I can't hear very well.

Okay, basically authorities for our regulatory group. It started in 1899 with the Rivers and Harbors Act. I present this but this because we have that obligation, but this project has nothing to do with the Rivers and Harbors Act. So I'm going to put it out there just so you know. I'll have folks ask about that is there a Section 10 permit? There is not a Section 10 permit. The Rivers and Harbors Act has to do with navigation and protection of navigation. The Clean Water Act, Section 404 of the Clean Water Act is the

permission application we have in our office, okay. And the third law is the Marine Protection Research and Sanctuary Act. We obviously do not have a Marine situation here so that one does not apply here either.

Limitations of jurisdiction. For those of you guys who have been on the site or driven through the site or passed through the site, it's a very legitimate question to wonder how the Corps of Engineers would be involved and I'm going to go through that really quickly.

We have an obligation to process permit applications pursuant to the Clean Water Act for anything that could be considered a jurisdictional water of the United States. And some of these waters of the United States in the more traditional form are very easy to understand and some of them are a little bit more subtle. Navigable waters, interstate waters, tributaries, all waters which could affect interstate commerce. There's a tie back to commerce. In this case there are ephemeral drainages on the site that have a ultimate drainage pattern that takes to the San Joaquin River which is considered to be a navigable water. In this case, we have tributaries to navigable waters, and that's how the Corps winds up with jurisdiction over this thing. We take a look at the ordinary high water

mark. A question last night, hey, there are parts of this entire valley that floods, how come the Corps doesn't take jurisdiction over the entire valley? We only look at the ordinary high water mark, the expected high water event during most winters. So when you've got features that are ephemeral, wash through, we take a look at where that line is, okay. Wetland boundaries, we also take jurisdiction over wetlands, so things that are easy to understand as wetlands, those are the ones that nobody argues about.

When we get into these arid regions, we have wetland features that don't look quite like wetlands but they are. When we take a look at wetlands, we actually have three criteria that have to be met: Hydric soils, wetland plants and wetland hydrology. What that means is that we've got wetlands on sites that are in very arid regions. We could go out this time of the year and we can dig holes and we can identify hydric soils, those soils that are typically found in wetland situations where there's anaerobic conditions. We can identify wetland plants and we can identify the hydrology. We map these things all year long.

Okay, typicals. For this part, this slide I always present this slide to folks because this is the one nobody can argue about or typically nobody wants to

argue about. This is the stuff that people look at and everybody can agree on. And this photo actually what you've got the San Francisco Bay in the background. So nobody argues about whether that is navigable either and I use it because it's a got a slough that runs down the center, and it's got very obvious wetlands. Let me show you how the mapping would turn out on something like this. So the high tide line -- I'm sorry, let's start with the mean high water line that's basically the slough. The mean high water would be the limits of the jurisdiction associated with Rivers and Harbors Act, so basically can float a boat on it. You can put a boat on it.

The adjacent wetlands where you see the high tide line and the abutting wetland, that stuff is additionally regulated under the Clean Water Act. At the highest high tide line, Clean Water Act jurisdiction begins and anything adjacent to it it qualifies that those three wetland criteria also is regulated under the Clean Water Act. More pertinent example in arid areas, you've got features that look like this that don't necessarily have water running through them that are still jurisdictional waters of the United States. So if you pass by features like this, water may be running through this thing a matter of a few weeks out of every

year and some years there might not be any. But if it's got obvious bed and bank conditions, and it has an ordinary high water mark essentially the flowing water is what's creating those beds and bank conditions; and if it's tributary to the jurisdictional navigable water we take jurisdiction over those as well. In addition if you looked at the side that's kind of a green area, if you do dig the soil pits and you can identify the plants on those things, those are abutting jurisdictional wetlands as well. When we do our maps, this is an oblique view. The maps are in plane view. We wind up mapping something that looks like this and in the case of the project that's being proposed, we wind up with things -- features that look more like this than the San Francisco Bay.

A question? Sure, I suppose so. Let me start -- I'm going to take your question, but let me start by saying when we reach the end of the thing, everybody will have a chance to speak and the object tonight is get everything down with the court reporter. It's designed to be more of you stating opinions and concerns. It's not supposed to be a back and forth. I know it's a technical thing.

But what is your question? I'll be happy to take it.

MS. KLEINHAUS: How often does the water from Panoche Valley get through navigable waters actually gets --

MR. JOHNSON: How often, the frequency? That's a great question. When we initially mapped this thing, we struggled with that in the San Francisco office because when we were looking at the features on site, we were having difficulty making that ultimate connection and in fact our office went so far as to start to think that they weren't making the connection at all. We consulted with the Environmental Protection Agency and they said wait a minute, wait a minute, we actually have conclusive evidence of that, and they gave us their report, and we actually went out in the field with the EPA, they showed us those lines. So what we have to be able to show that you've got something that meets all the bed and bank conditions or meets wetland criteria and ultimately has the connection, we were able to map connection.

MS. KLEINHAUS: And that's going to be in the EIS?

MR. JOHNSON: That will be part of the EIS record, yeah. That's how the Corps' established jurisdiction.

MS. KLEINHAUS: Is it online or anywhere to see

it already?

MR. JOHNSON: I will get to it shortly. Yes, there is a website that will have all the pertinent information for the project.

THE REPORTER: Get her name for me, please.

MR. JOHNSON: What was your name, I'm sorry, for the record?

MS. KLEINHAUS: Shani Kleinhaus with Santa Clara Audubon Society.

MR. JOHNSON: Thank you.

Okay, NEPA overview. So just so we're keeping track, I just switched gears. I switched laws on you. The Corps of Engineers established jurisdiction under the Clean Water Act or Rivers and Harbors Act. As a part of the processing of the Clean Water Act permit, we're required by the National Environmental Policy Act to do a couple of things.

Number one, we're required to consult with other federal agencies, and this came about because back in the sixties there were cases where you've got federal agencies that have competing federal interests that were issuing permits were contrary to the brother and sister federal agencies. So now we're required, the federal government is required on any federal action to consult with other agencies within the federal government that

may have a concern.

The other thing dropping right down at the bottom is it gives -- it requires the federal agencies give the public a chance to comment and express concerns. NEPA documents are designed to be disclosure documents. So they allow folks to express their concerns. The federal agencies are required by law to consider those concerns prior to making any permit decision.

Now one of the key points, the federal action in this case is a permit from the Corps of Engineers whether the Corps of Engineers will issue a permit for impacts to those federal features on this project site. The Corps of Engineers is not issuing a grading permit to go out and build a solar plant, okay. The Corps of Engineers' decision is whether or not to issue a permit to impact ephemeral water. It's associated with bridge projects; but because of NEPA, the Corps is required to consult with the other federal agencies, okay; and in this case, we have had other federal agencies who have some concerns, and we have made the decision that the other concerns that are out there require us to take a broader look at the entire project. So ultimately the permit is associated with the Clean Water Act only, but we're required to consider the entire project, so that's

where we are. We've got two federal agencies involved, the Corps of Engineers is the lead agency and the U.S. Fish and Wildlife Services is the cooperating agency. We have Doug who is from the U.S. Fish and Wildlife Services. Do you want to officially explain your role?

MR. COOPER: Hi, good evening. As Cameron mentioned, my name is Doug Cooper. I'm with the U.S. Fish and Wildlife Service in the Ventura Fish and Wildlife office. I supervise the portion of our office that has jurisdiction over Santa Cruz, Monterey, San Benito and the northern half of San Luis Obispo County.

As Cameron mentioned, the federal action in this case is the decision whether or not to issue a Clean Water Act permit. NEPA requires that they evaluate affects to the environment. Also the Endangered Species Act requires that a federal agency when undertaking an action consult with the Fish and Wildlife Service to evaluate impact to endangered species. We have recognized that there are a number of endangered species that occur on or around the project site, and the Army Corps of Engineers has requested that we assist them with our biological expertise and technical assistance in evaluating the project's potential impact on these species, so we are doing that under NEPA. That's the process we're looking at today,

beginning today and we are also evaluating the impacts of the project in a parallel analysis under the Endangered Species Act. So that will be a separate analysis but it's parallel and essentially joined to this NEPA analysis. So the Corps is the lead agency. We are functioning as a cooperating agency to assist them in the biological aspects.

MR. JOHNSON: Thank you.

Okay, these are just the laws. NEPA 1969, the CEQA regulations came out shortly after NEPA that required all the federal agencies to develop their protocols for implementing NEPA, and the last one is the citation for -- specifically for the Corps of Engineers implementation of NEPA. So we have our own set of guidelines, tells the Corps of Engineers how to go about doing that.

As a part of any NEPA analysis, and we have to do an analysis of public interest review factors. In every single permit that is issued, we have to do an evaluation of all these public interest groups. In fact, these are not all of them.

In the case of Environment Impact Statement, it can be a very in-depth analysis. Okay, air quality, biological resources, threatened endangered species and in particular that's why you have the fish and wildlife

services involved, cultural as well, environmental justice, geology, noise, public health. There are a lot of things that need to be addressed on each of these reports.

How does NEPA work? Well, we take a look at these projects and in general we do a first run analysis of them, and we have to make a decision as a federal agency how much additional analysis needs to be done prior to us making a permit decision, okay. This slide actually should be turned upside down, I think because the categorical exclusion basically means that you've got a project that doesn't need to have further additional analysis. If that's the case, we're typically able to then issue our federal permit, our Clean Water Act or Rivers and Harbor Act permit.

The next step in between is an environment assessment. We go through all those public interest review factors. We write a relatively brief assessment, and we're able to issue a permit with any of these permit actions, we're required to consult with other federal agencies where it is necessary.

And in the third case Environmental Impact Statement. That's the big disclosure document. That's where we are with this project. In any case where we've got a project where we've decided that there's a

potential for a significant affect on any of the public interest review factors, we typically go to that level.

This is how the process works. We start with a notice of intent. Notice of intent for this project was published in the federal register last month I believe on the 17th, I believe. We're right at the beginning of the scoping process. The biggest part of the scoping process is what we're doing right now. We're asking for members of the public. We're asking for members of other federal agencies. We're asking for anybody who has any kind of stake or concern to let us know what we should be taking a look at. If don't go down on record, then we often times will miss something. It's not because we are intentionally missing something, it's because we didn't know. We take a look at the most complete record that we can.

So the public scoping process which we're in right now. You've got 30 days to provide comment, again you can do that tonight. You can do that in writing or you can do that by E-mail later on. Production of an Environmental Impact Statement, we consider all the comments we receive. We take a look at all the studies and we try to come to permit -- we try to come to a decision whether or not the project will be approved.

There's an additional comment period upon

publication of the draft Environmental Impact Statement which is 45 days. An additional public hearing associated with that, so we will be back here again upon the publication of the draft EIS and then there's a final and ultimately there is a record of decision. Three distinct points during the process where you guys will have an opportunity to provide input.

Where are we in the process? Well, we've got an application for a Clean Water Act permit. We made the determination that upon the initial review that we have a project that has a potential for significant impact to public interest review factors, and we are starting an EIS process. We're right in the middle of the public meeting process, okay. Comments due September 7th, I think I put this on the presentation on three different locations and also on the comment cards as well. Okay, so we'll take a look at comments. We're expecting if everything goes smoothly, a draft EIS will be available in spring 2013 sometime and final in fall of 2013 followed by the ultimate record of decision.

Okay, again comments September 7th.

MS. KLEINHAUS: I'm sorry, we already submitted comments. Are those still going to be included or do we have to resubmit them?

MR. JOHNSON: I think the comments you may have

submitted previously may have been for the California Environmental Quality Act or was it associated with --

MS. KLEINHAUS: Those were scoping comments that we submitted to Katerina I think in March 2011.

MR. JOHNSON: Public Notice.

MS. KLEINHAUS: So we need to resubmit?

MR. JOHNSON: You can chose to resubmit those. Those comments are associated specifically with the Clean Water Act permit, so if you want to add additional stuff or consideration during the NEPA process, you may do so. If it's the exact same set of comments, you don't necessarily need to do so. They're part of our record.

Okay, one of things I want to make clear I didn't hit earlier in the presentation is the Corps of Engineers is not a proponent for any application. So we take these applications, we run them through a process. If we have folks who have projects who meet all of the permitting requirements and ultimately meet the test under NEPA and the Clean Water Act, we issue permits; but we don't promote projects and we don't oppose them either.

Okay, we have a website set up and our intent is to populate this website with all of our basic information. I believe the public notice is already up

there, and you can visit that any time. You can also E-mail Katerina.

At this point, I'm going to turn over the microphone to the project proponents who will give you a brief presentation on the project itself.

MR. CHERNISS: Thank you. Gotcha. Okay, my name is Eric Cherniss. I'm with the Panoche Valley Solar Farm, and we're here to talk about the --

MR. JOHNSON: It's actually working.

MR. CHERNISS: The feed back. We're going to talk about the Panoche Valley Solar Farm. So fairly quickly I know we've all seen different maps. This is the map of the northern part of the Panoche Valley, and the project that's been proposed is approximately 399 mega watts, and it's proposed as we said in the northern part of the valley. We'd like to point out here is Panoche Valley. For those who don't know where the Panoche Valley is, it is in a portion of San Benito County and just west of the county line between San Benito and Fresno.

So fairly quickly what I wanted to do is take a few seconds. This project has been in the county under development for a number of years and historically the project was proposed by a group called Solargen Energy and so Solargen Energy was acquired or the assets were

acquired by a group called PV2 Energy and then essentially PV2 Energy did a joint venture with Duke Renewables. What I want to do fairly quickly is cover who Duke is, what Duke Renewables -- what that entity is and then quickly so you guys know who you're dealing with as the project applicants.

And so Duke Energy is a holding company, a utility that has 7.1 million customers across six different states. They've been operating for approximately a hundred and 50 years, mostly out of the east. They're a Fortune 250 company, have approximately 30,000 employees, 58 gigawatts or 58,000 megawatts of energy that they produce, and approximately a hundred billion dollars of assets.

Now Duke, as a wholly owned subsidiary, Duke Renewables that focuses on Duke's activities in the renewable space. They also have activities on the regulated side. This is on the unregulated side development renewable project solar and wind and this project falls under that category. So Duke Renewables has 1.1 gigawatts of renewable energy. About another 800 megawatts of projects that are under construction just this year and about three billion dollars of capital have been vested since 2007. This has been a growth point for Duke.

And just to reiterate, PV2 Energy which acquired the assets of Solargen did a joint venture with Duke Renewables and the project of the applicant is Panoche Valley Solar, LLC. That's who the project applicant is just so you know who those people are. So I actually work with PV2 Energy, and I've got an associate here Reed Wills here who works was Duke Renwables. Excuse me.

Just a quick overview on the project. So site control, the project currently controls approximately 26,000 acres of land in and around the Panoche Valley. About 2500 acres will be utilized for the solar farm itself, the actual facility and approximately 23,000 acres for mitigation. The facility will take a plan and its fairly typical project to have impacts on land to provide additional resources to offset those impacts located in San Benito County.

Solar resource, so this is one of the reasons that brought the project to this site is the solar resource in the Panoche Valley has approximately 90 percent of the Mojave Desert, so we have a very good resource separate from the central valley folks and also separated from the marine layer out in the coast. Many days you can go out there and you can see the rain clouds around but nothing actually in the valley.

That's one of the reasons why we're attracted to this project site.

Transmission, not only do we have a good solar resource, but we do have existing transmission lines. So don't need to build new transmission lines to get the power off the site which is extremely difficult right now in the state. We have aging infrastructures so trying to find locations within the state where there are existing transmission lines not only will save the utility that eventually buy the power will save them money and allows them -- allows us to produce energy at a cheaper rate than if we had to put significant transmission infrastructures in.

And permits, as we mentioned previously, many of the discretionary permits have been completed for the project. We've gone through the California Environmental Quality Act, we produced a Environmental Impact Report that will be similar to the NEPA analysis that we're going through here but that was the focus on the state and now we're on the federal process. There was a CUP, Conditional Use Permit, that was approving this project from the county point of view and there was development agreement which was executed which is the project relationship with the county and how we're going to act together going forward and so not only just

taking one second, not only did Solargen sign that but that agreement was passed on to Panoche Valley Solar, so all the agreements that were in place remain in place. And there was a Williamson Act contract portion of the law is contracted through Williamson Act and those contracts were canceled.

Just a quick highlight of benefits of the project. We have economic benefits. There will be hundreds of jobs that are created out there. It's hard to pinpoint the exact number. There are not a whole lot of large scale of solar farms that have been constructed anywhere in the world. There will be hundreds of jobs created during the construction time frame. Priority hiring will be given to San Benito County residents. That was something memorialized in the development agreement between the project applicant and San Benito County. Of course, there will be solar training and coordination with San Benito One Stop Career Center which is near the airport. And annual contribution to the San Benito County general fund. All those have been enumerated in the development agreement with the County of San Benito.

Land resource benefits, as we said approximately 23,000 acres of mitigation land. One of the key pieces there highlighted is the Silver Creek

Ranch which when U.S. Fish and Wildlife Services take a look at impact of farming and agriculture on the central valley one of the things that they noticed was that for three of the key endangered species that we have that the Silver Creek Ranch was extremely beneficial. They called it out of the many recovery plans of what's required that was one of the pieces of property that we acquired for this project specifically. And we conducted approximately 20,000 hours of environmental surveys whether it be looking for biological species or looking at the geology of the site, the hydrology of the site. We've been out and about on this project since 2008, beginning of 2009 time frame.

Environment Benefits. So approximately 90 power -- 90,000 homes, 250 -- will displace about 250,000 tons of C02 annually, which is probably the equivalent of 49,000 cars removed off the road.

From a project timeline, this is all estimated but just historically where we've been and where we're going. We started planning the project in 2009 with the County of San Benito. We've been going through permitting. We had an environmental impact report which was issued in 2010, at the end of 2010 and then coming up in 2013 where there's an execution out of the interconnection agreement. So not only do we need to

have permits to do construction on the project, but we need permits to be able to put the energy onto transmission grid. We've been going through a number of processes to study what happens when the energy goes onto the grid, where does it go, what other systems around this part of California do we actually affect? So that's coming to the beginning of next year, and then construction. So right now the time frame for construction would start in 2013, where we would have a jobs fair, and then we would most likely start construction at the beginning of 2014 and the driving factor of that specific date of when construction would occur is based off of executing a power purchase agreement. So not only do we need to permit the construction activities on the land, we need to permit the use of the transmission lines and then we need to have an off taker, a group that would be buying the electricity from the project applicant. So if they want power sooner, we would start construction sooner. If they wanted it later, we would start it a little bit later, but it's going to be approximately in that time frame. And then when the construction is completed, we'd go into an operation phase which is expected for this specific project to be somewhere between 25 and 35 years and so that's another one of the reasons why Duke

was part of this project is Duke's not only involved with the development of the project where we're at right now, construction of the project but also long-term ownership and operation and maintenance of the project.

That's all I have.

MR. JOHNSON: Okay. So we have a few folks who want to speak and again let me stress that's the whole point I want to hear from folks. A couple of kind of basics, we're going to start off with a three minute window, so you guys will have about three minutes to speak. If we get through the whole list which I assume we probably will, then folks who wanted to say additional or want to have additional time we're planning on being here 'til 8:00 o'clock.

The other thing is keep in mind what we're doing tonight is designed to be you guys expressing your concerns. It's not supposed to be a back and forth question and answer period; but hopefully, we'll be done, and we'll be available so if you guys have additional questions that have come up during the presentation you grab one of us afterwards. Additionally along those lines, if you have a conversation with one of us afterwards and want to have additional information put into the public record, you can still do that in writing or provide E-mails to

Katerina, okay.

The contact information is on the bottom of these comment cards. So you don't need to scramble to get those written down, just grab one of the cards.

So you guys will have -- forgive me and bear with me when it comes to pronunciation of names I'm notarius.

The first person is Val Lopez.

MR. LOPEZ: Good evening, and thank you for this opportunity. My name is Valentin Lopez. I'm the chairman of the Amah Mutsun Tribal Band. It is upon our tradition of the tribal territory that this Panoche Valley project is being proposed or offered forced on.

It is our tribal belief that the creator Amah Mutsun is his territory for the purpose of protecting and conserving the land of Popelouchum and the waterways. And part of that protection that we have includes the wildlife, our four legged brothers; the rivers, streams and creeks, our fin brothers and the flight paths of our wing brothers and so all of those are of great concern to us and you're going to hear a lot of comments tonight regarding the concerns of regarding wildlife, fish and wildlife, and we echo all of those as well. I'll let them speak for themselves, and I'll stay with the cultural.

There was a study, environmental study done earlier but that was a surface study only and because of the runoff, probably annual runoffs and everything else, a lot of our cultural resources were buried because they were not identified during that -- during that study doesn't mean they're not there. We are certain there are hundreds and perhaps thousands of our ancestors who were buried there and every time -- and that's a great concern to us. Whenever they do the construction, there's a number of emissions, concern to us regarding the construction. Number one, is the steel poles. A lot of times with the steel poles there's a lot of contaminants in the steel. There is arsenic, cadmium and a lot of other toxic chemicals and stuff like that that go into the steel and so whenever you have over a million of those poles driven into the ground, I mean you have the potential for leaching and runoff and going into the waterways is great.

Another problem that we have is that whenever they do the pile driving of those poles into the ground, there's no ground disturbance at that time. So people like to say there's no ground disturbance on that project, that's not true because there's going to be exit strategy at some point where they're going to have pull a million poles out of the ground and our feeling

and our worry is every time they pull a pole out, they will be pulling out the remains of our ancestors who will be coming to the surface. That's a great violation of what our spiritual beliefs are. Our spiritual beliefs are whenever remains are disintered or brought up to the surface, et cetera, that person's spirit is brought back from the other world and that person cannot return until there's a complete and full burial. Well, when you're dealing with a bunch of tiny fragments and stuff like that it's very hard to achieve the spirit of our ancestors never being able to be put back at rest with this project.

Let me see. I'm sorry. My eyesight is going. I have to put it right to my face. We do request government to government consultation with the Army Corps of Engineers on this, and we hope that could be as soon as possible. You will be receiving a letter from us expressing our concerns and those concerns will be concerns that we previously submitted, and our number one priority as a tribe is the reburial of remains brought up, that's more important than federal recognition, that's more important than our dance, our ceremony is the reburial and that's given to us by our ancestors and our elders and that's a major concern because the -- you know, whenever the pile driving and

stuff like that and they will be pulverized and how do we deal with that and that's -- I thank you for that.

MR. JOHNSON: Yeah, thank you.

Mike Ferreria.

MR. FERREIRA: My name is Mike Ferreira and I'm the conservation chair for the Loma Prieta Chapter for the Sierra Club and I want to thank you for clarifying for us what this process is all about. Just to make sure for our commentary to come, my understanding is that the Army Corps of Engineers because of this one permitting for bridges is now the master agency so to speak in consultation with other agencies for this whole EIS covering all federal aspects of this program. That is correct?

MR. JOHNSON: That's pretty much it, yes, sir.

MR FERREIRA: When we comment across the whole thing we want to try to be commenting on federal aspects and not the things we might comment on within the state jurisdiction; is that correct?

MR. JOHNSON: Yes, sir.

MR. FERREIRA: Thank you.

MR. JOHNSON: Kevin Davis.

MR. DAVIS: I'm going to deviate slightly because I want to clear this rumor put about by Eric when he put in for the removal of this land from the

Williamson Act, he put this rumor out saying that the water is contaminated. I tried to research what kind of contamination they're talking about and I did come across the water report that turns up three months after his request to remove this land. But on June the 1st Geologic came up, and I'll cut to the chase here they say, "In summary the groundwater encountered by the existing wells on site appear to be acceptable, meets primary drinking water standards."

Now if something is good enough to actually drink it should be good enough to grow something on. So it goes on.

"In addition, it is acceptable for irrigation." It does go on with a caveat with slight to moderate restrictions for sensitive plants because of the boron. Most of the plants that we call farming, leafy greens and they come from the Brassica family and they require boron. So when you say it's contaminated, obviously it's not for growing or for drinking so what could be contaminated for. Well, the only thing I found out that you can't use this water for and the state its in and that's for washing solar panels. To get the water to a standard where it's pure enough for solar panels, you're going to have to create this whole water processing plant with evaporation tanks and everything using

reverse osmosis machines will tell you, yes, you put in a lot more water than you get out. In fact, you're talking about 17 and a half acre feet of water a year. I don't know if that's before or after you've cleaned the water because if that's how much you need to clean your solar panels that number is going to escalate to 50 acre feet and a hundred acre feed, and this goes on, and this is pure drinking water that we're going to have millions and millions and millions of gallons simply evaporate into the atmosphere. Our pump, out of our aquifer just so that they can wash their solar panels. This I find a travesty. And also I think this is a lie. Why does this keep coming back to us? I even heard a judge and his conclusion used the words Blah, Blah, Blah because the water is contaminated Blah, Blah, Blah, Blah, Blah, so can we please stop right now saying that the water is contaminated because it's not. We drank it last night. That is the most polluted well in the entire valley according to the water reports, the worst well you can find in the entire valley. It's not an agricultural well. It is the well currently being used for drinking water of Panoche School and that is here evidently on this page 18 of the water report. Thank you very much. That's all I've got to say.

MR. JOHNSON: Maxine Davis.

MS. DAVIS: Thank you. So basically I just want to talk about my concerns about the project in Panoche Valley which I hope the Army Corps of Engineers looks into. One of the big ones is that the valley is already being used or conserved I should say for agricultural use, cattle ranching, farming, vegetable farming, nuts, fruits. We have a dairy in the valley. We have livestock. We keep pasture ranged pigs out there. Our neighbors have a horse ranch; and when we think of this project coming in to cover over half the valley and disturb the ground surface land, raising up the dust which is going to affect our air quality in Panoche. It is definitely going to affect our ground water in Panoche. The sound of the project being built over how many years is going to affect the livelihood of the people, the animals, everybody that's in Panoche right now. So I'm concerned over the impact that that's going to have. There's also talk about mitigation land when I feel that the valley is already being conserved. So the idea that they're setting aside land to conserve, it's kind of ridiculous because it's already being conserved for agricultural use. You're taking it out of agricultural use. Well, we're going to save this over here for the species. So I'm curious -- I'm wondering if the report's going to show are these endanger species

actually going to migrate over to this mitigation land or their habitats are going to be disturbed and going to decease and be exterminated basically. So how valuable is really the mitigation land? Is it a correct portion of mitigation land. Can you mitigate a grassland valley in California where there's specific species of animals occurring only in this valley?

So impacts, the other impacts that I'm concerned about are the lighting of night skies. We currently have pitch dark nights. There are certain -- we have a huge owl population in Panoche and bats that I feel would be negatively affected not only by the sound of the project and the lights. We won't have the same skies so those spices will likely go elsewhere or die.

Air quality is a big concern from the disturbing the surface of the land. We have an interesting type of soil that's been known to carry the same parcels that have anthrax in it and causes the Valley Fever. So I'm concerned over these huge surface areas being disturbed and the winds in Panoche are quite often in the summers. The rest of us who live and work out there are going to be affected by that impact. I'm hoping your studies looks into those things.

Thank you.

MR. JOHNSON: Larry Ronneberg.

MR. RONNEBERG: Thank you. And I want to thank you for having this opportunity. My name is Larry Ronneberg and I'm from Mercy Hot Springs. We're not in the valley but we're along the road that goes from I5 to the valley, and we have a lot of concerns. The primary one first off and the first one is noise. If I remember correctly, the estimate of traffic, construction traffic five years is going to be approximately 500 to 580 vehicles per day, 24 hours a day, six days a week. Our guests which amount to -- currently we've had over 30,000 guests in 16 years at our place. It's growing at 1,500, 2000 new guests that have never been there per year; 6,000 to 7,000 repeat guests per year, and we're having a current growth rate of 15 to 20 percent per year. They come there for quiet. They come there for dark skies. They come there for clean air, no pollution. We are off the grid. We're a pro photovaltaic kind of business because we have to be, but we put the power where we need it. We're not pulling it from miles and miles and miles away. So you need to look at the inefficiency of this system.

Now you have to pump water to clean panels. You have to convert it from DC to AC. You have to boost it up to voltage. Then you have to transmit it to where it's going to go and then you've got to drop back down.

I did an analysis. You lose about four percent of the power. You're only going to get 17 percent right off the bat. What do you actually net at a person's house? I think very little. Because you're having -- it's like you're building this project just to build it, but what's the real net affect? What is the customer actually going to get? We were worried about exhaust, pollution, trucks going by. We have prevailing winds that blow right toward our campsites and our cabins. You have jake brakes or engine brakes. You have the acceleration of vehicles going up the hill to get to the Panoche Valley and then you have them rumbling down empty with rattling trailers. Do you want to camp there? You will now today but not in the future.

What are the road conditions? Road conditions from us are actually much better than what's in San Benito County, but this is a San Benito County project. Does Fresno County know about this? I probably don't think so. We will lose business if this happens. Our projected -- right now we employ two full-time, two part-time people. In 2013, we expect that to be three to four full-time and two part-time. In 2014, if we continue to grow like we are and there's no reason to believe that's going to change even in this economy, we'll have eight to ten full-time employees and two to

four part-time, not if this project goes forward. We will probably be looking to find somebody to give a bill to each year for our lost business.

When I think about the efficiency of the solar farm and I've heard and I'd like to be corrected if I'm wrong here, if it's built that in 30 years it will be torn down. Why? Whose brain child was that one? Solar panels, yes, they can wear out, but you can replace them. You can put new inverters in and they'll probably be more efficient but there's no reason for them to break. The ones that we have are nearly 15 years old. They work just as good today as they did when we installed them. So why would you tear it down? Why would you bother the soil, and I think this is maybe a good indication how bad this design is. Why -- it's not like a car that wears out. The wires don't wear out, the racks down wear out. They're going to rip it up and disturb the land again. I'm not for this project; but if I was doing it, I would say let's see how we can continue this beyond the 30 years but that's not in their plan. If it is, I'd sure like to hear it.

Bird watchers. We have 300 annual bird watchers per year and that grows. They come to us to see owls, hawks, finches, birds of all kind. They actually make a nice circle around us. They go past us.

They go into Panoche Valley. They spend time there. They'll go on to Hollister and actually go over to 152 and whether they go one direction or the other, they actually make a good circle around us. If this project goes through, I think that will decrease significantly.

We have an observatory across the road from us. Guess which direction their telescopes are looking most of the time? To the south, to the Panoche Valley but no, they're going to have lights on at night to keep their place lit. Doesn't that sound kind of silly. We're going to produce power during the day to pump water to clean the panels to keep our lights on, and we may end up with just a little bit of net efficiency that somebody out there will actually get some power that's actually usable.

We have solar lights on the ground that get lit -- they get powered up during the day and shortage of winter nights because they're short unfortunately they go off about 5:00 a.m. Where we live and breathe this and I look at this project and I go this is somebody's brain child who wants to build a car that they can't drive really because it cost too much to take it out on the road. Maybe in 30 years, they're going to sell it to somebody who wants it just because it's a historical piece of junk because somebody thought it was

cool. This is not a cool project, and I hope that your organization will come and talk to us about how it's going to impact our business because I am one of several people who have put years and years and years of effort into restoring. Go to our website, there's a comparison what we started with 16 years ago, and I'm shaking here because I'm afraid my life will be gone and my dream for somebody who wants to build a super car that can't be driven. Thank you.

MR. JOHNSON: Thank you very much. Susan Biskeborn.

MS. BISKEBORN: Thank you. Mainly, I have a question. I work at Panoche and I've worked in the school for the past six years. I teach music. This is a community. The fact that they have -- they call themselves the Panoche Valley means that there's a culture, there's a life there, and I'm wondering, my question is can Duke provide the name of a comparable site where you've put solar panels within a community? This might not be house upon house, postage stamp houses but this is a really vital community. It's where I get my milk, my meat. It's where I teach children. They've made the effort to get culture there, art, music, and they have a fine school. The solar panels are going to be surrounding their school. What is the effect on

children looking at those instead of the cows? On my commute, what is going to be my traffic jamb will it be the cattle drive where I have to stop or is it going to be trucks and dust?

The wind there I can attest to. I have gotten -- I've gotten out of my car and been unable to open my car door, that is no joke. That is how strong that wind is even though I do have a small car but the wind is that strong that you cannot open a car door sometimes. That dust is going to be going past the children. They have a wonderful life there. They live in this community. They learn in this community. So my question is do you have comparable site where you've put a solar panel project in a community? They call themselves the Panoche Valley. They're not really Paicines. They want to be called the Panoche Valley. Do you have a similar site where you've put solar panels in the middle of people's lives and have you followed up on that? So thank you very much. I hope you can provide me with something and also have you had similar opposition and what's been the effect?

MR. RONNEBERG. When the issue of dust was mentioned, this is something that is very, very very dear to me. A few years ago, my life partner or my wife, although we're not married, we might as well be

was misdiagnosed with lung cancer. She actually had Valley Fever. If any of you know what Valley Fever is and what it does, it knocks you on your butt. You have no energy, and I was looking at the possibility of losing her. When we finally found out that it was coccidioidomycosis which is an airborne bacteria fungus, gets in your lungs and it grows because it's got a healthy environment. It sits dormant in the ground until it gets a little damp, then the wind comes up still growing airborne. A lot of pets, a lot of animals get it because they sniff the ground. So I hope in this analysis something that has never been talked about but is looked at very closely is when you scrape the ground and you get all that dust in the air, how many people in that valley, how many children, how many animals, how many of us, how many adults are going to come down with something that they may end up being antifungal for the rest of their lives? Thank you.

MS. KLEINHAUS: My name is Shani Kleinhaus from the Santa Clara Audubon Society where we opposed this project from its start because of the vast areas of Panoche Valley is a place very, very important to our bird community and our community comes there often. Many, many people go for day trips, some stay there, but some do not. For us, it's a really, really important

place which doesn't exist anywhere else anymore. There are no places like Panoche Valley where wildlife and birds can still survive and talking about the endangered species, a very unique constellation of birds that migrate there and birds that stay year round. So a few things and of course, we are also interested in the endangered species as a whole and their habitat. One thing, we're asking is for comprehensive analysis that includes not only the alternative that were included in the CEQA's documents but additional places where a project can be constructed without impacting endangered species, wintering birds, mountain clovers and other species that we care about.

Another thing we're asking for, we found that the project description of CEQA process was very inconsistent so different descriptions as to what kind of structure would be constructed. There were buffer zones that if you added them altogether would leave no project at all. We would like to see something very, very comparative and not as inconsistent as the project description was. We would like to see a very strong analysis of the hydrology and what would happen when the water that flows on the surface and there is a lot of surface flows when storms hit, what happens when that hits, those poles or other structures that are hitting

and what kind of erosion will be done from that, and we think that the potential for erosion has not been analyzed by CEQA at all and that it's huge and should be very, very carefully analyzed.

The issue of the noise, impacts of noise on the endangered species there, impact of pounding, both on the endangered species. Some of them use something for communication. So what happens for five years, six days a week, 24 hours a day, we have noise and about half of that is pounding. So I'm going to try to speak and continue what they're doing and assume that right now we're all trying to concentrate on our school lessons and all the other things that we have to learn right now in our daily lives, 12 hours a day of this, so please consider what this does to people who are trying to learn and grow for five years. These are school children and many of them are Hispanic. They don't speak English very well. They don't have the resources that we have to cope, and we don't know what will happen. I'm going to continue, and you'll have to try to figure out what I'm saying.

I would like to say what the loss of jobs is not only temporary jobs that are going to be created but long-term jobs in agriculture and tourism and all the jobs that are going to be lost. I think the calculation

of long-term jobs should be included. And the issue of noise again -- I'm going to stop that before my hand hurts so much.

I think one of the issues that is of great concern to us is what happens to all the mitigation land. We would like to see fragmentation of habitat properly evaluated. We would like to see any land that is taken away from endangered species should be compensated for equivalent type of land. If you need to take the valley floor, you need to find valley floor. Compensating for the valley floor for the animals in the hills is not going to work out. Another thing is that we have to see -- I don't know how the Army Corps has to make sure mitigations are enforced in the long term of ten to thousands of acres, not three little bridges. What happens with your bridges?

And one question which is kind of curious to me, I'm not sure the bridge would get permitted by the California Department of Fish and Game. We don't know that they would produce the necessary stream alteration project for those bridges and what happens if they don't, do you still maintain jurisdiction of the entire valley or do we have what should have been done all along which is Section Ten. I think I'm going to stop with -- I will be submitting comments a well in

writing. Thank you.

MR. JOHNSON: Thank you very much. Is there anybody else who would like to speak?

MS. COROTTO: May I say something?

MR. JOHNSON: Can you say your name for the record?

MS. COROTTO: My name is Nenette Corotto. Rancho Dela Lunaga directly south of the main project. You heard Shani pounding on the table. When I was first married and lived here in the south side, they put a well in, and they didn't drill it. They beat it in. I can tell you first hand, it drove me out of my mind. It was about a month that they were drilling or pounding on this well. I threatened to move back to town. It was unbearable and until you have actually lived with it, I think it was 11 hours a day that we had it, and it was in front of my house. And it was necessary. We weren't objecting to the well, but the sound was unbelievable hour after hour after hour. So until you have experienced that you have no idea the emotional impact it has but I do, and I have to tell you it was horrible. Thank you.

MR. JOHNSON: Thank you. Okay, I'll remind you guys again that if you didn't want to speak tonight doesn't mean you've given up your opportunity to provide

input. We want to hear it. You can grab cards on the way out if you'd like, and it has all the contact information. Katerina Galacatos is the project manager at the Corps here in back of the room, and she will be the person who will be receiving these. Okay, we are scheduled to be here until 8:00 o'clock. And so if nobody has anything else to add on the record, you can come catch one of us. It won't be on the record, but you catch us. We will be here.

UNKNOWN FEMALE SPEAKER: Close of comment date?

MR. JOHNSON: September 7th.

UNKNOWN FEMALE SPEAKER: Thank you.

MR. JOHNSON: Again from the interaction if you guys want to have questions with any of the folks if you come up with additional comments you'd like to add, you will have the opportunity.

MR. RONNEBERG: Not that I want to see this happen but being one that always looks at an exit plan if this thing is built and then it's 30 years gone by, I won't be around; I hope I am, but I don't really think I will be. Who takes it out? Who pays for it? Who cleans it up and who would even believe that what was there today. Now would it ever, ever be back the way it was afterwards? I mean you've got bridges. You've got

supposedly a power station just going to sit there. Pull all these beams out of the ground and do what with it? Fill it in a landfill? I mean why? And how much C02 is actually being produced to build the plant? They talk about how much they're going to save, how much do they produce to build it? How much does it take to repair the roads? How many tires get warn out on the trucks? How many engines are going to have to be rebuilt after five years? What's the impact of all the ancillary things have to go on. They may talk just about the project itself. But if you've ever watched who destroyed the electric vehicle and you look at the electric vehicle how much cleaner it is to work on versus the mechanic over there that has to rebuild an engine and all the solvents and the cleaners and all the things that go on, you realize the electric vehicle made a lot of sense. Here we're talking about tons and tons of huge equipment for five years building these things. Is five years worth of equipment going to be mitigated for five or ten years of solar panels? So you look at the efficiency of wind machines or natural gas, turbines, efficiency of those systems is actually much, much higher and they produce a lot less pollution over all. I just drove through thousands of wind generators, that's pretty nice. One wind generator produces umpteen

mega watts versus how many panels do you need? I just don't think this is a project that really get down to it somebody's going to make some money and a lot of people's lifestyles they live there for a reason, I live out there for a reason. It won't be there anymore. Thank you.

MR. JOHNSON: Okay. Thanks, folks. We'll be here if you have questions. Did you have something you wanted to say for the record?

MS. MATEJCEK: Yes, I do.

MR. JOHNSON: Please state your name. We have a court reporter, so state your name and if you have --

MS. MATEJCEK: I see her working hard over here. Do I need to hold that?

MR. JOHNSON: Yeah, you have to hold it fairly close to your mouth.

MS. MATEJCEK: Most people can hear me a block away. My name is Patricia Matejcek. Since I drove from the coast to come to this meeting, a little closer than the one in Paicines, I might as well use this opportunity.

I, first of all, would like to ask the question, I'm part of a group that has a long history of involvement with the San Benito slash Pajaro River, and I'm a little curious since we can't get your agency to

really step up and really engage in our lower river issues, I'm really curious how it is that you're way out here to the east in San Benito County in the upper part of the watershed when we're the ones who get flooded? That's going to be something you can answer later, that's sort of what I want to put out there.

Because this is basically all the same watershed, and I'm here as a lower watershed representative tonight, these ideas of stream alteration permits, the increased runoff, the issue that we have been approaching our two -- there are four counties involved in this watershed, San Benito, Santa Clara, Santa Cruz and Monterey and the political body that assembles them all is the Flood Prevention Authority, and we have a long history of interfacing with this group on these issues as well as a whole, all the 27 agencies that are involved in administering this watershed, the nature conservancy as well. There are five NGOs involved and a whole regional conservation plan, and we all speak the language and understand the need for energy conservation but one of the things across my E-mail today was a piece that came out from the University of Florida and throughout their entire campus they have installed these tables and umbrellas throughout the whole public area that have solar panels

on the roof of these units, and you can hook in all of your electronic devices to a unit on these kinds of tables. So from my personal preference, I think that our true solution is that energy needs to be produced closer to where it's consumed whether that means roof top solar. It means that every acre and half of asphalt parking lot for every large grocery store, every shopping center should have, you can call them shade panels, but that's where the solar should be. It should be closer, not facing the incredible loss through transmission whether we're talking the Moss Landing Power Plant, Morro Bay, that type of 1950s construction, that sort of thinking or this kind of facility. It's not really getting to the issue of people live and work one place and mining rural areas whether you're mining them for minerals or mining them for timber or mining them for energy and displacing local businesses, schools everything else for the convenience of people miles away who have no feeling for this is not helping people feel in a direct way the impacts of their energy requirements and that's part of the solution. If all you do is flip a switch and the pollution happens in Moss Landing, so what? If all you do is get in your car and turn the key, and who cares what happens in the Gulf of Mexico. That paradigm is not working for the world anymore. It

is so not working.

So I would really like to know how, number one, your agency gets tagged when we have begged and pleaded and expected and had deadline after deadline from your agency of some document coming forward for how to address our flood potential in the lower watershed and you're talking about stream alteration, land farm alterations, lots of things that are going to increase the runoff and the rate of runoff heading our way.

I'm also a bird freak, and there's a really wonderful following that gets me to understand that number one I'm not alone. There's tons of people every single day are all through our sloughs and wetlands, all over the Santa Cruz mountains. Out here there's an enormous bird festival that has grown astronomically every single year, and we use Moss Landing. We use the Elkhorn Slough. There are field trips out into this part of the country. There certainly are winter trips for the migratory species. This is under appreciated but strongly supported activities that happens on these lands. These are not empty lands. These are not empty landscapes. These are not devoid of human presence, human economic impact or human interests. So this seems a bit far afield I know about the Corps and its mission pretty much dedicated to water bodies and wetlands so I

am mystified as to how this landed on your agency's desk, but I really want your comments to address the myriad impact to the life forms that actually require these lands. This is a really strategic migration corridor which is why the nature conservancy is interested here. They're acquiring conservation rights because this is the neck between not just the coast as in those coastal counties but in the San Joaquin Valley and through the San Joaquin Valley into the grape valley. There aren't other options. Henry Coe may be a state park, but it's not an option for these species. You're sort of right at the neck, and I would ask you not to strangle it. Thank you.

MR. JOHNSON: Okay. Anybody else? Last chance.

All right, thank you guys for coming and like I said we'll be around for a little bit.

(Whereupon the proceedings concluded at 7:51.)

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STATE OF CALIFORNIA)

) ss.

COUNTY OF MONTEREY)

I, LISA R. MAKER, Certified Shorthand Reporter of the County of Monterey, State of California, do hereby certify that the foregoing pages, 1 through 54, comprise a full, true and correct transcription of my stenographic notes in the aforementioned case of the proceedings held on August 22, 2012.

Dated this 21st day of September, 2012.

LISA R. MAKER, CSR 7631

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SCOPING LETTERS

US Environmental Protection Agency

Amah Mutsun Tribal Band of Costanoan/Ohlone Indians

Luis Alejo, Assemblymember, 28th District

California Audubon Society

Center for Biological Diversity

Citizens Committee to Complete the Refuge

Defenders of Wildlife

Santa Clara Valley Audubon Society

Sierra Club, Loma Prieta Chapter

Kristi Stephens Adams

Cliff and Lise Bixler

Gail and Doug Cheeseman, Cheesemans' Ecology Safaris

Maxine Davis

Rani Douglas, Douglas Ranch

John and Jae Eade

Dustin Mulvaney

Larry Ronneberg, Mercey Hot Springs

Linda Ruthruff

Carolyn Straub and Steve McHenry

Kim Williams, Your Family Farm, Save Panoche Valley

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

SEP 0 7 2012

Ms. Katerina Galacatos
U. S. Army Corps of Engineers,
San Francisco District, Attn: Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

Subject: (SPN-2009-0043S) Notice of Intent to Prepare a Draft Environmental Impact Statement for the Proposed Panoche Valley Solar Farm, San Benito County, California

Dear Ms. Galacatos:

The U.S. Environmental Protection Agency has reviewed the July 19, 2012 Notice of Intent to prepare a Draft Environmental Impact Statement for the Proposed Panoche Valley Solar Farm, San Benito County, California. Our comments are provided pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The EPA continues to support increasing the development of renewable energy resources, as recommended in the Energy Policy Act of 2005. Using renewable energy resources such as solar power can help the nation meet its energy requirements without generating greenhouse gas emissions.

To assist in the scoping process for this project, we have identified several issues for your attention in the preparation of the Draft Environmental Impact Statement. We are most concerned about the following issues: impacts to water resources, biological resources, habitat, and air quality, as well as the cumulative impacts to these resources. We recommend analysis of alternatives and mitigation measures as early as possible in the environmental review process to identify and achieve solutions that minimize adverse environmental impacts, protect ecosystems and human health, and meet energy demand.

We appreciate the opportunity to review this NOI and are available to discuss our comments. Please note that starting October 1, 2012, EPA Headquarters will not accept paper copies or CDs of EISs for official filing purposes. Submissions on or after October 1, 2012, must be made through the EPA's new electronic EIS submittal tool: *e-NEPA.* To begin using *e-NEPA*, you must first register with the EPA's electronic reporting site - https://cdx.epa.gov/epa_home.asp. Electronic submission does not change requirements for distribution of EISs for public review and comment, and lead agencies should still provide one hard copy of each Draft and Final EIS released for public circulation to the EPA Region 9

office in San Francisco (Mail Code: CED-2). If you have any questions, please contact me at (415) 972-3238, or contact Scott Sysum, the lead reviewer for this project, at (415) 972-3742 or sysum.scott@epa.gov.

Sincerely,

Tom Plenys
Environmental Review Office (CED-2)
Communities and Ecosystems Division

Enclosures: EPA's Detailed Comments

US EPA DETAILED COMMENTS ON THE SCOPING NOTICE FOR THE PANOCHE VALLEY SOLAR FARM, SAN BENITO COUNTY, CALIFORNIA, SEPTEMBER 7, 2012

Statement of Purpose and Need

The Draft Environmental Impact Statement should clearly identify the underlying purpose and need to which the U.S. Army Corps of Engineers is responding in proposing the alternatives (40 CFR 1502.13). The *purpose* of the proposed action is typically the specific objectives of the activity, while the *need* for the proposed action may be to eliminate a broader underlying problem or take advantage of an opportunity.

> *Recommendation:*
> The purpose and need should be a clear, objective statement of the rationale for the proposed project. The DEIS should discuss the proposed project in the context of the larger energy market that this project would serve; identify potential purchasers of the power produced; and discuss how the project will assist the state, Pacific Gas and Electric and other potential purchasers of the energy in meeting their renewable energy portfolio standards and goals.

Alternatives Analysis

The National Environmental Policy Act requires evaluation of reasonable alternatives, including those that may not be within the jurisdiction of the lead agency (40 CFR Section 1502.14(c)). A robust range of alternatives will include options for avoiding significant environmental impacts. The DEIS should provide a clear discussion of the reasons for the elimination of alternatives which are not evaluated in detail. Reasonable alternatives should include, but are not necessarily limited to, alternative sites, capacities, and technologies as well as alternatives that identify environmentally sensitive areas or areas with potential use conflicts. The alternatives analysis should describe the approach used to identify environmentally sensitive areas and describe the process that was used to designate them in terms of sensitivity (low, medium, and high).

The environmental impacts of the proposal and alternatives should be presented in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14). The potential environmental impacts of each alternative should be quantified to the greatest extent possible (e.g., acres of wetlands impacted, tons per year of emissions produced).

The U. S. Environmental Protection Agency strongly encourages the USACE and other interested parties to pursue the siting of renewable energy projects on disturbed, degraded, and contaminated sites, including permanently fallow or abandoned agricultural lands before considering large tracts of undisturbed public lands. We are encouraged by the proposed siting of this project on previously disturbed land and request that the DEIS describe the current condition and functionality of the land selected.

Recommendations:
The DEIS should describe how each alternative was developed, how it addresses each project objective, and how it will be implemented. The alternatives analysis should include a discussion of reduced acreage, reduced megawatt and modified footprint alternatives, as well alternative sites, capacities, and generating technologies, including different types of solar technologies, and describe the benefits associated with the proposed technology.

The DEIS should clearly describe the rationale used to determine whether impacts of an alternative are significant or not. Thresholds of significance should be determined by considering the context and intensity of an action and its effects (40 CFR 1508.27).

The EPA recommends that the DEIS identify and analyze an environmentally preferred alternative. This alternative should consider options such as downsizing the proposed project within the project area and/or relocating sections/components of the project in other areas to reduce environmental impacts.

The DEIS should describe the current condition of the land selected for the proposed project, discuss whether the land is classified as disturbed, and describe to what extent the land could be used for other purposes, including agricultural use, into the future.

Water Resources

Water Supply and Water Quality

We understand that solar photovoltaic installations need much less water than solar thermal plants that use water for cooling. The DEIS should estimate the quantity of water the project will require (including during construction and operations) and describe the source of this water and potential effects on other water users and natural resources in the project's area of influence. The DEIS should clearly depict reasonably foreseeable direct, indirect, and cumulative impacts to this resource. If groundwater is to be used, the potentially-affected groundwater basin should be identified and any potential for subsidence and impacts to springs or other open water bodies and biologic resources should be analyzed. The DEIS should include:

- A discussion of the amount of water needed for construction and operation of the proposed solar PV generation facility and where this water will be obtained.
- A discussion of availability of groundwater within the basin and annual recharge rates.
- A description of the water right permitting process and the status of water rights within that basin, including an analysis of whether water rights have been over-allocated.
- A discussion of cumulative impacts to groundwater supply within the hydrographic basin, including impacts from other proposed large-scale developments, if applicable.

- An analysis of different types of technology that can be used to minimize or recycle water, including minimizing, or eliminating, water use for washing PV panels. Note First Solar's Desert Sunlight Solar PV project in Riverside County committed to eliminate PV panel washing during operations.
- A discussion of whether it would be feasible to use other sources of water, including potable water or wastewater.
- An analysis of the potential for alternatives to cause adverse aquatic impacts such as impacts to water quality and aquatic habitats.

Recommendations:
The DEIS should address the potential effects of project discharges, if any, on surface water quality. Specific discharges should be identified and potential effects of discharges on designated beneficial uses of affected waters should be analyzed. If the facility is a zero discharge facility, the DEIS should disclose the amount of process water that would be disposed of onsite and explain methods of onsite containment.

The EPA strongly encourages the USACE to include in the DEIS a description of all water conservation measures that will be implemented to reduce water demands. Project designs should maximize conservation measures such as appropriate use or recycled water for landscaping and industry, xeric landscaping, a water pricing structure that accurately reflects the economic and environmental costs of water use, and water conservation education. Water saving strategies can be found in the EPA's publications *Protecting Water Resources with Smart Growth* at www.epa.gov/piedpage/pdf/waterresources_with_sg.pdf, and *USEPA Water Conservation Guidelines* at www.epa.gov/watersense/docs/app_a508.pdf.

In addition, the DEIS should describe water reliability for the proposed project and clarify how existing and/or proposed sources may be affected by climate change. At a minimum, the EPA expects a qualitative discussion of impacts to water supply and the adaptability of the project to these changes.

Clean Water Act Section 404

As the USACE is aware, if a CWA Section 404 permit is required, the project must comply with *Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials* (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the CWA ("404(b)(1) Guidelines"). Pursuant to 40 CFR 230, any permitted discharge into Waters of the United States (33 CFR 328.3) must be the least environmentally damaging practicable alternative available to achieve the project purpose. The DEIS should include an evaluation of the project alternatives in this context in order to demonstrate the project's compliance with the 404(b)(1) Guidelines. If, under the proposed project, dredged or fill material would be discharged into WOUS, the DEIS should discuss alternatives to avoid those discharges.

Recommendations:
The DEIS should include a jurisdictional delineation for all WOUS, including ephemeral drainages, in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual*, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (Regional Supplement USACE, 2008b) and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (USACE, 2008a). A jurisdictional delineation will confirm the presence of WOUS in the project area and help determine impact avoidance or if state and federal permits would be required for activities that affect WOUS.

The DEIS should describe all WOUS that could be affected by the project alternatives, and include maps that clearly identify all WOUS within the project area. The discussion should include acreages and channel lengths, habitat types, values, and functions of these WOUS.

Floodplains

Executive Order 11988 Floodplain Management requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of flood plains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The EPA is especially interested in evidence that the project design gives full consideration to habitat and ecosystem functions in floodplain areas.

Recommendations:
Demonstrate, in the DEIS, compliance with Executive Order 11988 for Floodplain Management. The DEIS should also describe the original (natural) drainage patterns in the project locale, as well as the drainage patterns of the area during project operations, and identify whether any components of the proposed project are within a 50 or 100-year floodplain.

Provide, in the DEIS, a detailed description of the current FEMA floodplain, and include results of consultation with FEMA, if appropriate.

Clean Water Act Section 303(d)

The CWA requires States to develop a list of impaired waters that do not meet water quality standards, establish priority rankings, and develop action plans, called Total Maximum Daily Loads (TMDLs), to improve water quality.

Recommendation:
The DEIS should provide information on CWA Section 303(d) impaired waters in the project area, if any, and efforts to develop and revise TMDLs. The DEIS should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with on-going protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters.

Vernal Pools

The Panoche Valley Solar Farm Draft Environmental Impact Report states that a contractor surveyed ephemeral pools on the proposed project site while conducting protocol-level Branchiopod Surveys.[1]The contractor identified 128 ephemeral pools on the site with a total area of approximately 2.79 acres. Vernal pool fairy shrimp were identified in one of the on-site pools

Vernal pool habitat in the San Joaquin Valley has a history of severe loss and degradation through human activities and urban development. Prioritizing avoidance to these sensitive wetland resources and drainages is critical to ensure that the least environmentally damaging practicable alternative under Section 404 of the Clean Water Act, if required, is selected.

Recommendations:
The DEIS should identify areas of vernal pool complexes that might occur within the project area. Alternatives proposed in the DEIS should avoid these areas. The DEIS should also describe the impacts for any potential loss of vernal pools and seasonal wetlands and any mitigation measures that will be implemented.

The DEIS should discuss the impact of grading and potential site modification to ephemeral drainages on downstream vernal pools and stream segments.

Construction Stormwater Discharge Permit

The California State Water Resources Control board requires owner/operators to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity if the project will disturb more than one acre of soil. Given the disturbance area for this project, California State Water Resources Control Board General Permit associated with construction activity Construction General Permit Order 2009-0009-DWQ would likely be required. Additionally, a Stormwater Pollution Prevention Plan, that includes erosion control measures, would need to be generated for the project and implemented on-site.

The SWPPP would include the elements described in the Construction General Permit, including a site map(s) showing the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP also would list Best Management Practices, including erosion control BMPs that would be used to protect stormwater runoff, and include a description of required monitoring programs.

Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the

[1] Final Environmental Impact Report for the Panoche Valley Solar Farm Project prepared by Aspen Environmental Group, September 30, 2010.

Construction General Permit describes the elements that must be contained in a SWPPP. Guidance from other documents, such as the EPA document entitled "Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites" also could be used in the development of the SWPPP[2].

Recommendation:
The EPA recommends that the applicant determine the need for a California State Water Resources Control Board General Permit associated with construction activity Construction General Permit Order 2009-0009-DWQ. If such a permit is required, include a description of the proposed stormwater pollution control and mitigation measures in the DEIS.

Biological Resources and Habitat

The Ciervo-Panoche Region has been identified in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS, 1998) as an important area for the conservation for many federally and state-listed plants and animals. These include the San Joaquin kit fox (Vulpes macrotis mutica), giant kangaroo rat (Dipodomys ingens), and blunt-nosed leopard lizard (Gambelia sila). Populations of these three species in Panoche Valley have recently been identified as having unique genotypes or genetic structure, which are likely important for future preservation and conservation of these species. In addition, the National Audubon Society has identified the Ciervo-Panoche Region, and specifically the Panoche Valley, as a globally significant Important Bird Area.

The DEIS should identify all petitioned and listed threatened and endangered species and critical habitat that might occur within the project area. The document should identify and quantify which species or critical habitat might be directly, indirectly, or cumulatively affected by each alternative and mitigate impacts to these species. Emphasis should be placed on the protection and recovery of species due to their status or potential status under the Endangered Species Act. As we understand the U.S. Fish and Wildlife Service is a Cooperating Agency on the project, the DEIS should provide a recent status update on consultation with the USFWS under Section 7 of the Endangered Species Act.

Analysis of impacts and mitigation on covered species should include:

- Baseline conditions of habitats and populations of the covered species.
- A clear description of how avoidance, mitigation and conservation measures will protect and encourage the recovery of the covered species and their habitats in the project area.
- Monitoring, reporting and adaptive management efforts to ensure species and habitat conservation effectiveness.

The EPA is also concerned about the potential impact of construction, installation, and maintenance activities (deep trenching, grading, filling, and fencing) on habitat. The DEIS should describe the extent of these activities and the associated impacts on habitat and threatened and endangered species. The EPA is also aware that shade and alteration of rainfall deposition patterns due to the PV arrays could

[2] United Sates Environmental Protection Agency, Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites, EPA 833- R-06-004. May 2007. http://www.epa.gov/npdes/pubs/sw_swppp_guide.pdf

impact vegetation and/or species in the project area. We encourage habitat conservation alternatives that avoid and protect high value habitat and create or preserve linkages between habitat areas to better conserve the covered species.

Recommendations:
The DEIS should indicate what measures will be taken to protect important wildlife habitat areas from potential adverse effects of proposed covered activities. We encourage the USACE to maximize options to protect habitat and minimize habitat loss and habitat fragmentation.

The DEIS should discuss the impacts associated with an increase of shade and alteration of rainfall deposition patterns on vegetation and/or species.

The DEIS should evaluate mounting PV arrays at sufficient height above ground to maintain natural vegetation and minimize drainage disturbance. Quantify acreage that would not require clearing and grading as a result. Compare results to existing alternatives and incorporate into site design and conditions of certification.

The DEIS should discuss the impacts associated with constructing fences around the project site(s), and consider whether there are options that could facilitate better protection of covered species.

If the applicant has or is to acquire compensation lands, the location(s) and management plans for these lands should be discussed in the DEIS.

Recommendations:
Incorporate, into the DEIS, information on the compensatory mitigation proposals (including quantification of acreages, estimates of species protected, costs to acquire compensatory lands, etc.) for unavoidable impacts to WOUS, State waters and biological resources.

Identify compensatory mitigation lands or quantify, in the DEIS, available lands for compensatory habitat mitigation for this project, as well as reasonably foreseeable projects in the area. Specify, in the DEIS, provisions that will ensure habitat selected for compensatory mitigation will be protected in perpetuity.

Incorporate, into the DEIS, mitigation, monitoring, and reporting measures that result from consultation with the USFWS and the California Department of Fish and Game, and that incorporate lessons learned from other renewable energy projects and recently released guidance to avoid and minimize adverse effects to sensitive biological resources.

The DEIS should describe the potential for habitat fragmentation and obstructions for wildlife movement from the construction of this project and other projects in the area.

Discuss the need for monitoring, mitigation, and if applicable, translocation management plans for the sensitive biological resources, approved by the biological resource management agencies. This could include, but is not limited to, a Bird and Bat Conservation Strategy, a Raven Monitoring, Management, and Control Plan, and Special – Status Plant Impact Avoidance and Mitigation Plan.

The DEIS should include assurances that the design of the transmission line would be in compliance with current standards and practices that reduce the potential for raptor fatalities and injuries. The commonly referenced source of such design practices is found within the Avian Power Line Interaction Committee documents: *Suggested Practices for Avian Protection on Power Lines: State of the Art in 2006* manual and *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994*. Also, in consultation with the USFWS, determine the need for a Bird and Bat Conservation Strategy to be developed using the 2005 Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service Avian Protection Plan Guidelines or the need for an Eagle Conservation Plan following the USFWS 2011 Draft Eagle Conservation Plan Guidance.

Invasive Species

Human actions are the primary means of invasive species introductions. PV power plant construction causes disturbance of soils and vegetation through the movement of people and vehicles along the PV arrays, access roads, and laydown areas. These activities can contribute to the spread of invasive species. Parts of plants, seeds, and root stocks can contaminate construction equipment and essentially "seed" invasive species wherever the vehicle travels. Invasive species infestations can also occur during periodic site maintenance activities especially if these activities include mowing and clearing of vegetation. Once introduced, invasive species will likely spread and impact adjacent properties with the appropriate habitat.

Executive Order 13112, *Invasive Species* (February 3, 1999), mandates that federal agencies take actions to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. Executive Order 13112 also calls for the restoration of native plants and tree species. If the proposed project will entail new landscaping, the DEIS should describe how the project will meet the requirements of Executive Order 13112.

In addition, we encourage alternative management practices that limit herbicide use (as a last resort), focusing instead on other methods to limit invasive species vegetation and decrease fire risk.

Recommendations:
The DEIS should describe the invasive plant management plan used to monitor and control noxious weeds. If herbicides or pesticides will be used to manage vegetation, the DEIS should disclose the projected quantities and types of chemicals. The invasive plant management plan should identify methods that can be used to limit the introduction and spread of invasive species during and post-construction. These measures can include marking and avoidance of invasives,

timing construction activities during periods that would minimize their spread, proper cleaning of equipment, and proper disposal of woody material removed from the site.

Because construction measures may not be completely effective in controlling the introduction and spread of invasives, the DEIS should describe post-construction activities that will be required such as surveying for invasive species following restoration of the construction site and measures that will be taken if infestations are found.

Indirect and Cumulative Impacts

The cumulative impacts analysis should provide the context for understanding the magnitude of the impacts of the alternatives by analyzing the impacts of other past, present, and reasonably foreseeable projects or actions and then considering those cumulative impacts in their entirety (CEQ's Forty Questions, #18). The DEIS should clearly identify the resources that may be cumulatively impacted, the time over which impacts are going to occur, and the geographic area that will be impacted by the proposed projects. The DEIS should focus on resources of concern – those resources that are "at risk" and/or are significantly impacted by the proposed projects, before mitigation. In the introduction to the *Cumulative Impacts Section*, identify which resources are analyzed, which ones are not, and why. For each resource analyzed, the DEIS should:

- Identify the current condition of the resource as a measure of past impacts. For example, the percentage of species habitat lost to date.
- Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis.
- Identify all on-going, planned, and reasonably foreseeable projects in the study area that may contribute to cumulative impacts.
- Identify the future condition of the resource based on an analysis of impacts from reasonably foreseeable projects or actions added to existing conditions and current trends.
- Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource, and provide a specific measure for the projected impact from the proposed alternatives.
- Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.
- Identify opportunities to avoid and minimize impacts, including working with other entities.

As an indirect result of providing additional power, it can be anticipated that these projects will allow for development and population growth to occur in those areas that receive the generated electricity.

Recommendations:
The DEIS should describe the reasonably foreseeable future land use and associated impacts that will result from the additional power supply. The document should provide an estimate of the amount of growth, its likely location, and the biological and environmental resources at risk.

The DEIS should consider the direct and indirect effects of the inter-connecting transmission line for the proposed project, as well as the cumulative effects associated with the transmission needs of other reasonably foreseeable projects.

Climate Change

Scientific evidence supports the concern that continued increases in greenhouse gas emissions resulting from human activities will contribute to climate change. Global warming is caused by emissions of carbon dioxide and other heat-trapping gases. On December 7, 2009, the EPA determined that emissions of GHGs contribute to air pollution that "endangers public health and welfare" within the meaning of the Clean Air Act. A report by the California Energy Commission states that observed changes over the last several decades across the western United States reveal clear signals of climate change. The report states substantially higher temperatures, more extreme wildfires, and rising sea levels are just some of the direct impacts experienced in California that can be attributed, at least partially, to climate change[3]. The report indicates that climate change could result in the following changes in California: poor air quality; more severe heat; increased wildfires; shifting vegetation; declining forest productivity; decreased spring snowpack; water shortages; a potential reduction in hydropower; a loss in winter recreation; agricultural damages from heat, pests, pathogens, and weeds; and rising sea levels resulting in shrinking beaches and increased coastal floods.

Recommendation:
The DEIS should consider how climate change could potentially influence the proposed project and mitigation measures and assess how the projected impacts could be exacerbated by climate change.

The DEIS should quantify and disclose the anticipated climate change *benefits* of solar energy. We suggest quantifying greenhouse gas emissions from different types of generating facilities including solar, geothermal, natural gas, coal-burning, and nuclear and compiling and comparing these values.

Air Quality

The DEIS should provide a detailed discussion of ambient air conditions (baseline or existing conditions), National Ambient Air Quality Standards, criteria pollutant nonattainment areas, and potential air quality impacts of the proposed project (including cumulative and indirect impacts). Such an evaluation is necessary to assure compliance with State and Federal air quality regulations, and to disclose the potential impacts from temporary or cumulative degradation of air quality.

The DEIS should describe and estimate air emissions from potential construction and maintenance activities, as well as proposed mitigation measures to minimize those emissions. The EPA recommends

[3] Moser, Susie, Ekstrom, Julia and Guido, Franco. 2012. Our Changing Climate 2012, A Summary Report on the Third Assessment from the California Climate Change California Energy Commission, CEC-500-2012-007.

an evaluation of the following measures to reduce emissions of criteria air pollutants and hazardous air pollutants (air toxics).

Recommendations:

- *Existing Conditions* – The DEIS should provide a detailed discussion of ambient air conditions, National Ambient Air Quality Standards, and criteria pollutant nonattainment areas in the vicinity of the project.

- *Quantify Emissions* – The DEIS should estimate emissions of criteria pollutants from the proposed project and discuss the timeframe for release of these emissions over the lifespan of the project. The DEIS should describe and estimate emissions from potential construction activities, as well as proposed mitigation measures to minimize these emissions.

- *Specify Emission Sources* – The DEIS should specify the emission sources by pollutant from mobile sources, stationary sources, and ground disturbance. This source specific information should be used to identify appropriate mitigation measures and areas in need of the greatest attention.

- *Construction Emissions Mitigation Plan* – The DEIS should include a draft Construction Emissions Mitigation Plan and ultimately adopt this plan in the Record of Decision. In addition to all applicable local, state, or federal requirements, we recommend the following control measures (Fugitive Dust, Mobile and Stationary Source and Administrative) be included in the Construction Emissions Mitigation Plan in order to reduce impacts associated with emissions of particulate matter and other toxics from construction-related activities:

    - Fugitive Dust Source Controls: The DEIS should identify the need for a Fugitive Dust Control Plan to reduce PM_{10} and $PM_{2.5}$ during construction and operations. We recommend that the plan include these general commitments:
        - Stabilize heavily used unpaved construction roads with a non-toxic soil stabilizer or soil weighting agent that will not result in loss of vegetation, or increase other environmental impacts.
        - During grading, use water, as necessary, on disturbed areas in construction sites to control visible plumes.
        - Vehicle Speed
            - Limit speeds to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.
            - Limit speeds to 10 miles per hour or less on unpaved areas within construction sites on un-stabilized (and unpaved) roads.
            - Post visible speed limit signs at construction site entrances.
        - Inspect and wash construction equipment vehicle tires, as necessary, so they are free of dirt before entering paved roadways, if applicable.
        - Provide gravel ramps of at least 20 feet in length at tire washing/cleaning stations, and ensure construction vehicles exit construction sites through

treated entrance roadways, unless an alternative route has been approved by appropriate lead agencies, if applicable.

- Use sandbags or equivalent effective measures to prevent run-off to roadways in construction areas adjacent to paved roadways. Ensure consistency with the project's Storm Water Pollution Prevention Plan, if such a plan is required for the project
- Sweep the first 500 feet of paved roads exiting construction sites, other unpaved roads en route from the construction site, or construction staging areas whenever dirt or runoff from construction activity is visible on paved roads, or at least twice daily (less during periods of precipitation).
- Stabilize disturbed soils (after active construction activities are completed) with a non-toxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method.
- Cover or treat soil storage piles with appropriate dust suppressant compounds and disturbed areas that remain inactive for longer than 10 days. Provide vehicles (used to transport solid bulk material on public roadways and that have potential to cause visible emissions) with covers. Alternatively, sufficiently wet and load materials onto the trucks in a manner to provide at least one foot of freeboard.
- Use wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock pile areas. Keep related windbreaks in place until the soil is stabilized or permanently covered with vegetation.

o Mobile and Stationary Source Controls:

- If practicable, lease new, clean equipment meeting the most stringent of applicable Federal[4] or State Standards[5]. In general, commit to the best available emissions control technology. Tier 4 engines should be used for project construction equipment to the maximum extent feasible[6].
- Where Tier 4 engines are not available, use construction diesel engines with a rating of 50 hp or higher that meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines[7], unless such engines are not available.
- Where Tier 3 engine is not available for off-road equipment larger than 100 hp, use a Tier 2 engine, or an engine equipped with retrofit controls to reduce

[4] EPA's website for nonroad mobile sources is http://www.epa.gov/nonroad/.
[5] For California, see ARB emissions standards, see: http://www.arb.ca.gov/msprog/offroad/offroad.htm.
[6] Diesel engines < 25 hp rated power started phasing in Tier 4 Model Years in 2008. Larger Tier 4 diesel engines will be phased in depending on the rated power (e.g., 25 hp - <75 hp: 2013; 75 hp - < 175 hp: 2012-2013; 175 hp - < 750 hp: 2011 - 2013; and ≥ 750 hp 2011- 2015).
[7] as specified in California Code of Regulations, Title 13, section 2423(b)(1)

exhaust emissions of nitrogen oxides and diesel particulate matter to no more than Tier 2 levels.

- Consider using electric vehicles, natural gas, biodiesel, or other alternative fuels during construction and operation phases to reduce the project's criteria and greenhouse gas emissions.
- Plan construction scheduling to minimize vehicle trips.
- Limit idling of heavy equipment to less than 5 minutes and verify through unscheduled inspections.
- Maintain and tune engines per manufacturer's specifications to perform at CARB and/or EPA certification levels, prevent tampering, and conduct unscheduled inspections to ensure these measures are followed.

o Administrative controls:

- Develop a construction traffic and parking management plan that maintains traffic flow and plan construction to minimize vehicle trips.
- Identify any sensitive receptors in the project area, such as children, elderly, and the infirm, and specify the means by which impacts to these populations will be minimized (e.g. locate construction equipment and staging zones away from sensitive receptors and building air intakes).
- Include provisions for monitoring fugitive dust in the fugitive dust control plan and initiate increased mitigation measures to abate any visible dust plumes.

Hazardous Materials/Hazardous Waste/Solid Waste

The DEIS should address potential direct, indirect and cumulative impacts of hazardous waste from construction and operation. The document should identify projected hazardous waste types and volumes, and expected storage, disposal, and management plans. It should address the applicability of state and federal hazardous waste requirements. Appropriate mitigation should be evaluated, including measures to minimize the generation of hazardous waste (i.e., hazardous waste minimization). Alternate industrial processes using less toxic materials should be evaluated as mitigation. This potentially reduces the volume or toxicity of hazardous materials requiring management and disposal as hazardous waste.

PV Production/Recycling

PV production can address the full product life cycle, from raw material sourcing through end of life collection and reuse or recycling. PV companies can minimize their environmental impacts during raw material extraction and minimize the amount of rare materials used in the product. PV manufacturing facilities exist that are zero waste and have no air or water emissions. PV companies can facilitate future material recovery for reuse or recycling. Several solar companies have developed approaches to recycling solar modules that enable treatment and processing of PV module components into new modules or other projects. Solar companies can facilitate collection and recycling through buy-back

programs or collection and recycling guarantees. Several companies provide recycling programs that pay all packaging, transportation, and recycling costs.

Recommendation:
The EPA recommends that the proponent strive to address the full product life cycle by sourcing PV components from a company that: 1) minimizes environmental impacts during raw material extraction; 2) manufactures PV panels in a zero waste facility; and 3) provides future PV disassembly for material recovery for reuse and recycling.

Incorporating Best Management Practices and Design Features from other Regional Renewable Energy Siting Efforts.

The California Desert Renewable Energy Conservation Plan, scheduled for completion in early 2013, is intended to advance State and federal conservation goals in the desert regions while also facilitating the timely permitting of renewable energy projects in California. The DRECP has developed a list of Best Management Practices for the development of renewable energy projects in the arid regions of California. The Solar Programmatic EIS, scheduled for completion in the Fall of 2012, is being developed by the Department of Energy and Bureau of Land Management and is intended to apply to all pending and future solar energy development applications. The Solar Programmatic EIS also contains a listing of Best Management Practices or Design Features associated with siting and design, construction, operation and maintenance, and decommissioning of solar energy projects to be developed on public lands. Though the proposed project is located on private land and outside the DRECP planning area, some of the Best Management Practices and Design Features may be applicable to the project.

Recommendation:
We recommend that the USACE incorporate, as applicable, Best Management Practices or design features from the Best Management Practices and Guidance Manual: Desert Renewable Energy Projects, Dec 2010, Publication #REAT-1000-2010-009-F and the BLM Solar Programmatic EIS.

Coordination with Tribal Governments

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Indian tribes.

Recommendation:
The DEIS should describe the process and outcome of government-to-government consultation between the USACE and each of the tribal governments within the project area, issues that were raised (if any), and how those issues were addressed in the selection of the proposed alternative.

National Historic Preservation Act and Executive Order 13007
Consultation for tribal cultural resources is required under Section 106 of the National Historic Preservation Act. Historic properties under the NHPA are properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. Section 106 of the NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer. Under NEPA, any impacts to tribal, cultural, or other treaty resources must be discussed and mitigated. Section 106 of the NHPA requires that Federal agencies consider the effects of their actions on cultural resources, following regulation in 36 CFR 800.

Executive Order 13007, *Indian Sacred Sites* (May 24, 1996), requires federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian Religious practitioners, and to avoid adversely affecting the physical integrity, accessibility, or use of sacred sites. It is important to note that a sacred site may not meet the National Register criteria for a historic property and that, conversely, a historic property may not meet the criteria for a sacred site.

> *Recommendation:*
> The DEIS should address the existence of Indian sacred sites in the project areas. It should address Executive Order 13007, distinguish it from Section 106 of the NHPA, and discuss how the USACE will avoid adversely affecting the physical integrity, accessibility, or use of sacred sites, if they exist. The DEIS should provide a summary of all coordination with Tribes and with the SHPO/THPO, including identification of NRHP eligible sites, and development of a Cultural Resource Management Plan.

Environmental Justice and Impacted Communities

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994) and the *Interagency Memorandum of Understanding on Environmental Justice* (August 4, 2011) direct federal agencies to identify and address disproportionately high and adverse human health or environmental effects on minority and low-income populations, allowing those populations a meaningful opportunity to participate in the decision-making process. Guidance[8] by CEQ clarifies the terms low-income and minority population (which includes Native Americans) and describes the factors to consider when evaluating disproportionately high and adverse human health effects.

> *Recommendations:*
> The DEIS should include an evaluation of environmental justice populations within the geographic scope of the projects. If such populations exist, the DEIS should address the potential for disproportionate adverse impacts to minority and low-income populations, and the approaches used to foster public participation by these populations. Assessment of the projects

[8] Environmental Justice Guidance under the National Environmental Policy Act, Appendix A (Guidance for Federal Agencies on Key Terms in Executive Order 12898), CEQ, December 10, 1997.

impact on minority and low-income populations should reflect coordination with those affected populations.

The DEIS should describe outreach conducted to all other communities that could be affected by the project, since rural communities may be among the most vulnerable to health risks associated with the project.

Children's Health and Safety

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks (April 21, 1997)*, directs each Federal agency, to the extent permitted by law and appropriate, to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, and to ensure that its policies, programs, activities, and standards address these risks. The Executive Order recognizes that some physiological and behavioral traits of children render them more susceptible and vulnerable than adults to environmental health and safety risks. Children may have a higher exposure level to contaminants because they generally eat more food, drink more water, and have higher inhalation rates relative to their size. Children also exhibit behaviors such as spending extensive amounts of time in contact with the ground and frequently putting their hands and objects in their mouths that can also lead to much higher exposure levels to environmental contaminants. In addition, a child's neurological, immunological, digestive, and other bodily systems are also potentially more susceptible to exposure related health effects. It has been well established that lower levels of exposure can have a negative toxicological effect in children as compared to adults, and childhood exposures to contaminants can have long-term negative health effects. Examples include life-long neurological deficits resulting from exposure to lead, mercury and other metals, and the increased susceptibility to particulate matter and other asthma triggers in the environment.

It is well documented that children are more susceptible to many environmental factors that are commonly encountered in EIS reviews, including exposure to mobile source air pollution, particulate matter from construction or diesel emissions and lead and other heavy metals present in construction and demolition debris or mining waste. We recommend that an analysis of potential impacts to children be included in a DEIS if disproportionate impacts on children caused by the proposed action are reasonably foreseeable. Childhood exposures at each lifestage, including those experienced via pregnant and nursing women, are relevant and should be considered when addressing health and safety risks for children.

Recommendations:
The EPA recommends that the DEIS assess children's potential exposures and susceptibilities to the pollutants of concern, including the following:

- Identification of the pollutants and sources of concern: Consider whether the pollutants and sources of concern pose a particular hazard to children's health (for example, PM_{10}, dust, heavy metals, or air pollution from near construction or roadway exposures).
- Exposure Assessment: Describe the relevant demographics of affected neighborhoods, populations, and/or communities and focus exposure assessments on children who are

likely to be present at schools, recreation areas, childcare centers, parks, and residential areas in close proximity to the proposed project, and other areas of apparent frequent and/or prolonged exposure.

- Baseline health conditions: Consider obtaining and discussing relevant, publicly available health data/records for the populations, neighborhoods, and/or communities of concern.
- Impacts from Mobile Source Air Pollutant Emissions: Consider exposure and impacts to children from mobile source air pollutants from project construction and operations, including significant increases in traffic predicted as a result of the project. Children are believed to be especially vulnerable due to higher relative doses of air pollution, smaller diameter airways, and more active time spent outdoors and closer to ground-level sources of vehicle exhaust. Identify children's proximity to project emission sources, including transportation corridors and construction sites.
- Respiratory Impacts/Asthma: Within the discussion on air pollution impacts, consider data on existing asthma rates and asthma severity among children and the general community living, working, playing, and attending school and daycare near the project site. To the extent feasible, identify potential for increased health risks of the project with respect to asthma rates and severity in children near the project site and discuss associated potential costs.
- Noise Impacts: Consider impacts from noise on health and learning, especially near homes, schools, and daycare centers.
- Impacts from Other Chemical or Physical Exposures: Consider potential impacts to children from other site activities, such as pesticide application, demolition, etc.

Coordination with Land Use Planning Activities

The DEIS should discuss how the proposed action would support or conflict with the objectives of federal, state, tribal or local land use plans, policies and controls in the project areas. The term "land use plans" includes all types of formally adopted documents for land use planning, conservation, zoning and related regulatory requirements. Proposed plans not yet developed should also be addressed it they have been formally proposed by the appropriate government body in a written form (CEQ's Forty Questions, #23b).

Implementation of Adaptive Management Techniques for Mitigation Measures

Adaptive management is an iterative process that requires selecting and implementing management actions, monitoring, comparing results with management and project objectives, and using feedback to make future management decisions. The process recognizes the importance of continually improving management techniques through flexibility and adaptation instead of adhering rigidly to a standard set of management actions. Although adaptive management is not a new concept, it may be relatively new in its application to specific projects. The effectiveness of adaptive management monitoring depends on a variety of factors including:

- The ability to establish clear monitoring objectives.

- Agreement on the impact thresholds being monitored.
- The existence of a baseline or the ability to develop a baseline for the resources being monitored.
- The ability to see the effects within an appropriate time frame after the action is taken.
- The technical capabilities of the procedures and equipment used to identify and measure changes in the affected resources and the ability to analyze the changes.
- The resources needed to perform the monitoring and respond to the results.

Recommendation:
The EPA recommends that USACE consider adopting a formal adaptive management plan to evaluate and monitor impacted resources and ensure the successful implementation of mitigation measures. The EPA recommends that USACE review the specific discussion on Adaptive Management in the NEPA Task Force Report to the Council on Environmental Quality (CEQ) on *Modernizing NEPA*[9].

[9] CEQ, The NEPA Task Force Report to the Council on Environmental Quality: Modernizing NEPA Implementation (Sept. 2003), available at http://ceq.hss.doe.gov/ntf/report/totaldoc.html.

Amah Mutsun Tribal Band of Costanoan/Ohlone Indians
Historically known as "San Juan Bautista Band and San Juan Band" Indians of California
PO Box 5272 | Galt, CA 95622

September 6, 2012

Katerina Galacatos, Permit Manager
US Army Corps of Engineers
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Subject: Panoche Valley Solar Farm Project

Dear Ms. Galacatos,

The Amah Mutsun Tribal Band is pleased to submit the following comments in response to the Panoche Valley Solar Farm Project, San Benito County. Most of these comments were previously submitted to Mr. Gary Armstrong of the Planning Department of San Benito County on August 20, 2010. The AMTB opposes this project, with no qualifications, for the purposes outlined below.

No archaeological resources, as defined by the State of California, were identified during the ground survey conducted by parties contracted by Solargen. According to archaeologist Jeff Rosenthal, of Far Western Anthropological Research Group, Inc., the alluvial soils of the Valley are relatively recent, having probably buried identifiable cultural resources to a depth that will probably not be disturbed by this project. AMTB feels that the cultural resource inventory was conducted in good faith by qualified professionals. However, AMTB – as with most other tribes in California, has a much broader definition of "cultural resources" than is currently accepted by the State, or is addressed by rudimentary surface surveys.

AMTB asserts that the construction of the solar farm negatively intrudes upon the sacred lands of our ancestors, and will irreversibly damage natural resources with both ecological and cultural significance. Our Tribe feels that the construction of the solar farm not only intrudes upon sacred lands, but the environmental and economical degradation, and lack of controls upon the plant will adversely affect the tribe, their culture, and neighboring residents. In addition, the project lacks a suitable plan for restoration of the land should the project fail, or become obsolete.

The AMTB has a long and well-documented history with this land. Within our living membership are descendents of many of the families that once inhabited, and even led the Indian community of Panoche Valley. We believe that, especially given far better options for alternative

energy generation, such a large-scale conversion of this historic landscape will yield the County of San Benito far more negative than positive outcomes.

The Amah Mutsun Tribal Band provides the following specific objections to the Panoche Valley Solar Farm Project:

1. It is our position that there will be the loss or destruction of buried cultural resources if this project is approved. We believe that the installation of 1.8 million four to six-inch diameter metal pipe or six-inch I-beams to a depth of six feet or deeper has a high probability of disturbing or destroying cultural resources, including Native American Human Remains and burial associated grave items.
   a) The fact that resources are not visible to surface surveys does not preclude the probability of their existence, nor their susceptibility to damage or disturbance. Furthermore, when these poles are eventually removed or replaced, that activity introduces an additional opportunity for destruction of cultural resources, with a much lower likelihood of detection or reporting.
2. The large poles, two feet in diameter, that connect the substation to the existing utility line will be buried to "about 20 feet deep." We believe these poles have a high probability to destroy cultural resources as well.
3. The AMTB is also concerned about the use of chemicals in the manufacturing of the steel poles. Many toxic chemicals have been identified with the manufacturing of these types of poles and over the lifetime of the poles these chemicals will leech out and enter the contaminate the ground and waterways. In addition, it is our understanding that a chemical is added to the surface of the steel poles prior to being driven into the ground this will also contaminate the ground and waterways.
4. The AMTB recognizes local plants and wildlife as significant cultural resources. The loss of 4,717 acres of potentially sensitive or culturally significant plant and animal life will likely have a devastating impact on this historic landscape. We have concerns about the visual impact of solar panels (reflective disturbance to airborne wildlife); barriers to migration; affects to nearby aquatic habitats; and additional "transportation kill zones" created by new service roads installed to support the maintenance of the facility.
5. The Tribe also recognized the two rivers within the project area to be cultural resources. Our primary concern here is the potential for new impervious or graded surfaces to increase erosion or entrenchment of these waterways such that cultural resources may be exposed or destroyed over time.
   a) We're also concerned about the long-term leeching of contaminants into the ground and river. Since metal pipes, and solar panels will most likely be manufactured overseas there will be insufficient quality control on the product manufacturing.
   b) Our Tribe feels there is potential for contamination, such as by arsenic, cadmium, and other lethal products commonly found in metals and alloys used in this industry.
   c) In the event this project be approved, we believe that the operator/owner must fund an independent, qualified third party to conduct annual water and soil testing for contaminants, and that those data be made publically available

6. The AMTB supports the objective of energy independence at the state and local level. However, when the majority of shareholders and investors in Solargen Energy, Inc., and their partner companies, are based overseas, our Tribe feels that the needs of the local community will often be subordinated to outside interests. Similarly, it appears that a majority of the manufacturing associated with this project will be conducted outside of the United States, most notably in China. Our Tribe believes that this importation of foreign goods is contrary to the goal of the federal economic stimulus.
7. The Amah Mutsun Tribal Band believes the technology and approach advocated by this project may be obsolete within 10 - 15 years. Recent scholarly articles seem to indicate that the trajectory of the industry lies not with huge, concentrated solar farms with photovoltaic cells, but with rooftop installations based closer to the end-user.
   a) Research by Matthias Loster addresses the expense of photovoltaic panels and recommends the use of small solar farms outside of the region - he indicates Solargen's proposal is more appropriate for areas outside of California (see http://www.ez2c.de/ml/solar_land_area/index.html)
   b) Solargen's proposal does not incorporate the latest approaches or technologies designed to maximize the harvest of solar energy. Using stationary photovoltaic panels not equipped with solar tracking devices will significantly reduce the efficiency of the power plant.
   c) This proposal, as written, cannot reliably provide energy to local residents more efficiently than the alternatives of small solar fields or rooftop solar panels.

AMTB is acutely aware of the growing energy crisis in California, and strongly supports efforts to increase efficiencies and develop new sources of sustainable energy. However we cannot support ill-conceived, poorly designed projects that have the potential to do more harm than good, especially within our aboriginal territory. As greater investment is made in the research and development of this sector, it appears that the photovoltaic solar panel is rapidly being outpaced by newer, more efficient and practical solutions such as photon enhanced thermionic emission (PETE), and many others. However, the infrastructure required by PETE and standard photovoltaic panels are not interchangeable. Allowing the Panoche Valley project to commence would be to authorize technology that may soon be obsolete, and may likely be outmoded technology before the project is even complete (see http://www.sciencedaily.com/releases/ 2010/08/100802101813.htm). AMTB feels that the money to be used for the Panoche Valley Solar Farm would be better used to subsidize local and regional residential and commercial solar development - not for constructing a centralized power plant in the Panoche Valley to be controlled and regulated by outside interests.

In the event this project is approved the Amah Mutsun request that a Native American Monitor(s) from our Tribe be hired to monitor all ground disturbance activities that could expose

cultural resources or Native American human remains. We further request that an agreement be signed that requires Native American Monitor(s) from our Tribe to be hired to monitor the removal, repair, replacement of any solar panel pole.

In conclusion, the Amah Mutsun Tribal Band opposes Solargen Energy, Inc.'s proposal to construct the Panoche Valley Solar Farm. The Tribe feels that this project is risky from an economical, environmental, scientific, and cultural point of view and does not sufficiently address the needs and concerns of the Amah Mutsun Tribal Band, the residents of San Benito County, nor the citizens of California.

Sincerely,

Valentin Lopez, Chairman

STATE CAPITOL
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(916) 319-2028 Phone
(916) 319-2128 Fax

DISTRICT OFFICE
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Assemblymember.Alejo@asm.ca.gov

ASSEMBLY
CALIFORNIA LEGISLATURE

LUIS A. ALEJO
ASSEMBLYMEMBER, TWENTY-EIGHTH DISTRICT

COMMITEES
CHAIR ENVIRONMENTAL SAFETY AND TOXIC MATERIALS
LOCAL GOVERNMENT
BUDGET SUBCOMMITTEE#5 PUBLIC SAFETY
LABOR AND EMPLOYMENT
RULES
JUDICIARY

JOINT COMMITTEES
LEGISLATIVE AUDIT
RULES

SELECT COMMITTEES
CALIFORNIA-MEXICO BI-NATIONAL AFFAIRS
DELINQUENCY PREVENTION AND YOUTH DEVELOPMENT
HIGH TECHNOLOGY
HIGH SPEED RAIL FOR CALIFORNIA
REGIONAL APPROACHES TO ADDRESSING THE STATE'S WATER CRISIS
STATE HOSPITAL SAFETY
SUSTAINABLE AND ORGANIC AGRICULTURE

August 31, 2012

Katerina Galacatos
Permit Manager
Regulatory Division
U.S. Army Corps of Engineers
1455 Market Street 16th Floor
San Francisco, CA 94103-1398

RE: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR PANOCHE VALLEY SOLAR FARM

Dear Ms. Galacatos,

Thank you for the extension for the public to submit additional comments on the Environmental Impact Statement for the proposed Panoche Valley Solar Farm and for the opportunity for me to also submit my own comments.

As the Assemblymember of the 28th District, representing San Benito County, I am writing you to express my strong support for the Panoche Valley Solar Farm (the "Project") which I understand will generate 399 megawatts of 100% renewable energy.

In 2011, the Board of Supervisors of San Benito County unanimously approved all of the required entitlements for the development and construction of the Project. During the public comment process, I supported the Project due to its benefits to the regional economy through job creation, generation of economic activity, job training opportunities in a rapidly growing industry, and commitment to preserving 9 acres of pristine habitat for multiple sensitive species in the Panoche Valley to every 1 acre developed. All these activities result in tax revenues and environmental protection that are vital to San Benito County.

The recent addition of Duke Energy ("Duke"), the largest electric utility in the country owning a $100 billion balance sheet and its renewable energy subsidiary, which has spent roughly $3 billion since 2007 to build wind and solar farms across the U.S., greatly enhances the inevitability of this 100% renewable solar facility.

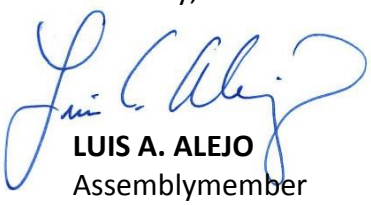
True to its conservative approach to developing renewable energy projects, Duke Energy is awaiting the signing of a long-term power purchase agreement (PPA) with a buyer for the electricity the

Panoche Valley Solar Project will generate prior to committing to constructing the solar farm. I plan to offer any assistance I can to encourage California electric utilities, particularly Pacific Gas & Electric, to engage in expeditious negotiation with the Project owners that culminates in a PPA that is fair to all parties – including electric ratepayers – and creates a major boost to our local economy.

Given the important environmental protections and high degree of competition among California communities for job creation and capital investment opportunities that renewable energy projects bring, it is critical that I support this important Project.

For the above mentioned reasons, I stand behind the proposed Panoche Valley Solar Farm in San Benito County. Please feel free to contact me if you have any questions or need additional information regarding my support for this great project. I can be reach at (831) 759-8676 or via email at Assemblymember.Alejo@asm.ca.gov.

Sincerely,



LUIS A. ALEJO
Assemblymember
28th District

Audubon CALIFORNIA

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September 7, 2012

Ms. Katerina Galacatos,
US Army Corps of Engineers
San Francisco District
Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

VIA Email: spn.eis.panoche@usace.army.mil
415-503-6778

RE: SPN-2009-00443S

Dear Ms. Galacatos:

For more than a century, Audubon has built a legacy of conservation success by mobilizing the strength of its network of members, Chapters, Audubon Centers, state offices and dedicated professional staff to connect people with nature and the power to protect it.

On behalf Audubon California's 150,000 members and supporters we thank you for the opportunity to submit our scoping comments on the Notice of Preparation (NOP) of an Environmental Impact Statement (EIS) for the Panoche Valley Solar Farm Project (Project), a large scale solar project originally proposed by Solargen Energy, Inc., and now held by PV2, its third owner in the two years since it's approval by San Benito County Board of Supervisors.

Audubon California is firmly committed to fighting global warming. In recognition of the growing threats to human and ecological communities presented by the unabated release of greenhouse gases we have championed the aggressive development of both energy conservation and renewable energy generation. In locations throughout our state Audubon at the state level and our chapters at a local level have successfully collaborated on the development of renewable energy facilities—striking a balance between landscape conservation priorities and renewable energy.

Unfortunately, in our assessment the solar project proposed for Panoche Valley does not strike this balance due to the considerable cumulative ecological impacts to this location both locally and regionally, and on the unprecedented number of sensitive species of wildlife impacted by this project.

In November 2010 the San Benito County Board of Supervisors certified the final Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act. That certification and the EIR itself are currently under continuing California Environmental Quality Act litigation by our chapter Santa Clara Valley Audubon Society and others. We opposed the project at

the San Benito County hearing to certify the FEIR, and we support our colleagues at Santa Clara Valley Audubon in this litigation.

Our comments follow:

Purpose and Need

While ACOE's jurisdiction may be limited in some ways to waters, the critical role of water in sustaining an ecology that includes species of wildlife in California is clearly established, even and perhaps more importantly on former or current agricultural lands such as the Panoche Valley. The EIS must address the impacts of the entire project, including the alteration of waters over which ACOE has jurisdiction, on the ecology and all biological resources.

It is clear that renewable energy development, like other forms of energy development, has environmental impacts on biological resources. In the case of endangered, threatened or sensitive biological resources, we ask our agencies to fulfill their obligation and duty to the public to ensure the survival and persistence of those species by analyzing and mitigating impacts to their survival. We firmly support avoidance over mitigation as the most successful minimization of impact.

The permitting of energy development by our federal agencies includes the option to avoid significant and irreversible impacts of a project by denying a permit application and by preferring the environmentally superior NO PROJECT Alternative.

Therefore, the ACOE's statement of purpose and need in the EIS should be broader than responding to an application for a permit, or meeting national, state or local renewable energy goals.. **We ask that ACOE consider including the avoidance, minimization or mitigation of impacts of the entire project on ecological and biological resources as an additional purpose and need for the EIS.**

Alternatives

The EIS is an opportunity to fully analyze a more appropriate range of alternatives to the project than was analyzed in the EIR including the proposed project and no project as required by NEPA. This range of alternatives should include environmentally superior alternatives that meet the goals of the project to generate 399 MW of renewable energy to meet California's Renewable Energy goals.

Those environmentally superior alternatives should include an analysis of mechanically disturbed lands including agricultural lands that will have considerably less impact on biological resources than the project. For example, **the Westlands CREZ alternative** may be an environmentally superior alternative presented in the EIS. The 30,000 acres of fallow, degraded farmland of Westlands Water District in Fresno and Kings County is one of the most promising in the state for large scale solar development outside of the desert. The Westlands CREZ site could provide up to 5,000 MW (5GW) of renewable energy with seemingly low impact to biological resources and high potential for more certainty in environmental review and permitting. A project built within the Westlands CREZ would remove the need for a smaller project with significant and immitigable impacts on biological resources in a globally recognized area of conservation importance such as the Panoche Valley.

Additionally, obstacles to this alternative stated in the FEIR no longer exist such as deadlines for federal funding, economic status or ability of SolarGen, Inc., etc. no longer apply and this alternative should be evaluated again by ACOE in the EIS.

Impacts on biological resources

The project proposes to develop a large portion of the valley floor that is home to a significant proportion of many federally listed and other special status species, and remains one of the few places in California with remnant, intact populations of San Joaquin Valley endemic sub-species. The project will utilize upwards of 40% of the valley floor (almost 5,000 of approx. 12,000 acres) and there will be significant and unavoidable direct impacts, including many that are immitigable, to a host of species. There will also be indirect impacts on these species on acres adjacent to the project site.

Panoche Valley is notable for its extensive grassland habitat, a rare and declining ecosystem throughout California and the US. It remains one of the few intact places in the Central Valley that still contains a suite of upland San Joaquin Valley species, three of which are federally endangered (San Joaquin Kit Fox, Blunt-nosed Leopard Lizard, and Giant Kangaroo Rat). Panoche Valley contains habitat for these species because it is relatively isolated, remains largely undeveloped, and contains expansive grasslands that have not been converted to row crops. The Recovery Plan for the Upland Species of the San Joaquin Valley[1] cites Panoche Valley as important to the recovery of many San Joaquin species that formerly occupied large areas of the San Joaquin Valley floor.

Species of birds

Panoche Valley is also biologically significant because it attracts a large number of bird species that specialize in grassland ecosystems; most of these species are listed in California and considered declining throughout their range. For example, the DEIR states that seven special status bird species (all reliant on grasslands) were observed within the project area based on limited surveys and anecdotal observations, and another four species with a moderate to high chance of occurring. In addition to multiple sensitive bird species documented at Panoche Valley, the area is generally considered high in avian diversity. For example, records from birding databases indicate that approximately 210 bird species (based on Audubon Christmas Bird Count[2] and eBird[3] databases combined; all years) have been recorded in Panoche Valley, including ten special-status bird species recorded in the project area by citizen scientists.

National Audubon Society has recognized Panoche Valley as a globally significant *Important Bird Area,*[4] [5]a point highlighted in the DEIR. The Important Bird Areas Program, administered by the National Audubon Society in the United States, is part of an international effort to designate and support conservation efforts at sites that provide significant breeding, wintering, or migratory habitats for specific species or concentrations of birds. Sites are designated based on specific and standardized criteria and supporting data. Panoche Valley was labeled as "globally significant" because of the presence of a significant portion of the global population of Mountain Plover wintering here. Mountain Plover is currently being reviewed by the United States Fish & Wildlife Service (USFWS) for listing under the Endangered Species Act as Federally Threatened[6] and is listed under the International Union for the Conservation of Nature Red List as "Near Threatened" and decreasing in population. The Panoche Valley Important Bird Area (IBA) is also notable for

providing breeding habitat for multiple sensitive grassland bird species (including Burrowing Owl), and for its high concentrations of wintering raptors and enormous sparrow flocks in fall and winter.

The EIS should consider the impacts of the project on all species of birds and other wildlife, including but not limited to the following species of birds that we are especially concerned about:

Mountain Plover (CA Bird Species of Special Concern; candidate for federal listing)

The USFWS has reinstated a proposal (after an initial proposal in 2003) to list the Mountain Plover as a Threatened species under the Federal Endangered Species Act.[7]

Mountain Plovers breed in the western Great Plains and Rocky Mountain States from the Canadian border to northern Mexico. They winter primarily in California and also in southern Arizona, Texas and Mexico. California's Sacramento, San Joaquin, and Imperial Valleys are believed to support the greatest number of wintering Mountain Plovers[8]. Unlike other plovers, Mountain Plovers inhabit flat areas with short grass or bare ground. In the Central Valley Mountain Plovers are found on flat tilled or burned fields or heavily grazed annual grasslands. Movement patterns of wintering birds vary, including the potential for birds to move within local areas as well as between sites up to 127 km.[9] California is estimated to have 50-88% of the world's population and up to 95% of the total plovers reported in the U.S. during annual (from 1988 to present) Christmas Bird Counts[10]. The global population estimates range from 11,000-14,000 birds.[11] The North American population was recently estimated at 8,000 to 10,000 birds.[12] Based on sporadic birding surveys and Christmas Bird Count data (0 to 630 birds reported 1987 – 2009), Panoche Valley can contain from 1-5% of the global population in a given year and up to 10% of the US population.

Burrowing Owl (CA Bird Species of Special Concern)

Impacts to Burrowing Owl must be included in the EIS, and those impacts should be analyzed with data from surveys in the Project Impact Evaluations that follow recently released **Staff Report on Burrowing Owl Mitigation** State of California Natural Resources Agency **Department of Fish and Game** March 7, 20121 as the data in the EIR is deficient.

The FEIR for the project reports "Nearly the entire 4,885 acre proposed project site provides suitable foraging, nesting, and roosting habitat for burrowing owls." "LOA (project proponent's environmental consultant) reported eleven occurrences of Burrowing Owls on the site, and there are two CNDDB (2010) records of Burrowing Owls within a ten-mile radius of the site. There are abundant small mammal burrows on-site that owls may use for refuge and/or nesting, and there is abundant prey present."[13]

There was no Burrowing Owl mitigation plan prepared for the project.

Golden Eagle (CA Fully Protected Species)

Golden Eagles are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Eagle Act), both of which prohibit take. Take means *pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest,* or *disturb. Disturb* means "to agitate or bother a Bald Eagle or a Golden Eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially

interfering with normal breeding, **feeding**, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In response to our comments, the EIR was revised to state "However, in consultation with the USFWS, flight surveys were conducted in the non- breeding season by Bloom Biological in early August 2010 within 10 miles of the site. Fifteen golden eagle nests were observed within the 10-mile radius of the project site. Four of the nests showed evidence of having young fledged in 2010. No golden eagle nests occurred within 2 miles of the project boundary (survey results are presented in Appendix 4)."

Additionally, loss of foraging habitat can be considered "take."

In response to our comments the EIR was revised to include "**Golden eagle foraging habitat.** The Applicant shall compensate for permanent impacts to habitat for foraging golden eagles with the creation of permanent conservation easement(s). Conservation easement(s) shall provide habitat preservation, in perpetuity at a ratio of 2:1 for all impacted acreage. Preserved habitat shall be of equal or greater quality after any restoration activity (as defined in Table C.6-6) compared to the impacted habitat. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species."

The EIS should consider the effectiveness and availability of this mitigation measure for Eagles that nest near the project site, as well as migrating Eagles and floaters.

Short-eared Owl (CA Bird Species of Special Concern)

Impacts to Burrowing Owl must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

As stated in the DEIR, Short-eared Owls have nested in the project vicinity typically in response to vole population irruptions following exceptionally rainy years. Nests were noted in 1998 [14] and a bird was observed in the mitigation area in March 2008.[15] No surveys were targeted for this species so we are unable to determine their current status during the breeding season or winter months. As a diurnal owl that forages at dawn and dusk and roosts in long grasses during the day, this bird is challenging to detect, and specialized surveys should be conducted in both the project area and on mitigation lands from October through March, when most birds occur in California, as well as during the breeding season. Birds are more likely to be nesting in Panoche Valley during El Nino years so one survey in February/March 2010 reported in the EIR is not sufficient, particularly during the El Nino year of 2009, to determine presence of nests. Mitigation for this species requires expansive grasslands. For example, conservation of breeding and foraging habitat is recommended to be at least 250 acres of appropriate grassland habitat.[16]

Loggerhead Shrike (CA Bird Species of Special Concern)

Impacts to Loggerhead Shrike must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

Project proponent did not conduct surveys specifically for this species but observed them during Blunt-nosed Leopard Lizard surveys and incidentally within the project area. The entire project area

provides foraging habitat for Loggerhead Shrike both during the breeding and winter months, and like many grassland birds this species will move around Panoche Valley and numbers will fluctuate based on availability of prey species. Nesting locations for this species may be located throughout the project area and are difficult to find and therefore targeted breeding season surveys need to be conducted to determine nesting locations and numbers of breeding pairs.

Loggerhead Shrikes are experiencing significant declines in California, particularly in the Central Valley due to habitat loss and degradation.[17] Panoche Valley CBC annually records between 11 and 50 birds in the winter suggesting this area's regular occurrence of the species during the winter. It is not known specifically where and how many of these birds breed in Panoche Valley. The habitat requirements for Loggerhead Shrikes are complex, and therefore mitigation strategies can not be lumped wholesale with other grassland species or grassland habitat in general. We are also concerned that impacts to insect and small mammal populations within and adjacent to the construction area, including in the "mitigation" lands might eliminate the entire project site as foraging habitat.

Grasshopper Sparrow (CA Bird Species of Special Concern)

Impacts to Grasshopper Sparrow must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

While much of the grassland within the project area is heavily grazed and therefore probably not suitable for Grasshopper Sparrows, this species is known to nest within Panoche Valley, likely in spring after heavy rainfall or along the base of the foothills in longer grasses and in areas with scattered shrubs or forbs.
Without targeted surveys during the appropriate time of year, the species can not be considered either present or absent. Grasshopper Sparrows are extremely difficult to detect except during the period when they are singing within a nesting territory (only for several weeks during April – July) and no surveys were conducted during this period.

Biologists trained and able to hear Grasshopper Sparrows (many people can not hear the range within which they sing) need to conduct weekly spot-mapping surveys before determining impacts from this project. In addition, ACOE should ask DFG for all records of rare, threatened and endangered species of birds that have may have been submitted to but not yet entered into the CNDDB for analysis of this species.

Grasshopper Sparrows typically will only select grasslands as nesting and foraging habitat that is a minimum size of 50 acres, and preferable more than 100 acres of continuous open grassland, with scattered shrubs or forbs as nesting habitat.[18] It is highly unlikely that birds, if occurring within the project footprint, would continue to occur following construction as the layout of solar panels will break the appearance of a contiguous large grassland. Mitigation strategies need to determine whether the species occurs within the mitigation lands, and maintain or restore the types and acreage of grassland required for this species.

Habitat requirements for Mountain Plover, Short-eared Owl, Loggerhead Shrike and Grasshopper Sparrow, while all grassland specialists, are considerably different in their ecology so that a "one size fits all" approach will not be an adequate mitigation strategy without habitat management and/or restoration aimed at specific life history habitat needs of each species.

Tricolored Blackbird (CA Bird Species of Special Concern)

Impacts to Tricolored Blackbid must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

The DEIR states "Tricolored blackbirds have been observed on the proposed project site and suitable foraging habitat for tricolored blackbirds is present throughout, although nesting habitat (i.e., cattail marshes, blackberry thickets, thistle stands) is absent. A large tricolored blackbird colony is known to occur approximately 8 miles north of the proposed project at Little Panoche Reservoir."[19]

Raptors

Impacts to raptors including endangered, threatened or sensitive species, must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

The FEIR added additional, limited surveys for the following species which should be evaluated fo with scientific defensible data.

- **Northern Harrier**
- **Swainson's Hawk**
- **White-tailed Kite**

Oregon Vesper Sparrow (CA Species of Special Concern)

Impacts to Oregon Vesper Sparrow must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

California Condor (Federally endangered)

While the DEIR states that there in a moderate chance of condors occurring on the project site and that "medium voltage lines that will traverse the project site may present a substantial electrocution threat to large birds"[20] no further analysis or consideration was given to impacts to California Condors. Birds from either the Big Sur region or Pinnacles National Monument may fly over or forage within Panoche Valley.

The EIR was revised to state: "The project could result in the loss of foraging habitat for golden eagles, California condors, and other special-status raptors" and Global positioning system (GPS) flight data from the USFWS indicate that released California condors have passed over the project site (USFWS, 2010e)."

Proposed Mitigation

The EIS should address the mitigation proposed by the project proponent.

Many of the bird species that occur in Panoche Valley are grassland species that require flat, short grasslands without impeding buildings or structures. The DEIR for the Panoche Solar Farm clearly states that the land purchased for mitigation by the developer does not meet this simple requirement. The DEIR states that, "The topography of the mitigation lands is more variable and they support a

greater diversity of habitat types," and that, "The amount and quality of information documenting the extent of occupancy of the proposed mitigation site by these and other special-status species, and the extent of suitable habitat for affected species on the mitigation site, is highly variable."[21]

Thank you for consideration of our comments.

Sincerely,

Garry George
Renewable Energy Project Director
AUDUBON CALIFORNIA

ENDNOTES

[1] U.S. Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California . Region 1, Portland, OR. 319 pp
[2] National Audubon Society (2002). The Christmas Bird Count Historical Results [Online]. Available http://www.audubon.org/bird/cbc [August 2010]
[3] Avian Knowledge Network. 2009. Avian Knowledge Network: An online database of bird distribution and abundance [web application]. Ithaca, New York. Available: <www.avianknowledge.net>. (Accessed: Date [e.g., February 2, 2009]).
[4] National Audubon Society. 2010. http://iba.audubon.org/iba/viewState.do?state=US-CA
[5] National Audubon Society. 2008. Important Bird Areas in the U.S. Available at http://ca.audubon.org/maps/pdf/Panoche_Valley.pdf
[6] U.S. Fish & Wildlife Service press release, June 28, 2010. Mountain Prairie Region
[7] U.S. Fish & Wildlife Service press release, June 28, 2010. Mountain Prairie Region.
[8] Knopf, Fritz L. and M. B. Wunder. 2006. Mountain Plover (*Charadrius montanus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/211
[9] Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
[10] Ibid
[11] Ibid
[12] :Plumb et al, Minimum Population Size of Mountain Plovers breeding in Wyoming, Wilson Bulletin 117(1):15-22, 2005
[13] San Benito County Planning Commission, Panoche Valley Solar Project DEIR, June 2010, Sec. c-6 Biological Resources, p. 90
[14] National Audubon Society. 2008. Important Bird Areas in the U.S. Available at http://ca.audubon.org/maps/pdf/Panoche_Valley.pdf
[15] Avian Knowledge Network. 2009. Avian Knowledge Network: An online database of bird distribution and abundance [web application]. Ithaca, New York. Available: <www.avianknowledge.net>. (Accessed: Date [e.g., February 2, 2009]).
[16] Wiggins, D. A., D. W. Holt and S. M. Leasure. 2006. Short-eared Owl (*Asio flammeus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/062.
[17] Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
[18] Ibid
[19] San Benito County Planning Commission, Panoche Valley Solar Project DEIR, June 2010, Sec. c-6 Biological Resources, p. C-6, 69
[20]Ibid, p. C-6, 92
[21] San Benito County Planning Commission, Panoche Valley Solar Project DEIR, June 2010, Sec. c-6 Biological Resources, p. C-6, 13

From:	Ileene Anderson
To:	CESPN EIS PANOCHE; Galacatos, Katerina SPN
Cc:	Chris_Diel@fws.gov; jvance@dfg.ca.gov; Plenys.Thomas@epa.gov; lbelenky@biologicaldiversity.org
Subject:	CBD scoping comments on Panoche Solar Farm
Date:	Thursday, September 06, 2012 2:45:43 PM
Attachments:	CBD scoping comments ACOE Panoche 9-6-12 final.pdf Attachment 1. final CBD scoping comments Panoche ACOE 2-14-11.pdf
Importance:	High

Hello Katerina Galacatos,
Please find attached, the Center for Biological Diversity's scoping comments for the Panoche solar project, along with Attachment 1, which is a copy of our scoping comments that we submitted last year on 2-14-11. I will be sending a hardcopy via FedEx to you too.
Please feel free to contact me with any questions.
Sincerely,
Ileene Anderson

Ileene Anderson
Biologist/Public Lands Desert Director
Center for Biological Diversity
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CENTER for BIOLOGICAL DIVERSITY Because life is good.

protecting and restoring natural ecosystems and imperiled species through science, education, policy, and environmental law

via electronic mail and FedEx

September 6, 2012

Ms. Katerina Galacatos
U.S. Army Corps of Engineers, San Francisco District
ATTN: Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398
spn.eis.panoche@usace.army.mil
Katerina.Galacatos@usace.army.mil

RE: Comments on the Federal Register Notice SPN-2009-00443S dated July 19, 2012 for the Proposed Panoche Solar Power Plant, San Benito County, CA as Proposed by Panoche Valley Solar LLC

Dear Ms. Galacatos,

Please accept the Center for Biological Diversity's comments on the Federal Register Notice SPN-2009-00443S dated July 19, 2012 for the Proposed Panoche Solar Power Plant, San Benito County, CA as proposed by Panoche Valley Solar LLC in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended, and the Endangered Species Act (ESA), on the impacts of the project. Because of the potential impacts on the suite of federally threatened and endangered species that occur on the proposed project site, the Army Corps of Engineers (ACOE) must prepare a comprehensive Environmental Impact Statement. The Center is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. These scoping comments are submitted on behalf of the Center's 350,000 staff, members and online activists throughout California and the western United States many of whom live in California and enjoy visiting, studying, photographing and watching wildlife in the Panoche Valley, and to see the variety of rare and endangered species in their natural habitat. The Center previously submitted detailed scoping comments to the Army Corps of Engineers on February 14, 2011 and fully incorporate those comments herein (Attachment 1).

The development of renewable energy is a critical component of efforts to reduce greenhouse gas emissions, avoid the worst consequences of global warming, and to assist California in meeting mandated emission reductions. The Center strongly supports the development of renewable energy production, and the generation of electricity from solar power,

Ileene Anderson, Staff Biologist
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www.BiologicalDiversity.org

in particular. However, like any project, proposed solar power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species and habitat, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and the efficiency loss associated with extended energy transmission. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable.

The Panoche Solar Power Plant is proposed solar photovoltaic (PV) generating facility with a proposed output of 399 megawatts over a 4,885-acre (7.6- square-mile) project site which is core habitat for threatened and endangered species, including the San Joaquin kit fox and the giant kangaroo rat. The size of the project has more than doubled from the original notice which stated that the project footprint would cover only 2,200 acres. Otherwise the project description remains similar, proposing to install of approximately 3 million to 4 million photovoltaic panels; photovoltaic module steel support structures; electrical inverters and transformers; an electrical substation with switchyard; buried electrical collection conduit; an operations and maintenance (O&M) building; a septic system and leach field; a wastewater treatment facility and demineralization pond; on-site access roads; security fencing; and transmission support towers and line(s) to interconnect with a PG&E transmission line that passes through the project site.

The EIS must at a minimum address the following resource issues:

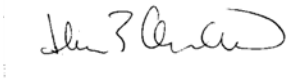
1) Impacts to biological resources including listed, rare, and special status species;
2) Impacts to water resources and water quality;
3) Consistency with the local land use plans;
4) Protection of air quality;
5) Impact on adjacent Bureau of Land Management Areas of Critical Environmental Concern and other sensitive resources;
6) Waste disposal including end-of-life disposal for the PV solar modules;
7) Seismic hazards; and
8) Regional equity.

The ACOE must also prepare a biological assessment and initiate consultation with the U.S. Fish and Wildlife Service regarding the impacts of this proposed project on listed species. These impacts are significant and the Center is concerned that this project alone (as well as in connection with other proposed projects in habitat for many of the same listed species) will undermine recovery for all of these species and may also impair survival for several of the species—that is, the project is likely to jeopardize the continued existence of listed species in the wild.

Between February 2011 and now, we have become aware of additional projects proposed in the range of the rare and endangered species that the Panoche Solar Power Plant will impact. The Kern Solar Ranch is a 6,100 acre project proposed in western Kern County on habitat that supports many of the same, very rare species that the proposed Panoche project supports. The cumulative impact analysis must include not only recently permitted and constructed projects (including but not limited to the Topaz and California Valley Solar Ranch on the Carrizo Plain), but also all new and proposed projects of all types that are proposed within the species range.

Thank you for your consideration of these comments. Because of the conflicts with numerous rare, threatened and endangered species and the proposed project, the alternatives analysis are a key issue in the EIS, in looking to avoid, minimize and mitigate impacts to these highly imperiled species. Please add the Center for Biological Diversity to the distribution list for the EIS and all notices associated with this project.

Sincerely,



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cc: via email
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Julie Vance, CDFG, jvance@dfg.ca.gov
Tom Plenys, EPA, Plenys.Thomas@epa.gov

CENTER *for* BIOLOGICAL DIVERSITY *Because life is good.*

protecting and restoring natural ecosystems and imperiled species through science, education, policy, and environmental law

via electronic and Fed Ex

February 14, 2011

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RE: Comments on the Public Notice 2009-00443S dated December 14, 2010 for the Proposed Panoche Solar Power Plant, San Benito County, CA as Proposed by Solargen

Dear Ms. Galacatos,

Please accept the Center for Biological Diversity's comments on the Public Notice 2009-00443S dated December 14, 2010 for the Proposed Panoche Solar Power Plant, San Benito County, CA as Proposed by Solargen in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended, and the Endangered Species Act (ESA), on the impacts of the project. Because of the potential impacts on the suite of federally threatened and endangered species that occur on the proposed project site, the Army Corps of Engineers (ACOE) must prepare a comprehensive Environmental Impact Statement. The Center is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. These scoping comments are submitted on behalf of the Center's 320,000 staff, members and online activists throughout California and the western United States many of whom live in California and enjoy visiting, studying, photographing and watching wildlife in the Panoche Valley, and to see the variety of rare and endangered species in their natural habitat.

The development of renewable energy is a critical component of efforts to reduce greenhouse gas emissions, avoid the worst consequences of global warming, and to assist California in meeting emission reductions set by AB 32 and Executive Orders S-03-05 and S-21-09. The Center strongly supports the development of renewable energy production, and the generation of electricity from solar power, in particular. However, like any project, proposed solar power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species and habitat, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and the efficiency loss associated with extended energy

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transmission. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable.

The Panoche Solar Power Plant is proposed solar photovoltaic (PV) generating facility with a proposed output of 399 megawatts and a project footprint covering approximately 2,200 acres of core habitat for threatened and endangered species, including the San Joaquin kit fox and the giant kangaroo rat. It will include the installation of approximately 3 million to 4 million photovoltaic panels; photovoltaic module steel support structures; electrical inverters and transformers; an electrical substation with switchyard; buried electrical collection conduit; an operations and maintenance (O&M) building; a septic system and leach field; a wastewater treatment facility and demineralization pond; on-site access roads; security fencing; and transmission support towers and line(s) to interconnect with a PG&E transmission line that passes through the project site.

The EIS must at a minimum address the following resource issues:

1) Impacts to biological resources including listed, rare, and special status species;
2) Impacts to water resources and water quality;
3) Consistency with the local land use plans;
4) Protection of air quality;
5) Impact on adjacent Bureau of Land Management Areas of Critical Environmental Concern and other sensitive resources;
6) Waste disposal including end-of-life disposal for the PV solar modules;
7) Seismic hazards; and
8) Regional equity.

The ACOE must also prepare a biological assessment and initiate consultation with the U.S. Fish and Wildlife Service regarding the impacts of this proposed project on listed species. These impacts are significant and the Center is concerned that this project alone (as well as in connection with other proposed projects in habitat for many of the same listed species) will undermine recovery for all of these species and may also impair survival for several of the species—that is, the project is likely to jeopardize the continued existence of listed species in the wild.

Specifically, impacts to a number of resources are of great concern to the Center and need to be addressed in detail as follow below:

Biological Resources

Based on the proposed project description and Environmental Impact Report, this site is proposed on occupied habitat for threatened and endangered species. Careful documentation of the current site resources is imperative in order to analyze how best to site the project to avoid and minimize impacts and then to mitigate any unavoidable impacts.

Biological Surveys and Mapping

The Center requests that thorough, seasonal surveys be performed for sensitive plant species and vegetation communities, and animal species under the direction and supervision of

the BLM and resource agencies such as the US Fish and Wildlife Service and the California Department of Fish and Game. If specific protocols for surveys for specific species have been identified by the resources agencies (as noted above) are identified for the rare species, these surveys need to be conducted. Full disclosure of survey methods and results to the public and other agencies without limitations imposed by the applicant must be implemented to assure full NEPA/ESA compliance.

Confidentiality agreements should not be allowed for the surveys in support of the proposed project. Surveys for the plants and plant communities should follow California Native Plant Society (CNPS) and California Department of Fish and Game (CDFG) floristic survey guidelines[1] and should be documented as recommended by CNPS[2] and California Botanical Society policy guidelines. A full floral inventory of all species encountered needs to be documented and included in the EIS. Surveys for animals should include an evaluation of the California Wildlife Habitat Relationship System's (CWHR) Habitat Classification Scheme. All rare species (plants or animals) need to be documented with a California Natural Diversity Data Base form and submitted to the California Department of Fish and Game using the CNDDB Form[3] as per the State's instructions[4].

The Center requests that the vegetation maps be at a large enough scale to be useful for evaluating the impacts. Vegetation/wash habitat mapping should be at such a scale to provide an accurate accounting of wash areas and adjacent habitat types that will be directly or indirectly affected by the proposed activities. A half-acre minimum mapping unit size is recommended, such as has been used for other development projects. Habitat classification should follow CNPS' Manual of California Vegetation (Sawyer et. al. 2009).

Adequate surveys must be implemented, not just a single season of surveys, in order to evaluate the existing on-site conditions. Due to unpredictable precipitation, arid-lands organisms have evolved to survive in these harsh conditions and if surveys are performed at inappropriate times or year or in particularly dry years many plants that are in fact on-site may not be apparent during surveys (ex. annual and herbaceous perennial plants).

Impact Analysis

The EIS must evaluate all direct, indirect, and cumulative impacts to sensitive habitats, including impacts associated with the establishment of unpermitted recreational activities, the introduction of non-native plants, the introduction of lighting, noise, and the loss and disruption of essential habitat due to edge effects.

A stunning number of rare biological resources have potential to occur on this site including, indicating the uniqueness of the proposed project area:

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[1] http://www.cnps.org/cnps/rareplants/inventory/guidelines.php and http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf

[2] http://www.cnps.org/cnps/archive/collecting.php

3 http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf

4 http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp

Common Name	*Scientific Name*	*State/Federal/Other Status*
California tiger salamander	***Ambystoma californiense***	*CT/FT*
San Joaquin antelope squirrel	***Ammospermophilus nelsoni***	*CT/FSC*
Golden eagle	***Aquila chrysaetos***	*FP/MBT*
Burrowing owl	***Athene cunicularia hypugaea***	*CSC/*
Vernal pool fairy shrimp	***Branchinecta lynchi***	*CSC/FT*
Mountain plover	***Charadrius montanus***	*CSC/FPT/MBT*
San Joaquin dune beetle	***Coelus gracilis***	*CSC/FC*
Hall's tarplant	***Deinandra halliana***	*CA List 1B.1*
Hospital Canyon larkspur	***Delphinium californicum ssp. interius***	*CA List 1B.2*
Giant kangaroo rat	***Dipodomys ingens***	*CE/FE*
big-eared kangaroo rat	***Dipodomys venustus elephantinus***	*CSC*
Western pond turtle	***Emys (=Clemmys) marmorata***	*CSC*
Prairie falcon	***Falco mexicanus***	*CSC/MBT*
blunt-nosed leopard lizard	***Gambelia sila***	*CE/FE/FP*
California condor	***Gymnogyps californianus***	*CE/FE/FP*
pale-yellow layia	***Layia heterotricha***	*CA List 1B.1*
Panoche pepper-grass	***Lepidium jaredii ssp. album***	*CA List 1B.2*
Showy madia	***Madia radiata***	*CA List 1B.1*
Indian Valley bush mallow	***Malacothamnus aboriginum***	*CA List 1B.2*
San Joaquin whipsnake	***Masticophis flagellum ruddocki***	*CSC*
Tulare grasshopper mouse	***Onychomys torridus tularensis***	*CSC*
California red-legged frog	***Rana aurora draytonii***	*CSC/FT*
San Joaquin kit fox	***Vulpes macrotis mutica***	*CT/FE*

State Designation

CE State listed as endangered.
CT State listed as threatened. Species that although not presently threatened in California with extinction are likely to become endangered in the foreseeable future.
CSC California Department of Fish and Game “Species of Special Concern.” Species with declining populations in California.
FP State fully protected species

Federal Designation

FE Federally listed as endangered.
FT Federally listed as threatened.
FPT Federally proposed threatened.
FC Federal candidate
MB Migratory Bird Treaty Act. of 1918. Protects native birds, eggs, and their nests.

Other

California List (
1B.1 Plant rare, threatened or endangered in California and elsewhere, and seriously endangered*.
1B.2 Plant rare, threatened or endangered in California and elsewhere, and fairly endangered*.

*Meets the criteria for California Endangered Species Act protection and likely Federal Endangered Species Act Protection.

All of these species have been identified as occurring on the proposed project or in the general vicinity.[5] Therefore, the EIS must adequately address the impacts and propose effective ways to avoid, minimize, and mitigate the impacts to these resources through alternatives including alternative siting and alternative on-site configurations.

In addition, the Center requests that the EIS evaluate the impact of the proposed permitted activities on locally rare species (not merely federal- and state-listed threatened and endangered species). The preservation of regional and local scales of genetic diversity is very important to maintaining species. Therefore, we request that all species found at the edge of their ranges or that occur as disjunct locations be evaluated for impacts by the proposed permitted activities.

San Joaquin Kit Fox

The San Joaquin kit fox is continuing to decline throughout its range despite having been on the original 1967 federal endangered species list, are currently under both federal and state Endangered Species Acts protections as an endangered species and have been for decades, have a federal recovery plan and is a "covered species" under multiple federal habitat conservation plans[6]. In 2010, the U.S. Fish and Wildlife Service issued a five-year review for the San Joaquin kit fox and identified only three core areas that remain for the San Joaquin kit fox[7]. Unfortunately this project is located directly within one of the core areas. The remaining two core areas are either riddled with oil and gas development or also have multiple industrial scale solar projects proposed in them. The San Joaquin kit fox is considered an umbrella species for numerous other species included above, as they require the same type of habitat. The project site sits directly within the connectivity corridor for kit fox (and other species) between existing conservation investments[8] as well as being essential habitat for the species (natal dens occur on the proposed project site). As such, it appears that the proposed project will most certainly undermine recovery of the kit fox and other associated upland species and is highly likely to jeopardize the continued existence of the kit fox in the wild. The EIS must clearly address alternative proposals for avoiding, the impacts to the kit fox, its occupied habitat and its connectivity as well as identifying minimization and mitigation actions that will support both survival and recovery of the kit fox and other associated upland species.

The ACOE must first look at ways to avoid impacts to the San Joaquin kit fox, for example, by identifying and analyzing *alternative sites* outside of kit fox occupied habitat that would avoid or significantly reduce impacts. ACOE should also analyze alternatives to large-scale blocks of solar-industrial facilities to achieve the same result, for example, through funding distributed "mid-scale" projects of 1-20 MW in more appropriate locations where there are no or fewer conflicts with imperiled species. The ACOE must also look at ways to minimize any impacts that it finds are unavoidable, for example, by limiting the ground disturbing activities

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[5] CNDDB 2011
[6] http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A006
7 http://ecos.fws.gov/docs/five_year_review/doc3222.pdf
8 http://www.sloplanning.org/EIRs/topaz/EIR/Appendices/App%209_BioResources-JurisdictionalWaters/App9B_HabitatConnectivityPlanning.pdf

from the project and limiting access roads to the project. If avoidance is not possible, mitigation lands should be high quality habitat and, at minimum, a 5:1 mitigation should be provided of all acres of kit fox habitat and connectivity destroyed. Mitigation lands that will be managed in perpetuity for conservation must be included as part of the strategy to mitigate any impacts to the kit fox.

Giant Kangaroo Rat

As with the kit fox, extensive evidence of the state and federally endangered giant kangaroo rats (GKR) have been found on the project site. In fact the Environmental Impact Report (EIR) states that surveys "found giant kangaroo rats throughout all sections of the site except the southwest corner, although this area could support suitable habitat for the species" (DEIR at pg. C.6-13). The EIS must provide an estimation of the population or number of precincts for GKR and the actual location of precincts are provided. It also must provide additional comprehensive surveys were not done for the species that were not provided in the EIR. Because GKR are known preferred prey items for kit fox[9] clearly the proposed project site is excellent habitat for both GKR and kit fox.

The amount of the federally and state listed endangered giant kangaroo rat (GKR) habitat currently extant is only 3% of its historic habitat[10]. Because of this fragmentation and isolation, the GKR in the northern part of its range, which includes the Panoche Valley is already experiencing genetic drift[11]. In USFWS' five year review for the GKR, recommendations for the Panoche Valley include increasing existing habitat conservation, establishing connectivity corridors along Panoche creek, and implementing long-term monitoring[12]. The EIS must incorporate these recommendations as part of the conservation strategy for these imperiled species. As with the kit fox, identification of movement corridors and linkages must be identified and analyzed for impacts as well as conservation opportunities.

In addition any mitigation scenario must provide assurances that adequate mitigation would be available. In our analysis, we fail to find that there is adequate habitat available to offset the impact of this large project in the midst of occupied endangered species habitat.

Blunt-nosed Leopard Lizard

The EIS must include data on surveys for the whole site for this rare and elusive species. One of the important purposes of comprehensive protocol level surveys is to identify where rare resources are located and avoid them. This is particularly essential for species that are fully protected under State law, as the blunt-nosed leopard lizard is (fully-protected species under California law (Fish and Game Code §5050) means that individuals of the species may not be "taken" (as defined in the Fish and Game Code) at any time, and CDFG may not authorize take except for scientific research purposes. Therefore all impact must be avoided). Therefore,

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9 http://esrp.csustan.edu/publications/pubhtml.php?doc=sjvrp&file=cover.html at pg. X.
10 Loew et al. 2005.
11 Ibid
12 http://ecos.fws.gov/docs/five_year_review/doc3215.pdf at pg. 38.

execution of protocol level surveys over the whole site is essential for the ACOE to implement or it loses the opportunity to avoid potential impacts to this declining and fully protected species, for which the State cannot issue a "take" permit.

The recent 5-yer review by the USFWS recommends establishing a conservation area for the blunt-nosed leopard lizard in the Panoche Valley[13]. While the review recognizes that comprehensive surveys have not been done in the Panoche Valley, the presence of numerous blunt-nosed leopard lizards documented on site in the EIR indicates that at least this portion of Panoche Valley is a key conservation area for this endangered species that has been under state and federal endangered species act protections for over 40 years. In the absence of complete surveys, it is likely that additional areas proposed for development also harbor key habitat for the blunt-nosed leopard lizard.

Clearly the EIS must identify all locations of blunt-nosed leopard lizard and its habitat and adequately evaluate avoidance measures, which is necessary for this fully-protected species.

California Tiger Salamander

While avoidance of breeding ponds is essential for tiger salamander conservation, these secretive animals use uplands for a majority of their life cycle. Up to 2,500 acres of potential habitat will be lost according to the EIR. A clear avoidance and mitigation strategy must be analyzed and presented in the EIS. Clarity in the proposed mitigation lands must also be included, as again, our analysis suggests that adequate mitigation lands of the same quality may not be available for the California tiger salamander.

Vernal Pool Fairy Shrimp

As with the blunt-nosed leopard lizard, comprehensive protocol level surveys of the ephemeral and vernal pools for the federally threatened vernal pool fairy shrimp need to be implemented in compliance with the guidance[14] required by the USFWS regarding adequate surveys for this rare species. As stated previously protocol level surveys, allow for the essential opportunity to avoid impacts to this listed species. In addition the EIS must provide clear and accurate information about the number of ephemeral pools found on site.

The ACOE must require protocol level surveys for any proposed mitigation lands to assure that the resources (in this case vernal pool fairy shrimp) actually occur on the proposed mitigation site(s).

Mountain Plover

Currently the proposed project site is one of the few locations in California where the mountain plover winters. Approximately 2,500 acres of wintering habitat is proposed to be

13 http://www.fws.gov/ecos/ajax/docs/five_year_review/doc3209.pdf at pg. 44.
14 http://www.fws.gov/sacramento/es/documents/Interim_VP_Survey_Guidelines_to_Permittees_4-96.PDF

eliminated by the project. If mitigation is proposed to occur on adjacent lands, then an evaluation of the quality of habitat needs to be provided.

California condor

The proposed project falls within the restricted area for the use of lead ammunition, in order to prevent the accidental poisoning of California condors by lead ammunition[15]. Clearly this area has been identified as an area used by the highly imperiled California condor, which only now has been making its way back from the brink of extinction thanks to significant investments of public and private resources. The EIS must carefully and clearly evaluate impacts to this highly imperiled species that is also a fully protected species under California law from the proposed project.

Golden eagles

Golden eagles have been documented on the project site, so comprehensive surveys for eagle nests need to be completed, that include the number of golden eagle territories that occur within the proposed project site. Currently in other areas in the state, USFWS is requiring surveys within 10 miles of the project site. The EIS must address potential impacts to golden eagles, a state fully protected species and a federal species of concern protected both under the Migratory Bird Treaty Act and the Bald and Golden Eagle Act. Because of significantly declining populations of golden eagles, the U.S. Fish and Wildlife Service issued new guidance March of 2010 with regards to surveying and impact analysis to golden eagles.[16] They recently released a Draft Eagle Conservation Plan.[17] The EIS must incorporate these golden eagle guidance documents into the analysis for this proposed project.

Other Rare Species and Habitat

The diversity of rare species likely to occur on the proposed project site is impressive and corroborates the recommendations by U.S. Fish and Wildlife Service's recovery plan for the Upland Species of the San Joaquin Valley that the Panoche Valley should be conserved for these highly imperiled species[18]. The site has ecologically functioning habitat and should be preserved. The ACOE must clearly address proposals for avoiding, minimizing and mitigating the impacts to all of the rare species that utilize the sites for part or all of their lifecycles. In fact, the Center believes that this area is inappropriate for the large-scale industrial use that is being proposed which could be sited on far less sensitive areas.

The proposed project site is less than two miles from the Panoche-Coalinga Area of Critical Environmental Concern (ACEC) and less than four miles from the Panoche Hills

15 http://www.blm.gov/ca/st/en/fo/hollister/panoche_tumeys.html
16 www.fws.gov/.../USFWS_Interim_GOEA_**Monitoring_Protocol**_10March2010.pdf
17 http://www.fws.gov/windenergy/eagle_guidance.html
18 http://esrp.csustan.edu/publications/pubhtml.php?doc=sjvrp&file=cover.html

Wilderness Study Areas[19]. The EIS must analyze the impacts to these existing conservation investments.

This unique valley is one of the last remaining remnants of California's once vast central valley grasslands. Because the valley lies within the rain shadow of California's coastal range, it receives little precipitation and shares many characteristics of arid lands. In preparation for the Desert Renewable Energy Conservation Plan for California's deserts, an Independent Science Advisors group was convened, who have prepared recommendations on strategies for solar development, many of which are appropriate for the Panoche Valley as well[20]. In that document, the recommendations are made that include:

- Avoiding habitat fragmentation and impediments to wildlife movement;
- Avoiding soil disturbance;
- Avoiding disruption of geologic processes;
- Transplantation or translocations [of plants or animals] should be considered a last recourse for unavoidable impacts, should never be considered full mitigation for the impact, and in all cases must be treated as experiments subject to long-term monitoring and management;
- Habitat creation or restoration actions should *not* be considered as full mitigation for construction impacts; and
- Control of subsidized predators.

If the proposed project is to go forward on any part of the proposed site, then acquisition of lands that will be managed in perpetuity for conservation must be included as part of the strategy to avoid, minimize and mitigate impacts to the all of the species found on site. Acquisition is particularly important for all of these species (listed, rare, special status and common species), because the proposed project appears to have no compatibility with any type of on-site conservation of plant communities or wildlife.

Wildlife Movement

A thorough and independent evaluation of the project's impacts on wildlife movement is essential. The EIS must evaluate all direct, indirect, and cumulative impacts to wildlife movement corridors. The analysis should cover movement of large mammals, such as the kit fox, as well as other taxonomic groups, including small mammals, birds, reptiles, amphibians, invertebrates, and vegetation communities need to also be evaluated to evaluate if they are accommodated by the larger species connectivity needs. The EIS should first evaluate habitat suitability within the analysis window for multiple species, including all listed and sensitive species. The habitat suitability maps generated for each species should then be used to evaluate the size of suitable habitat patches in relation to the species average territory size to determine whether the linkages provide both live-in and move-through habitat. The analyses should also evaluate if suitable habitat patches are within the dispersal distance of each species. The EIS should address both individual and intergenerational movement (i.e., will the linkages support

19 Http://www.blm.gov/ca/st/en/fo/hollister/panoche_tumeys.html
20 http://www.energy.ca.gov/2010publications/DRECP-1000-2010-008/DRECP-1000-2010-008-F.PDF

metapopulations of smaller, less vagile species). The EIS should identify which species would potentially utilize the proposed wildlife movement corridors under baseline conditions and after build out, and for which species they would not. In addition, the EIS should consider how wildlife movement will be affected by other planned approved, planned, and proposed development in the region as part of the cumulative impacts.

The EIS should analyze whether any proposed wildlife movement corridors are wide enough to minimize edge effects and allow natural processes of disturbance and subsequent recruitment to function. The EIS should also evaluate whether the proposed wildlife movement corridors would provide key resources for species, such as host plants, pollinators, or other elements. For example, many species commonly found in riparian areas and washes depend on upland habitats during some portion of their cycle. Therefore, in areas with intermittent or perennial streams, upland habitat protection is needed for these species. Upland habitat protection is also necessary to prevent the degradation of aquatic habitat quality.

Water Resources

The proposed project will impact on-site drainages on the project site. The EIS must clarify the impacts to the jurisdictional Waters of U.S. that occur on site, and avoid, minimize and mitigate any impacts. In doing so, any reroute of waters and drainage on the site must assure that downstream processes are not impacted.

An evaluation of the effect of additional groundwater pumping (in conjunction with other groundwater issues [current overdraft of basin from existing pumping, potential contamination of ground water from the project activities, etc.] in the basin) on the water quality in the basin and surface water resources, and its effect on the native plant and animal species and their habitats both on and offsite (including the CPNM) need to be included in the EIS.

Alternatives

The EIS must include a robust analysis of alternatives, including 1) other site locations, such as the Westlands Solar Park[21] and alternatives such as 2) distributed generation on commercial rooftops, 3) 1-20 MW projects in areas closer to load centers and 4) on-site alternatives including the need to have bridges over waters of the United States. The roads leading to the proposed bridges for which the proposed project is seeking the 404 permit for, are actually located within proposed mitigation areas, which of course lowers the value of the proposed mitigation because of the fragmentation from the roads and potential for "take" of endangered species. In our analysis, the Center believes that a viable project alternative should be proposed that does not include bridges and therefore avoids the impact to federal waters and mitigation lands. Please include that type of alternative in the analysis in the EIS. The stated objectives of the project must not unreasonably constrain the range of feasible alternatives evaluated in the EIS. The ACOE must establish an independent set of objectives that does not unreasonably limit the EIS analysis of feasible alternatives including alternative sites.

21 http://www.westlandssolarpark.com/Westlands_Solar_Park/Project_Overview_and_General_Information.html

The EIS should consider alternatives that would provide funding to other types of projects. Such alternatives could include, for example, conservation and efficiency measures that both avoid and reduce energy use within high-energy use load-centers including the Los Angeles area and the Bay area. For example, there are many opportunities for distributed PV generation in the LA area. The Board of Water and Power Commissioners recently approved environmental review document for a proposed project that would place a 5 MW of PV solar arrays on a drinking water reservoir -- the Van Norman Bypass Reservoir Solar Project in the Granada Hills area. The EPA has also developed a program called "RE-Powering America's Land Initiative" that focuses on "encouraging renewable energy development on current and formerly contaminated land and mine sites. This initiative identifies the renewable energy potential of these sites and provides other useful resources for communities, developers, industry, state and local governments or anyone interested in reusing these sites for renewable energy development." There are previously contaminated lands throughout California many of which are in areas with similar solar resources. These are just a few examples of the many opportunities for to develop solar resources close to load centers as alternatives to the proposed project. Many of these alternative projects would cause far fewer impacts to biological resources than the proposed Panoche project and will avoid transmission line losses and many other inefficiencies.

Alternative measures could include funding community projects for training and implementation of conservation measures such as increased insulation, sealing and caulking, and new windows for older buildings and new or improved technologies for accomplishing these important goals. For example, air conditioning creates the largest demand for energy during peak times and there already exist methods to reduce the energy use from air conditioning but implementation has lagged well behind technology. Conservation and efficiency measures are an excellent and quick way of reducing demand in both the short- and long-term and reduce the need for additional power sources. In addition, many of the existing conservation and efficiency measures can provide immediate jobs and training in high population areas with significant unemployment (particularly among low skilled workers and youth).

Other Issues

The construction and operation of the proposed facilities will also increase greenhouse gas emissions and those emissions should be quantified and off-set. This would include the manufacture and shipping of components of the project and the car and truck trips associated with construction and operations. Similarly, such activities will also impact air quality and traffic in the area and these impacts should be disclosed, minimized and mitigated as well. For mobile sources, since consistency with the AQMP will not necessarily achieve the maximum feasible reduction in mobile source greenhouse emissions, the EIS should evaluate specific mitigation measures to reduce greenhouse emissions from mobile sources.

Cumulative Impacts

Because of the number of projects that are proposed in the same endangered habitat in the region, a thorough analysis of the cumulative impacts from all of these projects on the resources needs to be included.

Lastly, the ACOE must be concerned with the adequate NEPA review and even if the agencies can properly have an objective of *timely* approval of projects they cannot properly have as purpose and need of the project a *rushed* inadequate environmental impact review.

Thank you for your consideration of these comments. Because of the conflicts with numerous rare, threatened and endangered species and the proposed project, the alternatives analysis are a key issue in the EIS, in looking to avoid, minimize and mitigate impacts to these highly imperiled species. Please add the Center for Biological Diversity to the distribution list for the EIS and all notices associated with this project.

Sincerely,

Ileene Anderson
Biologist/Public Lands Desert Director
Center for Biological Diversity
8033 Sunset Blvd., #447
Los Angeles, CA 90046
ianderson@biologicaldiversity.org

cc: via email
Chris Diel, USFWS, Chris_Diel@fws.gov
Julie Vance, CDFG, jvance@dfg.ca.gov
Tom Plenys, EPA, Plenys.Thomas@epa.gov

From:	C/H High
To:	CESPN EIS PANOCHE
Cc:	Jason Brush; Craig Weightman; Florence & Philip
Subject:	Noitce of Intent to prepare a Draft Environmental Impact Statement (DEIS) SPN-2009-00443S, Panoche Valley Solar Project
Date:	Friday, September 07, 2012 4:23:48 PM
Attachments:	CCCR scoping comments Panoche Valley.pdf

Dear Ms. Galacatos,
Please find attached the comments of the Citizens Committee to Complete the Refuge regarding the Panoche Valley Solar Farm project.

Thank you for the opportunity to provide comments. If possible we would appreciate acknowledgement that you have received our comments.

Regards,
Carin High
CCCR

CITIZENS COMMITTEE TO COMPLETE THE REFUGE

453 Tennessee Lane, Palo Alto, CA Tel: 650-493-5540 www.cccrrefuge.org cccrrefuge@gmail.com

Lieutenant Colonel John K. Baker, Commander
US Army Corps of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103-1398
Fax #: 415-503-6690
Email: spn.eis.panoche@usace.army.mil
Attn: Katerina Galacatos

September 7, 2012

Re: Noitce of Intent to prepare a Draft Environmental Impact Statement (DEIS) SPN-2009-00443S, Panoche Valley Solar Project

Dear Commander Baker,

This responds to Corps Notice of Intent (NOI) to prepare a draft environmental impact statement (DEIS) for permit application SPN-2009-00443S, the proposal to construct the Panoche Valley Solar Farm, located in San Benito County, California. The Citizens Committee to Complete the Refuge (CCCR) has previously submitted comments to a Corps public notice (PN) for the project issued in December of 2010. Thank you for providing the opportunity to comment. While CCCR supports the development of renewable energy production, appropriate location of such production sites is a crucial factor that should be considered at the outset to ensure significant adverse impacts to the environment are avoided or minimized. The Panoche Valley is an area of critical importance, not to merely one listed species, but to an array of rare and listed species and is unsuitable for the development of a massive solar farm. Development of sustainable energy should not be at the expense of the natural environment.

As noted above, CCCR and other environmental groups (Santa Clara Valley Audubon Society and possibly the Center for Biological Diversity, Defenders of Wildlife, and Save Panoche Valley) provided comments to the Corps PN for this project. We respectfully request that any concerns identified in those letters be incorporated and addressed in the DEIS.

CCCR fully supports the Corps' determination of the need for the preparation of a DEIS. According to Corps National Environmental Policy Act (NEPA) regulations (40 C.F.R. 1508.27, 1501.4 and 33 C.F.R. 325 Appendix B), the Corps must as lead agency prepare an Environmental Impact Statement (EIS) if a project will cause *significant impacts to the quality of the human environment*. "Significance" must be analyzed in terms of "context" and "intensity". Pertinent elements to be considered when evaluating the "intensity" of the impact include:

- Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. (*The Panoche Valley is an ecologically critical area. It is one of only three recovery areas identified for San Joaquin Upland Species. The area has also been identified as an Important Bird Area because it provides wintering, foraging, and nesting habitat for a suite of avian species including listed and rare species.*)
- The degree to which the effects on the quality of the human environment are likely to be highly controversial. (*Numerous newspaper articles have been written concerning impacts to the rare assemblage of listed and rare*

species, adverse impacts to Class One soils, adverse impacts to small farming in the local area, etc. In addition, a lawsuit and appeal have been filed over the inadequacy of the County's EIR.

- The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. (*We don't know the full extent of impacts – direct, indirect, or cumulative and it is uncertain whether adverse impacts to this unique ecosystem will imperil the recovery of federally listed species.*)
- The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. (*As stated above, this area has been identified as one of three recovery areas for a suite of San Joaquin upland species.*)

An EIS is needed if the proposed federal action (issuance of Section 404 permits) has the potential to "significantly affect the quality of the human environment." It is evident the an intact Panoche Valley ecosystem is unique and is critical to the recovery of an array of rare and listed species and that the proposed project will significantly and adversely impact the recovery of those species. A DEIS for the proposed project is warranted.

Project Description:

The proposed project involves the construction and operation of a 399 megawatt solar photovoltaic energy generating facility. The 4,855 acre (7.6 square miles) project site is located in eastern San Benito County approximately three-quarters of a mile north of the intersection of Panoche Road and Little Panoche Road. The NOI indicates approximately 2,203 acres would be permanently disturbed by on-site activities and 100 acres subject to temporary disturbance during construction which is proposed to occur in five phases. The proposal involves the construction of a photovoltaic energy plant of three to four million photovoltaic (PV) panels, PV module steel support structures, electrical inverters and transformers, an electrical substation with switchyard, buried electrical conduit, an operations and maintenance building, a septic and leach field, a wastewater treatment facility and demineralization pond, on-site access roads, security fencing, transmission support towers, and lines to connect to PG &E's transmission system. Not mentioned in the NOI but suggested in the California Environmental Quality Act (CEQA) environmental impact report (EIR), was the potential need for upgrades to PG & E's transmission system (though specific information regarding the impacts of the potential upgrades was never provided).

The project proponent argued in the FEIR that any upgrades to the PG & E transmission system beyond what is required for Phase One of the proposed solar farm project is speculative, and that an environmental impact report (EIR) "does not need to describe and evaluate uncertain future activities, which would include uncertain and undefined transmission line upgrades that may be needed to serve the project." The California *Independent System Operator (CAISO) has only evaluated the ability of the transmission system to safely handle the first 20 MV of the 420 MV projected project output* (project as defined in the California Environmental Quality Act -CEQA - FEIR). According to the FEIR CAISO is "independently planning the need for a potential future upgrade of the transmission line based on the possibility of multiple interconnection requests" and "… Any transmission upgrades that are required as a result of Cluster No. 2 would be evaluated by the California Public Utilities Commission (CPUC) in accordance with CEQA as part of the CPUC's permitting process."

- Any upgrades to the transmission system in the vicinity of the project location should be considered interrelated or interdependent and a direct consequence of the construction of the proposed project and should be included, reviewed, and mitigated within this DEIS.
- The Corps should require the applicant provide a worst case scenario of the additional impacts (direct, indirect, and cumulative) that could occur for all phases of the proposed project including the upgrading of PG &E's transmission system to avoid a piecemealed review of impacts.
- How will piece-mealing of any additional impacts that result from implementation of the proposed project be avoided? What assurance can the Corps provide that this will not occur?

404 b 1 sequencing:

Subpart B of the 404(b)(1) Guidelines (40 CFR 230.10), Compliance with the Guidelines, establishes the alternatives analysis requirements which must be met. In particular, 40 CFR 230.10(a) states in relevant part that:

> (N)o discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.
>
> 1) For the purposes of this requirement, practicable alternatives include, but are not limited to:
>
> (i) Activities which do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters;
>
> (ii) Discharges of dredged or fill material at other locations in waters of the United States or ocean waters.
>
> 2) An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes…"

It would appear from the project design submitted during the Corps PN process, that the 427 cubic yards of fill in waters of the U.S. could be completely avoided. Why have these impacts not been avoided? Is it to avoid Section 10 coordination with the U.S. Fish and Wildlife Service?

Impacts to federally-listed and special-status species:

The site supports the federally-listed threatened vernal pool fairy shrimp, and endangered blunt-nosed leopard lizard, giant kangaroo rat, and San Joaquin kit fox. Larvae of the federally-listed threatened California tiger salamander are known to occur just outside the project boundaries and there are CNDDB records of the species within the project boundaries. A number of special-status species are also known to occur within the project boundaries including the gypsum-loving larkspur and recurved larkspur, the Serpentine Linanthus, the San Joaquin coachwhip, the coast horned lizard, the tri-colored blackbird, golden eagle, burrowing owl, mountain plover, northern harrier, loggerhead shrike, San Joaquin antelope squirrel, and American badger. In addition, there are a suite of special-status species that have a high potential of occurring within the project boundaries. The lengthy list of federally-listed and special-status species is significant and indicative of the importance of the site with respect to the preservation of species biodiversity.

According to the USFWS, the Recovery Plan for Upland Species of the San Joaquin Valley, California (Recovery Plan) lists the Ciervo-Panoche Natural Area (including the Panoche Valley) as a Recovery Priority of Level 1 and that conservation of the Ciervo-Panoche Natural Area (one of the three core areas cited in the Recovery Plan) should "protect natural lands from development and ensure traditional rangeland uses continue.[1] Species that occur within the project boundaries or have a high likelihood of occurrence that are addressed in the Recovery Plan include the giant kangaroo rat, the blunt-nosed leopard lizard, the San Joaquin kit fox, the San Joaquin antelope squirrel, and the short-nosed kangaroo rat.

The proposed project will impact highly and moderately suitable habitat for the San Joaquin kit fox. The proposed project will either directly or indirectly impact almost all areas known occurrences of the giant kangaroo rat within the project boundaries. The proposed project will have as yet undetermined impacts on the blunt-nosed leopard lizard. Protocol level surveys had not been completed for the entire site for species like the blunt-nosed leopard lizard at the

[1] USFWS Comment letter for the Draft Environmental Impact Report for the Panoche Valley Solar Farm Project; State Clearinghouse N. 2010031008, dated August 30, 2010

time the FEIR was released. The FEIR stated, "While full-coverage and protocol-level surveys are usually conducted prior to publication of an EIR for projects proposed on habitat suitable for threatened and endangered species, such surveys are not required for the purpose of determining impact significance in an EIR." [Response To Comments GR-3]

- Protocol level surveys as identified by the U.S. Fish and Wildlife Service (USFWS) must be completed to establish baseline conditions. The full extent of impacts to federally-listed species cannot be determined until these surveys have been completed. Appropriate avoidance and minimization of impacts to the species and their habitat through project modification cannot be analyzed without an understanding of the existing baseline conditions. Adequacy and efficacy of proposed mitigation measures cannot be analyzed or assessed without this critical information.
- The proposed project will adversely impact a substantial portion of the Ciervo-Panoche Natural Area (and core area). The applicant proposes acquisition of suitable habitat on Valadeao Ranch and Silver Creek Ranch to mitigate for impacts to federally-listed species. While this measure will preserve existing occupied habitat for the impacted species, it does not address the reduction in acreage of occupied habitat that will result if the proposed project is constructed. This issue must be analyzed in the DEIS.
- The DEIS must analyze whether recovery is possible within a reduced core area (e.g. is there sufficient carrying capacity within the proposed mitigation areas to result in an increase in federally-listed species populations?).
- The DEIS should assess whether the proposed project will impact movement corridors, result in fragmentation of habitat, isolate less mobile populations or plant communities, result in reductions of genetic diversity through isolation of populations, etc.
- Of great concern is the cumulative impact of the proposed project and other projects under consideration and construction, on the recovery of several listed and rare species. As an example, solar production facilities are proposed within the Carrizo Plain. If the Panoche Solar Farm is developed, two of the three core areas identified in the San Joaquin Upland Species Recovery Plan will suffer reductions in the areal extent of habitat available for the recovery of the listed species. The adverse cumulative impacts of all past, current and future development on the recovery of listed and rare species must be analyzed in the DEIS.
- The DEIS must consider not only the individual impacts on biological resources, but also the cumulative impacts of the proposed project and all past, present and future projects (development, renewable energy, etc.) on biological resources. As just one example, Panoche Valley is an important site for wintering mountain plover. A 2011 statewide survey of mountain plover populations[2] revealed a significant decline in overall numbers. The management recommendations for the species specifically highlighted the importance of the Panoche Valley to the state population:

> **Protect and manage natural grassland habitats**. *In the Panoche Valley and Carrizo Plain, grasslands supported 251 Mountain Plovers or 20% of all birds recorded during the 2011 survey. These two areas are among the few remaining natural habitat strongholds for the species. These areas should be protected from development and other disturbance.* Grassland habitats and suitable management should also be prioritized and encouraged in other regularly used areas of the Central Valley. Priority areas should include grasslands in Yolo and Solano Counties and around Pixley NWR. Moreover, management plans should include using grazing and burning to create and maintain the short vegetation

[2] Audubon California. MOUNTAIN PLOVER WINTER DISTRIBUTION AND HABITAT USE IN CALIFORNIA Results of the 2011 Statewide Survey SUMMARY REPORT. Prepared for the U.S. Fish And Wildlife Service. Region 8 – Migratory Bird Program,FWS Agreement No. 80211AJ109. June 30, 2011

stature preferred by Mountain Plovers. [emphasis added]

The DEIS must analyze the individual and cumulative impacts of development on mountain plover populations, and for all rare plant and animal species.

Other issues (for a more complete list please refer to concerns identified in comment letters previously submitted by CCCR, California Audubon, Sierra Club, Santa Clara Valley Audubon Society, Save Panoche Valley in response to the Corps PN and the Panoche Valley DEIR):

- Thresholds of significance. Due to the extraordinary suite of listed and rare species that occur within the Panoche Valley, its identification of as one of only three core recovery areas for San Joaquin upland species, its identification as an Important Bird Area by the Audubon Society, and its relatively undisturbed condition, thresholds of significance must not only be set based upon human criteria, but also based upon scientifically identified levels of impact to all biological resources. As an example, numerous studies have identified thresholds of response by wildlife species to light/glare, noise, vibration, etc. These thresholds must be taken into consideration when identifying significant adverse impacts, and appropriate mitigation measures should be required.
- Need for a water assessment that analyzes not only the water supply needs of future employees, but also all associated requirements for the operation of this vast array of solar panels. For example, to function at an optimal level, the panels will need to be regularly cleaned - how often would cleaning be required? What are the water supply needs for cleaning three to four million photovoltaic panels? What sources of water are available to supply the overall operational needs of the facility? What will the cumulative impacts of this and other past, present and future be on existing water supplies?
- What impacts will the development of this massive solar farm have on the hydrological regime of the watershed? Will construction of the solar farm alter runoff rates? Have direct, indirect or cumulative impacts on waters of the U.S. and species dependent upon waters of the U.S.?
- The DEIS should analyze the impacts of the proposed project on 2, 200 acres of Class One soils (i.e. food and fiber production, etc.).
- The DEIS must analyze construction related impacts to air quality, noise, and aesthetics.
- The DEIS must analyze traffic impacts not only in terms of congestion, but also assess impacts to wildlife (e.g. road kills, fragmentation of habitat, abandonment of habitat due to increased disturbance, etc.).
- Consider and mitigate impacts of nuisance species on existing habitats and populations, following the permanent and temporary disturbance of 2,300+ acres, and from the construction and operation of the proposed facility.

Environmentally superior alternatives to the proposed project:

The basic project purpose of the proposed project is the generation of an alternative energy supply. Alternatives analyzed within the DEIS must not artificially constrain the analysis of alternatives to the project location. Suitable and environmentally superior off-site alternatives exist that meet most of the project objectives and would satisfy the basic project purpose. These should be analyzed in detail in the DEIS. As one example, the FEIR states, "Based on the analysis presented in this section, the Westlands CREZ [Competitive Renewable Energy Zone] would likely be the environmentally superior alternative based on an anticipated significant reduction in impacts to biological resources." In addition, the Westlands CREZ is located on agricultural lands no longer in production due to concerns regarding toxic levels of selenium in the soils and in an area where water shortages have been an issue. Westlands CREZ has a potential renewable resource of up to 5,000 MW significantly more than proposed by the Panoche Valley solar farm, and has

access to high-voltage electrical transmission lines that do not require substantial upgrades to accommodate the energy generated. This alternative should be thoroughly explored within the DEIS.

Another viable alternative is to evaluate the installation of photovoltaic panels in developed urban areas on roof tops, parking lots, etc. closer to the areas of electricity end-use.

Conclusion:
The biological resources discussion by Live Oak Associates, Inc.[3] states:

> Rangelands of the site, like grasslands throughout the region, serve as productive biotic habitats supporting throughout the region, serve as productive biotic habitats supporting a large diversity of native terrestrial vertebrates. Open habitats of the region significant foraging habitat for a variety of resident and wintering raptors, as well as granivorous (seed-eating) birds. The cover of native and non-native grasses and forbs provide cover for large populations of small mammals that, in turn, attract a diversity of predatory species.

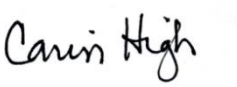
The comments submitted on behalf of the Sierra Club[4] in response to the Panoche Valley EIR succinctly state why it would be inappropriate to authorize the Panoche Valley solar farm:

> The EIR makes it plain that the Panoche Valley is exceptionally rich in wildlife resources, containing irreplaceable habitat for many rare species, some of which are on the brink of extinction. The Valley is the cornerstone of plans by various agencies to save several of these creatures. Ironically, the precise area where the project is to be located is the key component of these plans, as it offers uniquely suitable habitat.

It is clear the proposed project will have significant adverse impacts to an ecologically significant ecosystem. While we applaud the Corps' determination that the impacts of the project require the preparation of a DEIS, we remain skeptical that any mitigation identified or proposed could adequately minimize the adverse impacts of this massive solar farm.

Thank you for the opportunity to provide comment. We request that we be kept informed of the Corps' DEIS process, that we be notified and receive a copy of the DEIS, and that we be informed of any opportunities to provide additional comments.

Sincerely,



Carin High
CCCR Vice-Chair

cc: EPA, Jason Brush
CDFG, Craig Weightman
USFWS

[3] "*Proposed quantitative sampling program for blunt-nosed leopard lizard and other sensitive biotic resources for the Panoche Valley solar Farm*", dated February 2, 2010. Prepared by Live Oak Associates, Inc.

[4] Panoche Valley Solar Farm Project comment letter submitted on behalf of the Sierra Club by Joseph J. Brecher. September 2010.

National Headquarters
1130 17th Street, N.W. | Washington, D.C. 20036-4604 | tel 202.682.9400 | fax 202.682.1331
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September 7, 2012

Katerina Galacatos, Permit Manager, San Francisco District, Regulatory Division
U.S. Army Corps of Engineers
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

Delivered via email to spn.eis.panoche@usace.army.mil. Hard copy to follow via USPS.

RE: Public Notice Number SPN-2009-00443S; Panoche Valley Solar Farm – Panoche Valley Solar LLC 404 Permit Application

Dear Ms. Galacatos:

Defenders of Wildlife ("Defenders") respectfully submits the following comments on the Panoche Valley Solar Farm 404 permit application. Please add Defenders to the interested parties list for all notices for the above-referenced project. All correspondence can be directed to Greg Buppert at gbuppert@defenders.org or at the mailing address above.

Defenders is a national, non-profit conservation organization with more than a million members and supporters nationwide, over 170,000 of which reside in California. Defenders is dedicated to the protection of all native wild animals and plants in their natural communities. Defenders has advocated for heightened protection of grassland habitats along with resident species, including the San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard.

Defenders strongly supports the emission reduction goals found in the Global Warming Solutions Act of 2006 (AB 32), including the development of renewable energy in California. However, we urge that in seeking to meet our renewable energy portfolio standard in California, projects must be sited and designed in the most sustainable manner possible. This is essential to ensure that project approvals move forward expeditiously and in a manner that does not sacrifice our critically important landscapes and wildlife. As we transition toward a clean energy future, it is imperative for our future – and the future of our wild places and wildlife – that we strike a balance between addressing the near term impact of industrial-scale solar development with the long-term impacts of climate change on our biological diversity, fish and wildlife habitat, and natural landscapes. To ensure that the proper balance is achieved, we need smart planning of renewable energy projects in order to avoid and minimize adverse impacts on wildlife and lands with known high-resource values, such as the Panoche Valley.

An environmental impact statement (EIS) must be prepared if a proposed federal action has the potential to significantly affect the quality of the human environment. Whether a proposed action significantly affects the quality of the human environment is determined by considering the context and intensity of the action and its effects. *See* 40 C.F.R. §§ 1508.27. In determining whether an impact significantly affects the quality of the human environment, federal agencies must evaluate the relationship between context and intensity. In determining an impact's intensity, the Council on Environmental Quality's regulations direct federal agencies to consider a variety of factors, including public health; unique characteristics of the geographic area; controversy; uncertain, unique or unknown risks; precedent-setting aspects; cumulative effects; cultural resources; endangered species effects; and violation of environmental protection laws. *See* 40 C.F.R. §§ 1508.27(b). In general, the more sensitive the context (i.e., the specific resource in the proposed actions project area), the less intense an impact needs to be in order to be considered significant.

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Due to the high biological resource values of the Panoche Valley and the sheer size of the proposed Project, Defenders believes that the Project will have unavoidable and unacceptable environmental impacts, and thus we oppose the Project. However, should the Project go forward, an EIS must be prepared to analyze the significant effects on the environment which will result from the Project. Further, because of the importance of the Panoche Valley related to fish and wildlife values, endangered species recovery implementation, recreation, water quality, and a variety of other environmental and public interest factors, coupled with the high likelihood for controversy and conflicts, Defenders requests that USACE host several public hearings on the Project to solicit comments from a wide variety of interested parties and to maximize public participation in the process.

Project Scope

Panoche Valley Solar LLC ("Applicant") proposes to construct the Panoche Valley Solar Farm ("Project"), a 399 megawatt solar photovoltaic energy plant located on 4,855 acres (7.6 square miles) of private land located in the Panoche Valley, approximately 0.75 miles north of the intersection of Panoche Road and Little Panoche Road in eastern San Benito County, California. The proposed Project would be constructed in five phases and include a substation, onsite access roads, and buried electrical collection conduit. Construction of this project, as currently designed, includes three road crossings that would result in 427 cubic yards of fill into Panoche Creek and Las Aguilas Creek, jurisdictional waters of the United States.

The significant biological impacts on this tract of nearly 5,000 acres of minimally disturbed, high-quality habitat are simply not justified nor can they be adequately mitigated. The Panoche Valley is in one of three core recovery areas designated for the San Joaquin kit fox under the Recovery Plan for Upland Species of the San Joaquin Valley, California ("Recovery Plan"). The importance of this habitat for the federally endangered and State threatened kit fox cannot be overstated. As San Benito County's draft environmental impact report for the Project recognizes, "preliminary metapopulation viability analyses indicate that recovery probabilities increase if a population is established or maintained in this area." DEIR, page 6.6-4. The Recovery Plan clearly describes the protection of the CiervoPanoche kit fox population as a high priority. In fact, protecting the CiervoPanoche population is listed as the second of fourteen priority recovery actions. *Id.* The Recovery Plan also states that proper management of the Ciervo-Panoche areas is crucial for the giant kangaroo rat population in the area, which is genetically distinct from populations in the other core recovery areas. DEIR, page C.6-4.

Additionally, the Ciervo-Panoche area is a high priority conservation area for blunt-nosed leopard lizard and supports a population that is genetically distinct from those to the south. The Project site also provides important habitat for other burrowing animals, such as short-nosed kangaroo rat, San Joaquin pocket mouse, and Tulare grasshopper mouse, and many special status species such as fairy shrimp, California condors and nearly 30 rare plants. The Project site supports species that are too imperiled and is on habitat far too important to their survival to be destroyed. This Project is simply in the wrong place and must be relocated to a more appropriate, less biologically sensitive location.

Project Alternatives

The range of alternatives analysis is the "heart of the environmental impacts statement." 40 C.F.R. § 1502.14. The National Environmental Policy Act requires USACE to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions." *See* 40 C.F.R. §§ 1052.14(a) and 1508(c).

The draft EIS must include alternative project sites or locations, including those that may not be located within San Benito County, such as the Westlands Competitive Renewable Energy Zone; project extent and

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electrical power generation that differ from the applicant's proposal; and the potential for different technology that may lead to lesser potential impacts on sensitive environmental resources.

The required mitigation for loss of upland grassland habitat should be identified in each alternative. The alternatives in the draft EIS should also evaluate opportunities for such habitat compensation within the Panoche Valley and determine if any required habitat loss compensation opportunity exists.

Defenders has identified criteria for preferred siting for renewable energy projects. We urge UCACE to consider alternatives that include the following characteristics:

- Brownfields:
    - Revitalize idle or underutilized industrialized sites.
    - Existing transmission capacity and infrastructure are typically in place.
        - Locations adjacent to urbanized areas.[1]
    - Provide jobs for local residents often in underserved communities.
    - Minimize growth-inducing impacts.
    - Provide homes and services for the workforce that will be required at new energy facilities.
    - Minimize workforce commute and associated greenhouse gas emissions.
        - Locations that minimize the need to build new roads.
        - Locations that could be served by existing substations.
        - Areas proximate to sources of municipal wastewater for use in cleaning and employee and visitor sanitation facilities.
        - Locations proximate to load centers.

Biological Resources

Habitat loss is the primary cause of San Joaquin Valley upland species endangerment (U.S. Fish & Wildlife 1998). It is essential that habitat for threatened, endangered, and special status species in the Project area is protected to ensure survival and recovery of the species. To ensure habitat protection, land use must maintain or enhance the value of the land. The recommended approach for safeguarding such habitat is to protect land in large blocks whenever possible. This minimizes edge effects, increases the likelihood that ecosystem functions will remain intact, and facilitates management.

The California Department of Fish and Game's 2008 Wildlife Action Plan states that "[w]ith only about 5 percent of the San Joaquin valley's original natural areas remaining untilled and undeveloped, these Central Coast habitats…are important for the [San Joaquin kit fox's] survival" (at 171). Further, this plan references the Recovery Plan for the San Joaquin kit fox, and "calls for the protection of a complex of fox populations, including three core populations" (within the Carrizo Plain, western Kern County, and Ciervo-Panoche Natural Area) and "recommends protecting remaining connections between populations to counteract interbreeding or declines in any one population" (at 172).

We suggest that USACE consult California's Wildlife Action Plan in the evaluation of the project, with special attention paid to conservation actions to restore and conserve wildlife, including:

[1] Urbanized areas include communities that welcome local industrial development but do not include communities that are dependent on tourism for their economic survival.

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a. the "protection of large, relatively unfragmented habitat areas, wildlife corridors, and under-protected ecological community types" (at 191);
b. the protection of "sensitive species and important wildlife habitats" (at 192); and
c. the allocation of "sufficient water for ecosystem uses" and "[p]roviding adequate water for wildlife and in-stream uses" that "is particularly important in systems that support sensitive species or important habitat areas" (at 196).

The following species with special protections under the federal law have been documented to be present on the Project site or to have moderate potential to be found on or in close proximity to the Project site: San Joaquin kit fox (*Vulpes macrotis mutica*), giant kangaroo rat (*Dipdomys ingens*), tri-colored blackbird (*Agelaius tricolor*), grasshopper sparrow (*Ammodramus savannarum*), golden eagle (*Aquilla chrysaetos*), short-eared owl (*Asio flammeus*), long-eared owl (*Asio otus*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), mountain plover (*Charadruis montanus*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), California condor (*Gymnogyps californianus*), loggerhead shrike (*Lanius ludovicianus*), Oregon vesper sparrow (*Pooecetes gramineus affinis*), blunt-nosed leopard lizard (*Gambelia sila*), California tiger salamander (*Ambystoma californiense*), and vernal pool fairy shrimp (*Branchinecta lynchi*).

All potential impacts to the special status species listed above from Project construction and ongoing operations must be thoroughly analyzed in the draft EIS. Any significant impacts to these species and their associated habitat must be avoided, minimized, or adequately mitigated. All impacts to vernal pools and their associated hydrological systems must be avoided.

Finally, we urge the project proponents to work with the U.S. Fish and Wildlife Service ("Service") to evaluate whether or not they must obtain a permit to take golden eagles under the Bald and Golden Eagle Act and its implementing regulations. We believe that due to the likely large number of golden eagles in close proximity to this project site, the Project Applicant will need to obtain a golden eagle take permit from the Service.

Mitigation

We recommend that appropriate mitigation lands be identified to fully mitigate all Project impacts – not just those associated with the construction of the three proposed road crossings – and that deferred mitigation not be allowed. The threat of future development should also be analyzed during the adequacy assessment of potential mitigation lands. As discussed in the cumulative impacts section below, we are concerned that the scale of impacts to certain listed species may not be properly mitigated nor will it avoid jeopardy. We propose a 5:1 mitigation ratio due to the significant, historic loss of San Joaquin Valley ecosystem habitat and the Panoche Valley's heightened significance for recovery of San Joaquin Valley upland species.

Water

Water sustainability must be one of the guiding principles for siting solar energy development. Solar power is not environmentally responsible if it is reliant on unsustainable water use. Each alternative must consider groundwater and surface water impacts in the Panoche Valley over the life of the project. An analysis should include impacts to down-gradient groundwater and surface waters or wetlands and the effect of diversion of water from ephemeral streams on transport and deposition, vegetation communities and dependent wildlife.

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The proposed Project includes construction of three road crossings that would result in 427 cubic yards of fill into Panoche Creek and Las Aguilas Creek. The minimal information provided in the USACE public notice does not clearly state why these road crossings are warranted nor whether there is an opportunity to access the same areas utilizing existing roadways, therefore avoiding construction of these crossings. The draft EIS should analyze alternatives to the proposed road crossing construction to avoid and minimize impacts to these waterways to the fullest extent feasible.

Global Climate Change

According to the U.S. Global Climate Change Research Program, average temperatures in the Southwestern U.S. – including California – are projected to rise from four to as much as 10ºF over the baseline years (1960-1979) by the year 2090. An increase of between seven and 10ºF associated with the higher greenhouse gas emission scenario is more likely than the lower range of temperature increase associated with the lower emissions.

The environmental analysis must address the projected effects of global climate change on plants, animals, and their habitats throughout the Panoche Valley as part of the future environmental baseline. Planning for species adaptation will be essential components of the analysis and decision. Such changes include, for example, movement of certain species to higher elevations and/or latitudes as temperatures increase, shifts in natural communities' species composition, and changes in precipitation patterns. The future baseline condition should account for the existing impacts to species adaptation opportunities such as habitat loss and fragmentation from highways, canals, fences, and general development.

Cumulative Impacts

Cumulative impact is defined as the impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future action regardless of what agency or person undertakes such other actions. 40 C.F.R. § 1508.7. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. *Id.*

In the Upland Species Recovery Plan, the Service identified three key recovery areas for kit fox – the Panoche Valley, the natural areas of western Kern County, and the Carrizo Plain in San Joaquin County. All three of these areas must be kept intact and free of incompatible uses for kit fox. Any environmental analysis must evaluate the impacts of two projects within the Carrizo Plain (SunPower's California Valley Solar Ranch and First Solar's Topaz Solar Farm) in addition to the impacts from the Panoche Valley Solar Farm. The development of these three projects would impact two of three key core recovery areas for critically imperiled species, resulting in cumulatively significant impacts to the kit fox, giant kangaroo rat, and blunt-nosed leopard lizard in respect to both direct habitat loss and wildlife corridors and connectivity of habitat for wider ranging species.

Cumulative impacts to San Joaquin Valley upland species must be carefully evaluated, especially in light of the fact that there are solar energy projects proposed in the immediate vicinity of all three core areas deemed critical for recovery of San Joaquin kit fox and a suite of grassland-dependent species. Trends in species populations and extent of at risk habitats will be an important aspect of this analysis. When evaluated comprehensively, these projects may constitute jeopardy under the Endangered Species Act. Jeopardy to a species occurs when an action is reasonably expected, directly or indirectly, to diminish a species numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced. 50 C.F.R. § 402.02.

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Conclusion

Defenders supports the development of renewable energy projects to achieve renewable energy generation goals in California. However, we must employ smart planning in order to avoid and minimize adverse impacts on wildlife and lands with known high-resource values. This Project would have tremendous permanent impacts on the biological resources of the Panoche Valley, an area that is home to some of the most threatened species in California. It currently balances non-intensive agriculture with the needs of rare species successfully, but implementation of the Project will eliminate that balance. Therefore, Defenders opposes the development of the Project within the Panoche Valley.

Thank you once again for the opportunity to provide comments on the Panoche Valley Solar Farm and for considering our comments. If you have any questions, please do not hesitate to contact me at 202.772.3225 or via email at gbuppert@defenders.org.

Respectfully submitted,

gregory buppert

Greg Buppert
Staff Attorney

References

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Santa Clara Valley
Audubon Society

September 7th 2012 *Via Email*

Ms. Katerina Galacatos,
US Army Corps of Engineers
San Francisco District
Spn.eis.panoche@usace.army.mil

Re: **Panoche Valley Solar Farm Project, San Benito County**
Applicant: Solargen Energy, Inc.
Public Notice Number: 2009-00443S

Dear Ms. Galacatos,

The Santa Clara Valley Audubon Society (SCVAS) is pleased to submit the following comments in response to the Public Notice 2009-00443S. In addition, please consider the scoping letter and attachments submitted by SCVAS to the US Army Corps of Engineers on February 14, 2011. We wish to reiterate that our organization supports the sustainable development of renewable energy as fundamental to a necessary transition from a fossil fuel based economy. We also believe that renewable energy projects should avoid impacts to sensitive species, sensitive habitats, and agricultural land. We hold that only by maintaining the highest environmental standards with regard to impacts and effects on sensitive species and habitat, can renewable energy production truly be in the public interest.

Scoping letters
Please include analysis as requested in all the scoping letters and scoping comments received since the Army Corps of Engineers engaged in the Panoche Valley process, including scoping letters submitted by this and other organizations in February 2011.

Project Description
We ask that the Environmental Impact Assessment provide a complete project description, including all elements of the applicant proposed project (such as construction of new wells, lighting, permanent and seasonal fencing, a helipad, and motors for tracking support structures. We ask for a description of the type of solar panels and support structures.

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In addition, mitigation and project proposed environmental commitments for reducing impacts on one resource may negatively affect another source. The EIR partially described many proposed environmental commitments and mitigations and thus many interdependencies remain opaque and undisclosed.

We ask that the EIS clarify and assess impacts of proposed mitigations and environmental commitments that the project has committed to under the Environmental Impact Report (EIR) of 2010. This is necessary because many of the proposed mitigations and environmental commitments have physical aspects that may adversely impact biological resources, water and soil resources, noise and vibrations, human health and more. Examples include (but are not limited to):

- Netting and fencing of evaporation ponds impacts on avian species and wildlife
- Harvesting and transport of wet boron brine from the evaporation pond and the potential for boron exposure in windblown dust and mist to risk human health, including the Panoche school children
- Impact of grazing patterns on endangered species
- Noise and vibrations impacts of sonic or vibratory pile drivers for installing the support structures for the solar panels
- Impacts of exclusion zones and exclusion fencing to mitigate impacts to blunt-nosed leopard lizards on this and other species
- Impact of trapping and relocation of Giant kangaroo rats to unoccupied areas on this and other species
- EIR mitigations BR-1.2, BR-1.3, BR-G.3, BR-G.6, BR-1.1, BR-G.2, GE-4.1, PS-1.1, TR-1.1 as proposed in the 2010 final EIR

Alternative Analysis

- Please analyze at least one alternative that would avoid the need to fill 427 cubic yards into Panoche Creek and Aguilas Creek. We maintain that it is reasonable to expect the EIR to provide a comprehensive analysis of an alternative that would avoid any and all adverse impacts on water of the United States.
- Please analyze at least one feasible alternative outside of Panoche Valley

Hydrological impacts: surface water, runoff and soil erosion

We ask that the EIS provide a complete and accurate description of surface water resources against which to measure the Project's impacts. The EIS should identify surface water migratory patterns. The requested analysis is needed to properly address potential erosion: visible facts show that rainwater does not accumulate to create large wetlands in the valley. Clearly, despite a slow gradient, storm water flows into the valleys creeks and the washes in the valley are incised, continue to erode and are actively migrating. Thus, stormwater and surface flows and their impacts onsite and downstream merit comprehensive analysis, and the impacts of the Project on hydrology onsite and downstream should be evaluated. Storm water modeling should be performed to evaluate the impacts of the proposed support structures as well as runoff from panels, including potential increases in surface runoff leaving the site, potential changes in depth

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of storm water flows, and potential increases in erosion and sediment transport on site and downstream.

The EIS should analyze the potential of increased erosion and scour downstream Panoche Creek and the potential of increased flows in the creek to increase the release aluminum, arsenic, copper, iron, mercury, nickel, selenium and zinc into waters of the United States downstream. The Environmental Protection Agency listed New Idria Mine as a superfund site (EPA #: CA0001900463, contaminated media: Surface Water, Soil and Sludges, Environmentally Sensitive Area) and describes, "Surface water from the Site drains to San Carlos Creek, which flows northward to Silver Creek and continues north to Panoche Creek. Panoche Creek flows to the Mendota Pool and San Joaquin River during periods of heavy precipitation and flood events. The Mendota Pool and San Joaquin River are recreational fisheries and are located approximately 45 river miles downstream from the Site. The San Joaquin River flows to the San Francisco Bay, which is a commercial fishery. The San Joaquin River Restoration Project is a state and federal funded effort to restore and maintain fish populations in "good condition" including naturally reproducing and self-sustaining populations of salmon and other fish. Sensitive habitats and wetlands are found along the surface water pathway between the Site and San Joaquin River…" and "The 2010 Expanded Site Inspection (ESI) sampling results documented releases of aluminum, arsenic, copper, iron, mercury, nickel, selenium and zinc in the San Carlos Creek, and of mercury in the entire length of Silver Creek into Panoche Creek. The extent of mercury contamination in the Panoche Creek is undetermined". Please determine the extent of mercury contamination in the Panoche Creek and study the potential of the project to increase contamination downstream. In addition, please review any proposed mitigation along Silver and Panoche creeks to ensure that endangered species and other biological resources are not exposed to increased risk from aluminum, arsenic, copper, iron, mercury, nickel, selenium and zinc.

<u>Pesticides and Asbestos</u>

- Any animal control measures that impact rodents have the potential to reverberate throughout the Panoche Valley ecosystem and should be comprehensively addressed in the EIR. Please provide information and comprehensive analysis of potential use and impacts of rodenticides during construction and operation of the Project.
- Please provide analysis of impacts on public and worker health of pesticides remnant in the soil from historical agricultural use on the Project site
- Please study potential impacts of naturally occurring asbestos in the soil on the Project site (The Monterey Bay Unified Air Pollution Control District ("MBUAPCD") brought this fact to the County's attention during the scoping period for the EIR. Specifically, the MBUAPCD suggested that the EIR discuss any findings that have been made concerning the presence of naturally occurring asbestos on the Project site because naturally occurring asbestos is a federally regulated toxic air contaminant that may cause significant public health impacts when soil is disturbed and emissions of fugitive dust follow.)

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Water Resources
The 2010 EIR and Water Supply Assessment based water use calculations on arbitrary assumption of water need by the project. Please provide consistent and accurate water Resources analysis based on empirical studies of the amount of water needed for panel washing, and base the frequency of use on studies and models of dust in the valley (including construction dust) and ash from wildfires (common in the area.)

Transmission Infrastructure
There is no evidence that the transmission grid can handle proposed output from the proposed Project. Please provide information about potential upgrade to the transmission power lines in the valley, and potential cumulative impacts on wildlife. Please identify other projects that are included in the CAISO cluster study, their location and where the proposed Project lies in the CAISO interconnection queue in comparison to other purported projects. Please assess how potential transmission constraints may affect development of the Project. Please identify potential upgrades that may be required due to transmission constraints. Please discuss the possibility that the energy produced onsite will not be transmitted to consumers.

Security Fencing
Please analyze disclose potentially significant impacts and the effectiveness of propose mitigation measures for impacts associated with the Project's security fencing

Risk of Fire
Please analyze the risk that fire would originate at the project site. Please review and discuss history of wildfires and grass/vegetation fires within a minimum of 40-mile radius of the project site. Please include at least 10 years in the analysis. Please identify ignition causes and assess the probability of wildfire starting on the Project site, and the potential of fire to spread lands surrounding the Project site and risk residents, schools, property, and endangered species. Please assess firefighting effort and associated cost to the taxpayer.
When assessing risks of fire ignition, please discuss construction and traffic/ transportation activities, power lines and eclectic infrastructure, PV array wiring, tracking motors, and interaction of electric infrastructure with wildlife.

We thank you for the opportunity to provide input; please do not hesitate to contact us if you have questions,

Shani Kleinhaus,
Environmental Advocate

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September 7, 2012

Katerina Galacatos, Permit Manager
US Army Corps of Engineers
San Francisco District - Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103
Katerina.Galacatos@usace.army.mil

Dear Ms. Galacatos:

Project: Panoche Valley Solar Project
Applicant: Solargen Energy, Inc.
Public Notice No.: 2009-00443S

In a letter dated Feb. 14, 2011 the Loma Prieta Chapter of the Sierra Club submitted comments (the "Original Projects") on the Public Notice Number 2009-00443S for the Panoche Valley Solar Farm project (the "Panoche Project"). Our comments were based on information that was included in the Final Environmental Impact Report (FEIR) approved for the Panoche Project by San Benito County in October, 2010; in the Public Notice, dated Dec. 14, 2010; a letter from the project applicant's agent, Power Engineers to the U.S. Army Corps of Engineers (ACOE) and the U.S. Fish and Wildlife Service (USFWS), dated Oct. 26, 2010; and in letters of response to the Draft and Final EIR's provided by the California Department of Fish and Game (CDFG) and USFWS. We resubmit those comments in response to the ACOE notice of an EIS for that project.

The Sierra Club is a national nonprofit organization of approximately 1.3 million members and supporters dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth's ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. The Sierra Club's concerns encompass protecting our public lands, wildlife, air and water while at the same time rapidly increasing our use of renewable energy to reduce global warming. We submit this letter on behalf of our members, activists, staff, and members of the general public who are interested in protecting native species and their habitats as well as supporting the development of clean, renewable sources of electrical energy. The development of renewable energy is a critical component of efforts to reduce carbon pollution and climate-warming gases, avoid the worst consequences of global warming, and to assist in meeting needed emission reductions.

We believe the project would have adverse impacts on endangered species, water quality, and public interest factors including wildlife values, aesthetics, land use, recreation, and conservation. Given the information that was available in the FEIR for the project, we wish to point out the following deficiencies pertaining to impacts to endangered species and other wildlife:

1) **Inadequate survey data**: Avoidance and mitigation measures are proposed based on assumptions regarding relative densities and habitat values for sensitive species without adequate survey data. For example, the removal of the southeast portion of the project site from the development area, and its proposed contribution to mitigation lands is based on higher detections of blunt-nosed leopard lizards (BNLL) and giant kangaroo rats in that area. However, protocol-level surveys for BNLL were completed only in those sections (Sections 15 and 16, and partial protocol level surveys in Section 10), with lower intensity sampling over the remainder of the project site.

   Analysis of the Silver Creek Ranch for mitigation is based on only a few days of reconnaissance surveys. Topographic maps clearly indicate that the proportion and distribution of flat land is not comparable to the project site. The overall habitat value of the proposed mitigation land for each of the species requiring mitigation cannot be assumed based on the surveys that have been conducted.

   The statements that the "highest quality habitat areas" on-site will be placed in conservation easements, and that "Solargen…reconfigured the Project to avoid nearly all of the highest quality habitat on the project site" are untrue, and are based on incomplete information. Endangered species were found in high numbers throughout the project site. Protocol-level surveys for BNLL were done only in or adjacent to the area to be put into an easement, and protocol-level surveys were not done for other species anywhere on the site. Adequate surveys of both project lands and proposed mitigation lands need to be completed, and relative habitat values need to be agreed upon by CDFG and USFWS prior to permit issuance.
2) **Impacts of noise and vibration from construction are inadequately addressed**. Construction activities may occur for 12 hours per day for the proposed 5 year construction period. Mitigation proposed for impacts of noise (acknowledged as an immitigable impact for human "sensitive receptors") is: "The Applicant shall evaluate and implement feasible foundation installation systems to minimize noise and vibration that would affect ground-dwelling wildlife." Like many of the mitigations proposed, this is vague, unmeasurable, and unenforceable, nor can it be evaluated for effectiveness. Latest project plans include the use of sonic or vibratory pile drivers "where feasible soil conditions occur." No data are presented regarding the amount of ground vibration that will occur. The impacts of vibrations on ground-dwelling animals, both on and off of the project site, have not been addressed. For example, giant kangaroo rats communicate by thumping, which would be disrupted by both noise and

vibration. It is reasonable to assume that impacts to giant kangaroo rats and other wildlife on or adjacent to the project site will be devastating.

3) **Many other impacts, particularly outside the footprint of the project, and cumulative impacts are not adequately addressed**. In addition to noise and vibration, dust, lighting, and traffic mortalities will impact wildlife populations beyond the footprint of the project, but avoidance or mitigation measures have not been included in the project.
4) **Proposals to avoid take of the Fully Protected BNLL are inadequate.** They do not consider lizards that might be underground during surveys, that may not be at the center of a circular home range when seen, or simply may be missed in surveys. It is acknowledged in the FEIR that the entire site is suitable habitat for BNLL. The proposal that take can be avoided by delineating buffers around those that are detected is unrealistic.
5) **Analysis of and mitigations proposed for disruption of wildlife movement corridors are inadequate**. Proposed mitigation is to fence corridors for giant kangaroo rats along drainages between the panel arrays, and assume that they will be adequate for other species. Conditions within the corridors will change, and may have reduced suitability for kangaroo rats and other animals after the panels are installed. The fences alone may change conditions, impeding animal movement and providing perching sites for predatory birds.
6) **Conclusion that impacts to endangered species will be fully mitigated is erroneous**. As discussed in CDFG's letter, protection of existing habitat through conservation easement or similar mechanism without habitat enhancement, creation, or restoration results in a net loss of habitat, net loss of number of animals of the species impacted, and therefore an adverse effect on the species.

   In order to compensate for habitat loss, management would have to enhance habitat, not just "maintain" it. Proposals suggested to improve riparian habitat on the easement lands would do nothing for the desert and semi-desert endangered species that are being impacted. Further, terms of the option for the Silver Creek Ranch don't ensure that habitat improvements could be carried out or monitored. In fact, activities such as mining and farming could occur.
7) **Proposed mitigation ratios are inappropriate**. The use of the Silver Creek Ranch and Valadeao Ranch is proposed as mitigation for impacts to special status species on the project site. In addition to the "net loss" deficiency discussed above, the mitigation ratios proposed do not compensate for the loss of core endangered species habitat. The justification given in the FEIR for these low ratios are that they are consistent with those contained in other planning and permitting documents, with four examples sited. It needs to be noted that several of the examples are more than 15 years old, and all are in other geographic areas. The Panoche Valley is recognized as having unique and particularly high value to several of the listed species in question, as discussed in the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998). There is no information given in the FEIR to allow comparison of this project with those given in the examples, and it cannot be assumed that conditions or appropriate mitigations are comparable.

We strongly support the development of renewable energy production, and the generation of electricity from solar power, in particular. As we have expressed in multiple forums, and describe in greater detail below, the Panoche Project is not well-sited and will cause extreme harm to special-status species and their habitat.

We question the need for the proposed creek crossings. It was stated in the FEIR that creek crossings would be included in the project only if needed for fire protection; no discussion was made of crossings for cable installation. All portions of the project site are accessible from paved roads (Panoche Road and Little Panoche Road), utilizing existing crossings. Without the crossings, the project site would be under the jurisdiction of the USFWS for many of the most contentious impacts. Even with the creek crossings, we question whether it is appropriate for the entire project site to be covered under Section 7 of the ESA, under ACOE jurisdiction through the permitting process of Section 404 of the Clean Water Act. Because new creek crossings could be avoided, we do not believe that the project passes the "but for" test discussed in the Power Engineers letter. Again, we believe that many or all of the endangered species issues should be subject to Section 10 of the ESA.

It was stated in the FEIR that "There shall be no ground disturbance within 100 feet of washes and streams. Observe an avoidance buffer of 100 feet as measured from the top-of-bank on both sides of these features. Project access roads shall be designed to reach all portions of the project without direct effect on washes, except where this provision conflicts with the San Benito County Fire Code. No bridges shall be installed over washes unless required by the San Benito County Fire Code or CAL FIRE/San Benito County Fire Department…" (p.C.6-36). Although a subsequent letter from CAL FIRE/San Benito County Fire Battalion Chief Paul Avila, dated 10/25/10, states that "All roads identified in the EIR must be installed and maintained with an all weather surface. This includes the stream crossings which are [need] to reduce response times to all emergency calls…," we do not believe that there is anything in the San Benito Fire Code, nor precedence set for such a requirement in rural settings. We are concerned that the substantial funds that were promised to the San Benito County Fire Department by the project applicant for equipment may have some bearing on the content of Chief Avila's letter. It is this letter that sets off the domino effect of allowing creek crossings, thus triggering project jurisdiction by the ACOE instead of the USFWS, and coverage of the project by Section 7, rather than Section 10 of the ESA, thus exempting the project from the requirement of protecting endangered species through a Habitat Conservation Plan.

As noted previously, we believe that, even with stream crossings, jurisdiction of the entire project site by the ACOE is inappropriate. We are further concerned that this decision at the federal level may have been motivated by a letter from then Governor Schwarzenegger to President Obama (August, 2010) requesting streamlining of the ESA process and USFWS review of several specified solar projects in California, including this project. While we recognize the urgency of moving forward with alternative energy projects, as well as the need for job creation in counties such as San Benito, we are adamant that the spirit and intent of the ESA need to be upheld

8) **Proposed mitigations are neither approved by, nor consistent with comments provided by CDFG and USFWS**. It is implied in the FEIR, and in the Power Engineers letter of Oct., 2010 that the mitigations on the Silver Creek Ranch were derived in agreement with the CDFG and the USFWS. Indeed, representatives of the Solargen (then project applicant), gave a presentation to the Loma Prieta Chapter in September of 2010, and stated that the agencies (as well as the Bureau of Land Management (BLM)) were "comfortable" with the proposed mitigation. Through subsequent phone conversations with representative of all three agencies, we have learned that that is not the case. Mike Westphal of BLM pointed out that his agency is not in a position to approve or disapprove of the project. Dave Hacker of CDFG, and Chris Diel and Dave Cooper of USFWS all stated that, although the conservation value of the Silver Creek Ranch had been discussed, no details of mitigation had been agreed upon. The Oct. 8, 2010 letter from the CDFG makes it clear that the proposed mitigations do not satisfy that agency's requirements.
9) **Proposed mitigation lands are fragmented and of lower quality than Project lands**. As discussed in the CDFG letter of Oct. 8, 2010, much of the proposed mitigation land is of lower habitat value than lands that will be impacted. Per the CDFG letter, "The habitat which the Project would affect is a contiguous patch of high-quality habitat…Much of the proposed mitigation lands consist of small patches of low-relief habitat surrounded by steep slopes…If every acre with a slope less than 11% was included [mitigation lands], or if areas with frequent steep slopes were included, then the FEIR did not account for both natural or project-incurred fragmentation and isolation."

   In addition to classifying fragmented habitat on the Valadeao and Silver Creek Ranches as "high quality," the applicant proposes using land between solar panel arrays and project infrastructure as mitigation for habitat loss. The assumption that these "on-site" lands will be suitable for habitation by special status and other wildlife species is unfounded. Noise, vibration, traffic impacts, changes in vegetation and hydrology, changes in perching availability for raptors, impediments to movements, and changes in predator densities can all be expected to devalue these lands for at least some of the species in question.
10) **Monitoring and remediation of project-related wildlife mortalities would be inadequate**. The FEIR requires monthly monitoring of bird and other wildlife mortalities at the evaporation pond during the first year and quarterly during the nesting season after the first year, with annual reports to be made to appropriate agencies. Monitoring and reporting should be done more often, so that detections can be made before carcasses have decayed and so that remediation can be required before local populations are impacted irreparably. Similarly, other project-related bird and wildlife mortalities should be reported at least quarterly, as proposed in the DEIR instead of annually, as in the FEIR. The CDFG and USFWS need to be consulted regarding the mortality thresholds that will trigger remediation.
11) **Impacts of the project on recreationalists, particularly birders, and on the revenue they bring to the County has not been analyzed adequately.** The

determination that birds, and therefore the many bird watchers who come to the valley, will simply move to adjacent lands is specious. Bird populations and species diversity will be diminished with the loss of habitat, and the devaluation of the site's aesthetic appeal will deter birding visitors.

12) **More funding assurances regarding decommissioning costs are needed.** The FEIR includes provision for securing funding from the applicant for costs of removing and disposing of solar panels after the life of the project. Funds also need to be secured for full restoration and revegetation of the project site after decommissioning is completed, and an enforceable schedule for restoration after decommissioning needs to be included.
13) **The proposed project is "Piecemealed", with deference of full analysis of impacts and mitigation to future phases.** This makes a meaningful analysis of the overall impacts of the project impossible.
14) **Discussion of project alternatives is deficient**. The EIS needs to include thorough discussion of alternative locations, both for solar projects in San Benito County, and in other counties, such as the Westland CREZ location (the Environmentally Superior Alternative mentioned in the FEIR), and roof-top solar power generation. A thorough discussion of alternative designs for this project that would avoid creek crossings is also needed.
15) **To-date agreements and options do not ensure mitigations as proposed**. Terms of the Development Agreement approved by San Benito County do not ensure that the proposed mitigations will be completed: The Development Agreement includes phasing of mitigation with project construction, on an acreage per MW basis. There are no provisions that protection of high quality habitat will be proportional to habitat destruction as the project progresses. Impacts of infrastructure such as roads, substation, evaporation pond, helicopter pad, cable installation, etc. would not trigger any mitigation. Low density solar panel installation, or installation of panels with low efficiency would impact acreage, but would result in low acreage protection. Lowest value habitat, such as areas of high relief on the Valadeao Ranch could be protected in exchange for destruction of highest value habitat in the first phases of the project. If the project is not completed as planned, higher value areas might never be protected.

    It has not been demonstrated that all needed agreements are in place for protection of proposed mitigation lands, including mineral rights, rights of access needed for effective monitoring, and long-term options for conservation easements (easements may not be placed on the lands for at least five years from the beginning of construction). An agency or organization that will hold the easement has not been identified, nor has it been shown that sufficient funds have been secured to monitor and administer the easement in perpetuity.

    An option agreement between the project applicant and owners of the Silver Creek Ranch, dated August 4, 2010, include provisions that the owners will be allowed to farm the land, may be allowed to use rodenticides, and will have the right to reject terms of yet to be developed grazing and management plans for the property. This agreement does not ensure that there will be any benefit to wildlife, nor that mitigation goals will be met.

As discussed in the many DEIR and FEIR comment letters by USFWS, CDFG, several chapters of the Audubon Society, Defenders of Wildlife, The Nature Conservancy, Center for Biological Diversity, the national and Loma Prieta Chapter Sierra Club, and others, this project will impact habitat crucial for the continued existence and recovery of the San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard, as well as important habitat for a suite of other special status species, including the California tiger salamander, San Joaquin antelope squirrel, snowy plover, vernal pool fairy shrimp, California condor, Western burrowing owl, and American badger. We believe that, for reasons discussed above and in the CDFG Oct. 8, 2010 letter of response to the project's FEIR, impacts to endangered species and other wildlife will not be adequately avoided or mitigated. As stated in the USFWS DEIR response letter, "The Recovery Plan…lists the Ciervo-Panoche Natural Area, including the Panoche Valley…as a Recovery Priority of Level 1 (Service 1998). A Priority Level 1 indicates that action that must be taken to prevent extinction or to prevent a species from declining irreversibly in the foreseeable future."

We believe that the project will jeopardize one or more of the endangered species that will be impacted. Per the CDFG FEIR response letter**,** "Recovery plans for these species have determined that all of the existing habitat, including the Project site, need to be conserved to meet the stated recovery goals….The recovery plan [for Upland Species of the San Joaquin Valley] states that all occupied areas in the Ciervo-Panoche region must be protected to down-list giant kangaroo rats to threatened, and that the entire metapopulation of giant kangaroo rats in the Ciervo-Panoche area must be conserved to de-list the species. These recovery goals include conserving the Project site (USFWS 1998)." The U.S. Fish and Wildlife Service Recovery Plan for Upland Species of the San Joaquin Valley lists a required protection of 90% of the existing potential habitat for San Joaquin kit fox in the Ciervo-Panoche Natural Area (as of 1998) to meet downlisting criteria. 90% protection would require a protected:impacted land mitigation ratio of no less than 9:1

As indicated above, we believe that at least the upland portions of the project site should be under the jurisdiction of the USFWS, and therefore should have been required to obtain an incidental take permit and prepare a Habitat Conservation Plan under Section 10 of the ESA. We are concerned that adequate mitigation and avoidance measures may not be ensured under Section 7. We are also concerned that, once creek crossings are completed, the ACOE may lose the leverage needed to ensure that conditions of approval are upheld. We support the decision to require preparation of an EIS for this project, and predict that denial of the 404 permit will be the most appropriate outcome.

The Sierra Club fully recognizes the importance of solar and other forms of renewable energy. However, projects must be planned to avoid and minimize

impacts to sensitive resources when alternatives are available. This project has been proposed in a site with particularly high value habitat for endangered species. Alternative sites have been identified and need to be utilized. The Panoche Valley and its unique resources need to be protected against this and other intensive development projects.

Thank you for your consideration of these comments.

Sincerely,

Mike Ferreira
Sierra Club Loma Prieta Chapter Conservation Chair

Cc: Ginny Laibl - Chapter Executive Committee Chair
Melissa Hippard – Chapter Executive Committee Vice-Chair

Members - Chapter Conservation Committee

From: popisti@gmail.com on behalf of Kristi Adams
To: CESPN EIS PANOCHE
Subject: No Solar Farm in Panoche Valley
Date: Thursday, September 06, 2012 1:37:58 PM

Dear Army Corps of Engineers,
As a regular visitor and client of business in the Panoche Valley I am firmly against building a solar plant in that area. Panoche Valley is a beautiful and fragile area with many people and animals who rely on it. Solar plants are not appropriate use of our open spaces. Solar panels belongs on roof tops near the businesses and homes they are powering.
I sincerely hope you do not let the this solar plant happen in Panoche Vally.

Regards,
Kristi Stephens Adams
1306 Florida St.
San Francisco, CA 94110
415-643-3347

From:	clifford.bixler50@gmail.com on behalf of Cliff Bixler
To:	CESPN EIS PANOCHE
Subject:	Panoche Valley Solar project
Date:	Thursday, August 16, 2012 6:11:42 PM

To whom it may concern:

We are extremely concerned that the site for the Panoche Valley Solar project is ill-suited and will result in irretrievable loss and damage to the environment and to the unique eco-system in that valley. As one of the last remaining native grasslands in California this is a site that should never have been considered. I am sure that the proximity of high tension power lines and the ease of building on flat land was a big attraction for the developers but the many rare and endangered birds and mammals present in that valley should outweigh the economic expedience.

Such projects should be sited only after careful wildlife censusing to determine the locations and even the exact areas with the least impact on birds and mammals. Far from that, this site is one of the premier bird habitats left in Northern California and should be protected from this industrial scale utility development.

Sincerely,

Cliff & Lise Bixler
91 Country Estates Dr.
Santa Cruz, CA 95060

From:	Cheesemans" Ecology Safaris
To:	CESPN EIS PANOCHE
Cc:	Shani Kleinhaus
Subject:	Re: The Panoche Valley solar project Environmental Impact Statement
Date:	Sunday, September 02, 2012 11:59:22 PM

Dear Sirs:

Please consider in the Environmental Impact Statement alternatives outside of Panoche Valley and outside San Benito County on land that is not designated as an "Important Bird Area" and is not included in the Core Recovery Area for endangered species.

It is important to do comprehensive surveys following the Dept of Fish and Game protocols. All endangered species must be included in the surveys.

We have for the past twenty years visited Panoche Valley and know how rich the bird population is there. Considering the continual loss of native habitat for California's native wildlife population, the Army Corps of Engineers should do all that is possible to preserve the areas still viable for native birds in the Panoche Valley.

Very best regards, Gail and Doug Cheeseman

--
Cheesemans' Ecology Safaris
20800 Kittridge Road
Saratoga, CA 95070 USA

www.cheesemans.com
info@cheesemans.com
408-741-5330 or 800-527-5330
Skype name ~ CheesemansEcologySafaris

September 7, 2012

Katerina Galacatos, Permit Manager
US Army Corps of Engineers
Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398
Submitted via email to: spn.eis.panoche@usace.army.mil

Re: Panoche Valley Solar Farm

Dear Ms. Galacatos,

Thank you for the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Statement for the Panoche Valley Solar Farm project. As a land owner and resident in San Benito County, I would like to provide the following comments.

I would like the EIS to look into the effects this project might have on the air quality and water quality due to disruption of the soil caused from this project. We have days and sometimes weeks of high winds in Panoche Valley. There will also be increased dust to the roads and clearing of the land. I understand that bacillus anthracis bacterial spores and coccidioides immitis have been found in the Panoche Valley soil. Based on the information I have read about this project, large surface areas of the Panoche Valley floor will be disturbed, thus increasing the risk of the residents and livestock in Panoche Valley being exposed to high amounts of these soil-borne bacteria and fungus. I would like the EIS to address my concerns about the effects this project will have to the air quality and water quality in Panoche Valley.

How will the surface runoff caused from this project effect soil erosion in the valley and the quality of drinking water in our aquifers? How will the rain water that pools at the base of the panels and diverted into the waterways instead of being soaked into the valley floor effect the plant life, water table, and the quality of drinking water in our aquifers?

Panoche Valley has an increased risk of fire due to the dry state of the valley during the summer months. I would like the EIS to address the increase fire risk this project will create for the valley, the fire suppression measures that should be taken and the ability for Panoche Valley Solar LLC to fight fires. What measures will they need to take to protect against fires and to prevent fires from spreading across the grassland valley into neighboring homes, barns and other out buildings? What is the response time for the California Department of Forestry and Fire to reach Panoche and what impact does that have on our homes if a fire were to break out from this project?

The EIS should look into how the impact of 5 years of construction noise will have an impact on the quiet rural aspects, quality of life to the people, the domestic animals, birds and other wildlife that live in Panoche Valley. Life in Panoche is quiet and peaceful.

Maxine Davis Comments
Panoche Solar Farm
September 7, 2012

This is a rural agricultural area that will be negatively impacted by long periods of construction noise.

I am concerned over the current conditions of the roads leading into Panoche Valley from Paicines and from I-5 and how these roads will further deteriorate due to the increased traffic caused by this project. These roads have always been in disrepair with the current traffic flow in and out of the valley. Both Panoche Road/J1 and Little Panoche Road have several blind corners, one-lane sections and bridges. The road is consistently being repaired based on it's current use. The EIS should include a traffic study that addresses level of service on each roadway, signage, ability of the roads and bridges to handle the increased traffic and heavy truck loads of equipment and supplies as well as identifying mitigation measures to offset negative impacts. The EIS should address funding for roadway improvements that will be required due to this project. In addition, ongoing funding sources for maintenance and operations of the roads for the duration of this project should be considered in the EIS.

I am concerned over the lack of information provided by Panoche Valley Solar LLC on the type of seeds they will use when replanting the disturbed land and how these seeds will grow with no water or direct sunlight due to the shading caused from the solar panels. The EIS should address the cause of using non native seeds in Panoche Valley and the affect of planting beneath solar panels with no irrigation and no direct sunlight. If irrigation will be used, the EIS should address how this increased water usage will affect the water table in Panoche Valley. The EIS should also address how the water table will be affected by this project due to the occasional cleaning of the panels.

The proposed project area of 4,700 acres will cover over 40% of the valley floor and will be surrounded by chain link fence which would eliminate the beautiful open views we have of the grassland valley. The EIS should look into the loss of another grassland valley in California. How many grassland valleys does California have? What is the cost of losing this valuable rangeland and wildlife habitat? The proposed chain link fencing could impede the ability for the wildlife species to freely roam the valley as they currently do. The EIS should look into how this impediment could negatively affect the wildlife species in Panoche Valley.

The security lighting required for a substation would negatively impact the night sky that we currently have in Panoche Valley. Currently in Panoche Valley I can see the Milky Way galaxy brighter than anywhere I have ever seen it in all the places I have lived in America. The night time lighting will take away our night sky viewing and could possibly have a negative affect on the bats and owls that I have seen in the valley as well as other species that hunt and come out of their burrows during the night, such as the Giant Kangaroo Rat. These changes to the existing environment in Panoche Valley need to be examined. I believe they will be drastic changes and could have a major negative impact on the valley. The EIS should address how these changes to the night sky will have an impact on the valley residents, both human and animal as well as plant.

Maxine Davis Comments
Panoche Solar Farm
September 7, 2012

I have viewed wildlife in Panoche Valley, namely the San Joaquin Kit Fox, the Giant Kangaroo Rat and many birds of prey. I have concerns over how 4,700 acres of solar panels will affect the current forage that grows in Panoche Valley, the ability for these animals to easily roam in Panoche Valley, and the effects of 5 years of construction in the valley. The EIS should address these concerns.

Farmers and ranchers in Panoche Valley currently practice sustainable practices, using drip irrigation and rotational grazing. We conserve and protect the valley because this is our home. This project will forever change the valley and the EIS should look into the loss of this valuable grassland valley, the loss of the ability to graze cattle in the valley due to the size of the project and the inability to graze cattle within the 4,700 acres of the project area.

The EIS should address how distributed solar installation on city rooftops and parking areas could produce the same amount of energy as this large industrial solar project. The EIS should look into whether or not the existing transmission lines in Panoche Valley can handle the load of energy being proposed by this project. The EIS should look into whether or not the solar panels being proposed for this project actually exist and if the amount of energy that Panoche Valley Solar LLC states they will produce will actually be the same amount of energy after it travels the great distances to the cities where the energy will be used.

The EIS should look into how this project might have a less significant impact on the environment if it were to be placed in urban areas and possibly the Westlands Solar Park located in the Westlands Water District, located in western Fresno and Kings Counties.

Thank you for looking into these concerns.

Sincerely,

Maxine Davis
34672 Panoche Road
Paicines, CA 95043
Email: mdavis@medicine.ucsf.edu

From: Rani Douglas
To: ""spn.eis.panoche@usace.army.mil.""; CESPN EIS PANOCHE
Subject: SPN-2009-00443S
Date: Thursday, September 06, 2012 6:18:31 PM

To the Army Corp of Engineers:

My family and I have been residents of Panoche Valley for 16 years. We moved here to have a rural environment, open space, dark skies, wildlife, quiet, and for the wonderful Class 1 soils that we farm on. Having an industrial sized solar electric generating plant here would be devestating to us, our neighbors, the school children, and for all of the citizens who pay to have Fish and Game, Fish and Wildlife and other agencies preserve the sensitive and diverse environment here in Panoche Valley. The Valley is rather small at around 14,000 acres. It is not much bigger than some of the farms in the San Joaquin Valley. Please address the following issues: The project will decimate almost 20 % of the Valley and will adversely affect 100% of it because of the small area of the Valley. Whatever takes place in one fifth of the Valley directly affects the remainder. The configuration of the project puts it in close proximity to the rest of the Valley. The construction phase will entail 24 hours a day and 7 days a week of heavy construction noise (the EIR already stated that construction noise levels will exceed the Noise Code, heavy traffic on inadequate dangerous roads will cause hardship and danger to the residents and the workers, stripped ground will cause dangerous dust that can cause health problems and can adversely affect crops and livestock, a network of road building will permanently damage the land and the habitats of many animals, and the construction site will cause destruction of critical recovery area habitat and will disrupt and destroy life in the Valley. The farmers and ranchers who make their livings here in the Valley may have significant loss of income or total loss of business. This proposed industrial project is not needed and is not conducive to energy independence. It will cost the public an immense amount of money to build and it will continue to cost the end users of electricity higher rates.

Please make comment on the Endangered Species Act and the mandates set forth in it. It was established to protect this Valley from just exactly what is being proposed. Industry and endangered species do not cohabitate. Only one will survive and it will not be the endangered ones. The Act has been tested in court and has been upheld:

> Each Federal agency must consult with the Service to ensure that any actions carried out, funded or authorized by the agency (for example, the Corps of Engineers granting a permit under the Clean Water Act) are not likely to "jeopardize the continued existence of any endangered or threatened species or result in the …adverse modification of critical habitat." The U.S. Ninth Circuit Court of Appeals, whose decisions, absent Supreme Court reversal, control in California, has held that

agency action is barred if it is likely either to jeopardize the survival or recovery of species. "The ESA was enacted not merely to forestall the extinction of a species…but to allow a species to recover to the point where it may be delisted." Gifford Pinchot Task Force v. FWS, 378 F.3d 1059, 1070-71 (2004). Similarly, National Wildlife Federation v. NMFS, 524 F. 3d 917 (2008). (The Fifth and 10th Courts have ruled similarly.) This applies not only to the immediate area involved in the action, but to all areas affected. Federal regulations define "recovery" as an increase in the number and viability of a species to the point where its listing as endangered or threatened is no longer appropriate.

CONSULTATION REQUIREMENT Section 7 of the ESA implements the Act's purposes by requiring that all Federal agencies consider the effects of their actions on endangered or threatened species and protect those species. The United States Supreme Court in blocking completion of a dam because of the ESA has stated S7 reveals an explicit congressional decision to require agencies to afford first priority to …saving endangered species…, priority even over the "primary missions of agencies". TVA v. Hill 437 U.S.153 (1978)

Panoche Valley has been determined to be a Core Recovery Area for endangered species. Taking away vital land on the Valley floor is not the way to recovery.

The California Endangered Species Act (CESA) provides State protection for endangered and threatened species. The State policy is "to conserve, protect, restore and enhance" these species and their habitat. The Fish and Game Commission designates endangered and threatened species. Under the statute it is enough that a species is endangered or threatened in all or a significant part of its range in California, regardless of its status elsewhere.

Please study the proposed Mitigation Lands for this project. These lands have never been found to be adequate to support the endangered species, therefore, taking away the vital Valley floor and saying the species can live on the Mitigation Land is not a substantial argument. The Valley has been determined to have a unique

genetic pool of San Joaquin Kit Fox . This needs to be studied further, and determine if the project will have an adverse affect on their continued existence.

Please address our water issues. Our water table is precarious. Having an industry that uses water in its operations and that may use as much as they want, would be disasterous to the land owners and the future of the Valley. In the recent past, the water table has been drawn down to levels that bankrupted the farming operations. We cannot afford to have this happen again. The water users in the Valley are mindful of the way the water is used and the water table has been gaining steadily despite the fact that new small organic farm operations, a small dairy and other livestock ranching have started up within the last 10 years. In addition, there is great concern for ground water contamination in the case of panels being broken, vandalized, or damaged by storms and lightening.

Please carefully take into account the vernal pools and the aquatic life that depends on them, and the water courses that exist in the Valley. The previous EIR was grossly weak in its study period and its evaluation of the destruction that is planned for these water areas. Having a forced assignment to complete the EIR was grossly negligent, but the Board of Supervisors wanted the EIR completed in 90 days. Aspen Environmental admitted that the Board made this demand, and they also said that an EIR for a project of this size should take approximately one year. This was a bad decision on the part of the Board of Supervisors. We hope that the Army Corp of Engineers will be more thorough and will take the time to make a worthwhile study of the issues.

Please take into consideration the dust levels that will be caused by scraping the soil. Our winds exceed 75 miles per hour during storms every year. A wind of 20 miles per hour can cause health problems during a very dry year. Valley Fever is attributed to stirring up of the soils which will be spreading over the Valley. Our crops will be choked with dust and may cause failure of the crops. The school children will be at risk from dust.

The traffic caused by the project can cause major problems and dangerous encounters from three shifts of hundreds of workers going to and from the site as well as equipment being hauled in large truck and trailer units causing perilous travel on the one lane roads with blind curves and one lane bridges. Please address this.

Please address that there is an “Aternative” to Panoche Valley for the project, and the lack of public need for another solar plant. There now are reports stating that there are 50% more renewable energy projects already in the pipeline and approved for construction than was mandated by the State of California to meet renewable energy requirements. If there is no public need, then this is not a project that should be endangering the residents and the wildlife of the Valley. Please address the fact that if Duke Energy or any other company wants to build an industrial plant they can go to the Westlands CREZ, an area with about 60,000 acres designated as a California Renewable Energy Zone. It has dead soil, no endangered species, no farming operations, it has transmission lines in place, the Westlands management is welcoming new industry, the area is close in proximity to the proposed project, it is

near Interstate 5, and it is superior in every way with the exception of the price per acre. The price is not a reason to allow the project to be built in Panoche Valley.

It has been stated by many people who know about this project that there couldn't be a worse place to put such a project. We heartily agree, and we hope that the Corp will not allow this project to move forward.

Thank you for your consideration of my comments.

Rani Douglas
Douglas Ranch
34220 Panoche Rd.
Paicines, Ca. 95043
(831) 628-3800

From:	Jae Eade
To:	CESPN EIS PANOCHE
Cc:	jaeeade@garlic.com
Subject:	USACE PANOCHE VALLEY SOLAR FARM
Date:	Monday, September 03, 2012 7:06:24 PM

John and Jae Eade
4760 Santa Ana Valley Rd.
Hollister, CA 95023
jaeeade@garlic.com

August 31, 2012

Katerina Galacatos-Permit Manager
US Army Corps of Engineers:
Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398
spn.eis.panoche@usace.army.mil

SPN-2009-00443S

Dear Katerina:

We attended the public hearing regarding the Panoche Valley Solar Farm (PVSF) in Hollister on 8/22/12 and heard very informative presentations by both Eric Cherniss of PVSF and the USACE. We also heard from many opponents of the project with a variety of mostly weak and many erroneous objections to the project.

My family crossed the Panoche Plains on their way to the New Idria Mines in the early 1870s to earn a living mining cinnabar (mercury) under dangerous and dismal conditions. After a multi year stint in Idria they moved to Eureka, Nevada to mine gold and silver and finally settled in Monterey County, California where they engaged in ranching and our family continues that legacy in San Benito County. We have been ranching in the Vallecitos/Panoche area since the early 1970s and have witnessed the transformation of Panoche Valley from an era of intense farming, cotton, alfalfa, grain and even row crops to once again back to grazing as it was one hundred years earlier when my great grandparents crossed the valley in a covered wagon.

During this period of intense farming nearly every acre where the Panoche Valley Solar Farm itself will be located was disked, plowed, ripped, planted, irrigated and harvested repeatedly for years on end. No Kangaroo Rats, Blunt Nosed Leopard Lizards, Antelope Squirrels or other ground dwelling species survived on the site. Then the wells ran dry, commodity prices collapsed or government subsidies ran out and the farming ended and the species returned. It was not the nine acre to one acre multi million dollar mitigation plans or other taxpayer subsidized or ratepayer financed EPA required schemes that brought these species back; it was simply time that did the job.

We heard opponents ranging from recent residents to radical environmental groups tout that the birds will never return, the view will be destroyed, everyone will be exposed to Valley Fever and Anthrax, the site will impact hundreds if not thousands of native american

burial sites or any number of other unsupported, lame excuses to add some credence to their failed litigation now under appeal in district court.

We currently graze cattle on the Valladeo/Beecher Ranches that are being designated as mitigation for the PVSF. These 23,000+ acres will be preserved in their present state in perpetuity. We are intimately familiar with all these lands and their biological, archeological and paleo values as we were proponents/facilitators of several land exchanges with the Bureau of Land Management between 1985 and 2003 whereby we acquired over 50,000 acres in the Joaquin Ridge, Ciervo Hills, and Panoche Hills area for the BLM. Included in these exchanges were over 10,000 acres of the Silver Creek Ranch located in Fresno County. The Silver Creek Ranch was the highest priority acquisition for the BLM in all of Central California. This is critical habitat for multiple RT& E species including but not limited to Blunt Nosed Leopard Lizards, San Joaquin Kit Fox, Giant Kangaroo Rats and Antelope Squirrels.

If the opponents to this project, including many in CAL Fish and Game and USFWS had any clue to the resilience of these species it has not been demonstrated by their actions in the field, in court or in any public hearings.

In the last 10,000 years these species have survived at least two 30 year droughts and one 60 year drought plus numerous El Nino flood events and most recently the total destruction of their onsite habitat due to the intensive farming activities of the 1960s and 1970s and the extensive use of 1080 rodenticide prior to 1972 that decimated nearly all the listed species. In less than 3 decades their populations have roared back to their current levels. In fact, so much so that the Panoche Valley area has been designated a key recovery area for several T & E species.

The biggest threat to current species is the enormous increase in the raven population in the area that has exploded geometrically. These voracious birds decimate the lizard and rodent populations along with all birds who nest in the area. We hear nothing from the Audubon Society, the Defenders of Wildlife or the other radical environmental extremists on the raven issue. The occasional Audubon Society bird watcher and agency officials I encounter when working at the ranches tell me they are very concerned about the ravens everywhere and encourage me to destroy as many ravens as possible. That's such a ludicrous position because their mission and job is to protect the endangered species and they never raise this raven issue in public hearings, media or in court when touting their species preservation strategies. The agencies with their billion dollar budgets would rather cost the job creating productive sector precious time and millions of dollars in environmental surveys and mitigation costs while never seeking a simple solution such as controlling the raven population.

In closing, we would strongly urge the USACE to expeditiously process this EIS application and enable PVSF/Duke Renewables to complete this $1.2 Billion project so that all of San Benito County, the State of California and the USA can benefit from the jobs, economic growth and the nearly 400 MW of clean, green energy the Panoche Valley Solar Farm will produce.

Best regards,

John and Jae Eade

Department of Environmental Studies
One Washington Square, San José, CA 95192-0115

September 7, 2012

Dear Katerina Galacatos, Project Manager, Army Corps of Engineers
Re: Panoche Valley Solar Farm

Thank you for the opportunity to submit comments for the Panoche Valley Solar Farm. Any future correspondence can be sent to Dustin Mulvaney at the following email: dustin.mulvaney@gmail.com

I am an Assistant Professor of Sustainable Energy Resources at San Jose State University who researches the life cycle impacts of solar module manufacturing, deployment, and end-of-life. I am a strong advocate of renewable energy. I've helped facilitate a conversation about solar photovoltaic (PV) deployment at the University of California, Santa Cruz, where a new system will soon be installed. I am also writing from my residence, which receives power from a solar photovoltaic system. I am also senior research scientist for the Silicon Valley Toxics Coalition on their "just and sustainable PV campaign" and a principal for EcoShift Consulting, a firm that specializes in carbon reduction strategies.

I am writing because I am not at all convinced that this project will contribute to the sustainable development of California's renewable energy resources and would like to see the following areas addressed:

(1) **Alternative site analysis:** First, given the unique geography and biodiversity of the area, offsite alternatives should be strongly considered including the Westlands Competitive Renewable Energy Zone, California's many brownfields, and distributed generation on California's open rooftop space. The analysis should include a full life cycle analysis of the different greenhouse gas emissions savings associated with each of the project alternatives including power transmission loses and emissions from direct and indirect land use change. There are multiple benefits from siting solar photovoltaics (PV) on rooftops and in urban areas including putting energy close to where it is used and shading parking lots to reduce the heat island effect. I urge that distributed PV be analyzed in the alternatives.
(2) **Alternative PV module analysis:** Simply switching to a more efficient PV module type can significantly reduce the proposed project footprint of 4,855 acres. The proposed amorphous silicon modules are the least efficient per area on the market, at less than 9%, and some lower quality manufacturers are even lower. Whereas, most commercially available crystalline PV modules are around 16%, while the industry's best commercially available modules exceed 20%. In cases where environmental impact is a function of area, efforts to reduce this

footprint should be considered. In this case, the project footprint can be reduced by more than one-half by a simple change in module procurement. Recently, First Solar reported that their modules installed in the California desert degraded in the extreme heat. It is important that the proper PV modules be used in this site to ensure footprint is minimized and the project does not end up as a lose-lose scenario (destroyed habitat, and no solar power project).

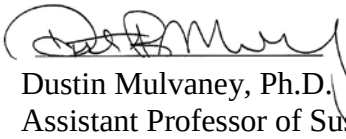
(3) **Decommissioning plan:** The project needs to implement a pre-funded decommissioning, takeback, and responsible recycling program for all PV modules installed, or ensure that the manufacturer has one in place before purchasing PV modules. There is no evidence that such a commitment has been made either by the developer or the proposed manufacturer.

(4) **Green jobs analysis:** A thorough "green jobs" analysis is necessary to understand how this project will stimulate the economy. Scarce resources are available to create jobs in the region, and the money should be well spent to ensure permanent, quality jobs throughout the PV life cycle. The French government recently postponed all renewable energy projects because they realized their public policies were only stimulating job creation in overseas manufacturing. It is important to analyze job creation by looking at other solar power plants built in recent years, as well as any potential job loss from the reduction in tourism opportunities.

(5) **Toxicity analysis:** It should be a condition of the permit that no proposition 65 chemicals are contained in the modules that will be used on site. Many PV modules contain cadmium and lead compounds and it cannot be guaranteed that all will be contained in the PV modules in the field, particularly during installation, maintenance and repair, and if there is no decommissioning plan. This is particularly important in the context of protecting water quality.

Thank you for this opportunity and feel free to call at anytime.

Sincerely,



Dustin Mulvaney, Ph.D.
Assistant Professor of Sustainable Energy Resources
Department of Environmental Studies
San Jose State University
831 247 3896
dustin.mulvaney@sjsu.edu

Here are a few other recommendations related to the use of CdTe PV.

PV modules should be washed in a room separate from the manufacturing facility, or checked upon arrival with a swab test to ensure no cadmium is present.

A plan should be in place to deal with the PV farm in a post-fire scenario including an assurance that broken and burned modules are immediately removed from the site.

There is reference to a recycling and disposal plan, but no finance set aside for decommissioning. A decommissioning plan should be bonded or insured to ensure that the entire solar farm can be removed at the end of the project's operation. A mitigation plan should require a fully bonded and/or insured decommissioning plan in addition to the money set aside for takeback and recycling in First Solar's restricted investment account. This account should be audited to ensure that funds are available for project decommissioning.

In the Mitigations subsection C.9.-24 there is no definition of broken or damaged modules in the text. It is imperative to define what is a broken or cracked module. Broken or cracked PV modules continue to generate electricity, so do not necessarily need to be replaced. Cracked or broken modules present a leaching risk, particularly if the encapsulation is broken. They should be removed and disposed of immediately to lower the risk of cadmium release. A definition of a broken or damaged module should be included in the DEIR.

A mitigation proposed in a nearby solar energy farm (Panoche PV Farm), which does not even plan to use CdTe modules, will require that,

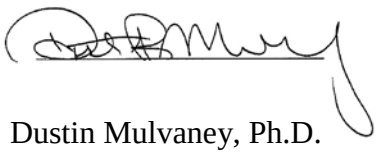
> Prior to construction and mounting of the PV panels, each panel will be checked for cracks or other defects to avoid the possible exposure of toxic metals on the surface. The panels will be properly cleaned, if necessary, to prevent any potential contaminated water from contacting the ground or native vegetation.

The mitigation should include a description of the inspection process and frequency for checking for cracks or defects is missing from the Topaz DEIR.

There is no definition of what entails proper inspection of modules.

A description of the cleaning process to ensure that no cadmium emissions from the manufacturing facility are present on the surface of solar panels should also be included.

Thank you for the opportunity to participate in the EIR process. Please contact me if you have further questions.



Dustin Mulvaney, Ph.D.
831 247 3896

References

Fthenakis, V., and K. Zweibel. 2003. CdTe PV: Real and perceived EHS risks. Paper read at NCPV and Solar Program.

Fthenakis, V. M., M. Fuhrmann, J. Heiser, A. Lanzirotti, J. Fitts, and W. Wang. 2005. Emissions and encapsulation of cadmium in CdTe PV modules during fires. *Progress in Photovoltaics: Research and Applications* 13 (8):713-723.

Norwegian Geotechnical Institute. 2010. Environmental risks regarding the use and end-of-life disposal of CdTe PV modules. Trondheim, Norway.

CONTACT – LARRY RONNEBERG – 209-826-3388

MERCEY HOT SPRINGS
Solar Project Notes

1. **CONCERNS**
   A. Exhaust, noise and light pollution will adversely affect our business from day one.
   B. Prevailing wind – Blows (most often) right towards us.
   C. Road Conditions are currently not too bad but will certainly get MUCH worse!
   D. Is the FRESNO County Road Department prepared for the damage that will occur to their roads?
   E. Is road maintenance and repair in the budget?
   F. We Will LOSE Business due to all of the above.
   G. EMERGENCY NEEDS
      1. We don't have the facilities if it's ever needed and it WILL BE NEEDED.
      2. We're already used for phones, police, sheriff, BLM, Fire, Dept. of Fish & Game.
      3. We DO NOT have the staff or capability to handle much, if any, emergency services but how do we say, "NO, SORRY WE CAN'T HELP YOU!"

   H. NOISE
      1. 24-hours per day for 6 days per week for 5 YEARS!
      2. 580+ trips per day is 24 trips per hour or one every 2-1/2 minutes
         A. Average round trip mileage – 100 miles minimum
         B. 580 trips per day X 100 miles = 58,000 miles per day
         C. 58,000 miles per day / 10 miles per gallon = 5800 gallons of fuel per day
         D. 5800 gallons X $4.50 per gallon = $26,100 per day for fuel
         E. $26,100 per day X 6 days per week X 52 weeks * 5 Years = $40,716,000 for fuel alone.
         F. 5800 gallons X 6 days per week X 52 weeks X 5 years = 9,048,000 gallons of fuel.

2. **POLLUTION - HOW MUCH POLLUTION IS THAT?!!!**
   i. 22.38 POUNDS OF CO2 FOR EVERY GALLON OF DIESEL
   ii. 19.64 POUNDS OF CO2 FOR EVERY GALLON OF GASOLINE WITH NO ETHANOL
   iii. 17.68 POUNDS OF CO2 FOR EVERY GALLON OF GASOLINE WITH ETHANOL
   iv. AVG. CO2 PRODUCED FOR EVERY GALLON = 19.9 POUNDS OF CO2
   v. 9,048,000 GALLONS X 19.9 POUNDS OF CO2 = 180,055,200 POUNDS OF CO2

   US ENERGY INFORMATION - http://www.eia.gov/tools/faqs/faq.cfm?id=307&t=9

   H. A SIGNIFICANT AMOUNT OF THIS POLLUTION WOULD BE IN THE PANOCHE VALLEY
   I. THESE NUMBERS DON'T INCLUDE THE AMOUNT OF ENERGY REQUIRED TO PRODUCE 9,048,000 GALLONS OF FUEL?

   3. MOST large truck noise will be at night
   4. Engine noise, trucks will use lower gears coming up the grade as well as going down.
   5. Engine "Brake" Noise will be horrendous and at all hours of the day AND NIGHT!
   6. Rattling empty trailers, we hear them now and it will be horrendous with this project!
   7. If we hear planes taking off from Panoche Valley, we will probably hear construction noise too in addition to the vehicle traffic.

3. **EFFICIENCY OF SOLAR**
   A. Build it and tear it down in 30-years – WHY? Who figured that one out?!

B. Solar Power should be installed where it's going to be used – NOT remotely where power will be lost due to power line loss and the requirements and need of transformers to boost power to the required voltage for the power lines and then reduced again to be at the proper voltage at homes and businesses.
C. Pumping water to wash panels is a waste of power!
D. Evaporation ponds!
    1. Where will the minerals be disposed of for what's left behind after the water evaporates?
    2. How much will this cost over the life time of the system?
    3. Where will the minerals blow to when the wind kicks up?
    4. IT GETS REAL WINDY in the Panoche Valley.
    5. How will blowing dust and minerals from the evaporation ponds be eliminated NOT JUST REDUCED?!
E. To be cost effective, Solar systems (as RULE #1) need to have as few voltage losses as possible however this system is laden with inefficiencies.
F. If it were to be built, (and it shouldn't) the Technology will be better in 30-years so WHY tear it down and disrupt the land AGAIN!?
G. Surely technology will improve over the years, but the inverters wiring, conduit, junction boxes, etc. DO NOT WEAR OUT so why tear it all out?
H This plan just shows extremely poor planning on the developer's part – The project just doesn't make sense.

4. EMPLOYMENT

A. MHS currently employs 2 Full time & 2 Part time
B. 2013 will be 3 – 4 Full time & 2 Part Time
C. 2014 will be 8-10 Full time and 2 Part Time

THESE JOBS WILL PROBABLY NOT BECOME A REALITY IF THIS PROJECT GOES THROUGH. IN FACT, MERCEY MAY VERY WELL HAVE TO CLOSE.

5. GUESTS

A. 1,500 – 2,000 NEW Guests per year
B. 6,000 – 7,000 REPEAT Guests per year
C. 30,000+ Guests since opening in 1996
D. Current REVENUE growth at 15 – 20% annual

6. BIRDWATCHERS

A. 300 + Annual in 2011-2012
B. 2013 will very likely be over 400
B. GROWTH at 5 – 10% per year

CONCLUSION

THIS IS A DUMB, POORLY DESIGNED PROJECT that is a WASTE of VALUABLE TAXPAYER MONEY and just doesn't make any sense.

From:	ldrruff psychology
To:	CESPN EIS PANOCHE
Cc:	Galacatos, Katerina SPN
Subject:	Panoche Solar Farm project SPN-2009-004435
Date:	Friday, September 07, 2012 6:02:35 PM

Linda D. Ruthruff, Ph.D.
Santa Clara Valley Audubon Society
Environmental Advocate
ldrruff@hotmail.com

Dear Ms Galocats

I am very concerned about the unmitigable noise from the Panoche Valley Solar Project. Here is evidence for the detrimental effects of noise. Please do not approve this project.

Evidence for Potential Negative Impacts on Noise Sensitive Receptors:

The majority of studies on the developmental, educational and medical impacts of high levels of noise use aircraft noise around airports and traffic noise to operationalize the concept of loud, unwanted and annoying sound. The dBA levels of construction noise in the proposed project (75-85) exceed the levels of noise (60 and up) evaluated in these studies. Further, construction noise has similar characteristics to these types of transportation noises. These studies are appropriate for evaluating negative impacts.

Kujala et al., (2009) evaluated the literature on the detrimental effects of noise on the speech functions of the brain. They concluded that non-native speakers as well as children show pronounced difficulties in noisy environments. Levels over 63 CNEL are considered noisy (1)

1 http://www.opr.ca.gov

These studies suggest that background noise produces both short and long term effects on central speech processing and the organization of the brain's language centers (Kujala et al., 2009). In a 2007 review of the literature on the effects of transportation noise on health and cognitive development, Clark and Stansfeld concluded that children exposed to high levels of aircraft and traffic noise develop impairments in reading comprehension and memory skills (Clark & Stansfeld, 2007; Haines et al., 2001). One of the studies used in their assessment was a cross-national cross-sectional study of 2,844 children 9-10 years of age in three countries (Stansfeld et al., 2005).

Long-term noise exposure affects attention control (Kujala et al., 2009). The ability to selectively direct attention to the teacher, to screen out extraneous noise and distractions and to sustain attention over time are bedrock skills necessary for success in school. Compromising a student's ability to pay attention, compromises their educational process.

Kaltenbach et al., (2008) reviewed epidemiological studies from 2000 to 2007 on the effects of aircraft noise on populations. They found that even low levels of noise of 50 dB(A), were associated with learning problems in schoolchildren (Kaltenbach et al., 2008).

Evans et al., (2001) compared stress reactions of children living in neighborhoods with noise

levels below 50 dBA and those in neighborhoods with noise levels above 60 dBA. Children in the noisier communities had higher overnight cortisol levels, marginally higher resting systolic BP, and higher heart rate in response to an acute stressor (Evans et al., 2001).

Potential Effects on Adults living and working close to the proposed project.
Babisch and Kamp (2009) found that there is strong evidence that road traffic noise correlates with higher risk for ischemic heart disease and myocardial infarction. Outdoor aircraft noise-induced equivalent noise levels of 60 dB(A) and above are correlated with increased incidence of hypertension in a dose-related fashion (Babisch & Kamp, 2009; Kaltenbach et al., 2008).

Sincerely,

Linda D. Ruthruff, Ph.D.
Santa Clara Valley Audubon
V;lunteer Advocate

From:	Carolyn Straub
To:	CESPN EIS PANOCHE
Subject:	Re: Panoche Valley: Notice of Intent for federal Environmental Impact Assessment
Date:	Saturday, September 08, 2012 11:52:15 AM

Dear Sir or Madam:

The Panoche Valley in San Benito County, California, is an Important Bird Area (IBA) designated by the National Audubon Society. Panoche Valley is one of many IBAs designated by National Audubon (www.audubon.org) in the United States.

Your planned Environmental Impact Statement for Panoche Valley must name an alternative outside of the Valley and outside of San Benito County. The EIS must place the planned solar farm for Panoche Valley on land that is not designated an IBA, and is not included in the Core Recovery Area for endangered species.

We also wish that your comprehensive surveys follow Department of Fish and Game protocols for all endangered species.

We are long time members of Santa Clara Valley Audubon Society (SCVAS). The importance of Panoche Valley prompted SCVAS (www.scvas.org) to file a California Environmental Quality Act (CEQA) legal challenge this past year in California Appellate Court. The challenge is slated to be heard later in 2012.

For years in January, SCVAS has led an annual birding field trip through the Panoche Valley. The land supports bird species, such as the Mountain Plover, that are not seen every year. Two years ago, about 50, conservatively, were seen in the valley, while almost none in some years before that.

The stubborn will to create a solar energy field of conservatively more than 3,500 acres by the builders shows that they do not understand the value of this acreage. The builders called it a "moonscape" recently in the *San Jose Mercury News* and this is inaccurate. This was an observation by builders who are not birders or ecology-minded, and it erases the obvious natural value of Panoche Valley. To profit in an ill-fitted place is not acceptable. There are really few environmental landscapes left to survive the surge of industrial development in this country. Let some of them remain.

This is not a moonscape; it is a vibrant birding and animal community. There is much in the Panoche Valley. Our wish is to have the valley respected and the solar farm placed elsewhere in an area where there is not such active life.

Thank you for your interest.

Sincerely,

Carolyn Straub
Steve McHenry
439 Chateau La Salle Dr.
San Jose, CA
95111

Kim Williams
Your Family Farm
Save Panoche Valley
32615 Panoche Road
Panoche Valley, CA 95043
831.628.3693
motocowgirl@hotmail.com

September 7, 2012

Ms. Katerina Galacatos
U.S. Army Crops of Engineers
San Francisco District
Attn: Regulatory Division
1455 Market Street, 16th Floor
San Francisco, CA 94103

RE: SPN-2009-00443S
Scoping Comments - Panoche Valley Solar Farm

Dear Katerina Galacatos,

Thank you in advance for accepting my comments on the negative impacts this project would have on the local community, wildlife, wildlife habitat and the environment of Panoche Valley at large.

A. Project Description
   1. The ACOE Notice of Intent states, "Approximately 2,203 acres would be permanently disturbed by on-site facilities, and an additional 100 acres would be temporarily disturbed during construction."
      a. The 2,682 acres that will remain undeveloped within the project footprint will be disturbed by adjacent construction and operational activities, therefore the entire 4,885 acre project site and beyond must be considered permanently disturbed. For instance, night lighting will extend

into these areas and into applicant designated wildlife corridors. This lighting will increase predation on any endangered, threatened and common species which attempt to use these areas to move through the project site as they have for over the past 75 years. Since the entire project footprint is located directly over a core habitat area for species such as the San Joaquin Kit Fox, Giant Kangaroo Rat and Blunt-nosed Leopard Lizard, all direct and indirect impacts must be taken into consideration and evaluated. Current applicant proposed mitigation measures are completely inadequate for mitigating these serious impacts.

b. The creekbeds running throughout the project site have been proposed as a mitigation area to counter impacts caused by project construction and operation. This is not feasible not only because of indirect lighting and noise but also because of tainted runoff from the New Idria mine. The mine is an EPA clean-up site due to toxic elements found in the water which washes through the mine site. This water will flow through the project site during high water flow events and leave residual toxic elements in its wake.

c. Studies on the permanent impacts from the substation that will enable connection to the transmission wires were deferred during the planning process. Regardless of the substation being considered a PG&E upgrade, impacts should be studied and made available to the public since this action is critical for project implementation. The substation will never be decommissioned and must be considered a permanent negative impact due to it's location within a core habitat area for the SJKF, GKR and BNLL. This will also be a permanent negative impact for the local community and the greater

valley environment through significant negative impacts to visual aesthetic, noise, permanent removal of agricultural land and wildlife habitat.

d. The impacts and total acreage and total miles to be covered by all road types are unknown, as well as the total acreage to be impacted by burying conduit.

2. Noise

a. The project would use 840 inverters and 210 transformers but the noise that will be generated during operations has not been studied, nor do we know how much or how far from the source the noise will be heard taking existing baseline noise levels into consideration.

b. The negative impacts to surrounding farms and ranches due to noise impacts on livestock and personnel have not been studied. Loud noises are known to trigger the fight or flight instinct in domestic and wild animals. This negative impact will be costly to local businesses as it will cause increased feed intake as a result of higher adrenaline, as well as loss due to health issues that are a result of prolonged and sustained stress exposure.

c. The negative impacts to the school children of Panoche Elementary and the teacher & her husband & baby daughter who live on site of are known to be significant and unmitigable during construction. According to the planning documents, a distance of over 6 miles is need to reduce the noise to acceptable and safe levels. There is not enough room in the valley to maintain that type of distance. Negative noise impacts during operation have not been studied and should be. Long-term exposure to noise has been proven to cause health issues and learning and behavioral disabilities in children. Night time exposure to light and noise over the long term is likewise shown to have detrimental health affects.

The impact of these on the teacher, students, families and local residents are unknown and should be studied.

3. Construction Personnel
    a. Local BLM campgrounds have been designated by the applicant as housing options for the construction crew. These campgrounds lack running water and have only pit-toilets for a restroom facility. This is completely inadequate and the use of these by any work force over the 5 year construction period is unrealistic.
    b. There is not enough housing available in Panoche Valley for the proposed construction and permanent workforce and their presence in the valley will take away housing options for local residents and their employees.
4. Agricultural value of the proposed project site:
   The applicant states the land within the project site has not been farmed in recent history primarily due to irrigation inefficiencies. They also state that the water is poor quality because it is "contaminated" with boron and salts. They also state the cost to pump water from the available aquifers is excessive when compared to the productivity of the land. They suggest that based on these points, plus the fact that the site is located in an area that receives minimal rainfall, that generation of solar energy in Panoche Valley outweighs all agricultural related use of the project site and the surrounding area.
    a. The reason the project site has not been farmed in recent history is not because of irrigation inefficiencies but rather because of property owner choice. It should be noted the project site is currently involved in food production in the form of grazing and has been for a significant time. It should also be noted that Heirloom Organics approached several of the project site's current owners to request a land lease in order to

expand farming operations and the owners said no.

b. The project site contains the same Class 1 soil and accesses the same two water tables as all the other farms and ranches in the valley, including Heirloom Organics which successfully and profitably grows and sells all manner of greens, asparagus, corn, potatoes, carrots, turnips, herbs, etc. The argument that the boron and salt levels in the water prevents farming is unsubstantiated and in fact countered by historical crop production throughout the project site. It is important to note that some of the current landowners within the project site receive government subsidies NOT to grow the subsidy crops that have historically been grown there.

c. Profitable grazing for meat, dairy and egg production is dependent on Class 1 soils for the growth of premium forage which allows a maximum return on investment. The fact that Panoche receives enough rainfall to dryfarm premium forage is a valuable asset to the local community and the community at large. Any applicant proposed agricultural mitigation located in the surrounding foothills where soils are inferior to those found on the valley floor is inadequate. Increasing our dependency on foreign food production by decimating valuable and productive domestic agricultural land to produce renewable energy is not in the public's best interest nor is it necessary.

B. Purpose and Need for the Proposed Project

1. Every president since Nixon has issued a renewable energy mandate with the same sense of urgency as the current national and state administrations, and all have failed to meet those mandates with no quantifiable negative impacts to the public at large.

a. It can safely be assumed that current renewable mandates, if not met, will have the same lack of impacts on the public at large as past renewable mandates that have failed. Definite negative impacts on the public at large if the California 33% x 2020 mandate is not met has not been proven so therefore, the desire to meet that mandate can not be used as an example of "public interest".
b. If indeed it is shown that the achievement of California's renewable energy mandate is in the public interest, it is still not necessary that THIS project be built in THIS place in order for the mandate to be fulfilled. It can be easily proven that with the development of the Westland CREZ and current PG&E and Southern Edison distributed/rooftop solar projects currently in the CAISO que, the full 33% x 2020 renewable mandate can be met.
c. The Westland CREZ, (a California designated Competitive Renewable Energy Zone) is a superior and suitable location. It has proven access to transmission lines, high solarity, no endangered or threatened species, no surrounding community and it is retired agricultural land due to selenium buildup. There is ample acreage available within the 30,000 acre Westland CREZ that is unencumbered by Williamson Act contracts to accommodate the project as proposed. Panoche Valley has NOT been designated a CREZ by the state of California.
d. The Westland CREZ agency in control of development offered to lease land to the applicant but the applicant balked at the

price. The applicant's choice to pay far more to garner control over potential mitigation lands outside the project site within the Ciervo-Panoche region, and to pay for the extensive albeit inadequate biological surveys they have had done to date, shows they have the financial means to develop in the Westland CREZ so financial considerations need not be an issue.

C. Impacts to the Surrounding Community/Environment

1. The 5 year, 24 hour per day, 6 day per week construction period is being described by the applicant as "temporary". This period of time represents several lifetimes for the multitude of domestic and wild animals impacted. Negative impacts felt over the course of just one such lifetime would imply anything but "temporary". Additionally, those 5 years represent my daughter's remaining time at the K-8 Panoche Elementary School, (she is currently in the 3rd grade). Because a decommission date is neither set nor mandatory, this project should be viewed as a permanent impact to animals and people.
2. Photovoltaic panels are shown to increase ambient temperatures by 5 – 10 degrees. This will negatively impact wildlife, domesticated animals, and people and increase the fire hazard. This increase to baseline peak summer temperatures will be a significant, unmitigable impact within the valley.
3. Fire hazards will be high during the arid summer months if this project is built. The high fire danger days provided by the Monterey-based agency for the planning process did not reflect Panoche Valley data, of

which there is none documented but well known by local residents.

   a. The live wires during the day pose unique fire safety and response issues for which the applicant fails to propose an adequate solution. They propose paying Cal Fire for the Antelope Station to have a small amount of additional personnel but that station is not manned year round nor is it a must-serve station. Personnel are often pulled away to assist in fighting fires in other parts of the state, leaving the station unmanned.
   b. The applicant proposes training staff as first responders but with minimal long-term staffing proposed, this mitigation is infeasible. Indeed, the applicant does not explain how the local community will be protected if a large-scale fire breaks out, nor do they show what equipment and water will be available for use.
   c. Due to the high winds experienced in Panoche, any summer fire will quickly spread to the adjacent land.

4. Desertification of Panoche Valley may be imminent if this project is developed.
   a. Great pains are taken to maintain plant coverage of the soil by local residents, especially during the summer months. This is because any exposed soils are susceptible to severe wind erosion. Panoche Valley experiences regular high winds and the soil is a fine sandy loam that lifts easily in the wind. During construction heavy equipment will drive over the brittle summer forage, breaking off the plants and exposing the soil. These areas will then be covered by panels that will block rainfall and prevent

replacement plants from growing. Without plant coverage, wind will fill the air with a dust that all residents have experienced and know to cover everything, including plant life on adjacent farm and ranch properties. This will affect photosynthesis and the forage we depend on for grazing will be reduced, not to mention will permanently reduce the agricultural value of the project site through topsoil loss.

b. Also of concern is the excessive water runoff from the panels during the rainy season. Water does not absorb quickly into the valley soils, especially in the absence of plants. Soil is quickly eroded when water is not absorbed and starts running downhill. This will be washed into the creeks and will leave the land less able to support plant life, wildlife habitat and agricultural grazing activities.

5. Because all residents of Panoche Valley access the same two aquifers, and because the applicant proposes controlling dust with chemical suppressants over a large area, soil and water taint is a major concern. Almost all agricultural activities adjacent to the project site are organic. Water and soil taint would be devastating to these businesses and the local community, as well as permanently affect the quality of land within the project site itself.
6. The surrounding community consists of many Hispanic immigrants. These immigrants rely on local farms and ranches for their livelihood. Half of the Panoche Elementary School students are children of immigrant workers. 70% of the students qualify for financial aid. Exploiting this

vulnerable community with an inappropriate industrial development that violates county zoning and General Plan rules is unacceptable and exploitive. The Hispanic community was not included in the planning process and did not have access to information in their primary language. This is a problem and violates the mandate for public involvement.

In closing, this project will negatively impact my farm and my home. It will negatively impact my daughter's school and the local community. It will negatively impact the valley environment, wildlife and habitat that we work so hard to coexist with in a positive way.

This project is not necessary in Panoche Valley and is highly inappropriate for Panoche Valley. Developers with large financial backing from the likes of Duke Energy should not be considered above the law. They should not be able to inappropriately site an industrial project and cause the loss of an entire community for their own financial gain.

Please review the Westland CREZ as an alternative to the Panoche Valley.

Thank you,

Kim Williams

DRAFT EIS PUBLIC NOTICES

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OAR–2015–0202; FRL–9933–72–OEI]

Information Collection Request Submitted to OMB for Review and Approval; Comment Request; Recordkeeping and Reporting Related to E15

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Environmental Protection Agency has submitted an information collection request (ICR), ''Recordkeeping and Reporting Related to E15'' (EPA ICR No. 2408.04, OMB Control No. 2060–0675) to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*). Public comments were previously requested via the **Federal Register** (80 FR 15595) on March 24, 2015 during a 60-day comment period. This notice allows for an additional 30 days for public comments. A fuller description of the ICR is given below, including its estimated burden and cost to the public. An Agency may not conduct or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number.

DATES: Additional comments may be submitted on or before October 13, 2015.

ADDRESSES: Submit your comments, referencing Docket ID Number EPA–HQ–OAR–2015–0202, to (1) EPA online using *www.regulations.gov* (our preferred method), by email to *a-and-r-Docket@epa.gov,* or by mail to: EPA Docket Center, Environmental Protection Agency, Mail Code 28221T, 1200 Pennsylvania Ave. NW., Washington, DC 20460, and (2) OMB via email to *oira_submission@omb.eop.gov.* Address comments to OMB Desk Officer for EPA.

EPA's policy is that all comments received will be included in the public docket without change including any personal information provided, unless the comment includes profanity, threats, information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute.

FOR FURTHER INFORMATION CONTACT: Geanetta Heard, Fuel Compliance Center, 6406J, Environmental Protection Agency, 1200 Pennsylvania Ave. NW., Washington, DC 20460; telephone number: 202–343–9017 fax number: 202–565–2085 email address: *heard.geanetta@epa.gov.*

SUPPLEMENTARY INFORMATION: Supporting documents, which explain in detail the information that the EPA will be collecting, are available in the public docket for this ICR. The docket can be viewed online at *www.regulations.gov* or in person at the EPA Docket Center, EPA West, Room 3334, 1301 Constitution Ave. NW., Washington, DC. The telephone number for the Docket Center is 202–566–1744. For additional information about EPA's public docket, visit *http://www.epa.gov/dockets.*

Abstract: Under the Clean Air Act (CAA), EPA granted partial waivers that allow gasoline containing greater than 10 volume percent (vol%) ethanol up to 15 vol% ethanol (E15) to be introduced into commerce for use in model year (MY) 2001 and newer light-duty motor vehicles, subject to certain conditions. EPA issued final rule establishing several measures to mitigate misfueling of other vehicles, engines and equipment with E15 and the potential emissions consequences of misfueling. The rule prohibits the use of gasoline containing more than 10 vol% ethanol in vehicles, engines and equipment that are not covered by the partial waiver decisions. The rule also requires all E15 gasoline fuel dispensers to have a specific label when a retail station or wholesale-purchaser consumer chooses to sell E15. In addition, the rule requires that product transfer documents (PTDs) specifying ethanol content and Reid Vapor Pressure (RVP) accompany the transfer of gasoline blended with ethanol, and a survey of retail stations to ensure compliance with these requirements. The rule also modifies the Reformulated Gasoline (RFG) program by updating the Complex Model to allow fuel manufacturers to certify batches of gasoline containing up to 15 vol% ethanol. This ICR supporting statement addresses associated recordkeeping and reporting items.

Respondent's obligation to respond: Mandatory (40 CFR part 80).

Estimated number of respondents: 2,103 (total).

Estimated number of responses: 44,000,103.

Frequency of response: On occasion.

Total estimated burden: 13,270 hours (per year). Burden is defined at 5 CFR 1320.03(b).

Total estimated cost: $ 1,340,292, which includes no annualized capital or operation & maintenance costs.

Changes in Estimates: We expect there will be a decrease in the total estimated respondents, responses and cost to the industry compared to the ICR currently approved by OMB. This change in burden is due to no longer requiring the programing of product transfer codes in this collection. The respondent universe decreased from 6,211 to 2,103, a difference of 4,108 members. The number of responses declined from 44,010,211 to 44,000,103, a difference of 10,108 reports. This reduced the industry burden hours from 37,350 to 13,270.

Courtney Kerwin,

Acting Director, Collection Strategies Division.

[FR Doc. 2015–22900 Filed 9–10–15; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–9022–8]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564–7146 or *http://www2.epa.gov/nepa.*

Weekly receipt of Environmental Impact Statements (EISs).

Filed 08/31/2015 Through 09/04/2015.

Pursuant to 40 CFR 1506.9.

Notice

Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *http://www.cdxnodengn.epa.gov/cdx-enepa-public/action/eis/search.*

EIS No. 20150253, Draft, USACE, PR, Caño Martín Peña Ecosystem Restoration Project, Comment Period Ends: 10/26/2015, Contact: Jim Suggs 904–232–1018.

EIS No. 20150254, Draft, FRA, AZ, Arizona Passenger Rail Corridor: Tucson to Phoenix, Comment Period Ends: 10/30/2015, Contact: Andrea Martin 202–493–6201.

EIS No. 20150255, Draft, USACE, TX, Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Reduction and Ecosystem Restoration, Comment Period Ends: 10/26/2015, Contact: Janelle Stokes 409–766–3039.

EIS No. 20150256, Draft, FERC, FL, Southeast Market Pipeline Project, Comment Period Ends: 10/26/2015, Contact: John Peconom 202–502–6352.

EIS No. 20150257, Final, USDA, PRO, Programmatic—Asian Longhorned Beetle Eradication Program, Review Period Ends: 10/12/2015, Contact: Jim E. Warren 202–316–3216.

EIS No. 20150258, Draft, USACE, CA, Panoche Valley Solar Facility, Comment Period Ends: 10/26/2015, Contact: Lisa M. Gibson 916–557–5288.

Amended Notices

EIS No. 20150210, Draft, USFS, WY, Teton to Snake Fuels Management, Comment Period Ends: 10/05/2015, Contact: Steve Markason 307–739–5431 Revision to FR Notice Published 08/07/2015; Extending Comment Period from 09/21/2015 to 10/05/2015.

Dated: September 8, 2015.

Karin Leff,

Acting Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2015–22932 Filed 9–10–15; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OECA–2014–0089; FRL–9933–40–OEI]

Information Collection Request Submitted to OMB for Review and Approval; Comment Request; NESHAP for Semiconductor Manufacturing (Renewal)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Environmental Protection Agency has submitted an information collection request (ICR), ''NESHAP for Semiconductor Manufacturing (40 CFR part 63, subpart BBBBB) (Renewal)'' (EPA ICR No. 2042.06, OMB Control No. 2060–0519), to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*). This is a proposed extension of the ICR, which is currently approved through September 30, 2015. Public comments were previously requested via the **Federal Register** (79 FR 30117) on May 27, 2014 during a 60-day comment period. This notice allows for an additional 30 days for public comments. A fuller description of the ICR is given below, including its estimated burden and cost to the public. An Agency may neither conduct nor sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

DATES: Additional comments may be submitted on or before October 13, 2015.

ADDRESSES: Submit your comments, referencing Docket ID Number EPA–HQ–OECA–2014–0089, to: (1) EPA online using *www.regulations.gov* (our preferred method); or by email to *docket.oeca@epa.gov,* or by mail to: EPA Docket Center, Environmental Protection Agency, Mail Code 28221T, 1200 Pennsylvania Ave. NW., Washington, DC 20460; and (2) OMB via email to *oira_submission@omb.eop.gov.* Address comments to OMB Desk Officer for EPA.

EPA's policy is that all comments received will be included in the public docket without change including any personal information provided, unless the comment includes profanity, threats, information claimed to be Confidential Business Information (CBI), or other information whose disclosure is restricted by statute.

FOR FURTHER INFORMATION CONTACT: Patrick Yellin, Monitoring, Assistance, and Media Programs Division, Office of Compliance, Mail Code 2227A, Environmental Protection Agency, 1200 Pennsylvania Ave. NW., Washington, DC 20460; telephone number: (202) 564–2970; fax number: (202) 564–0050; email address: *yellin.patrick@epa.gov.*

SUPPLEMENTARY INFORMATION: Supporting documents which explain in detail the information that the EPA will be collecting are available in the public docket for this ICR. The docket can be viewed online at *www.regulations.gov* or in person at the EPA Docket Center, WJC West, Room 3334, 1301 Constitution Ave. NW., Washington, DC. The telephone number for the Docket Center is 202–566–1744. For additional information about EPA's public docket, visit: *http://www.epa.gov/dockets.*

Abstract: The affected entities are subject to the General Provisions of the NESHAP (40 CFR part 63, subpart A), and any changes, or additions to the Provisions specified at 40 CFR part 63, subpart BBBBB. Owners or operators of the affected facilities must submit an initial notification report, performance tests, and periodic reports and results. Owners or operators are also required to maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility, or any period during which the monitoring system is inoperative. Reports, at a minimum, are required semiannually.

Form Numbers: None.

Respondents/affected entities: Semiconductor manufacturing facilities.

Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart BBBBB).

Estimated number of respondents: 1 (total).

Frequency of response: Initially, occasionally and semiannually.

Total estimated burden: 41 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $4,710 (per year), including $550 in either annualized capital/start-up and/or operation & maintenance costs.

Changes in the Estimates: There is a small increase in the respondent burden from the most- recently approved ICR due to an update in assumption and an adjustment in labor rates. In this ICR, we assume the existing major source will read and re-familiar with the rule requirement annually. We have also updated all burden calculations using the latest labor rates from the Bureau of Labor Statistics.

Courtney Kerwin,

Acting Director, Collection Strategies Division.

[FR Doc. 2015–22896 Filed 9–10–15; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OECA–2014–0031; FRL–9933–85–OEI]

Information Collection Request Submitted to OMB for Review and Approval; Comment Request; NSPS for Petroleum Dry Cleaners (Renewal)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Environmental Protection Agency has submitted an information collection request (ICR), ''NSPS for Petroleum Dry Cleaners (40 CFR part 60, subpart JJJ) (Renewal)'' (EPA ICR No. 0997.11, OMB Control No. 2060–0079), to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*). This is a proposed extension of the ICR, which is currently approved through September 30, 2015. Public comments were previously requested via the **Federal Register** (79 FR 30117) on May 27, 2014 during a 60-day comment period. This notice allows for an additional 30 days for public comments. A fuller description of the ICR is given below, including its estimated burden and cost to the public. An Agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Public Notice

U.S. ARMY CORPS OF ENGINEERS BUILDING STRONG®

Subject: Public Notice of Permit Application

Action ID: SPN-2009-00443

Comments Period: September 11, 2015 – October 26, 2015

SUBJECT: Notice of application for a Department of the Army permit under Section 404 of the Clean Water Act, NOA of Draft EIS and Notice of Public Meetings for the Panoche Valley Solar project, Sacramento County, California. The U.S. Army Corps of Engineers, South Pacific Division, (Corps) is evaluating a permit application for the construction of a 247-MW solar facility, 0.121 acres of waters of the U.S. This notice is to inform interested parties of: the publishing of the Draft EIS; the location, date and time of the public meeting; and to solicit comments on the proposed activities. This notice may also be viewed at the Corps web site at *www.spk.usace.army.mil/Media/RegulatoryPublicNotices.aspx* and *http://www.spd.usace.army.mil/Missions/Regulatory/PublicNoticesandReferences.aspx*.

DRAFT ENVIRONMENTAL IMPACT STATEMENT: The Corps has prepared a Draft EIS pursuant to the National Environmental Policy Act (NEPA) to analyze the direct, indirect and cumulative effects associated with the implementation of four (4) on-site and one (1) off-site alternative for the construction of a solar facility. Pursuant to the NEPA, the U.S. Environmental Protection Agency (USEPA) published a notice in the Federal Register on September 11, 2015 (80 FR 54785), informing the public of the availability of the Draft EIS.

AUTHORITY: This application is being evaluated under Section 10 of the Rivers and Harbors Act of 1899 for structures or work in or affecting navigable waters of the United States and/or Section 404 of the Clean Water Act for the discharge of dredged or fill material in waters of the United States.

DRAFT EIS AVAILABILITY: The Draft EIS is available for review in the following formats:

- Electronically
  - Corps' website at: http://www.spk.usace.army.mil/Missions/Regulatory/Permitting/EnvironmentalImpactStatements.aspx
  - Compact Disks are available per request from the Corps by contacting Lisa M. Gibson, by phone at 916-557-5288, by email at Lisa.M.Gibson2@usace.army.mil; or by mail at 1325 J Street, Room 1350, Sacramento, California 95864
- Hard Copies are available upon request at the address above and will be available at the following locations:

- Panoche Inn, 29960 Panoche Road, Paicines, California 95043
- San Benito County Free Library, 470 5th Street, Hollister, California 95023

COMMENT PERIOD: The Draft EIS is available for public comment for 45-days. The comment period for the Draft EIS will end on October 26, 2015.

PUBLIC MEETINGS: Two public meetings for the Draft EIS will be held, as follows:

October 6, 2015, 6 pm to 8 pm: Veterans Memorial Building, 649 San Benito Street, Room 204, Hollister, California 95023.

October 7, 2015, 6 pm to 8 pm: Panoche School, 31441 Panoche Road, Paicines, California 95043

PERMIT APPLICATION: In addition to soliciting comments on the Draft EIS, the Corps is also soliciting comments on a pending permit application for the proposed Panoche Valley Solar project. Under its regulatory program, the Corps will complete a decision for a Department of the Army permit for the discharge of dredged and/or fill material for the proposed project following the completion of NEPA process.

AUTHORITY: This application is being evaluated under Section 404 of the Clean Water Act for the discharge of dredged and/or fill material in waters of the United States.

APPLICANT: Panoche Valley Solar, LLC.
Attn: Mr. Eric Cherniss
845 Oak Grove Avenue, Suite 202
Menlo Park, California 94024

LOCATION: The approximately 5,020-acre project site is located approximately 0.75 miles north of Panoche Road, east and west of Little Panoche Road, Latitude 36.63149° North, Longitude 120.86622° West, in San Benito County, California, and can be seen on the CA-Mercey Hot Springs Topographic Quadrangle.

PROJECT DESCRIPTION: The applicant is proposing to construct a 247 MW solar facility on approximately 2,506 acres of the proposed project site. The proposed project would result in the discharge of fill material into 0.121 acres of waters of the U.S. consisting of 0.001 acre of Las Aguilas Creek for a road crossing and 0.12 acre of three unnamed ephemeral drainages for grading, road crossings, and solar panels.

The proposed project would include the construction of the following: grading, solar arrays, perimeter roads, substation, switching station, operations and management building, loop-in tubular steel poles, trenching and foundation installation, perimeter fencing, and construction of a new fence. In addition, the applicant is proposing to construct primary and secondary telecommunication upgrades to interconnect the proposed project, which would not impact any waters of the U.S. Primary telecommunication upgrades include installation of optical ground

wire along 17 miles of the Pacific Gas and Electric (PG&E) Panoche-Moss Landing 230 kV transmission line, between the new proposed substation and the PG&E Panoche Substation in Fresno County. Where the existing 230 kV lines cross under two existing 500 kV transmission lines, the applicant is proposing all-dielectric self-supporting fiber for approximately 4,650 feet on 12 existing wood distribution poles north of the 230 kV transmission line. The proposed secondary telecommunication upgrades would include establishment of a secondary telecommunication path, consisting of a microwave communication system, to ensure system reliability. The secondary telecommunication upgrades would include constructing a new 100-foot microwave tower at the project site and at PG&E's Helm Substation in Fresno County and collocating microwave equipment on existing microwave towers on Call Mountain and Panoche Mountain.

The proposed project would also include preservation of 24,176 acres of conservation lands on the proposed project site (2,514 acre Valley Floor Conservation Lands) and on two adjacent off-site locations (10,772 acre Valadeao Ranch Conservation Lands and 10,890 acre Silver Creek Ranch Conservation Lands). In order to compensate for the proposed impacts to waters of the U.S., the applicant is proposing to enhance 12.11 acres of waters of the U.S. through the construction of three ponds containing habitat for California tiger salamander (*Ambystoma californiense*), debris removal from ephemeral streams in 9 areas, and the installation of cattle exclusion fencing adjacent to Panoche Creek.

The Draft EIS and attached drawings provide additional project details.

ADDITIONAL INFORMATION:

Environmental Setting. The 2,668 acre proposed project site and 2,514 acre Valley Floor Conservation Lands contain approximately 32.22 acres of potential waters of the U.S., consisting of intermittent and ephemeral drainages. The proposed telecommunication upgrade areas contain approximately 0.03 acre of potential waters of the U.S., consisting of three ephemeral drainages. The proposed project site is bordered by rangeland on the north and south, by the Gabilan Range on the west, and by the Panoche Hills on the east. The elevation ranges from approximately 1,200 feet above mean sea level (msl) near the southeastern end to approximately 1,400 feet above msl near the western end of the proposed project site. Panoche Creek and Las Aguilas creek flow through the proposed project site. During the past 40 years, the proposed project site has been utilized for cattle grazing. Prior to the cattle grazing, crop production occurred over much of the site. The PG&E Panoche-Moss Landing 230 kV transmission line crosses the proposed project site in a generally east-west direction on approximately 100-foot-tall, steel lattice towers.

Alternatives. The applicant has provided information concerning project alternatives, which is located in Appendix B of the Draft EIS. Additional information concerning project alternatives may be available from the applicant or their agent. The Draft EIS evaluates the environmental effects of 4 on-site and 1 off-site alternative. All reasonable project alternatives, in particular those which may be less damaging to the aquatic environment, will be considered.

Mitigation. The Corps requires that applicants consider and use all reasonable and practical measures to avoid and minimize impacts to aquatic resources. If the applicant is

unable to avoid or minimize all impacts, the Corps may require compensatory mitigation. The applicant has proposed to construct three ponds, totaling 0.50 acre as habitat for California tiger salamander, enhance 0.40 acre of ephemeral channels through the removal of debris from 9 locations, and to install 0.35 mile of livestock exclusion fencing to enhance approximately 11.16 acres of potential waters of the U.S.

OTHER GOVERNMENTAL AUTHORIZATIONS: Water quality certification or a waiver, as required under Section 401 of the Clean Water Act from the Central Valley Regional Water Quality Control Board is required for this project. The applicant has applied for certification.

HISTORIC PROPERTIES: The Corps will initiate consultation with the State Historic Preservation Officer under Section 106 of the National Historic Preservation Act for any impacts to cultural resource listed in or eligible for listing in the National Register of Historic Places.

ENDANGERED SPECIES: The proposed project may affect Federally-listed endangered or threatened species or their critical habitat. The Corps has initiated consultation with the U.S. Fish and Wildlife Service.

ESSENTIAL FISH HABITAT: The proposed project would not adversely affect Essential Fish Habitat (EFH) as defined in the Magnuson-Stevens Fishery Conservation and Management Act.

The above determinations are based on information provided by the applicant and our preliminary review.

EVALUATION FACTORS: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the described activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the described activity, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the described activity will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people. The activity's impact on the public interest will include application of the Section 404(b)(1) guidelines promulgated by the Administrator, Environmental Protection Agency (40 CFR Part 230).

The Corps is soliciting comments from the public, Federal, State, and local agencies and officials, Indian tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above.

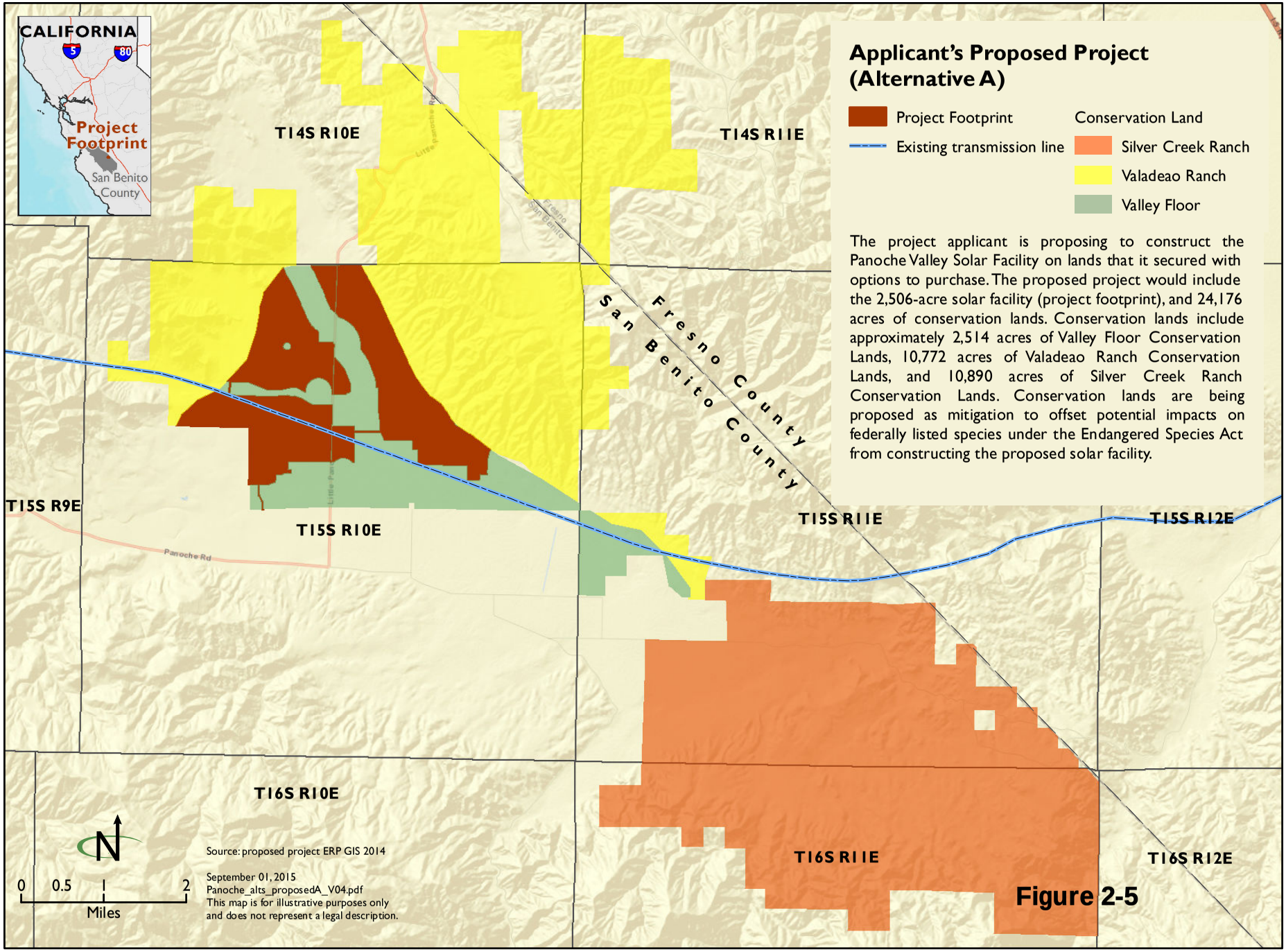
Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

SUBMITTING COMMENTS: Written comments, referencing Public Notice SPN-2009-00443 must be submitted to the office listed below on or before October 26, 2015

Lisa Gibson, Project Manager
US Army Corps of Engineers, Sacramento District
1325 J Street, Room 1350
Sacramento, California 95814-2922
Email: *Lisa.M.Gibson2@usace.army.mil*

The Corps is particularly interested in receiving comments related to the proposal's probable impacts on the affected aquatic environment and the secondary and cumulative effects. Anyone may request, in writing, that a public hearing be held to consider this application. Requests shall specifically state, with particularity, the reason(s) for holding a public hearing. If the Corps determines that the information received in response to this notice is inadequate for thorough evaluation, a public hearing may be warranted. If a public hearing is warranted, interested parties will be notified of the time, date, and location. Please note that all comment letters received are subject to release to the public through the Freedom of Information Act. If you have questions or need additional information please contact the applicant or the Corps' project manager Lisa Gibson, 916-557-5288, *Lisa.M.Gibson2@usace.army.mil.*

Attachments: 10 drawings


CALIFORNIA
5
80
Project Footprint
San Benito County
T14S R10E
T14S R11E
T15S R9E
T15S R10E
T15S R11E
T15S R12E
T16S R10E
T16S R11E
T16S R12E
Fresno County
San Benito County
Panoche Rd
Applicant's Proposed Project (Alternative A)
Project Footprint
Existing transmission line
Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
The project applicant is proposing to construct the Panoche Valley Solar Facility on lands that it secured with options to purchase. The proposed project would include the 2,506-acre solar facility (project footprint), and 24,176 acres of conservation lands. Conservation lands include approximately 2,514 acres of Valley Floor Conservation Lands, 10,772 acres of Valadeao Ranch Conservation Lands, and 10,890 acres of Silver Creek Ranch Conservation Lands. Conservation lands are being proposed as mitigation to offset potential impacts on federally listed species under the Endangered Species Act from constructing the proposed solar facility.
N
0 0.5 1 2
Miles
Source: proposed project ERP GIS 2014
September 01, 2015
Panoche_alts_proposedA_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
Figure 2-5

September 11, 2015

Subject: Public Notice for a Department of the Army Permit

The U.S. Army Corps of Engineers, South Pacific Division (Corps) has posted Public Notice SPN-2009-00443 to *www.spk.usace.army.mil/Media/RegulatoryPublicNotices.aspx* and *http://www.spd.usace.army.mil/Missions/Regulatory/PublicNoticesandReferences.aspx*.

The Corps is evaluating a permit application submitted by Panoche Valley Solar, LLC., for the discharge of fill material into 0.121 acre of waters of the U.S. for the construction of a 246 MW solar facility. This notice is to inform interested parties of: the publishing of the Draft Environmental Impact Statement for the proposed project, the location, date and time of the public meetings, and to solicit comments on the proposed project. The proposed project site is located approximately 0.75 miles north of Panoche Road, east and west of Little Panoche Road, Latitude 36.63149° North, Longitude 120.86622° West, in San Benito County, California.

Written comments and/or a request for a paper copy of the notice may be submitted to regulatory permit specialist Lisa Gibson at 1325 J Street, Room 1350, Sacramento, California 95814, email Lisa.M.Gibson2@usace.army.mil, or telephone 916-557-5288.

Comments must be received by October 26, 2015.

PROOF OF PUBLICATION
(2015.5 C.C.P.)
STATE OF CALIFORNIA
County of San Benito

I am a citizen of the United States and a resident of the County aforesaid. I am over the age of eighteen years, and not a party to or interested in the above entitled matter.

I am the printer and principal clerk of the publisher of the Free Lance, published on line, printed and published in the city of Hollister, County of San Benito, State of California **ON FRIDAY, AND ON LINE** for which said newspaper has been adjudicated a newspaper of general circulation by the **Superior Court of the County of San Benito, State of California, under the date of June 19, 1952, Action Number 5330,** that the notice of which the annexed is a printed copy had been published in each issue. Thereof and not in any supplement on the following dates:

October 2, 2015

I, under penalty of perjury that the foregoing is true and correct. This declaration has been executed **ON October 2, 2015**
HOLLISTER FREE LANCE
350 Sixth Street,
Hollister CA 95023

Laurie Hovis

Laurie Hovis
Legal Publications Specialist
Classified Advertising
Hollister Free Lance,
Gilroy Dispatch, Morgan Hill Times,
Phone # (408) 842-5079
Fax # (408) 842-3817
E-mail legals@newsvmedia.com
Website: www.freelancenews.com

Public Notice

Public Notice
US ARMY CORPS OF ENGINEERS
NOTICE OF AVAILABILITY OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT AND PUBLIC MEETINGS
Panoche Valley Solar Facility

The US Army Corps of Engineers, South Pacific Division (Corps) is evaluating a permit application for the Panoche Valley Solar Facility in San Benito County, CA. This notice is to inform interested parties of the availability of the Draft Environmental Impact Statement (Draft EIS); the location, date, and time of the public meetings; and to solicit comments on the proposed action.

The Corps has prepared a Draft EIS pursuant to the National Environmental Policy Act (NEPA) to analyze the direct, indirect, and cumulative effects associated with constructing and operating the proposed solar facility. Pursuant to NEPA, the US Environmental Protection Agency published a notice in the *Federal Register* on September 11, 2015 (80 FR 54785) informing the public of the availability of the Draft EIS.

The Draft EIS is available for review on the Corps website at: http://www.spk.usace.army.mil/Missions/Regulatory/Permitting/EnvironmentalImpactStatements.aspx; hard copies are available upon request and for viewing at the Panoche Inn (29960 Panoche Road, Paicines, California 95043) and the San Benito County Free Library (470 5th Street, Hollister, California 95023).

The Corps will hold two public meetings on the Draft EIS:

Tuesday, October 6, 2015
6:00 - 8:00 PM
Veterans Memorial Building, 649 San Benito Street, Room 204, Hollister, CA 95023

Wednesday, October 7, 2015
6:00 - 8:00 PM
Panoche School, 31441 Panoche Road, Paicines, CA 95043

Comments received at the meetings or submitted to the Corps in writing will be considered in preparing the Final EIS. Written comments should be addressed to: Lisa Gibson, US Army Corps of Engineers, Sacramento District, Regulatory Branch, 1325 J Street, Room 1350, Sacramento, CA 95814-2922. Comments may also be e-mailed to: Lisa.M.Gibson2@usace.army.mil. Please refer to identification number SPN-2009-00443S in all correspondence. Comments must be postmarked no later than **October 26, 2015**. To obtain additional information, please contact Ms. Lisa Gibson at (916) 557-5288 or Lisa.M.Gibson2@usace.army.mil.

Publish: October 2, 2015 F/11555454

Appendix B
Section 404(b)(1) Alternatives Information

Clean Water Act
Section 404(b)(1) Alternatives Information Study

Panoche Valley Solar Facility Project

San Benito County, California

December 2015

Prepared for:
Panoche Valley Solar, LLC
845 Oak Grove Ave, Suite 202
Menlo Park, California 94025

Prepared by:
Energy Renewal Partners, LLC
305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746

Date: Revised December 2015

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APPENDICES

FIGURES

TABLES

1.0 Introduction

Panoche Valley Solar, LLC (PVS or Applicant) proposes to construct and operate a utility-scale, approximate 247 alternating current (AC) megawatt (MW), solar photovoltaic (PV) energy generating facility, known as the Panoche Valley Solar Facility (the Proposed Project Site), on private lands in San Benito County (the County), California (**Appendix A, Figure 1**). The Proposed Project Site contains several ephemeral streams which have been determined to be jurisdictional "waters of the United States [U.S.]," and the discharge of dredged or fill material into waters of the U.S. is subject to regulation under Section 404 of the federal Clean Water Act (**Appendix A, Figure 2**).

This document presents the alternatives and relevant background information for the Proposed Project pursuant to U.S. Environmental Protection Agency (EPA) regulations under Section 404(b)(1) of the federal Clean Water Act (CWA). In accordance with EPA's Section 404(b)(1) guidelines (Guidelines), this information study provides alternative methods for achieving the Overall Project Purpose (OPP), including off-site alternatives and on-site alternatives (i.e. project configurations, designs, and construction methods) that would avoid and/or minimize adverse impacts to aquatic resources. The purpose of the Section 404(b)(1) alternatives information study is to identify the least environmentally damaging practicable alternative (LEDPA) that will achieve the OPP.

1.1 Expected Impacts to Waters of the U.S.

The Proposed Project includes 31.8 acres of "other waters of the U.S." (ephemeral drainages) and jurisdictional non-wetlands waters. No other special aquatic sites (i.e., sanctuaries and refuges; mud flats; vegetated shallows; coral reefs; and riffle and pool complexes) are present within the Proposed Project Site. Additionally, all building structure pads and work areas have been designed to avoid impacts to jurisdictional waters of the United States to the greatest extent possible.

The Proposed Project will impact 0.121 acre of jurisdictional non-wetland waters of the U.S. One road crossing of a jurisdictional ephemeral stream channel is necessary for the perimeter access road that will allow emergency access and egress to the entire Proposed Project Site. Additionally, there are three unavoidable road crossings through waters of the U.S. on the eastern side of the Proposed Project Site.

1.2 Overview of Guidelines

The CWA Section 404(b)(1) guidelines were published by the EPA (40 Code of Federal Regulation [CFR] 230) on December 24, 1980. The EPA's Guidelines provide substantive criteria that the U.S. Army Corps of Engineers (USACE) uses to determine whether a proposed project is suitable for discharge of dredged or fill material (activity), and whether a proposed discharge of dredged or fill material is eligible for authorization under CWA Section 404.

The Guidelines state:

> …no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences (40 CFR 230.10(a)).

The Guidelines further clarify:

> An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the OPP (40 CFR 230.10(a)(2)).

In addition to specifying the criteria considered in evaluating proposed project site alternatives, the Guidelines state:

> Where the activity associated with a discharge which is proposed for a special aquatic site (e.g., wetlands) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise (40 CFR 230.10(a)(3)).

To comply with the Guidelines, a project applicant must identify alternatives to the proposed discharge and evaluate whether those alternatives are practicable and if they would have a reduced impact on the aquatic ecosystem. An applicant must also evaluate whether those alternatives have other significant adverse environmental impacts.

An alternative is "practicable" if it "is available and capable of being completed after taking into consideration cost, existing technology, and logistics in light of the OPP" (40 CFR 230.10(a) and 230.10(a)(2)). As an initial requirement, the definition of practicability specifies that an alternative must be available to the applicant. Availability may include considerations such as whether a site is reasonably obtainable from the owner, whether an alternative is consistent with applicable laws and regulations, and whether it is able to be permitted within the proposed project time constraints.

An alternative can be found impracticable due to costs, logistics, or existing technology. With respect to cost, if an alternative is unreasonably expensive to the applicant, it is not practicable (45 CFR 85 and 343). Logistics, for example, may be impracticable based on one or more factors affecting the ability to develop an alternative, including safety, topography, the availability of suitable transportation access, proximity to existing transmission lines, the ability to minimize transmission losses, the availability of adequate space for project components, and whether the site configuration will support the proposed project. Where safety, access, site space, or configuration is inadequate, for instance, the alternative is

considered logistically impracticable. With respect to technology, there must be existing technology which has been demonstrated to perform its specified functions successfully at the same scale and under similar circumstances. Finally, an alternative that does not achieve the OPP is not considered practicable.

Where a discharge is proposed in wetlands, practicable alternatives that do not involve discharge into wetlands are presumed to have less adverse impact on the aquatic ecosystem, unless the information study clearly demonstrates otherwise (40 CFR 230(a)(10)(3)). A practicable alternative that would have less adverse impact on the aquatic ecosystem is not the least environmentally damaging alternative if it would have other significant adverse environmental consequences. As such, it is not appropriate to identify an alternative as the least environmentally damaging if it would avoid minor impacts to the aquatic environment at the cost of significant impacts to other environmental resources.

The Guidelines provide that the extent of an alternatives information study shall commensurate with the extent of the proposed Project's potential impacts:

> Although all requirements in 40 CFR 230.10 must be met, the compliance evaluation procedures will vary to reflect the seriousness of the potential for adverse impacts on the aquatic ecosystems posed by specific dredged or fill material discharge activities (40 CFR 230.10(a)(prefatory note)).

The Guidelines also emphasize that when making determinations of compliance, users:

> Must recognize the different levels of effort that should be associated with varying degrees of impact and require or prepare commensurate documentation. The level of documentation should reflect the significance and complexity of the discharge activity (40 CFR 230.6(b)).

When evaluating which alternative is the LEDPA, it is not appropriate to take into account compensatory mitigation measures that would offset impacts to the aquatic environment. The 1990 Memorandum of Agreement between EPA and the USACE provides that in the evaluation of impacts to the aquatic environment, "compensatory mitigation may not be used as a method to reduce environmental impacts in the evaluation of the LEDPA. This approach, known as "sequencing," is based on the agencies' policy first to avoid impacts to the aquatic environment and then to mitigate those impacts which are unavoidable.

1.3 Proposed Project Purpose and Need

California is committed to the reduction of greenhouse gases through increases in renewable energy generation and reduction in the use of fossil fuels (coal and natural gas). Established in 2002 under Senate Bill 1078, California's Renewables Portfolio Standard (RPS) was accelerated in 2006 under Senate Bill 107 by requiring that 20 percent of electricity retail sales be served by renewable energy resources by 2010. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08 requiring that "...[a]ll retail sellers of electricity shall serve 33 percent of their load with renewable energy by 2020." The following year, Executive Order S-21-09 directed the California Air Resources Board (CARB), under its Assembly Bill 32 (AB32) authority, to enact regulations to achieve the goal of 33

percent renewables by 2020. Senate Bill X1-2, codifying the 33 percent renewable energy goal by 2020, was signed by Governor Edmund G. Brown, Jr., in April 2011.

In August 2014, the Applicant entered into a 20-year power purchase agreement (PPA) with Southern California Edison (SCE) that requires the Applicant to deliver 247 MW of electricity from the Proposed Project to SCE. This sale of the power generated by the Proposed Project to SCE will assist SCE, and the State, in meeting the RPS requirement.

1.4 Basic Project Purpose

The Proposed Project is not water dependent and does not propose discharge of fill material in any special aquatic sites, nor does it require access or proximity to a special aquatic site. Thus, the determination whether the basic project purpose is water dependent is not relevant.

1.5 Overall Project Purpose

The OPP serves as the basis for the USACE Section 404(b)(1) alternatives analysis and allows a reasonable range of alternatives to be analyzed.

> The OPP is to construct an approximately 247 MW (AC) solar photovoltaic energy generating facility, associated transmission, and support facilities within the west-central portion of California's Central Valley (generally encompassing portions of San Benito, Merced, Madera, Fresno and Kings counties).

1.5.1 Rationale Supporting OPP

A project sized at over 200 MW is necessary to efficiently interconnect to a 230 kV transmission line and justify the cost of constructing a new switching station and step-up transformers for interconnection. A smaller project could interconnect to the 230 kV or higher voltage (e.g. 500 kV) transmission system, but would result in a similarly sized switching station and setup transformer to access the high-voltage system. The costs associated with building a 247 MW project, including building a new switching station and step-up transformers for interconnection, would be offset by the sale of power. Interconnection of a smaller project to a 230 kV line would not be as cost effective because it would have similar interconnection costs as the larger Proposed Project. Thus, the project would not be commercially practicable if reduced to less than 200 MW.

Further, a project less than 247 MW would not satisfy the Applicant's PPA, where the Applicant has entered into an agreement with SCE to provide 247 MW of power to SCE by the year 2019. A smaller project would also not contribute as substantially to California's RPS goals or satisfy the Applicant's PPA.

Further, the Applicant has already significantly reduced the size of the proposed Project from 1,000 MW to 247 MW. During the 2010 Final Environmental Impact Report (FEIR) process, larger project alternatives were evaluated and dismissed. Both the 1,000 MW and the 420 MW alternatives would have resulted in greater impacts to waters and other environmental resources. As such, a smaller design was developed, the 247 MW Proposed Project, to reduce impacts to waters and other resources, such as special-status species. Therefore, the stated OPP justifies the Proposed Project generation of 247 MW.

2.0 Preferred Project Alternative (Proposed Project)

2.1 Project Location

The proposed Panoche Valley Solar Project (Project) is located approximately one and a half miles north of the intersection of Panoche Road and Little Panoche Road, in eastern San Benito County (**Appendix A,** Error! Reference source not found.). The Project Site is located approximately two miles southwest of the F resno County Line and the Panoche Hills, and approximately 15 miles west of Interstate 5 and the San Joaquin Valley. The proposed Project is located within Township 15S, Range 10E, Sections 3-4, 8-11, and 13-16 of the United States Geologic Survey's (USGS) Cerro Colorado, Llanada, Mercy Hot Springs, and Panoche 7.5-minute topographic quadrangle maps. In addition to the Project Site, the Conservation Lands associated with the Project are located within Township 15S, Range 10E, Sections 3-4, 8-10, 13-16, and 25; Township 15S, Range 11E, Section 19; Township 14S, Range 10E, Sections 21-27, and 32-36; Township 14S, Range 11E, Sections 19, and 29-32; Township 15S, Range 10E, Sections 1-8, and 10-14; Section 15S, Township 11E, Sections 6-7, 19-20, and 26-36; and Township 16S, Range 11E, Sections 1-6, and 8-12 (**Appendix A,** Error! Reference source not found.). PVS will also provide for both the permanent p rotection and management of at least 1,000 acres of Additional Conservation Lands.

The Project proposes to reduce the impacts from the construction and operation of the solar farm on the waters of the U.S. as well as special status species through implementation of avoidance and minimization measures and through the acquisition and protection in perpetuity of 24,618 acres of Conservation Lands and another 1,000 acres of Additional Conservation Lands, for a total of 25,618 acres. Construction of the solar farm is estimated to take approximately 18 months. Power generated by the solar farm would be delivered into the electrical grid via an existing Pacific Gas and Electric (PG&E) transmission line. Operation and maintenance of the project is expected to last a minimum of 30 years. At the conclusion of the project's expected 30-year lifespan, the solar facility would either be decommissioned or repowered. Any decommissioning plan for the solar project would exclude PG&E-owned facilities.

2.2 Project History

The Panoche Valley Solar (PVS) Project evolved during the San Benito County's 13-month environmental review process under the California Environmental Quality Act (CEQA). PVS initially applied to the County for a Conditional Use Permit for a 1,000 megawatt (MW) photovoltaic (PV) solar energy project incorporating approximately 10,000 acres of the Panoche Valley in October 2009. In response to concerns about the size of the project and potential environmental impacts, the Permittee worked in collaboration with the County to reduce the project size by almost 60 percent from 1,000 MW on 10,000 acres, to 420 MW on approximately 4,700 acres. The County then prepared a Draft Environmental Impact Report (DEIR) pursuant to CEQA which analyzed the environmental impacts of a 420 MW Project. The DEIR was made available for public comment on June 28, 2010.

Comments received from the public, the USFWS, and the California Department of Fish and Wildlife (CDFW) raised concerns regarding the 420 MW project's impacts to protected wildlife species, including blunt-nosed leopard lizard (BNLL; *Gambelia silus*), giant kangaroo rat (GKR; *Dipodomys ingens*), San

Joaquin kit fox (SJKF; *Vulpes macrotis mutica*), and the California tiger salamander (CTS; *Ambystoma californiense*). In response to these comments and internal discussions after reviewing the results of biological studies conducted in the spring and summer of 2010, the Panoche Valley Solar Project was again reduced in size from 420 MW on 4,700 acres to 399 MW on 2,813 acres and was redesigned to avoid the most biologically sensitive areas. The comments and concerns were taken into account while revising the DEIR and creating the Final Environmental Impact Report ([FEIR] the FEIR is available at http://www.cosb.us/Solargen/feir.htm).

Additional biological surveys were conducted in 2013 and 2014 to further document the distribution of GKR and SJKF within and adjacent to the proposed Project Site. The results of these surveys were used to further refine the size and configuration of the PVS Project. Among other revisions, the Permittee incorporated additional GKR avoidance areas and a SJKF travel/dispersal corridor. San Benito County then prepared a Supplemental Environmental Impact Report (SEIR) to address project changes. The County certified the Final SEIR in April 2015.

During permit negotiations and discussions with CDFW, additional GKR avoidance areas were identified and the Project Footprint was further reduced in size. These reductions included the conversion of permanent impact areas into an additional GKR avoidance corridor on the east side of the project equivalent to approximately 95 acres (East Side GKR Corridor). The East Side GKR Corridor includes a north arm that is approximately 700 feet wide by 2,200 feet long and a south arm that is approximately 550 feet wide by 2,200 feet long. The two arms are connected by a north-south corridor that is approximately 600 feet wide by 2,100 feet along the east side of the Project Footprint (Illustrated on **Appendix A, Figure 3** as "Onsite Conservation Lands"). An additional north-south GKR corridor has been located along Little Panoche Road through the northern solar array block. This corridor will be 200 feet wide from the centerline of the road, or approximately 80 feet from the edge of pavement on the east and west sides, equivalent to approximately 13 acres. Together, these reductions would avoid impacts to approximately 70 additional GKR cells, a 40% reduction in impacted cells from the layout identified in the SEIR.

In addition to GKR avoidance corridors, several areas of proposed temporary impacts were transitioned to complete avoidance and converted into additional conservation lands. These included areas in the vicinity of known and historic CTS ponds in the northwestern portion of the site. Overall, the Project footprint was reduced by 349 acres from the project analyzed in the Final SEIR (illustrated on **Appendix A, Figure 3** as "Onsite Conservation Lands"). An additional approximately 93 acres of land located within the two temporary laydown yards will also be converted to conservation land after construction is complete; yielding a total of approximately 442 acres of additional conservation land. Through redesign of the Project and changes in solar panel technology, the final Panoche Valley Solar Project design will still have a total output of approximately 247 MW, but will require only 2,154 acres of land. Table 1: Various Project Designs illustrates the evolution of the designs for the Panoche Valley Solar Project.

TABLE 1: VARIOUS PROJECT DESIGNS

Date Proposed	October 2009		June 2010		September 2010		April 2015		October 2015
Proposed MW output	1,000 MW	2010 DEIR	420 MW	2010 FEIR	399 MW	2015 FSEIR	247 MW	2015 ITP	247 MW
Acres impacted	10,900 acres		4,885 acres		2,813 acres		2,506 acres		2,154 acres
Acres of conserved land	4,316 acres		10,331 acres		23,292 acres		24,176 acres		25,618 acres

2.3 Project Description

The Project will consist of a solar field of ground-mounted PV modules, an underground electrical collection system that converts generated power from direct current to alternating current, a project substation that collects and converts the alternating current from 34.5 kV to 230 kV, and a switching station that would deliver the generated power to the electrical grid via the PG&E 230-kV transmission lines from Moss Landing to Panoche and Coburn to Panoche. Upgrades to the PG&E primary and secondary telecommunications networks are also proposed by the Permittee.

Solar Project Components

The Project Site will utilize approximately 1,529 acres to install approximately 1 million PV panels that would each be sized approximately 3 feet by 6 feet. All panels would be oriented to maximize solar resource efficiency. Panel faces would be non-reflective and black or blue in color. The PV solar panels will be mounted on steel support structures that stand up to fifteen feet in height. The steel support structures will be constructed of corrosion-resistant, galvanized steel.

The solar panels will be arranged throughout the Project Site in modular blocks connecting to an inverter system. The purpose of the inverter system is to convert the direct current (DC) energy produced by the panel to alternating current (AC) energy that is required for electric transmission. Rows of panels may be spaced approximately 10 to 35 feet apart (panel edge to panel edge).

The Project will include a 20-foot wide gravel perimeter road that will be used for maintenance and emergency response (with additional pullout locations for vehicles to be able to pass each other). In addition, interstitial space between panels will be used for transportation access during maintenance activities. Transportation access corridors may be native vegetative cover or maintained dirt access paths.

Two 30-foot wide native dirt access roads will be established through the East Side GKR Corridor, one through the northern arm and one through the southern arm. No ground preparation or placement of gravel or other material will be conducted within these access roads. Trenching of electrical cables will be conducted through these roads. Three strand wire fences will be placed along the roads and perimeter of the East Side GKR Corridor to prevent unauthorized access through the corridor by personnel or vehicles during construction and operations and maintenance (O&M). The roads will be utilized as needed during

authorized O&M activities; however, no traffic will be permitted at night except for emergency purposes, and traffic will maintain a 5 mph speed limit on the access roads. Speed limit signs will be posted in the corridor.

A 30-foot wide access road will also be established at the northern end of the 200-ft wide GKR corridor along Little Panoche Road to allow access to the arrays from the road. Trenching of electrical cable will be conducted through the southern portion of the corridor across Little Panoche Road.

As part of the PV panel installation, grading for contour smoothing would be necessary in certain areas to meet the maximum slopes required to install the tracker system as well as maintain appropriate storm water flows on the Project Site. Each array will contain up to 35 rows of modules driven by a single motor. Some contour smoothing will be required to limit the height of the modules above grade (higher modules would require deeper non-uniform foundations).

The Project's current design and grading plan was developed to allow post-development runoff from the Site to discharge into the same water courses as pre-development (i.e. Las Aguilas Creek, Panoche Creek, or the unnamed north/south tributary of Las Aguilas). Grading is required to enhance the efficiencies of the solar panels (i.e. reduce shading) and to provide proper access corridors for operations, maintenance, and emergency access. The grading will also convey and attenuate storm water runoff that could pose erosion and/or flooding risks within and down gradient of the Project Site.

Grading will be required for the construction of the perimeter road. The perimeter road will be a maximum of 20 feet wide, with pullouts every 2,000 to 5,000 feet, as required by the local Fire Department. Pullouts will be approximately 20 feet wide by 300 feet long. The perimeter road will be graded, compacted, and laid with road aggregate in accordance with the County and the local Fire Department requirements. Construction of the perimeter road will impact four waters of the U.S. (ephemeral drainages) along the western and eastern portions of the Project Site.

An additional transportation corridor, a maintained fenced-off dirt path known as Vasquez County Road, would be placed south of Las Aguilas Creek and north of the perimeter fence line (outside the boundary of the Valley Floor Conservation Land). This transportation corridor would provide access to the western portion of the Valadeao Ranch Conservation Lands (VRCL) from Little Panoche Road for landowners and ranchers. Disturbance from construction of the perimeter road and grading for panel array installation would impact approximately 0.121 acre (approximately 3,504 linear feet) of waters of the U.S.

Electricity Collection Lines and DC-AC Inverters

Electrical energy in the form of DC generated by the PV panels is collected in combiner boxes and routed to an inverter. A combiner box is a small electrical enclosure, approximately one cubic foot in size, which is mounted on the PV racking system and allows the PV string voltages to be placed in parallel, increasing the DC current. Electricity from panel combiner boxes would be gathered via an underground or rack-mounted DC collection system from the arrays and routed to the centralized inverter system. The inverter systems are typically enclosed and mounted on concrete or steel foundations, with the entire structure

being approximately 15 feet wide by 40 feet long by 10 feet high. There would be one of these structures per power block. No direct impacts to jurisdictional waters of the U.S. are anticipated with the construction and installation of the electrical collection lines and DC-AC inverters.

The DC would be converted to AC by the inverters, stepped up by the transformers, and transmitted to the new proposed substation via 34.5 kV AC medium-voltage collection lines. The medium voltage collection lines would begin at the inverter system transformers and would terminate in the collection breaker of the substation. The medium voltage lines will be routed to the substation using buried cables (i.e. underground cables). Avian Power Line Interaction Committee (APLIC) guidelines for avian protection will be followed on all overhead structures and lines. These avian design features and other Project measures to avoid, minimize, and mitigate impacts to avian species are outlined in the Project's Avian Conservation Strategy and Eagle Conservation Plan.

Electric Substation and Switching Station

An electrical substation would utilize transformers to convert power from 34.5 kV to 230 kV. The substation would be located north of the existing PG&E transmission line and proposed switching station (**Appendix A, Figure 12**). An on-site access road would be constructed to serve the substation, as well as an approximate one-acre fenced-in parking area. The substation output will be connected to a 230 kV switching station, known as the Las Aguilas Switching Station, which will be owned and operated by PG&E. The substation and switching station equipment will cover approximately 9 acres of the proposed 12-acre substation area. The equipment and facilities in the substation and switching station would range in height from three to 35 feet, except for the microwave tower and Tubular Steel Poles (TSP) which are discussed below. Land preparation prior to the construction of the substation and switching station will involve grading and compacting soil to a level grade. Several concrete pads will be constructed as foundations for electrical equipment, and the remaining area would be covered with gravel. Equipment used within the substation and switching station will include electrical transformers, switchgear, and related substation facilities designed and constructed to transform medium-voltage power from the Project Site's delivery system to PG&E's existing 230 kV transmission line.

Operation and Maintenance Building

The Operations and Maintenance (O&M) building will be located inside the Project Site, west of Little Panoche Road and will be built to local codes and standards. The facility would consist of a standard steel building on concrete slab at a maximum height of 20 feet. The facility would provide office space, a meeting room, equipment to support operations and maintenance, parts storage, as well as security and site monitoring equipment. The O&M building will include a water well that will be used to provide potable water to the building as well as a septic field for domestic waste. No impacts to jurisdictional waters of the U.S. are anticipated with the construction of the O&M building.

PG&E Telecommunication Upgrades

The California Independent System Operator (CAISO), the electricity grid operator in California, in combination with the interconnecting utility, PG&E, is responsible for grid reliability. These two entities

are tasked with determining the transmission system impacts of the Proposed Project and any measures needed for system conformance with utility reliability criteria. A study was conducted by CAISO dated September 18, 2013 in coordination with PG&E per *CAISO Tariff Appendix ED Generator Interconnection and Deliverability Allocation Procedures*. This study identified various systems upgrades necessary to support interconnection of the Proposed Project to the electrical grid, including primary and secondary telecommunication services to allow data transmission between the Proposed Project and the electrical grid.

In addition, telephone and data internet service will be needed to support communications to and from the Proposed Project Site during construction and operation. Telephone and data internet service would be provided by American Telephone & Telegraph (AT&T). The following has been prepared to summarize proposed telecommunication upgrades to both PG&E's and AT&T's systems. No impacts to jurisdictional waters of the U.S. are anticipated with the construction of the telecommunication upgrades.

PG&E Primary Telecommunication Service

PG&E will install optical ground wire (OPGW) on its existing Panoche-Moss Landing 230 kV transmission line to establish the primary telecommunication service between the switching station at the Project Site and the existing Panoche substation located 17 miles to the east of the Project Site (**Figure 4 in Appendix A**). This is a routine method of providing telecommunication services between electrical substations, generating facilities, and other utility substations. The purpose of the OPGW is twofold: for system protection and control of the transmission line. OPGW is designed to replace traditional shield wire, which protects the line by providing a path to ground.

The existing 230 kV transmission line currently has shield wire installed; PG&E would replace the shield wire with OPGW by using the existing shield wire to pull OPGW through the line. It is anticipated that PG&E would require approximately twelve temporary pull/reel and splice sites along the existing 17-mile transmission line corridor to complete installation of the OPGW. These splice and pull sites would require an approximately 75-foot by 75-foot work area located at the midspan of existing tower sites within the transmission corridor right-of-way (ROW). Minor structural modifications will also be made to the transmission towers for the mounting of splice boxes where the 3 to 5 (+/-) mile long sections of OPGW will be spliced. Access to pull/reel sites and to transmission towers is expected to be mostly along existing unimproved roads, improved un-surfaced, or surfaced roads that lead to many of the existing towers. No new roads will be needed to access tower locations. If required, for inaccessible tower locations, helicopters will be used to place materials at the point of installation.

In addition, at each of the 75 existing tower structures along the 17-mile 230 kV transmission line route, minor upgrades to the steel attachments on the towers would be required to accommodate installation of the OPGW. These upgrades would include only overhead work on the existing tower, such as replacement of the gode peaks with a pulley to accommodate the OPGW. The existing shield wire (static wire) would then be used to pull the OPGW through each tower pulley. Existing roads or helicopters would be used to provide access to the sites necessary to implement the attachments needed on each tower.

Construction will likely be completed using a combination of helicopter and ground crews. Helicopters may be used to transport qualified electrical workers to the towers, deliver materials, and assist in pulling the OPGW from tower to tower. Typical construction vehicles for these activities would include pickup trucks, a bucket truck, man-lift, and a crane.

The 230 kV transmission line also crosses under two existing 500 kV transmission lines. This approximately 4,650-foot section will require replacement of approximately twelve existing distribution wood poles within the existing ROW and on land currently used for agricultural purposes. For this work, PG&E would splice an All-Dielectric Self-Supporting (ADSS) fiber optic cable from the 230 kV towers to the east and west sides of the 500 kV transmission line corridor and attach the ADSS to the replacement wood poles. Note that the ADSS would take the place of OPGW for this 4,650-foot section. Replacement of the existing poles is necessary to accommodate the additional load associated with the ADSS. To replace the poles, a 30-foot by 40-feet work area would be required to accommodate one crew truck and a trailer truck to bring each pole to the site, and a line truck to remove the existing pole and replace it with a new pole. From the easternmost 230 kV tower along this section to the distribution pole, the ADSS will be trenched underground for approximately 365 feet within an existing dirt road. The trench would be up to 24 inches wide and up to 8 feet deep to avoid any conflict with agricultural land uses. From the westernmost 230 kV tower along this section to the distribution pole, the ADSS will run overhead approximately 100 feet.

PG&E Secondary Telecommunication Service

To meet PG&E's standards, two physically redundant communication paths for connectivity will be required. In addition to the OPGW installation on the existing 230 kV transmission line structures, described above, PG&E will establish a secondary system. The secondary system would be installation of a microwave communication system between the Project Site and PG&E's system to achieve required system protection (Error! Reference source not found.**4 of Appendix A**). The microwave path will start at t he Project Site switching station, where a new microwave tower will be constructed. The path will continue to an existing microwave tower at Call Mountain owned by CalFire, where new equipment will be co-located on an existing tower, then to Panoche Mountain where new equipment will be co-located on an existing tower owned by American Tower Corporation. The microwave path will then terminate at a new tower to be constructed at PG&E's existing Helm Substation. The microwave towers constructed at the Project Site switching station and Helm Substation would be approximately 100 feet tall and would be located within the fence line of the existing Helm substation and new Las Aguilas switching station. The towers would be a free-standing, four-legged lattice steel structure occupying an approximate 30-foot by 30-foot area.

Existing roads at Call Mountain, Panoche Mountain, and Helm Substation will be utilized to access the proposed microwave tower sites; therefore, no new roads would be constructed to bring equipment and materials to the work sites.

Communications to Moss Landing and Coburn

PG&E will have telecommunications between Moss Landing, Coburn, and the Project Site. In addition to the installation of OPGW from the Panoche substation, PG&E will utilize power line carrier (PLC) and leased line systems to connect the remaining two substations at Moss Landing and Coburn; the implementation of these systems will involve minor modifications to the existing switching stations at Moss Landing and Coburn substations. Essentially, PLC is a system that uses the power conductors between substations to transmit low speed serial data for relay protection communications through existing electrical lines. The Moss Landing switching station connection will use a PLC system to provide permissive overreaching transfer trip (POTT) and connections to Coburn switching station will be a PLC and a leased line circuit to provide POTT and direct transfer trip (DTT) capabilities. The leased line service is anticipated to be provided by AT&T and would be a point-to-point high-speed serial data connection between Coburn and the Project Site substations for protection relay communications. If not already established, additional poles and cables may need to be placed in the public ROW from the nearest AT&T point of service to the substation fence line. All other work at the Moss Landing and Coburn substations will take place within the existing substation fence line and no new ground disturbance is anticipated.

On-Site Telephone and Data Service

Telephone and internet services to the Project Footprint would be provided by AT&T. AT&T currently provides service in the Panoche Valley and there is an existing service connection node located approximately 2,000 feet south of the Project Footprint along Little Panoche Road. PVS has stated its understanding that AT&T plans to upgrade service to this connection point by installing fiber adjacent to the existing copper lines. The service upgrades planned by AT&T are unrelated to the Project and no coverage is being sought by the Applicant for this work. From the existing connection point to the Project Footprint (approximately 2,000 feet), AT&T will install fiber and/or copper along the eastern side of Little Panoche Road within the County road easement. The fiber and/or copper installation will continue up the eastern side until it nears the Project Footprint manhole/splice box. At that point, AT&T will route the fiber and/or copper under Little Panoche Road west using a directional bore. Once the fiber reaches the Project's manhole/splice box, the PVS or its contractors will install the underground conduit for all fiber located within the Project Footprint. Fiber and/or copper may also be temporarily brought into the construction trailers that will be located within the southern laydown yard.

All of AT&T's work will be contained within the existing County ROW. The AT&T fiber lines will be installed using a directional boring technique. A typical directional boring team would include three vehicles; (1) standard work vehicle – half ton pickup, (2) dump truck to hold bore pit spoils, and (3) approximately 30-foot long flatbed truck for tools and materials with trailer mounted bore equipment. The bore depth will range between 48 inches to 72 inches deep to avoid geologic features or biological resources, but will typically stay at the minimum depth of 48 inches. The directional boring process will use manhole/splice pits placed approximately every 500 feet, and are estimated to be 4-foot by 4-foot by 3-foot in size. Those manhole/splice pits are microsited to avoid various features that would pose constructability issues or adversely impact environmental resources. AT&T will then install (2) 1.25-inch innerducts (a type of PVC

casing material) to route fiber cables through. Four pits will be installed approximately 500 feet apart from the manhole/splice box at the project site to the existing connection point 2000 feet south. All AT&T activities within this 2000 feet segment are anticipated to take approximately three to five days. No impacts to jurisdictional waters of the U.S. are anticipated with the construction/installation of the telephone and internet service.

Project Fencing

The fence around the Project Footprint's permanent impact areas would be smooth-top chain link in the upper portion, smooth wire in the bottom portion, and a height of six feet with an approximate 5 to 6-inch gap along the bottom of the chain linked fence that would allow wildlife to travel through the Project Footprint and have access to existing travel corridors (Cypher, B.L, C.L. Van Horn Job, 2009). Gated six to eight-foot high chain link fence(s), with possible animal exclusion modifications if needed, would be constructed around the substation per the PG&E standard. Within the GKR Corridors in the interior of the Project Footprint, smooth wire fencing approximately 40-inches tall with minimum 12-inch spacing between the top two wires and the bottom wire approximately 18-inches above ground will be utilized to prevent unauthorized access into these areas.

Temporary Wildlife Exclusion Fencing

During construction, at the discretion of the Project's Qualified Biologist, temporary wildlife exclusion fencing would be placed around construction laydown areas within the solar array buffers and the access road across the Valley Floor Conservation Lands (areas in which materials and equipment are stored temporarily when moved from the laydown yards to the where they will be used or installed), as needed for wildlife protection. Fencing around laydown areas will be at a height of 33-36 inches, with a no climb barrier, and trenched 22-24 inches to exclude CTS, GKR, SJAS, and BNLL. One-way exits for CTS and other small animals will be incorporated every 250 to 500 feet. The road fencing will not be trenched but rather secured at the bottom with sandbags to reduce potential impacts to the Valley Floor Conservation lands. Exclusionary fencing may also be placed around the temporary water ponds. Fence material will be E-Fence manufactured by ERTEC and consist of non-biodegradable materials which are UV and dimensionally stable for at least 4 years. It will be comprised of a recycled material, high density polyethylene. Installation will use metal T-Posts installed every 8 feet and at segment overlaps. Once the Project's Qualified Biologist determines that work is complete in an area and the fencing is no longer needed, the exclusion fencing will be removed.

Vegetation Management and Fire Suppression

The Permittee will implement a controlled grazing plan to manage annual grassland fuel loading and heights on the Project Site, and to control vegetation for fire deterrence. Sheep and/or goats may be utilized in the array areas reducing undesirable vegetation that may increase the likelihood of grass fire. Under the grazing plan the areas under and around the solar arrays will be grazed as necessary, to reduce vegetation prior to the start of the fire season.

Construction Duration

The Project will be constructed during an approximately 18-month construction schedule. Construction activities would be permitted from sunrise to sunset (as published by the National Oceanic and Atmospheric Administration), as early as 5:00 am to as late as 9:00 pm, depending on the time of year. No ground disturbing activities (including but not limited to grading, pile driving, or trenching) would take place at night (10:00 pm to 7:00 am). Night-time construction activities would be limited to the following:

- Minor non-ground-disturbing activities such as commissioning and maintenance activities to be performed when PV arrays are not energized;
- Interior use of the operations and maintenance facility;
- Unanticipated emergencies (defined as an imminent threat to life or a significant property interest), including non-routine maintenance that requires immediate attention;
- Special status species impact avoidance and minimization activities and research (e.g., GKR trapping and SJKF radio telemetry); and
- Security patrols.

Personnel/Traffic

The workforce at the project will vary based on the work activities conducted at the site at particular times; however, the estimated number of individuals will range from approximately 100–500 individuals during the day and 20–50 individuals at night.

The Permittee intends to construct the Project over approximately an 18-month period using up to three 8-hour shifts per day and will encourage employees to carpool to and from the areas of Hollister, San Benito County, and Fresno County that are located between 10 and 60 miles from the Project Site.

The Project will generate the greatest amount of personnel auto traffic during the arrival of employees for the day work shift and during the departure and arrivals of employees from shift change.

The expected truck traffic generated by the Project will predominately be composed of trucks delivering solar panels, materials, and equipment to the site. It is anticipated that an average of 120 large trucks will access the Project Site on a daily basis to deliver materials and equipment. It is assumed that the trucks will arrive to the Site evenly distributed throughout daylight hours.

During the O&M portion of the Project, it will operate/generate electricity seven days a week during daylight hours and would require 10 full time employees initially and up to 50 full-time employees at build-out. They will be expected to travel to and from the site in personal vehicles.

General O&M Activities

The Project will be in operation for at least 30 years, with the possibility of a subsequent re-powering for additional years of operation. The Project will operate seven days per week during daylight hours. Operational activities will consist of monitoring system operational status, tracking system controls and mechanical equipment, performance, and diagnostics. Operations activities will include meter reading and production reporting by the Supervisory Control and Data Acquisition (SCADA) system, along with updating O&M manuals and activities.

Security personnel will be on-site 24 hours every day, working in approximately 8-hour shifts.

Once installation is complete and the Project is fully operational, all traffic will enter at access points along Little Panoche Road. The SCADA system will identify areas that are underperforming; these will be checked as required using project roads and transportation corridors. Damaged or underperforming PV panels will be replaced as required; mechanical fasteners will be replaced as needed. Inverters that are underperforming or have stopped working will be diagnosed by the electrician and, if required, an inverter technician will be brought on-site. The maintenance staff will traverse the site as necessary, utilizing Project roads and primarily lightweight vehicles or all-terrain vehicles.

Solar Panel Washing

To optimize performance of the project, the PV panel surfaces are expected to be washed approximately twice annually during the dry season, as needed. The water for washing will be filtered and no chemicals will be added to the water. Water will be placed into water trucks or water tanks that can be pulled behind a lightweight vehicle. Hoses will be connected to the water tanks and water will be sprayed at a low pressure on the panels. Panels will be brushed off as needed based on the amount of collected dirt or dust. A squeegee may be used to wipe the panels after washing. In the event that material on the panels is dry and can be blown off without water, air will be used to remove the buildup.

Permanent Lighting

During construction, localized and portable lighting will be used where the work is occurring as needed. Lighting will have a power switch to turn off lights when not in used.

During operation of the Project, motion-sensor lighting will be used at the main entrance, substation, and switching station. The lighting will consist of energy-efficient lamps that will only be lit when human activity is detected. Motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring. This will be done to prevent startling animals and creating false alarms for security personnel. Constant low-level lighting may be required at the O&M building for security and safety. This will be a single lamp source near the entrance of the O&M building, which will be activated through a timer. All lighting will have a power switch to conserve energy when the lighting is not required. All lighting will point downward and be shielded to preserve dark skies, and will adhere to San Benito County's Lighting Ordinance (SBCo 19.31.003-009) for areas in Zone 3 and under Class 2 lighting regulations.

Wetland Creation/Enhancement on Conservation Lands

To mitigate wetland impacts associated with Project construction, the Permittee will create and enhance wetlands on the Conservation Lands. Because of the potential to impact Covered Species habitat, the Permittee's wetland mitigation is deemed a Covered Activity under this ITP. Construction of the wetlands will entail excavation on the Conservation Lands to create 0.40 acres of seasonal wetlands for CTS. Additionally, the Permittee will enhance approximately 11.97 acres of stream channels through cattle exclusion, revegetation, and removal of debris. These enhancement activities are described in the Permittee's Wetland Mitigation and Monitoring Plan.

Conservation Land Acquisition

The Permittee has secured approximately 24,618 acres of Conservation Lands contiguous and adjacent to the Project Site and will provide another 1,000 acres of Additional Conservation Lands. This land will be preserved in perpetuity under long term management through a qualified land manager. The Conservation Lands and Additional Conservation Lands will offset impacts to wildlife species and associated habitat impacted by construction of the Project.

3.0 Existing Site Conditions

Panoche Creek and Las Aguilas Creek (**Appendix A,** Error! Reference source not found.), are the two major F ederal ephemeral creeks located predominantly on the proposed Valley Floor Conservation Lands (VFCL). Smaller ephemeral washes and drainages feed these larger creeks during storm events. Several seasonally flooded pools and stock ponds are located on the northern portion of the VFCL.

3.1 Climate

Panoche Valley experiences a Mediterranean climate with dry, hot summers and cool, wet winters. This region does not typically experience heavy rainfall. Annual precipitation in the general vicinity of the Proposed Project Site ranges from 8 to 10 inches per year. Approximately 85 percent of precipitation falls between October and March. Temperatures average approximately 80˚Fahrenheit (°F) in the summer and 40˚F in the winter, mid-summer temperatures are often over 100˚F, and winter lows can be close to freezing. Nearly all precipitation infiltrates into the soil and flows in creeks and drainages when soil saturation has been reached.

3.2 Current Land Use and Setting

The San Benito County General Plan land use designation for all property within the Proposed Project Site boundary is defined as *Agricultural Rangeland with a zoning designation for Agricultural Rangeland, 40-acre minimum*. The Agriculture Rangeland zoning designation includes the "development of natural resources together with the necessary buildings, apparatus, or appurtenances incidental thereto" as a conditional use (Title 25, Section 29.106 of the San Benito County Code). Adjacent parcels on all sides of the Proposed Project Site are also designated as Agricultural Rangeland.

There is no urban development on the Proposed Project Site or immediately adjacent area. Two ranching communities are within the Panoche Valley, Panoche and Llanada, which are within two miles of the Proposed Project Site. The nearest rural community is Firebaugh, which is approximately 15 miles northeast from the perimeter of the Proposed Project Site.

Currently the Proposed Project Site area is used for cattle grazing, and there are 27, 100-foot-tall, steel lattice towers accommodating a 230 kV transmission line crossing the Site. The photographs in **Appendix B** depict the existing Site conditions.

3.3 Geology and Soils

Geologic units underlying the Proposed Project Site are Quaternary alluvium and alluvial fans deposited by streams emptying onto and crossing Panoche Valley and underlying older alluvial deposits (Dibblee 1975). Older non-marine terrace deposits of alluvium, composed of clay, sand, and gravel, comprise the Plio-Pleistocene age Tulare Formation that, according to the California Department of Water Resources (CDWR 2004), likely fill the local basin to depths of up to 1,500 feet.

The geotechnical investigation conducted for the Proposed Project Site included 34 borings to characterize geologic materials underlying the Site (ENGEO 2010a and 2010b). The borings for the Proposed Project Site suggest that unconsolidated alluvium ranges from three to seven feet thick;

overlying a more consolidated older alluvium and minor silty sand. Older alluvium consists of silty sand, poorly graded gravel with sand and silt, silty clay, sandy clay, and clayey sand. Calcareous or carbonate cement and iron staining are common, locally associated with harder drilling. No groundwater was encountered in the borings drilled to the maximum drilled depths of 51 feet, with the exception of boring B020, located near the southern boundary of the Proposed Project Site near Panoche Creek, where minor perched groundwater was encountered at a depth of 39 feet.

All of the soils in the Proposed Project Site area are classified as slightly susceptible to wind erosion and sheet and rill water erosion (NRCS 2010). Erosion potential increases where these soils are disturbed by grading or vehicle travel that loosens the upper surface or removes protective vegetation.

3.4 Hydrology and Groundwater

Surface Water

Multiple unnamed ephemeral streams and washes drain from the Panoche Hills to the northeast, the Las Aguilas Mountains to the northwest, and the Diablo Range to the south and southeast (POWER 2009a). The Panoche Valley is traversed by multiple intermittent and ephemeral streams and washes, including Clough Canyon Creek, Bitterwater Creek, Las Aguilas Creek, and Panoche Creek, which drains the Panoche Valley and flows east into the Great Valley (POWER 2009a).

The Proposed Project Site was designed to avoid the majority of Las Aguilas and Panoche Creeks. Las Aguilas Creek flows from north/northwest to south/southeast, bisecting the northern and southern portions of the Proposed Project Site. Much of Las Aguilas Creek will be protected under the VFCL. Planned impacts to Las Aguilas Creek would result in 0.001 acres of cut and fill material within the Ordinary High Water Mark (OHWM) due to a required all-weather access bridge. Panoche Creek is situated to the south of the Proposed Project Site and flows from west/northwest to south/southeast where it reaches the confluence of Las Aguilas. Panoche Creek is located within the Valley Floor Conservation Lands.

An additional 0.121 acre of cut and fill within the OHWM of three unnamed ephemeral drainages is proposed along the eastern side of the Proposed Project.

Surface Water Quality

Heavy rainfall events in the Panoche/Silver Creek Watershed tend to yield erosion and sediment transport. High concentrations of selenium are contained within transported sediment which, during rain events with greater than a five-year return period, can contribute to the San Joaquin River exceeding its water quality objectives. The Panoche alluvial fan is the principal source of selenium from the Panoche/Silver Creek Watershed to the downstream Grassland Watershed and the San Joaquin River (POWER 2009a).

Groundwater

The Proposed Project Site is underlain by the Panoche Valley Groundwater Basin, which is within the Central Valley Planning Area, and subject to management direction of the Water Quality Control Plan for the Tulare Lake Basin. This Basin Plan includes Beneficial Use designations for select waters of the State,

within the Panoche Valley Groundwater Basin designated as "Municipal and Domestic Supply" or "MUN". In accordance with the MUN designation, as defined by the Tulare Lake Basin Plan, "…uses of water for community, military, or individual water supply systems, including but not limited to drinking water supply" are permitted.

The Panoche Valley Groundwater Basin has a surface area of approximately 33,100 acres. The basin is bounded by ridges: to the northwest by Franciscan Complex serpentinite, shale, and sandstone and to the northeast and southeast by Upper Cretaceous to Lower Miocene marine sedimentary rocks. No information on groundwater storage is currently available (DWR 2004). Groundwater is not a source of water for the surface drainages described above.

3.4.1 Waters of the U.S.

Within the boundary of the Proposed Project Site, surface water is ephemeral and identification of the OHWM was made using stream geomorphology and vegetation response to the dominant stream discharge (USACE 2008).

The delineation of federal and state jurisdictional waters within the Proposed Project Site is described in detail in the "Panoche Valley Solar Farm Wetland Delineation Report," prepared by POWER Engineers, Inc. (POWER), dated November 12, 2009 (POWER 2009b). On October 18, 2010, the USACE issued an approved jurisdictional determination for the Panoche Valley Solar Project of the previously approved 2010 Project.

During the USACE November 2014 site visit, four unnamed federally jurisdictional ephemeral streams were identified along the eastern boundary of the Proposed Project Site (Error! Reference source not f ound.**, Appendix A)**. These ephemeral streams, which have a combined length of approximately 5,951 feet, drain surface flow from the eastern foothill towards Las Aguilas Creek in the center of the Proposed Project Site. The Proposed Project will only impact three of the four identified federal waters on the eastern side (Crossing/Impacts 3, 4, and 6). Due to project design changes, a Preliminary Jurisdictional Determination Request, prepared by Johnson Marigot Consulting, LLC, was submitted to USACE in December 2014 for the current Proposed Project Site.

On June 24, 2015 USACE approved the Preliminary Jurisdictional Delineation Request for the Proposed Project Site. In the letter, USACE concurred with the amount and the location of water bodies on the Proposed Project Site and area associated with the PG&E Telecommunication Upgrades (Regulatory Division SPN-2009-00443).

Drainages that are subject to USACE jurisdiction that will be impacted by the Proposed Project include a portion of Las Aguilas Creek (western portion) and three un-named ephemeral streams (eastern portion) (**Figure 12, Appendix A**).

Las Aguilas Creek would be impacted as a result of the construction of the perimeter road and trenching required for underground cable installation. Impacts to three federal drainages on the eastern portion

would result from construction of the perimeter road, security fence installation, and grading required for PV panel array installation.

The Proposed Project would result in approximately 0.121 acres of permanent impacts to four jurisdictional waters of the U.S. as a result of permanent fill below the OHWM (**Figure 12, Appendix A**). Section 4.0 further describes the proposed impacts and activities that would occur within the four federal drainages. These impacts will be permitted under Section 404.

Las Aguilas Creek-Federal Crossing/Impact 1

Las Aguilas Creek traverses the central portion of the VFCL for approximately 18,500 feet. The lower reaches of Las Aguilas Creek traverse from the confluence with Panoche Creek to a point approximately 5,930 feet northwest where it becomes ephemeral in nature and was determined in the Preliminary Jurisdictional Delineation dated June 2015 to be a non-jurisdictional drainage as depicted in Error! R eference source not found.**, Appendix A**.[1]

Unnamed Tributaries

An unnamed ephemeral drainage traverses the north central portion of the Proposed Project Site for approximately 1,549 feet. This ephemeral drainage drains water from the Panoche Hills to the northeast and connects with Las Aguilas Creek in the center of the Proposed Project Site. The jurisdictional portion of this ephemeral stream is located in the northern-most portion of the Valley Floor Conservation Lands, to the west of Little Panoche Road. The unnamed ephemeral drainage would not be impacted by the Proposed Project.

3.4.2 Non-Jurisdictional Water Features

Non-jurisdictional water features on the Proposed Project Site are limited to a few stock ponds and ephemeral channels which primarily drain from the Valadeao Conservation Lands. These non-jurisdictional stock ponds and drainages are generally located along the eastern boundary of the Proposed Project Site. The Applicant is has submitted a Lake and Streambed Alteration Agreement application to the CDFW which details all impacts to state jurisdictional waters within the Proposed Project Site.

3.5 Biological Characteristics

The area surrounding the Proposed Project Site consists of over 26,000 acres of rangeland, of which 2,506 acres would be developed by the Proposed Project. The area supports a variety of non-native and native grasses and forbs. The Proposed Project Site is known to support a variety of special-status wildlife species, including some listed as species of concern and fully protected by CDFW. Species that were

[1] Prior correspondence with the Hollister Fire Department originally required that two Federal Crossings would be necessary on the Proposed Project Site to allow for the ingress and egress of emergency vehicles. In a recent letter from the Hollister Fire Department dated August 27, 2015 and included in Appendix C, the Proposed Project Site will now only require the one Federal
Crossing over Las Aguilas Creek. Plans for the crossing over Panoche Creek have been removed from this document and the overall impact numbers have been reduced accordingly.

detected within the Proposed Project Site or have high potential to occur within the Proposed Project Site are described in further detail in Section C.6 of the 2010 FEIR, the 2015 SFEIR, and the Biological Assessment for the Proposed Project.

Habitat for aquatic species and amphibians on the Proposed Project Site is largely limited to the few stock ponds, ephemeral pools, and possibly Panoche Creek and Las Aguilas Creeks. The only federally listed invertebrate identified was the vernal pool fairy shrimp (*Branchinecta lynchi*; VPFS) which will be protected in perpetuity within the VFCL.

Amphibians that could occur on the Proposed Project Site include California tiger salamander (*Ambystoma californiense*; CTS), western toad (*Bufo boreas*), and Pacific chorus frog (*Pseudacris regilla*); however, none of these species were observed within the boundaries of the Proposed Project Site during the more than 25,000 survey hours between April 2009 and October 2014. Larval CTS were observed off-site in a stock pond located on proposed Valadeao Ranch Conservation Land (VRCL), and in a stock south of the Proposed Project Site private ownership.

Reptiles that may potentially occur on or adjacent to the Proposed Project Site include the BNLL, western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), California horned lizard (*Phrynosoma coronatum frontale*), western whiptail (*Aspidoscelis tigris*), San Joaquin coachwhip (*Masticophis flagellum ruddocki*), Pacific gopher snake (*Pituophis catenifer catenifer*), common king snake (*Lampropeltis getula*), and western rattlesnake (*Crotalus viridis*). Other reptiles that could potentially occur on the Proposed Project Site include the Gilbert skink (*Eumeces gilberti*), Southern alligator lizard (*Elgaria multicarinatus*) and the common garter snake (*Thamnophis sirtalis*).

Small mammals that may potentially occur on the Proposed Project Site include Botta's pocket gopher (*Thomonys bottae*) and western harvest mouse (*Reithrodontomys megalotis*); and to a lesser extent the San Joaquin pocket mouse (*Perognathus inornatus*), short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*), and Tulare grasshopper mouse (*Onychomys torridus tularensis*). The California Natural Diversity Database does not have any observations of the San Joaquin pocket mouse or short-nosed kangaroo rat within 3.1 miles of the Proposed Project Site; and the most recent and closest observations for the Tulare grasshopper mouse was in 1938, just south of the Proposed Project Site. The region supports various kangaroo rat species (*Dipodomys* sp.), including the Heermann's kangaroo rat (*D. heermanni*) and giant kangaroo rat, and likely Merriam's kangaroo rat (*D. merriami*).

The San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) and California ground squirrel (*Otospermophilis beecheyi*) have been observed within the boundary of the Proposed Project Site.

Larger mammals that occur on the Proposed Project Site include the SJKF (*Vulpes macrotis mutica*), coyote (*Canis latrans*), cougar (*Puma concolor*), bobcat (*Lynx rufus*), and American badger (*Taxidea taxus*). Red fox (*Vulpes vulpes*) and black-tailed deer (*Odocoileus hemionus columbianaus*) have been observed in the vicinity but not within the boundary of the Proposed Project Site.

The small mammals that occur within the Proposed Project Site have the potential to attract raptor species including Turkey Vulture (*Cathartes aura*), Northern Harrier (*Circus cyaneus*), Red-tailed Hawk (*Buteo jamaicensis*), Golden Eagle (*Aquila chrysaetos*), American Kestrel (*Falco sparverius*), Prairie Falcon (*Falco mexicanus*), and Burrowing Owl (*Athene cunicularia*). Other raptors that may use the Proposed Project Site for foraging, but have not been observed within the Proposed Project Site include the White-tailed Kite (*Elanus leucurcus*), Barn Owl (*Tyto alba*), and Great Horned Owl (*Bubo virginianus*).

Non-raptor bird species observed on or in the vicinity of the Proposed Project Site include the Cinnamon Teal (*Anas cyanoptera*), Mountain Plover (*Charadrius montanus*), Rock Dove (*Columbia livia*), Mourning Dove (*Zenaida macroura*), Greater Roadrunner (*Geococcyx californicus*), Anna's Hummingbird (*Calypte anna*), Loggerhead Shrike (*Lanius ludovicianus*), Yellow-billed Magpie (*Pica nuttalli*), American Crow (*Corvus brachyrhynchos*), Common Raven (*Corvus corax*), California Horned Lark (*Eremophila alpestris actia*), American Pipit (*Anthus rubrescens*), Say's Phoebe (*Sayornis saya*), Western Kingbird (*Tyrannus verticalis*), European Starling (*Sturnus vulgaris*), Red-winged Blackbird (*Agelaius phoeniceus*), Tri-colored Blackbird (*Agelaius tricolor*), Western Meadowlark (*Sturnella neglecta*), Savannah Sparrow (*Passerculus sandwichensis*), and House Finch (*Carpodacus mexicanus*).

3.5.1 Protected Species

Seven species protected under the federal Endangered Species Act (ESA) and Golden Eagle Protection Act have been observed on and within close proximity of the Proposed Project Site (BNLL, SJKF, GKR, VPFS, California Condor (*Gymnogyps californianus*), Golden Eagle, and CTS). Appropriate avoidance and minimization plans for species observed within the Proposed Project Site will be implemented in coordination with USFWS and CDFW.

The Proposed Project Site does not include any federally designated or proposed critical habitat for any species. The results of extensive biological surveys of the Proposed Project Site are detailed in the Biological Assessment submitted by the USACE to the USFWS as part of the Section 7 consultation process.

Because the Proposed Project Site may affect certain animal species listed as threatened or endangered under the (ESA), the USACE initiated formal consultation with the USFWS pursuant to Section 7 of the ESA. The USACE and USFWS determined that the scope of the analysis pursuant to ESA included all portions of the Proposed Project Site that are "interrelated and interdependent" to the proposed CWA permit. The determination includes the entire Proposed Project Site, as well as proposed mitigation lands (Conservation Lands) associated with the Proposed Project. The USACE, following consultation with the USFWS, determined the need to prepare an EIS to satisfy the requirements of the NEPA as part of its evaluation of the Applicant's Section 404 permit application.

4.0 Activities to Be Permitted Under Section 404

The Proposed Project Site will impact jurisdictional "waters of the U.S.," thereby triggering the need for a CWA Section 404 permit from the USACE.

Table 2:Permanent Project Impact Summary provides a summary of the permanent impacts to waters of the U.S. from construction of the Proposed Project.

TABLE 2: PERMANENT PROJECT IMPACT SUMMARY

Proposed Project Site Components	Total Impacts (acres)	Impacts to Waters of the U.S.	Fill Proposed in Waters of the US (cubic yards)
Solar array[1]	1,529	0.116 acres	~520 CY
Project roads including stream crossings and pullouts	30	0.005 acres	~132 CY
Substation/switching station/O&M building	12	--	N/A
Grading disturbance areas[2]	101		N/A
Trenching and Foundations Adjacent to Arrays	12	--	N/A
230 kV Loop-in Tubular Steel Pools	0.006	--	N/A
Perimeter Fencing	0.2	--	N/A
Vazquez County Road[3]	4		
Total impacted acreage	**1,688.2 acres**	**0.121 acres**	**652 CY**

[1]Includes foundations, direct current trench alternating current trench, grading within the solar arrays, and solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each.

[2]Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. The proposed Project includes approximately 352 acres (205.47 acres for arrays; 30 acres for roads; 12 acres for the substation, switching station and O&M building; 4 acres for Vasquez County Road; and 100.53 acres for other grading areas) of proposed area that would be graded.

[3]Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek (outside of the Valley Floor Conservation Land).

The Proposed Project will impact four drainages and creeks classified as waters of the U.S. Impacts to federal crossing/impact area #1 will result from construction of a single span bridge across Las Aguilas Creek in the northwestern portion of the Project Footprint and will impact 34 ft^2 (0.001 acres) within the OHWM of the creek.

The proposed single span bridge will be constructed from bank to bank across Las Aguilas Creek without the use of support footing in the center of the creek. The single span bridge would have footings that are placed on each side of the bank, outside of the OHWM. However, riprap material will be needed along the footing installations within the OHWM to prevent erosion or scouring due high flow events. The crossing deck will be brought in approximately 3-4 sections. Each section will be lifted with a crane and placed on the footings. The crane will sit near the bank of the creek, but will not enter the federally jurisdictional areas. Once the sections are laid adjacent to each other on the footings, a final concrete bridge deck will be poured across the sections deck. A guard rail would be placed on the sides of the bridge. The single span bridge was designed to provide maximum water conveyance through beneath the structure.

Three additional Federal waters crossings are located along the eastern side of the Proposed Project Site.

Federal crossing #3 will impact the federal portion of the drainage due to construction of the perimeter roadway and grading required for panel array installation. This would result in the permanent disturbance of approximately 0.05 acres (1,529 linear feet) of impacts to jurisdictional waters.

Federal crossing #4 will impact the federal portion of the drainage due to construction of two low water crossings (LWC) to transport surface flow to the interior portion of the Proposed Project Site. Federal crossing #4 will require grading/filling of approximately 0.04 acres (1,156 linear feet) within the OHWM associated with this drainage.

Federal crossing #6 involves rerouting surface flows of the jurisdictional drainage prior to the installation of the perimeter roadway. Any surface water flowing onto the Proposed Project Site at this location will be redirected into a diversion channel adjacent to the perimeter road, southeast into an unnamed non-federally jurisdictional ephemeral drainage. This construction will impact approximately 0.03 acres (799 linear feet) of jurisdictional stream. The diversion feature will be constructed with lined bend protection to assist in slowing the runoff velocity and additional sediment and erosion control measures. The remaining impact to the jurisdictional drainage downstream of the perimeter roadway will be from grading and filling of the jurisdictional channel to meet the maximum slopes required for the installation the panel arrays.

The Proposed Project will have a permanent impact (0.121 acres total) to four jurisdictional ephemeral drainages due to the required perimeter road, fence construction, trenching, and grading for solar panel installation (**Figure 12, Appendix A**).

5.0 Actions to Minimize Adverse Impacts and Comply with 404(b)(1) Requirements

5.1 Minimization of Impacts

Provisions of the Section 404(b)(1) Guidelines (40 CFR 230), require the Applicant to take:

> …all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the United States. Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the OPP. Compensatory mitigation for unavoidable impacts may be required to ensure that an activity requiring a section 404 permit complies with the Section 404(b)(1) Guidelines (40 CFR 230.91(c)(2)).

5.1.1 Waters of the U.S.

The Proposed Project Site was designed to avoid impacts to waters of the U.S. by:

- Eliminating jurisdictional ephemeral stream channel crossings to the extent practicable;
- Eliminating electrical collection system that would impact jurisdictional ephemeral stream channel crossings (crossings redesigned to be aerial crossings) to the extent practicable; and
- Avoiding placement of structures (i.e., solar arrays, substation, operations and maintenance building, water treatment facility, fencing, and the majority of the interior road network) within jurisdictional ephemeral stream channels to the extent practicable.

Techniques to minimize unavoidable Proposed Project impacts to waters of the U.S. include:

- Minimize the permanent impact to jurisdictional ephemeral stream crossings to the greatest extent practicable;
- Minimize roadway width to the extent practicable in consideration of load requirements, vehicle type, width and safety requirements;
- Utilize an aerial crossing approach to electrical cables across streams;
- Minimize ground disturbance during construction and operations in areas adjacent to jurisdictional ephemeral stream channels;
- Use low impact solar facility operations and maintenance practices adjacent to jurisdictional ephemeral stream channels;
- Cover well-used roads on the Proposed Project Site with gravel to minimize sediment transport;
- Minimize trash production and protecting wildlife from waste materials during construction and operation; and
- Maintain grassland groundcover during solar facility operation.

5.1.2 Other Environmental Resources

Other Proposed Project Site impact minimization strategies proposed by the Applicant include:

Sensitive Habitat Protection during Construction

Sensitive habitats (e.g., jurisdictional ephemeral stream channels) within 50 feet of construction activities would be marked with orange or yellow temporary construction fencing, rope, or other protective fencing and "Do Not Enter" signage. In addition, a plan would be developed and implemented to minimize trash production and protect wildlife from waste materials.

Stormwater Management

Minimizing impacts to waters of the U.S. also entails minimizing impacts to water quality, especially within the jurisdictional ephemeral stream channels and down gradient areas. A Storm Water Pollution Prevention Plan (SWPPP) in accordance with Section 402 of the federal CWA and state/local requirements would be implemented during construction.

Worker Training and Monitoring

Worker environmental awareness training for all managers and employees (whether they are employed by PVS or a third party) would be required before any manager or employee is allowed to work within the Proposed Project Site. This training would include instructions regarding avoidance and protection of waters of the U.S. during the construction process. Managers and employees would be informed they will be removed from the site and/or be prohibited from returning to the site if they fail to comply with all applicable environmental laws, regulations, permits, plans, and programs for the Proposed Project. In addition, PVS would hire staff or contract a third party to monitor construction activities to protect the jurisdictional ephemeral streams and sensitive habitat within the Proposed Project Site.

Maintaining Stormwater Retention Capacity

The Proposed Project would ensure that the flood and storm water retention capacity within the Proposed Project Site is maintained and protected. Impacts to flood retention values of the jurisdictional ephemeral drainages would be minimized by constructing at-grade road crossing and backfilling utility line crossings to original grade.

5.2 Compliance with 404(b)(1)

In addition to demonstrating that the Proposed Project represents the LEDPA, the Applicant must show that the proposed discharge is not prohibited under the standards set forth in 40 CFR 230.10(b), (c), and (d). This following Section demonstrates compliance with these standards.

5.2.1 State Water Quality Standards ((§ 230.10(b)(1-2))

Construction activities associated with Proposed Project development and operations could produce increased levels of sedimentation in runoff to surface waters. In addition, materials associated with equipment and vehicles used during construction, operation, and decommissioning phases of the Proposed Project, such as fuels, oils, antifreeze, and coolants, could adversely affect water quality if released to surface waters. The required National Pollutant Discharge Elimination System General Permit for storm water discharges associated with construction activity would mandate:

- Development and implementation of a Construction SWPPP which would include erosion and sediment controls;
- Reduction and minimization of the potential for release of hazardous materials in water courses; and
- Implementation of Best Management Practices to meet state water quality standards by the Applicant.

The Applicant is required to submit a construction SWPPP to the County and Regional Water Quality Control Board prior to the start of construction.

5.2.2 Endangered Species Act (§ 230.10(b)(3))

Seven wildlife species regulated by the ESA and Bald and Golden Eagle Protection Act were detected within the Proposed Project Site, adjacent Conservation Lands, or have potential to utilize the Proposed Project Site for foraging habitat; therefore, the Proposed Project may adversely affect these species. The Biological Assessment prepared for purposes of an ESA Section 7 consultation with the USFWS provides detailed discussions of conservation measures aimed to avoid, minimize, and reduce potential impacts to federally protected species. Federally designated Critical Habitat for threatened and endangered species does not occur within or adjacent to the Proposed Project Site. Additional information regarding these protected species can be found in Section 3.5.

PVS has proposed numerous conservation measures that would avoid, minimize, and mitigate for potential impacts to federally listed species, including preserving over 24,000 acres of conservation lands. PVS believes the Proposed Project would not jeopardize the continued existence of species listed as threatened or endangered under the ESA or result in the likelihood of destruction or adverse modification of habitat. Moreover, some of conservation lands are within the core recovery area for sensitive species and the preservation of over 24,000 acres of these lands will benefit the overall ecosystem of the Panoche Valley.

5.2.3 Marine Sanctuary (§ 230.10(b)(4))

The Proposed Project is not located within any marine sanctuaries designated under Title III of the Marine Protection, Research, and Sanctuaries Act of 1972.

5.2.4 Degradation to Waters of the U.S. (§ 230.10(c)(1-4))

The Proposed Project would not cause or contribute to significant degradation of the waters of the U.S. either during construction or operation. This section summarizes the water quality protection measures that would be implemented during Proposed Project construction and operation.

During Proposed Project Construction

Construction would be accomplished in accordance with a Construction SWPPP and any required erosion control measures. The Proposed Project would also comply with State 401 Water Quality Certification and Waste Discharge Requirement. No work would occur in jurisdictional ephemeral stream channels with the

exception of the construction of the four federal crossings/impact areas. Therefore; no significant impacts to water quality are anticipated as a result of the Proposed Project construction.

During Proposed Project Operation

Proposed Project operations would be conducted in accordance with erosion control measures. Storm water would primarily be managed during operation through the use of planted and maintained grassland habitat and revegetation of exposed soils on the Proposed Project Site and construction of two storm water basins. The basins were designed using HEC-HMS (Version 4.0) hydrologic modeling software developed by USACE, to model the overall watershed and appropriate size of the basin. Storm frequencies used to determine basin design include the 2-, 10-, 25- and 100-yr 24-hour storm events. One proposed storm water basin will be located on the west/southwest portion of the Proposed Project Site to meet peak rate attenuations. Another storm water basin is proposed for the Las Aguilas switching station, which will be separately owned and operated by PG&E. Neither storm water basins would impact jurisdictional waters.

In accordance with San Benito County Flood Damage Prevention Ordinance Section 23.31.042(E),

- storm water basins will have outlet facilities providing terminal drainage capable of emptying a full basin within 24 hours or be designed to retain water for no more than 24 hours;
- minimum one foot of freeboard is provided from the top of the pond to the 100-year ponding elevation;
- maximum 5:1 side slopes; and
- storm water basin will exceed minimum required detention volume for the 100-year post-development runoff minus the 10-year pre-development runoff from impervious area.

5.2.5 Minimize Standard (§ 230.10(d))

The Proposed Project would incorporate all appropriate and practicable steps to minimize potential adverse impacts of discharge on the aquatic ecosystem. PVS has minimized impacts and developed a mitigation plan to offset unavoidable impacts to aquatic resources; would develop a SWPPP, and would implement Best Management Practices to meet state water quality standards.

6.0 Alternatives Analysis for On-site and Off-Site Alternatives

6.1 Evaluation Criteria

This section provides an overview of the criteria and descriptions of the terminology used to assess each alternative, which are presented in further detail below. Alternatives must be evaluated against a series of criteria to assess the "Least Environmentally Damaging," and "Practicable" option, while also evaluating whether the alternative meets the OPP.

The evaluation criteria listed below was used to compare alternatives to the Proposed Project:

- Loss of waters of the United States
- Availability (applies to off-site alternatives only)
- OPP
- Practicability (costs, logistics and technology)
- Other significant adverse environmental consequences

If an alternative did not meet one of the evaluation criterions provided above, it was eliminated from further consideration.

6.1.1 Loss of Waters of the United States

Method – Each alternative was evaluated to determine the amount of expected disturbance (cut and fill) to jurisdictional waters of the U.S. and associated aquatic species order to construct a solar facility capable of producing approximately 247 MW of electricity. Impacts were determined by measuring impacts from the various project layouts and the types of crossings used for emergency access to the site. Impacts are presented in "acres of likely impact" to jurisdictional waters of the U.S. for areas in which a detailed engineering study has not been completed. Determination of the presence of jurisdictional waters for locations beyond the current USACE Jurisdictional Determination was conducted by evaluation of each site by reviewing available information sources such as U.S. Geologic Survey 7.5 minute topographic quadrangles, geographic information system (GIS) data, aerial photography, California Department of Water Resources data and/or National Wetland Index maps. The functions and services of the waters located on the off-site alternative sites were also compared to the functions and services of the waters on the Proposed Project Site. Additionally, alternatives were evaluated for potential impact to the 100-year floodplain.

Rule – If the estimated discharge of dredged and/or fill material into waters of the U.S. from an alternative is greater than the planned discharge of dredged and/or fill material by the Proposed Project (0.121 acres), then that alternative is eliminated from further consideration.

6.1.2 Availability (Off-site Alternatives Only)

Method – Each off-site alternative was evaluated to determine availability for sale or long-term lease. Availability for sale or long-term lease was determined by searching listings on commercial real estate sites and attempting to contact landowners. While sites are considered practicable if they are available

for long-term lease, the preferred option is for sites to be available for sale in order to obtain the most control over the site.

Rule – An alternative is eliminated from further evaluation if it is not available for sale or long-term lease.

6.1.3 OPP

Method – The study of alternatives is done "in light of" the OPP. The OPP requires that the Proposed Project:

- Would result in the development of a 247 MW solar facility;
- Be located within the west-central portion of *California's Central Valley* (generally encompassing portions of San Benito, Merced, Madera, Fresno and Kings Counties); and
- Ability to connect to existing, suitable and proximate (less than 2,000 feet) transmission infrastructure in the west-central portion of the Central Valley, generally including portions of San Benito, Kings, Fresno, Merced, and Madera Counties.

Rule – An alternative is eliminated from further consideration if it does not meet any aspect of the OPP.

6.1.4 Practicability (costs, logistics and technology)

Method – The Proposed Project Site, as currently configured, will cover approximately 2,506 acres and will include solar arrays, laydown yards, substation, an O&M building, perimeter roads, and fencing, and storm water basins. This does not include work areas associated with PG&E and AT&T upgrades to support the Proposed Project Site. The Proposed Project would interconnect to the regional electricity grid at the Pacific Gas and Electric Company (PG&E) Moss Landing–Panoche/Coburn-Panoche 230 kV transmission line on the Proposed Project Site and require PG&E to construct less than 2,000-ft of transmission line for interconnection.

The Proposed Project Site design will allow the project to produce sufficient revenue to cover the substantial initial investment. The cost recovery is partially based on the project meeting an in-service date of December 2016, which will allow the project to qualify for the Federal Investment Tax Credit under the Energy Improvement and Extension Act of 2008 (H.R. 1424). If an alternative would not allow for construction to be completed by December 2016, the alternative may not be commercially viable. As stated in the Comments of the Large-Scale Solar Association on the 2013 Renewables Portfolio Standard Procurement Plans Supplements associated with Rulemaking 11-05-005, filed September 11, 2013, power purchased from a project eligible for the ITC would be priced approximately $28 per megawatt hour (MWh) less or $46,258.84 per MWh over the life of the project. The Proposed Project has a projected life of 11,425,934 hours, which would result in approximately $320 million in savings over the life of the Proposed Project.

The current permitting efforts for the Proposed Project occasion the project to achieve an in-service date of December 31, 2016 and qualify for the ITC.

If an alternative would have significantly higher costs than the Proposed Project from grading and prepping of the project area for installation of solar panels, the alternative would also fail the practicability criteria. The off-site alternative must be flat or gently sloping, less than 5% slope, in order to avoid the cost impacts associated with significant grading.

A utility-scale project must also interconnect at a geographical location and a voltage (e.g. 230kV) that will reliably and efficiently accommodate injection of power with minimal upgrades. A 247 MW project would most efficiently, reliably and cost-effectively connect to a 230-kV transmission line. Connection to a higher voltage line (i.e. 500-kV) would require installation of at least three 500-kV transformers. 500-kV transformers would require additional area for construction as they are larger and are approximately 40% more expensive than the 230-kV transformers. Connection to a 500-kV line is also logistically challenging because requesting an outage on a 500-kV transmission line creates capacity and reliability concerns for the state's electrical grid. Therefore, connection and maintenance of a solar project on a 500-kV transmission line is not as practical as connecting to a 230-kV transmission line. Minimal upgrades to support interconnection are considered to be those that would not require capacity upgrades, or new siting, routing, permitting and construction of new transmission lines. Minor reliability upgrades would include upgrades at nearby substations, interconnection facilities (switching station), and telecommunications upgrades (which generally include installation of above ground work on existing structures). Extensive transmission line construction is not considered a minimal upgrade and would significantly drive up cost. The California Energy Commission in its Scenario Analysis for 2007 IEPR, Table 4-3, showed that costs for construction of a 230-kV transmission line were approximately $1.1 million per mile.

In addition, construction of a transmission line greater than 2,000-ft would result in impacts to cost and schedule that would make the alternative impracticable to construct. CPUC's General Order 131-D ("GO 131-D"), Section III. B.1 (f), exempts power lines or substations that have undergone CEQA review as part of a larger project, and Section III.A, exempts the minor relocation up to 2,000 feet in length of existing electric line facilities over 200 kV from the requirement to obtain a Permit to Construct or initiate the Certificate of Public Convenience and Necessity [CPCN]) licensing process. The planning and permitting process for a new transmission line exceeding 2,000-ft in length would take approximately six to eight years to complete according to permitting schedule information available on the CPUC website (see http://www.cpuc.ca.gov/NR/rdonlyres/6F25BFDD-3F71-479C-B02A-4542DF6C9BF5/0/Transmission_Permitting_Slides.pptx). The impacts to schedule would also increase initial investment costs associated with interconnection of the Proposed Project. The RPS mandate also requires consideration of "minimizing the impact and cost of new transmission", "fostering resource diversity" and "preference to renewable energy projects that provide economic benefits to communities afflicted with poverty or high unemployment". Accordingly, the alternative must be within 2,000-ft of an existing under-utilized 230kV transmission line to meet the practicability evaluation criteria.

Each alternative site was evaluated to determine accessibility of the site for purposes of construction, future operation, and emergency vehicle access during normal and FEMA identified 100-year flood conditions to ensure construction and operation safety. By avoiding the FEMA 100-year floodplain, the

project would avoid the additional impacts of earthworks and berms required to redirect water flows and would also reduce insurance costs. The further from existing roadways, the more infrastructure would need to be constructed to provide access to the alternative site. This would increase costs, and could have adverse implications regarding access to emergency services, and available ROW.

The alternative must also conform to federal, state and local requirements. For the on-site alternatives, San Benito County Fire Department requires that the Proposed Project be built and operated with approved access per Fire Department requirements and San Benito County Code requirements. The Fire Department requirements are outlined in the letters from Hollister Fire Department, dated October 17, 2013, July 14, 2014, and August 27, 2015 (**Appendix C**) and San Benito Code of Ordinances, Title 23: Subdivisions, Chapter 23.31 Improvement Standards, Article III Storm Drainage Design Standards, Sub Article 23.31.042 Hydraulic Criteria. An alternative that does not meet these local requirements would be eliminated from further consideration.

Based on currently available solar panel technology, approximately 2,000 acres are necessary to construct an approximately 247 MW solar PV project, including the number of solar panel needed to generate the amount of electricity, along with the associated project roads, substations, inverters, laydown yards, and other project infrastructure. The exact amount of acreage needed for a particular solar project will be variable and will depend on slope and aspect of a site and other site specific constraints, such as site geology, habitat, or jurisdictional waters. For instance, for the Proposed Project Site as currently designed, the spacing between the rows varies across the site depending on the space available. On the east side, the row spacing is tighter to accommodate constraints associated with existing drainages and steeper slopes. To make up for the spacing on the east side, the row spacing on the west side of the project is larger to maximize production. Without increasing the spacing on the west side, the facility would not meet production requirements of 247 MW.

In addition, tracker systems require slightly more land than fixed tilt systems for optimal production. A review of California projects in various stages of development shown in **Error! Reference source not found.** were reviewed and demonstrated that an average of 8 acres of land per MW is typical of solar facilities. Accordingly, for a 247 MW facility, approximately 2,000 acres of land is needed.

TABLE 3. CALIFORNIA SOLAR FACILITY COMPARISON

Project Name	Project Applicant	Location	Size	Status	Acreage	Acres /MW
Sites Found Through California Energy Commission						
Beacon Solar Energy Project	Beacon Solar LLC	Kern County	250 MW	Approved 8/25/2010	2,012	8.05
Blythe Solar Power Project	NextEra Blythe Energy Center LLC	Riverside County	1000 MW	Approved 9/15/2010	7,030	7.03
Ivanpah Solar	Solar Partners/Brightsource	San Bernardino County	370 MW	Approved 9/22/2010	3,400	9.19
Imperial Valley Solar Project	Imperial Valley Solar LLC	Imperial County	709 MW	Approved 9/29/2010	6,500	9.17

Project Name	Project Applicant	Location	Size	Status	Acreage	Acres /MW
Calico Solar Project	Calico Solar LLC/Tessera Solar	San Bernardino County	663.5 MW	Approved 10/28/2010	8,230	12.40
Palen Solar Project	Nalep Solar Project I, LLC	Riverside County	500 MW	Approved 12/15/2010	5,200	10.40
Ridgecrest Solar Power Project	Solar Millenium	Kern County	250 MW	AFC filed 9/1/2009	1,760	7.04
Sites Found Through Web Search						
Desert Sunlight Solar Farm	NextEra Energy Resources	Riverside County	550 MW	Operational 2/2015	3,968	7.21
Topaz Solar Farm	MidAmerican Renewables	San Luis Obispo County	550 MW	Operational 2/13	6,080	11.05
California Valley Solar Ranch	NRG Solar	Carrizo Plain	250 MW	Completed 10/13	1,966	7.86
Antelope Valley Solar Ranch 1	First Solar, Exelon Corporation	Antelope Valley	266 MW	Constructio n start 8/11	2,100	7.89
Mount Signal Solar	TerraForm Power	Imperial County	265.7 MW	Commission date 5/14	1,980	7.45
McCoy Solar Energy Project	NA	Riverside County	750 MW	Proposed project	7,680	10.24
					Average Acres/ MW =	**8.85**

Rule – An alternative is eliminated from further consideration if it would incur a substantially higher cost than the Proposed Project, result in construction of solar arrays within the FEMA 100-year floodplain, is not within 2,000-feet of an existing underutilized 230-kV transmission line with sufficient capacity to accommodate a 247 MW solar project, or is not sufficient size to accommodate construction of a 247-MW project based on current PV panel technology.

6.1.5 Other Significant Adverse Environmental Consequences

Method – Each alternative was evaluated to determine the expected effect of the alternative on Threatened and Endangered species and habitat. Sites were evaluated for the likely presence of habitat for threatened or endangered species and compared to the Proposed Project Site. Evaluation for each site was conducted by analysis of known species locations using the CNDDB or other publically available information. The off-site alternative must also be flat or gently sloping, less than 5% slope, in order to avoid the environmental impacts associated with significant grading. The off-site alternative must be proximate to an existing transmission line to avoid increased impacts to land from construction of a new transmission line, which could result in increases in impacts to resources.

As discussed in section 6.1.5, construction within the FEMA 100-year floodplain, would likely require more infrastructure. Construction of additional infrastructure may result in greater impacts to sensitive species and habitat.

Rule – If the impacts to federally-listed threatened and/or endangered species are greater than the planned impacts to federally protected species by the Proposed Preferred Project, the alternative would not be appropriate to select due to significant adverse environmental consequences. Note that this situation would only apply to those alternatives resulting in less impact to waters of the U.S. than the Proposed Project and that were not eliminated through other criteria (based on criteria from Section 6.1).

6.2 Off-site Alternatives

The purpose of the off-site alternatives information study is to determine whether there is a practicable alternative for the location of the project that would achieve the OPP and have reduced impact on aquatic and other environmental resources when compared to the Proposed Project Site. The Applicant conducted a review of potential alternative sites with acceptable ground slope for solar development (i.e. relatively flat); proximate to an existing 230 kV transmission line; and sufficient land to develop a utility-scale project. Each of the six off-site alternatives has the potential of being suitable for the development of a utility-scale solar energy facility (**Appendix A,** Error! Reference source not found.).

The Applicant reviewed six off-site potential alternative locations along with the Proposed Alternative site:

- Westlands Competitive Renewable Energy Zone (CREZ) Alternative Site (Kings and Fresno Counties);
- Brownfield-Kettleman City Alternative Site (Kings County);
- Moss Landing - Panoche Alternative Site (San Benito County);
- Panoche Ranch Alternative Site (Fresno County);
- Firebaugh Alternative Site (Madera County);
- Panoche Substation Alternative Site (Fresno County); and
- Panoche Valley Alternative Site (Proposed Alternative – San Benito County).

The Westlands CREZ Alternative Site and Brownfield – Kettleman City Site were analyzed in the Proposed Project Site FEIR (County of San Benito 2010). The Firebaugh Site, Panoche Ranch Site, and Panoche Substation Site have characteristics similar to the Panoche Valley (Proposed) Alternative Site. The Panoche Ranch Alternative Site was originally considered and evaluated by the previous Proposed Project Site proponent (Solargen). The Panoche Valley (Proposed) Alternative Site and each of the six additional potential alternative sites were evaluated using the evaluation criteria identified in Section 6.1.

6.2.1 Westlands CREZ Alternative Site

The Westlands CREZ Alternative Site consists of approximately 35,558 acres of Westlands Water District lands located within Kings County and Fresno County, California, east of Huron, north of Kettleman City, and southwest of Lemoore. Maps of the Westlands CREZ Alternative Site are shown on **Figures 6A** and **6B.**

Evaluation

Impacts to Jurisdictional Waters of the U.S. – There is a concentration of hydrological features, primarily in the form of canals, on the northeastern side of this proposed alternative site. Through review of available information sources (e.g. aerial photography and USGS topographic maps), there are over 71 linear miles (374,331 linear feet) of estimated drainages and canals on this alternative property. In addition to the drainages and canals, from review of aerial photography and the USGS topographic maps, there appears to be two wetland areas that are estimated at 20 acres in size located in the center of the property.

In order to keep the project within proximity (i.e. within 2,000 feet) to an existing transmission line and constructed outside of the existing 100-year floodplain (**Figures 6A** and **6B**), disturbance and fill to waters of the U.S. from construction (e.g. road crossings below the OHWM) is likely. For this analysis, the level of impacts to jurisdictional waters and aquatic species is considered moderate to high and the impacts to waters of the U.S. are assumed to be greater than 0.121 acres (the impact amount estimated by the Preferred Alternative) due to the amount of potentially jurisdictionally resources within the proposed alternative site boundaries. However, since the amount of available acreage could yield a design that minimizes impacts to waters, this alternative is not eliminated from further consideration based on this evaluation criterion and the alternative will be evaluated for availability.

Availability for sale or long-term lease – Westside Holdings, a private investment group, has begun planning for development of the Westlands Solar Park on the property and are considering developments of 200 MW or larger. Westside Holdings intends to retain fee title, and thus the Project could only occur at this location through a lease and/or partnership arrangement with Westside Holdings. Because Westside Holding intends to develop large-scale solar projects on the property, it is likely a long-term lease would be available; however, sale of the property is not an option, which is preferred. PVS, on two separate occasions has submitted requests for additional information from Westside Holdings pertaining to the availability of property to construct a solar facility (**Appendix C**). As of December 8, 2015, the Applicant has received no response from Westside Holdings. Therefore, even though the property is assumed available for long-term lease, due to the lack of response from Westside Holdings and the presumed inability to purchase the property, this option does not appear feasible.

OPP – The Westlands CREZ Site Alternative, due to its size (>2,000 acres), proximity to existing transmission infrastructure and power generating potential (>247 MW), has the ability to meet the OPP criterion.

Practicability – CAISO information reports indicated that substantial transmission upgrades to the existing transmission lines near the Westlands CREZ would not be required in order to deliver up to 800 MW to the grid (San Benito County 2010). Since that time, large energy-generating projects proposed that are in the CAISO interconnection queue waiting to interconnect to these transmission lines have a total power output of over 1,500 MW (Shin 2014). Because of this, it is unlikely that a 247 MW solar facility would be able to interconnect to the existing electrical grid.

CAISO has also approved construction of a new high-voltage Gates-Gregg transmission line, which will run through the Westlands CREZ site and accommodate future solar development; this line is projected to begin operation as early as May 2020 (CAISO 2014) or as late as December 2022 (PG&E 2014).

This timeline would not support California's RPS law, which requires electricity providers to procure 33 percent of their electricity from renewable energy sources by 2020 or allow the Applicant to meet its obligations under the PPA with SCE and deliver 247 MW of renewable power by the year 2019.

An additional analysis of available transmission was conducted by Burns & McDonnell. The memorandum related to the transmission capacity and availability is included in **Appendix D**. The review concluded that transmission in the area is constrained and construction of a 247 MW project at this location would require upgrades to transmission infrastructure, including the potential for additional transmission lines, which are planned to be in operation after 2020.

Westside Holdings, a private investment group, appears to have begun planning for development of the Westlands Solar Park on the site and is considering developments of 200 MW or larger. PVS, on two separate occasions, has submitted requests for additional information from Westside Holdings pertaining to the status of the Westland CREZ project including scheduling and permitting timelines (**Appendix C**). Because these requests have gone unanswered PVS was only able to determine the criteria that Westside Holdings intends to have met to initiate the permitting process for project development. No publically available information was found to determine if permitting had been initiated for the site. This review indicates that Westside Holdings does not appear to have the required permitting to complete the CEQA process within the near term. The planning, permitting and construction process for a project of this scale is anticipated take approximately 4-6 years to complete once initiated, so it is unlikely that a project could be operational by 2020 based on the lack of permitting and planning at this time. The lack of permitting under CEQA as well as resource agency permits would also prevent the project from achieving an in-service date of December 31, 2019 and meet the project PPA requirements.

Summary of Determination

Due to the property not being available for long-term lease or purchase and the practicability concerns of interconnecting and delivering 247 MW of renewable energy to SCE by 2019 based on permitting timing and requirements, this alternative will not be further evaluated.

6.2.2 Brownfield – Kettleman City Alternative Site

The Brownfield – Kettleman City Alternative Site (B-K Alternative Site) consists of approximately 1,600 acres of land located approximately five miles southwest of the Wetlands CREZ site, approximately 3.5 miles southwest of Kettleman City, 6.5 miles southeast of the City of Avenal, and 2.5 miles west of Interstate 5. Maps of the B-K site are shown in **Appendix A** as **Figure 7a** and **7b**.

The B-K Alternative Site is located on degraded land that is contaminated by hazardous waste (County of San Benito 2010). The B-K Alternative Site is utilized as a commercial hazardous waste treatment, storage, and disposal facility operated by Chemical Waste Management, Inc. and owned by Waste Management,

Inc. This Alternative Site contains approximately 1,600 contiguous acres of land with approximately 499-acres of which have been approved for hazardous waste activity. The Site accepts solid, semi-solid, and liquid hazardous and extremely hazardous wastes, as well as municipal/solid wastes into the converted landfill. The Site also contains surface impoundments and waste storage and treatment units for hazardous waste (CDTSC 2013). Approximately half of the Site has been developed and disturbed. It is located in the Kettleman Hills and has slopes ranging from one to 50 percent.

Evaluation

Impacts to Jurisdictional Waters of the U.S. – The USGS National Hydrography Dataset (2013) noted ten hydrological features on the Site in the form of ephemeral drainages or arroyos totaling approximately 6.3 linear miles (approximately 33,112 linear feet) (**Appendix A,** Error! Reference source not found.). T here are no known wetlands within the property boundaries. If the Site were developed in areas that are favorable to solar power generation, there would likely be no disturbance to the ephemeral drainages and arroyos from solar array placement or associated infrastructure, however limited land would be utilized (e.g. roads, substations). Therefore, with the above stated information, it is anticipated that impacts to jurisdictional waters and aquatic species is unlikely. It is therefore assumed that there would be less jurisdictional impacts to Water of the U.S. compared to the Proposed Project Site. This alternative is not eliminated from further consideration based on this evaluation criterion and the alternative will be evaluated for availability.

Availability for sale or long-term lease – The land is operated by Chemical Waste Management, Inc., owned by Waste Management, Inc., and is currently being used as a commercial hazardous waste treatment, storage, and disposal facility. The property is not currently for sale, as determined by general internet searches (Loopnet.com 2015, LandandFarm.com 2015, LandWatch.com 2015). The Site is actively used as a disposal site, and the hazardous waste facility (EPA Identification Number CAT000646117) applied for a permit modification in October 2013 (CDTSC 2013). This permit modification was approved by the California Department of Toxic Substances Control on June 23, 2014 which allows the site to expand its landfilling activities. With the granting of the permit modification, this effectively eliminates any potential to buy or lease the property for the construction of a PV solar facility. As a result, the availability for sale or long-term lease criterion is not satisfied.

Summary of Determination

Due to the alternative not being available for sale or long-term lease, this alternative site will not be further evaluated.

6.2.3 Moss Landing – Panoche Alternative Site

The Moss Landing - Panoche Alternative Site consists of an approximately 2,260-acre tract located southeast of Hollister, California, immediately south of the intersection of Panoche Road and State Highway 25 in the Paicines community western San Benito County. The majority of the Moss Landing - Panoche Alternative Site is actively farmed with row crops and vineyards. Additional areas within the Site boundaries appear to be utilized for livestock grazing, commercial and residential development and

undeveloped land adjacent to the San Benito River. The Moss Landing - Panoche Alternative Site is shown in **Appendix A**, Error! Reference source not found.

Evaluation

Impacts to Jurisdictional Waters of the US – There are numerous hydrological features on this Alternative Site in the form of rivers, wetlands, creeks, drainages and canals, including the San Benito River, Tres Pinos Creek, and the spillway for the Paicines Reservoir, which are highly likely to be regulated as jurisdictional waters of the U.S. (**Appendix A, 8A** and **8B**). There are approximately 320 acres of potential jurisdictional wetlands noted by USFWS National Wetland Inventory (2014) on this Site Alternative which are mainly associated with the San Benito River and the spillway for the Paicines Reservoir (**Appendix A, 8A** and **8B**). Additional data from the National Hydrography Dataset (USGS 2013) indicated that the Site holds approximately 52 acres of water bodies and 35,000 feet (6.6 miles) of drainages/canals. If the Site were developed, there would likely be significant disturbance and fill to waters of the U.S. (including wetlands) from solar array placement, supporting structures, as well as road crossings that would be greater than the proposed impact area of the Proposed Alternative. The impacts to waters of the U.S. are assumed to be greater than 0.121 acres (the impact amount estimated by the Preferred Alternative) due to the amount of potentially jurisdictionally resources within the proposed alternative site boundaries. The functions and uses of the waters that would potentially be impacted by this alterative include potential jurisdictional wetlands, ephemeral drainages and perennial streams. These waters are higher quality and present more significant functions and uses than the ephemeral drainages located on the Proposed Project Site.

Summary of Determination

Due to the estimated discharge of dredged and/or fill material into waters of the U.S. by this alternative being greater than the planned discharge of dredged and/or fill material by the Proposed Project, this alternative will not be further evaluated.

6.2.4 Firebaugh Alternative Site

The Firebaugh Alternative Site consists of an approximate 9,264-acre tract located northwest of Fresno, California, between Firebaugh Boulevard and Ripperdan Avenue in Madera County. The Firebaugh Alternative Site is located within a region that is actively farmed. The vast majority of the site is not being farmed, but is open pastureland for livestock grazing on relatively flat land. Approximately one-third of the site is categorized as prime farmland by NRCS (NRCS 2010). The Firebaugh Site Alternative is shown in **Appendix A, 9a** and **9b.**

Evaluation

Impacts to Jurisdictional Waters of the US – There are numerous hydrological features on the site in the form of creeks, drainages and canals, including the Gravelly Ford Canal, which could potentially be defined as waters of the United States (**Appendix A, 9A** and **9B**). There are numerous potential emergent wetlands noted by data obtained from California Department of Water Resources (2013) on this site alternative for a total of approximately 1,085 acres of potential jurisdictional wetlands (**Appendix A, 9A** and **9B**). If the

site were developed, there would likely be disturbance and fill to waters of the U.S., including wetlands, from solar array placement, supporting structures, as well as road crossings. Additionally, there are approximately 14 linear miles (74,310 linear feet) of canals and drainages which contain waters of the U.S. that could be disturbed and/or filled as part of project activities on this alternative site. The impacts to waters of the U.S. are assumed to be greater than 0.121 acres (the impact amount estimated by the Preferred Alternative) due to the amount of potentially jurisdictionally resources within the proposed alternative site boundaries. The functions and uses of the resources that would potentially be impacted include potential jurisdictional wetlands and canals used for agricultural purposes. These waters present more significant functions and uses than the ephemeral drainages located on the Proposed Project Site.

Summary of Determination

Due to the estimated discharge of dredged and/or fill material into waters of the U.S. by this alternative being greater than the planned discharge of dredged and/or fill material by the Proposed Project, as well as the higher significant function of the waters on the Firebaugh site; this alternative will not be further evaluated.

6.2.5 Panoche Ranch Alternative Site

The Panoche Ranch Alternative Site consists of approximately 820 acres of cattle grazed pasture located adjacent to the east of the Little Panoche Reservoir Wilderness Area and northeast of Mercy Hot Springs in an area known as Little Panoche Valley in western Fresno County. A map of the Panoche Ranch Alternative Site is shown in **Appendix A, 10a** and **10b**.

The Panoche Ranch Alternative Site is located on undeveloped rangeland and is a plateau with an elevation range of approximately 700 feet amsl to 1,000 feet amsl and includes several ravines.

Evaluation

Impacts to Jurisdictional Waters of the US – There are two hydrological features on the site (**Appendix A, 10a** and **10b**) in the form of ephemeral drainages (potentially waters of the United States) for a total of approximately 1.5 linear miles (8,014 linear feet) (USGS 2013). If the site were planned to be developed, the project could potentially be designed to exclude any potential impacts to the ephemeral drainages from solar array placement, as well as road crossings when evaluated in conjunction with developable land (less than 6 percent slope) for solar array placement on the site. Therefore the potential impacts to jurisdictional waters of the U.S. are unlikely and would be considered lesser than the impacts of the Preferred Alternative (0.121 acres).

Availability for sale or long-term lease – The Panoche Ranch property is privately owned and is currently not listed for sale, per general internet searches of Loopnet.com 2015, LandandFarm.com 2015, and LandWatch.com 2015. In addition, the landowners (Maurice Etcheverry, Carol Etcheverry and Bernard Etcheverry) were contacted *(Lindemann Properties, Inc., personal communication, June 2011)* to discuss the potential of sale of the land and were not interested in sale or lease of the property for solar development; therefore, the availability for sale or long-term lease criterion would not be satisfied.

Summary of Determination

Due to the alternative not being available for sale or long-term lease, this alternative site will not be further evaluated.

6.2.6 Panoche Substation Alternative Site

The Panoche Substation Alternative Site consists of approximately 4,085 acres of fields utilized for row crops with a small percentage of the land containing fruit-bearing trees (e.g. olives and nuts) and a residential property with an elevation range of approximately 350 feet amsl to 550 feet amsl. This alternative is located adjacent to the San Luis Canal on its northeastern boundary and is adjacent to Interstate 5 at its southwest corner in western Fresno County (**Appendix A,** Error! Reference source not f ound.). A map of the Panoche Substation Alternative Site is shown in **Appendix A** as **Figures 11A** and **11B**.

Evaluation

Impacts to Jurisdictional Waters of the US – There are several small open water ponds/holding basins mostly located along the western boundary of the site per the NWI database. If the site were planned to be developed, the project could potentially be designed to exclude any impacts to the ponds/basins from solar array placement, as well as road crossings. Therefore, the potential impacts to Jurisdictional Waters of the U.S. and associated aquatic species are unlikely and would be less than those of the Preferred Alternative (0.121 acres).

Analysis of a site's availability for sale or long-term lease – The Panoche Substation property is privately owned and is currently not listed for sale, per general internet searches of Loopnet.com 2015, LandandFarm.com 2015, and LandWatch.com 2015. The majority landowners were contacted by a real estate professional at the request of PVS in January of 2014 to discuss the potential of sale of the land and were not interested in sale or lease of the property for solar development *(Lindemann Properties, Inc., personal communication, January 2014).* The property is actively farmed with various row crops including cotton, melons, tomatoes and other vegetable crops. The Panoche Substation Alternative Site does not meet this criterion due to the inability to be purchased or leased for the purpose of developing a PV solar facility. Therefore, the availability for sale or long-term lease criterion would not be satisfied.

Summary of Determination

Due to the alternative not being available for sale or long-term lease, this alternative site will not be further evaluated.

6.2.7 Conclusion

None of the off-site alternatives are viable and are eliminated from further consideration. Table 4: Summary of Off-Site Alternatives in Comparison to the Preferred Alternative provides a summary of the evaluation sequence for each of the off-site alternatives.

TABLE 4: SUMMARY OF OFF-SITE ALTERNATIVES IN COMPARISON TO THE PREFERRED ALTERNATIVE

EVALUATION CRITERIA	PANOCHE VALLEY SITE (PROPOSED PROJECT)	WESTLANDS CREZ SITE	BROWNFIELD – KETTLEMAN CITY SITE	FIREBAUGH SITE	PANOCHE RANCH SITE	MOSS LANDING-PANOCHE SITE	PANOCHE SUBSTATION SITE
Impacts to Jurisdictional Waters of the U.S.[1]	Low	Low- Similar to Preferred Alternative	None	**Moderate – Greater than Preferred Alternative**	Low- Less than Preferred Alternative	**High - Greater than Preferred Alternative**	Moderate - Likely greater than Preferred Alternative
Availability for Sale or Long-Term Lease	Yes	**No**	**No**	N/A	**No**	N/A	**No**
Meets OPP	Yes	Yes	N/A	N/A	N/A	N/A	N/A
Practicability (cost/ logistics/ technology)	Yes	**No**	N/A	N/A	N/A	N/A	N/A
Other environmental consequences[2]	High	Low to Moderate	N/A	N/A	N/A	N/A	N/A

1. **None**: No jurisdictional features impacted. **Low**: minimal distances of jurisdictional features impacted (generally less than one acre). **Moderate**: jurisdictional features on-site may be impacted more than minimal but less than significant (greater than one acre). **High**: jurisdictional features on-site would likely be impacted significantly
2. **Low**: Limited to no suitable habitat for special status species present. Impacts to special status species would be minimal. **Moderate**: suitable habitat and species occurrences present on-site, but surrounding habitat is degraded. **High**: suitable habitat and species occurrences present on-site. Surrounding habitat also presents suitable habitat from which species may emigrate or immigrate.
3. N/A: Evaluation criteria not evaluated due to the site being eliminated based on prior criteria

6.3 On-site Alternatives

The Applicant has identified four on-site alternative configurations for the purposes of this 404(b)(1) alternatives information study. On-site Alternative 1 is similar to the alternative that was evaluated as part of the San Benito County project review and the FEIR process. The on-site alternatives, which are described and analyzed in more detail below, include:

- On-site Alternative 1 – Project output of 420 MW consisting of approximately 4,885 acres.
- On-site Alternative 2 – Alternative Crossings
- On-site Alternative 3 – Alternative Layout
- On-site Alternative 4 – No Action Alternative (i.e., a "no fill" alternative)
- Preferred Alternative – Proposed Project

6.3.1 On-Site Alternative 1 (420 MW, 4,885 acres)

Alternative 1 would consist of the construction and operation of a 420 MW PV solar power plant on the Proposed Project Site and portions of the Valley Floor Conservation Lands (**Appendix A, Figure 13**). This alternative is similar to the 420 MW alternative that was analyzed in the FEIR, but with a slightly revised layout. Alternative 1 would be constructed in multiple phases of varying size and MW output. The project would be located on approximately 4,885 acres and would generally include development of the following components:

- Installation of approximately three to four million PV panels
- PV Module steel support structures
- Electrical inverters and transformers
- An electrical substation with switching station
- Buried electrical collection conduit
- An O&M building
- A septic system and leach field
- On-site access roads and perimeter roads
- Security fencing
- Transmission support towers and line(s) to interconnect with a PG&E transmission line that passes through the project site
- At least four proposed crossings and/or other disturbance to Jurisdictional Waters of the U.S.

Evaluation

Impacts to Jurisdictional Waters of the US – On-site Alternative 1 would require eight access road crossings of ephemeral stream channels, at least four of which are crossings of known jurisdictional streams (**Appendix A, Figure 13**: Proposed Project 420 MW). The total amount of stream channel fill for these road crossings would be at least 0.121 acres. Disturbance and fill were estimated based on data from the Stream Crossing Alternative Study and Hydraulic Report (WHPacific 2014) and road designs by Amec Foster Wheeler.

OPP – On-site Alternative 1 consists of a 420 MW solar facility, satisfying the OPP with a production capability greater than 247 MW.

Practicability –

Cost Analysis – On-site Alternative 1 would be slightly larger than the Project, with commensurately greater construction and infrastructure costs. In addition, required relocation of protected species such as the GKR would have a high cost. Although this alternative would be larger than the Project, the resultant additional costs may be offset by greater revenue generation.

Fire Department Approval of Road Design – In order for the Hollister Fire Department to access interior project roads for emergencies, including the ability to access all portions of the project site through the use of perimeter roads, On-site Alternative 1 would include construction of four road crossings of jurisdictional ephemeral streams.

Economic Feasibility of Bridge Design – The type of bridge design must be an economically feasible alternative to the Project. The type of bridge crossing structures and layout would be similar to those described in other alternatives.

Other Significant Adverse Environmental Consequences – On-site Alternative 1 would result in potential impacts to the following threatened and endangered species: SJKF, GKR, BNLL, and CTS. The footprint would include 4,885 acres of potentially suitable habitat for the protected species, including portions of the Valley Floor Conservation lands which have been identified with the highest concentration of protected species. On-site Alternative 1 has a larger footprint than the proposed project with greater potential impacts to threatened and endangered species.

Summary of Determination

On-site Alternative 1 was eliminated from consideration because it would have a greater potential impact to threatened and endangered species.

6.3.2 On-site Alternative 2 (Alternative Crossings)

For purposes of this alternatives analysis, the Applicant has identified and evaluated four different versions of the Proposed Project Footprint with different crossing/bridge types (low water crossing (LWC), free span bridge, multi-span bridge, and single span bridge) on the western jurisdictional crossing of Las Aguilas Creek. Alternative crossings and stormwater/erosion control have also been detailed for the eastern side of the Project. However, impacts to the eastern side of the Proposed Project Site are the result of grading for arrays, installation of electrical cable, so modifying the crossing for the perimeter road with an alternative bridge design would not be practicable to reduce impacts to waters on the east side of the Project. Crossing alternatives for Crossing/Impact Areas 3, 4, and 6 were not further evaluated in this alternative but are further discussed in Alternative 3 (Alternative Layouts).

The western crossing of Las Aguilas Creek was evaluated for different stream crossing types and their respective impacts to waters of the U.S. The location of the crossing is illustrated on **Figure 12** with plan designs for each bridge in **Appendix E**. Crossing alternatives were also evaluated with respect to their

fulfillment of the OPP and practicability. The 247 MW Proposed Project Site approved by San Benito County requires and cannot be built and operated without approved access to the Proposed Project Site per Fire Department requirements and San Benito County Code requirements. The fire department requirements are outlined in the letters from Hollister Fire Department, dated October 17, 2013, July 14, 2014, and August 28, 2015 (**Appendix C**) and San Benito Code of Ordinances, Title 23: Subdivisions, Chapter 23.31 Improvement Standards, Article III Storm Drainage Design Standards, Sub Article 23.31.042 Hydraulic Criteria.

Las Aguilas Creek Crossing Alternatives

Low Water Crossing

The low water crossing (LWC) proposed for Las Aguilas Creek includes at-grade structures that would allow for a hardened crossing during the dry season and during low water rain events. The LWC is designed to be overtopped during high flow events. The LWC would be installed at grade across the entire width of the channel, up to and beyond the OHWM. This would require excavation of bank material to reduce slopes and excavation below the existing ground, including the ephemeral stream channel, to accommodate a concrete block mattress or aggregate and to achieve an all-weather road. Permanent fill within the OHWM would occur from installation of the concrete block mattresses or aggregate across the channel, with additional grading of approximately eight feet on both sides of the LWC for the width of the channel.

The LWC would only be useable during dry or low water event conditions and would only be used by emergency personnel. The LWC would have no backwater rise from 100-year storm events and would create no change in the existing flow conditions (WHPacific 2014).

Free Span Bridge Crossing

The free span bridge alternative would utilize a free span bridge crossing of Las Aguilas Creek. The free span bridge would have abutments placed approximately 100 feet from the top of bank on either side of the ephemeral stream channel. This bridge structure would span the channel/OHWM and the overbank area. The free-span bridge would require approach fill at both ends to allow for a minimum of three feet of clearance below the bridge superstructure. The free span bridge is a tall structure with support structures that have an estimated height of 25 feet.

Multi-span Bridge Crossing

The multi-span bridge alternative would utilize a multi-span bridge crossing Las Aguilas Creek. The multi-span bridge is a structure with abutments near the top of the stream bank and support footings in the ephemeral stream channel. The multi-span bridge would result in permanent upland habitat disturbance based on the use of permanent upland fill needed at each end of the span to accommodate the higher deck elevation. There would be approximately 1,140 square feet (0.025 acre) of permanent upland

disturbance from placing fill for the multi-span bridge (excluding the access road). The elevated road and approach will result in a wider footprint.

Single Span Bridge Crossing

The single span bridge alternative (proposed crossing alternative) is similar to the multi-span alternative, with the exception that the middle span is wide enough to reach from bank to bank across the western jurisdictional on-site creek (Las Aguilas Creek) without an additional footing in the center of the creek (**Appendix A, Figure 12**: Proposed Project). The single span bridge to be placed at Crossing #1 would have footings that are placed on each side of the bank, outside of the OHWM. The distance between the bridge footings has been designed as the greatest possible distance to avoid the placement of footings inside the OHWM. The crossing deck will be brought in approximately three to four sections, which are the length of the entire crossing. Each section will be lifted with a crane and placed on the footings. The crane will sit near the bank of the crossing, but will not enter the jurisdictional area. Once the sections are laid adjacent to each other on the footings, a final concrete bridge deck will be poured across the preplaced deck. A guardrail would be placed on the sides of the bridge.

Analysis of Crossing Design's Impacts to Jurisdictional Waters of the U.S.

Low Water Crossing

Construction and installation of the LWC would create temporary disturbance to the streambed and stream bank habitat during construction because of the frequent crossings required for installation of Proposed Project Site components. Permanent disturbance would result in approximately 0.044 acres of cut and fill within the OHWM of the Las Aguilas crossing. Channel instability resulting from placement of the LWC structure within the ephemeral jurisdictional stream is expected to be minimal.

The LWC would require some cut and fill outside of the OHWM, but within the top of the bank. Approximately 0.07 acres of cut and fill would be necessary for the Las Aguilas crossing. Upland habitat would be disturbed from fill. The LWC will have limited temporary disturbance to upland habitats during construction. All construction equipment would operate from the proposed access road. No fill of waters of the U.S. would be required for electrical cables in the crossings.

Free Span Bridge Crossing

The free span bridge would not require any fill of the ephemeral jurisdictional stream channel of Las Aguilas Creek. In addition, no fill of waters of the U.S. would be required for electrical cables in the Free Span Alternative because the 247 MW project would utilize cables designed into the bridge structure. There would be moderate temporary disturbance of stream channel and upland habitat from installation of the bridge and from staging areas needed to assemble the bridge parts and lift them into place.

The free span bridge would result in moderate permanent upland habitat disturbance during construction and for the life of the Proposed Project Site, based on the use of permanent dryland fill needed at each end of the span to accommodate the higher deck elevation. There would be approximately 4,550 square

feet (0.1 acre) of permanent upland disturbance from placing fill for the bridge across Las Aguilas Creek (excluding the access road). The elevated road and approach will result in a wider footprint that could impact additional covered species habitat adjacent to the drainages.

Multi-span Bridge Crossing

The multi-span bridge would create disturbance to streambed and stream bank habitat during construction caused by excavation and concrete foundation installation and equipment. Minimal excavation would be required for abutments and disturbance in the creek channel caused during footing installation. The abutments and footings may affect channel flow dynamics during high hydraulic events due to potential flow restriction and reduced flow velocity, although the multi-span bridge was designed to provide maximum water conveyance through the site. Rip-rap or other similar bank armament will be needed along the footing installations to prevent erosion or scouring along and behind the footings to ensure the bridge is available for use by emergency personnel at all times including during and immediately after high flow events.

Implementation of the multi-span bridge would result in permanent disturbance of approximately 0.002 acres of cut and fill within the OHWM of the Las Aguilas crossing. Construction of the multi-span bridge would create temporary disturbance to adjacent upland. All construction equipment would operate from the proposed access road footprint except during the installation of the center footing. The multi-span bridge is designed to have no backwater rise from a 100-year storm event at Las Aguilas Creek

Single Span Bridge Crossing

The single span bridge on the western side of the Proposed Project Site Footprint would require a small amount of fill of the ephemeral stream channel. This fill is associated with the placement of rock armoring (riprap) to protect the banks at the Las Aguilas crossing. This armoring would occur at and immediately upstream of the abutments/footings for safety and stability of the bridge during and after high stream flow events, and to protect the long term life of the structure, and to ensure the bridge is available for use during and immediately following high stream flow events.

The abutments and footings may affect channel flow dynamics during high hydraulic events due to potential flow restriction and reduced flow velocity, although the single-span bridge was designed to provide maximum water conveyance through the site. Rip-rap or other bank armament will be needed along the footing installations to prevent erosion or scouring along and behind the footings to ensure the bridge is stable and able to withstand high flow events without damage, and available for use by emergency personnel at all times including during and immediately after high flow events.

Permanent disturbance would result in approximately 0.001 acres of cut and fill within the OHWM of the Las Aguilas. No permanent fill of waters of the U.S. would be required for electrical cables in the construction of the single span bridge in this Alternative because the Project would utilize cables within the bridge deck.

Only the single span and free span alternatives will be evaluated from this point on due to the LWC and multi-span bridge alternatives having discharges into waters of the U.S. greater than that of the proposed bridge alternative.

Analysis of a Crossing Design's Ability to Meet the OPP

A detailed evaluation of the two remaining crossing alternatives (free span and single span) is necessary because all two of these alternatives have the ability to support an approximately 247 MW solar PV project and to efficiently interconnect to a 230 kV transmission line.

Analysis of a Crossing Design's Ability to Meet Practicable Alternative Standard

Free Span Bridge Crossing

1. *Cost Analysis* – The estimated combined cost for installation of free span bridge across Las Aguilas Creek is approximately $1,939,909. The cost of the free span bridge is an order of magnitude higher than the next closest bridge alternative. The Applicant's cost relative to the reduction in the small amounts of impacts to jurisdictional waters of the U.S. from the other alternatives is not warranted. The large amount of structural steel needed for the trusses of free span bridge will also require additional maintenance not required by the other alternatives.

2. *Fire Department Approval of Road Design* – The free span bridge would allow for crossing of ephemeral stream channels during moderate and high flow events, allowing emergency response personnel and vehicles, to access the facility when such high flow conditions exist.

3. *Economic Feasibility of Bridge Design* – The cost of free span bridge would be prohibitively expensive when compared to the impacts to the environmental impacts and results in an unfeasible alternative. The estimated cost for installation of the free span bridge at the required creek crossing is approximately $1,939,909, ten-times that of any other bridge alternative.

The above evaluation of the free span bridge indicates that the alternative is not practicable based on the information that this bridge alternative has costs exceeding ten-times the next alternative design. Therefore, this alternative does not need to be further analyzed.

Single Span Bridge Crossings

1. *Cost Analysis* – The estimated cost for the single span bridge creek crossing is approximately $154,811. This stream crossing cost is comparable to those of the ford, culvert, and multi-span alternatives, but an order of magnitude lower than the free span alternative. The logistics and cost of operation and maintenance of this alternative would not be a limiting factor when compared to other alternatives.

2. *Fire Department Approval of Road Design* – The single span bridge on the western side would allow for crossing of ephemeral stream channels during moderate and high flow events, allowing

emergency response personnel and vehicles, to access the facility when such high flow conditions exist. This alternative will meet the requirements of the Hollister Fire Department and the San Benito County Code.

3. *Economic Feasibility of Bridge Design* – The estimated cost for the single span bridge creek crossing is approximately $154,811, an economically feasible cost for a 247 MW solar PV project on the western side of the Proposed Project Site.

Summary of Determination

In the information above, the LWC and multi-span bridge designs were shown to have discharges into waters of the U.S. greater than that of the Preferred Bridge Alternative. Therefore, they were not evaluated further for practicality.

Additionally, the above evaluations of the free span bridge indicated that the free span bridge alternative is not practicable based on the information that this bridge alternative has costs exceeding ten-times the next alternative design.

Therefore, with the above bridge alternatives over Las Aguilas Creek, the single span bridge alternative (the Preferred Bridge Alternative) has been shown above as the best overall least environmentally damaging and practicable alternative bridge design.

6.3.3 On-site Alternative 3 (Alternative Layout)

An alternative solar array layout of the Proposed Project would not reduce impacts associated with the crossing at Las Aguilas Creek on the west side of the site. Therefore, this alternative focuses on alternative layouts on the east side of the site that would reduce impacts at Crossing/Impact Area 3, 4, and 6. On-site Alternative 3 consists of two separate scenarios that involve split arrays and relocation of arrays with no downstream grading.

6.3.3.1 Small Blocks Array Scenario 1

Similar to Alternative 2, this alternative for Crossing/Impact Area 3, 4, and 6 would have the planned solar arrays within and immediately adjacent to the jurisdictional drainages along the eastern side of the project site split into smaller blocks and relocated throughout the site. In addition, this scenario includes the installation of single radius arch bottomless culvert and a LWC installed downstream of the federally jurisdictional boundary. The crossings would be constructed completely outside the OHWM (**Appendix A, Figure 14**).

Evaluation

Impacts to Jurisdictional Waters of the U.S. -- Due to the splitting the arrays into smaller blocks and the usage of bottomless culverts with this scenario at the Crossing/Impact Area 3, 4, & 6 there is no planned impact to the drainage within the OHWM from the culvert/perimeter roadway installation, grading and trenching. Methods to control surface water flows such as rock or concrete weirs, riprap, erosional control blankets, planted vegetation or other energy dissipaters will be required downstream of the jurisdictional

portions of the drainages in the State jurisdictional waters to ensure array foundations and underground cables are not undermined. The downstream water control features may also impact the flow upstream within the jurisdictional drainages due to hydraulic analysis of the energy dissipaters and the specific drainage hydraulic conditions and channel geometry. The water control features will reduce the land available for installation of solar arrays, requiring the splitting of arrays into smaller blocks. The impacts of moving solar arrays into smaller blocks are contemplated in a cost analysis below.

OPP – This scenario decreases the efficiency of the solar layout within the Project Footprint because smaller or more tightly spaced blocks require that the panels to be more closely spaced. This layout increases the shading and decreases the overall return on the installation by producing less power. A one-foot decrease in row-to-row spacing for smaller blocks would result in a power output reduction of 0.7%. To compensate for this loss, one additional row of panels would need to be installed per affected array. Approximately five to ten additional 250-foot long rows of modules would be required. These additional panels will not be available due to a set number of panels allowed on the project as per the approved PPA. However, even with the slight reduction in power output, the OPP could be met by this alternative.

Practicability –

Cost **–** The cost of this scenario would increase the cost of the overall project significantly. This scenario will require HDD at hundreds of locations under the washes for installation of electrical and communication cable. There would be additional cost to install the cables through the bores and for constructions inefficiencies to work around the washes. The quantity of DC trenching, combiner boxes and tracker motors would increase for splitting the arrays. The estimated order of magnitude cost for these modifications would be $2,300,000 to $2,700,000 for this scenario to be constructed at all the eastern crossing/impact area locations. Therefore, the cost of construction of this alternative would be a limiting factor when compared to other alternatives.

Logistics **–** This scenario would allow for crossing of ephemeral stream channels during moderate and high flow events, allowing emergency response personnel and vehicles, to access the facility when such high flow conditions exist. However, the splitting of the arrays will impact egress in and out of array fields affecting accessibility of the facility as well as personnel safety and fire access.

Summary of Determination

Practicability standards would not be met by this alternative scenario and therefore it has been removed from further consideration.

6.3.3.2 Full Blocks Array Scenario 2

Instead of splitting the solar arrays into small blocks as stated in the scenario above, full blocks of arrays which are each about 13 acres in size (approximately 7,000 PV modules), will be removed from the jurisdictional drainage noted as Jurisdictional Crossing 3 along the eastern side of the Proposed Project Site and placed on planned open areas (**Appendix A, Figure 15**).

Relocation of up to four arrays would require the use of up to 65 acres of land that is not already designated as permanently impacted. The only areas available would be those currently designated as temporary impact areas in the preferred alternative with sufficient space to accommodate a full array. As shown in the attached figure, options for full array relocations would be limited to temporary work areas on the west side of the site or portions of the proposed laydown yards.

The Project is electrically balanced between two transformers, one for the east side and one for the west side. The movement of arrays to the west side would require additional medium voltage switchgear and cable to be routed to the east side transformer in the Project substation. The additional cable would result in feeder losses of approximately 1% that would need to be overcome with additional AC capacity of 800 to 100 KW or approximately 430 photovoltaic modules. However, the Project's PPA does not allow for any increase in the number of modules installed, so there would be a loss of output from the solar facility if arrays were fully relocated from the east to west sides of the site. Moreover, movement of the arrays to temporary impact areas on the west side of the site would result in a loss of work areas and solar array buffer areas would have to be utilized to replace the loss of acres.

Relocation of arrays within the proposed construction laydown yards would require placement of smaller laydown areas throughout the site to accommodate worker parking and material storage and would increase large vehicle traffic across the site. Lastly, the types of work activities around the Project perimeter have been restricted and permanent impact areas have been reduced to further minimize and avoid impacts to sensitive species located in the adjacent conservation lands. Conversion of temporary impact areas to permanent impact areas would adversely impact biological resources located in these conservation areas.

Beyond the relocation of the arrays, arrays in Crossing Area 6 would be split to avoid impacts to Waters. Splitting the arrays would require the panel rows to become more closely spaced, increasing the shading and decreasing the overall output of the arrays due to additional parasitic load required to run additional tracker motors. To compensate for this loss, an additional row of panels would need to be installed per affected array.

The inability to impact Waters would also affect egress and ingress in and out of array fields, which could impact maintainability of the facility as well as personnel safety and fire access within the interior of the site. This split array in Crossing Area 6 would also require horizontal directional drilling (HDD) at numerous locations under the washes for installation of electrical and communication cable to connect the array. In addition, arrays downstream of the Waters would be subject to channelized flows with higher velocities that could cause erosion that would undermine foundations or expose underground cables.

Evaluation

Impacts to Jurisdictional Waters of the U.S. – The impacts to jurisdictional waters of the U.S. are the same as the Small Blocks Array Scenario 1.

OPP – This alternative design utilizes the largest inverters and panels to maximize space and performance of the system. The circuits on the west side of the site are maximized and cannot handle additional capacity. Accordingly, relocating the arrays to the west side will require an additional 4,500 linear feet of electrical cable trenching to tie the arrays electrically into the circuit on the eastern side of the project site in this scenario. The relocated arrays would require their own dedicated combining switchgear (one more switchgear required for this scenario than for the Proposed Project). The areas where the panels would be relocated is surrounded by the Conservation Lands, and underground cable trenching or overhead power lines would be required through the Conservations Lands to connect the arrays to the circuit on the eastern side.

Practicability –

Cost **-** The estimated overall cost of the project due to the movement of the solar arrays out of the drainages and having to utilize additional laydown areas has increased significantly with this scenario. The increase is caused by the relocation of full arrays which increases the cost involved with the construction and electrical design of the solar panels. In addition, the use of the culverts also has impacts on the cost of construction and design due to reduction of open space (e.g. laydown areas) inside the project limits, the costs of construction and operating this layout of panels, and the increased cost of operations and maintenance of the system. The proposed design utilizes the largest inverters and panels to maximize space and performance of the system. The circuits on the west side of the site are maximized and cannot handle additional capacity. Accordingly, relocating the arrays to the west side would require an additional 4,500 linear feet of electrical cable trenching to tie the arrays electrically into the circuit on the eastern side of the Project site. The relocated arrays would require their own dedicated combining switchgear, (e.g. there would be one more switchgear than the preferred alternative). Additional PV panels would also be needed to make up for the up to 1% loss in output. These additional panels will not be available due to a set number of panels allowed on the Project Footprint by the Project's PPA. Additional breakers, disconnect switches and relays would be required to accommodate the added switchgear. The additional equipment (including construction and installation) would increase the overall cost of this project scenario by approximately $2,300,000 to $2,550,000. Therefore, the cost of operation and maintenance of this alternative would be a limiting factor when compared to other comparable scenarios.

Splitting the arrays would also decrease the efficiency of the solar layout within the Project Footprint because smaller or more tightly spaced blocks require that the panels to be more closely spaced. This layout increases the shading and decreases the overall return on the installation by producing less power. A one-foot decrease in row-to-row spacing for smaller blocks would result in a power output reduction of 0.7%. To compensate for this loss, one additional row of panels would need to be installed per affected array. Approximately several additional 250-foot long rows of modules would likely be required. These additional panels will not be available due to a set number of panels allowed on the Project Footprint by the Project's PPA. This alternative will require HDD at numerous locations under the washes for installation of electrical and communication cable. There would be additional cost to install the cables through the bores and for constructions inefficiencies to work around the washes. The quantity of DC trenching, combiner boxes and tracker motors would increase for splitting the arrays. The estimated order

of magnitude cost for these modifications for relocation and splitting of arrays would be $2,300,000 to $2,700,000. Therefore, the logistics and cost of construction, operation and maintenance of the relocation and split array No Action Alternative would be a limiting factor when compared to the preferred alternative.

Logistics - The splitting of the arrays will impact egress in and out of array fields affecting accessibility of the facility as well as personnel safety and fire access. The relocation of the arrays into the laydown yards would eliminate areas needed to manage and stage materials, equipment personnel parking and temporary offices. Smaller laydown areas would be needed around the entire site, which would increase large delivery truck traffic and present a greater safety risk to construction personnel.

Other Significant Adverse Environmental Consequences - Additional impacts to protected species could occur with this alternative due to the movement of arrays into areas adjacent to conservation lands where sensitive species are present in higher densities and where movement through conservation corridors could be affected by new permanent impacts in these areas. The increased in traffic throughout the Project Footprint from the loss of the primary laydown yards as well as an increase in construction in these locations would result in greater areas of habitat disturbance and an increase in the likelihood of interaction between construction personnel and protected species.

This scenario would involve the relocation of five array blocks therefore permanently impacting an additional 65 acres of land. The construction laydown areas, restricted work areas, and solar array buffer areas are designated as temporary impact areas in the Proposed Project but would be reclassified as permanent impact under this alternative. The additional land necessary for the solar arrays and construction laydown yards would likely result in the expansion of the Proposed Project Site. If expanded, acreage will need to be removed from the proposed Valley Floor Conservation Lands. Placing smaller laydown areas throughout the site will also increase traffic across the site as well as increase construction work areas. Splitting the arrays would require the addition of many HDD locations under the Waters. Similar to the preferred alternative that would require grading these areas, HDD activities could affect burrows of sensitive species under the Waters. However, unlike with grading, burrows existing within Waters would not be excavated or relocated and may therefore be impacted by HDD activities.

The scenario would result in potential higher impacts to the following threatened and endangered species: SJKF, GKR, BNLL, and CTS. The potential need for the Project Footprint to expand its acreage beyond preferred alternatives of 2,506 acres is due to the need for additional construction laydown areas. The additional temporary impacts to protected species could occur with this scenario due to the additional impacts areas needed to be found outside the Project Action Area (Project Footprint and Conservation Lands) or from the proposed Valley Floor Conservation Lands which is adjacent to the Project Footprint. If smaller laydown yards are used across the site, there would be an increase in traffic throughout the Project Footprint as well as an increase in construction areas. This increase would provide for greater areas of the habitat disturbance and increase the likelihood of interaction between construction personnel and protected species.

Summary of Determination

The Full Blocks Array Scenario 2 has been eliminated from consideration due to higher permanent impacts to federally protected species and the significantly higher estimated cost.

6.3.4 On-site Alternative 4 (No Action Alternative)

On-Site Alternative 4 would include no impacts to Federal Jurisdictional Waters (Waters). This alternative would utilize a larger (free span)[2] bridge design that would span the Jurisdictional Water Crossing on the west side of the site (as detailed in Alternative 2 (Alternate Bridges), Free Span Bridge) and would utilize bottomless culverts and move arrays at the Crossing/Impacts Areas 3, 4 and 6 on the eastern side to accommodate installation of a perimeter road and avoid impacts from installation of PV modules and cables (as detailed in Alternative 3 (Alternative 3 (Alternate Layouts), Full Block Array Scenario). Five proposed 1.67 MW solar arrays would be affected by utilizing this Alternative. Since only full arrays can be relocated, five arrays would need to either be split into smaller blocks with less spacing between panel rows or completely relocated to avoid impacts to Waters.

The layout for the relocation and split array "No Action Alternative" is provided in **Appendix A, Figure 16.**

Evaluation

Impacts to Jurisdictional Waters of the U.S. – On the western side of the Project Footprint, a free span bridge would be utilized to avoid impacts within the OHWM at Las Aguilas Creek.

Due to the usage of bottomless culverts with this alternative at the Crossing/Impact Areas 3, 4, and 6, there is no planned impact to the drainage within the OHWM from the culvert/perimeter roadway installation. No fill or grading is planned at the Crossing/Impact Areas 3, 4, and 6. Details of this alternative are contained in Alternative 3 above. Methods to control surface water flows such as rock or concrete weirs, riprap, erosional control blankets, planted vegetation or other energy dissipaters will be required downstream of the jurisdictional portions of the drainages to ensure array foundations and underground cables are not undermined. The downstream water control features may also impact the flow upstream within the jurisdictional drainages due to hydraulic analysis of the energy dissipaters and the specific drainage hydraulic conditions and channel geometry. The water control features will reduce the land available for installation of solar arrays, requiring the splitting of arrays into smaller blocks. The impacts of moving solar arrays into smaller blocks are contemplated in the Cost Analysis below.

OPP – This scenario decreases the efficiency of the solar layout within the Project Footprint because smaller or more tightly spaced blocks require that the panels be more closely spaced. A one-foot decrease in row-to-row spacing for smaller blocks would result in a power output reduction of 0.7%. To compensate for this loss, one additional row of panels would need to be installed per affected array. Approximately five to ten additional 250-foot long rows of modules would be required. These additional panels will not be available due to a set number of panels allowed on the project as per the approved PPA. However,

[2] See Section 6.3.3 for further description of the free span bridge

even with the slight reduction in power output, On-site Alternative 4 would have the ability to produce sufficient power to meet the OPP; therefore, this alternative satisfies this evaluation criterion.

Practicability –

Cost – The estimated cost for installation of a free span bridge across Las Aguilas Creek is approximately $1,939,909 or $1,785,097 greater than the proposed single span bridge. The Applicant's cost relative to the reduction in the 0.001-acre of impacts to jurisdictional waters of the U.S. is not warranted. The large amount of structural steel needed for the trusses of free span bridge will also require additional maintenance not required by the other alternatives. The cost of free span bridge would be prohibitively expensive when compared to the environmental impacts.

Bottomless culverts at the jurisdictional drainages (Crossing/Impact Areas 3 through 6) and the movement of the solar arrays out of the drainages would increase the cost of the overall Project significantly. As discussed in Alternative 3 above, the additional equipment (including construction and installation) would cost approximately $2,300,000 to $2,550,000. The estimated cost of the installation of the bottomless culverts for the eastern side crossings within the Project Footprint would be approximately $225,000.

Logistics – The splitting of the arrays will impact egress in and out of array fields affecting accessibility of the facility as well as personnel safety and fire access. The relocation of the arrays into the laydown yards would eliminate areas needed to manage and stage materials, equipment personnel parking and temporary offices. Smaller laydown areas would be needed around the entire site, which would increase large delivery truck traffic and present a greater safety risk to construction personnel.

Other Significant Adverse Environmental Consequences – The No Action Alternative would result in increased potential impacts to the following threatened and endangered species: SJKF, GKR, and CTS as detailed above in Alternative 2 and Alternative 3.

The installation of the free span bridge would result in greater upland impacts, where approximately 1,510 square feet of fill will be required with the single span bridge at Las Aguilas, approximately 4,550 square feet of fill will be required for the free span bridge (See **Appendix E**: WH Pacific Report). The free span bridge would present a higher profile that would be more visible at the site and serve as a perch for ravens and raptors that could feed on sensitive species in and around Las Aguilas Creek.

Summary of Determination

On-site Alternative 4 will not be evaluated further because it failed the other significant adverse environmental consequences criterion and would be much costlier to construct. The relocation of arrays would also result in increased costs, logistical hurdles and increased negative effects to sensitive species.

6.3.5 Preferred Alternative

The Preferred Alternative for the Proposed Project Site is the single span bridge across Las Aguilas Creek and an arched culvert, LWC, and stream diversion construction on the eastern side (Crossing/Impact Areas 3, 4, and 6). The Preferred Alternative was chosen due to the alternative being the best overall least

environmentally damaging and practicable alternative design when compared to the other alternatives. (**Appendix A, Figure 12**: Proposed Project). The single span bridge to be placed at Crossing #1 would have footings that are placed on each side of the bank, outside of the OHWM. The distance between the bridge footings has been designed as the greatest possible distance to avoid the placement of footings inside the OHWM. The crossing deck will be brought in approximately three to four sections, which are the length of the entire crossing. Each section will be lifted with a crane and placed on the footings. The crane will sit near the bank of the crossing, but will not enter the jurisdictional area. Once the sections are laid adjacent to each other on the footings, a final concrete bridge deck will be poured across the preplaced deck. A guardrail would be placed on the sides of the bridge.

Federal crossing #3 will include the construction of the perimeter roadway and grading required for panel array installation. Federal crossing #4 will include the construction of two LWC to transport surface flow to the interior portion of the Proposed Project Site. Federal crossing # 6 involves rerouting surface flows of the jurisdictional drainage prior to the installation of the perimeter roadway. Any surface water flowing onto the Proposed Project Site at this location will be redirected into a diversion channel adjacent to the perimeter road, southeast into an unnamed non-federally jurisdictional ephemeral drainage. The diversion feature will be constructed with lined bend protection to assist in slowing the runoff velocity and additional sediment and erosion control measures. The remaining impact to the jurisdictional drainage downstream of the perimeter roadway will include grading and filling of the jurisdictional channel to meet the maximum slopes required for the installation the panel arrays.

Evaluation

Jurisdictional Waters of the U.S. – The single span bridge on the western side of the Proposed Project Site Footprint would require a small amount of fill of the ephemeral stream channel. This fill is associated with the placement of rock armoring (riprap) to protect the banks at the Las Aguilas crossing. This armoring would occur at and immediately upstream of the abutments/footings for safety and stability of the bridge during and after high stream flow events, and to protect the long term life of the structure, and to ensure the bridge is available for use during and immediately following high stream flow events.

The abutments and footings may affect channel flow dynamics during high hydraulic events due to potential flow restriction and reduced flow velocity, although the single-span bridge was designed to provide maximum water conveyance through the site. Rip-rap or other bank armament will be needed along the footing installations to prevent erosion or scouring along and behind the footings to ensure the bridge is stable and able to withstand high flow events without damage, and available for use by emergency personnel at all times including during and immediately after high flow events.

Permanent disturbance would result in approximately 0.001 acres of cut and fill within the OHWM of the Las Aguilas. No permanent fill of waters of the U.S. would be required for electrical cables in the construction of the single span bridge in this Alternative because the Project would utilize cables within the bridge deck.

Federal crossing #3 will impact the federal portion of the drainage due to construction of the perimeter roadway and grading required for panel array installation. This would result in the permanent disturbance of approximately 0.05 acres (1,529 linear feet) of impacts to jurisdictional waters.

Federal crossing #4 will impact the federal portion of the drainage due to construction of two LWC to transport surface flow to the interior portion of the Proposed Project Site. Federal crossing #4 will require grading/filling of approximately 0.04 acres (1,156 linear feet) within the OHWM associated with this drainage.

Federal crossing # 6 involves rerouting surface flows of the jurisdictional drainage prior to the installation of the perimeter roadway. Any surface water flowing onto the Proposed Project Site at this location will be redirected into a diversion channel adjacent to the perimeter road, southeast into an unnamed non-federally jurisdictional ephemeral drainage. This construction will impact approximately 0.03 acres (799 linear feet) of jurisdictional stream. The diversion feature will be constructed with lined bend protection to assist in slowing the runoff velocity and additional sediment and erosion control measures. The remaining impact to the jurisdictional drainage downstream of the perimeter roadway will be from grading and filling of the jurisdictional channel to meet the maximum slopes required for the installation the panel arrays.

The Proposed Project will have a permanent impact (0.121 acres total) to four jurisdictional ephemeral drainages due to the required perimeter road, fence construction, trenching, and grading for solar panel installation (**Figure 12, Appendix A**).

OPP – The preferred alternative has the ability to support an approximately 247 MW solar PV project and to efficiently interconnect to a 230 kV transmission line.

Practicability –

Cost Analysis – The estimated cost for the single span bridge creek crossing is approximately $154,811. This stream crossing cost is comparable to those of the ford, culvert, and multi-span alternatives, but an order of magnitude lower than the free span alternative. The logistics and cost of operation and maintenance of this alternative would not be a limiting factor when compared to other alternatives. The cost of the arched culvert, LWC, and stream diversion construction on the eastern side (Crossing/Impact Areas 3, 4, and 6) would be approximately $257,823, which is similar in cost to the other east side alternatives.

Fire Department Approval of Road Design – The single span bridge on the western side; and culverts, LWC, and stream diversion on the eastern side would allow for crossing of ephemeral stream channels during moderate and high flow events, allowing emergency response personnel and vehicles, to access the facility when such high flow conditions exist. This alternative will meet the requirements of the Hollister Fire Department and the San Benito County Code.

Economic Feasibility of Bridge Design – The estimated cost for the single span bridge creek crossing is approximately $154,811, an economically feasible cost for a 247 MW solar PV project on the western side of the Proposed Project Site.

Summary of Determination

The single span bridge alternative (the Preferred Bridge Alternative) has been shown above as the best overall least environmentally damaging and practicable alternative bridge design.

6.3.6 Conclusion

Each of the On-site Alternatives was eliminated when compared to the Preferred Alternative based on the evaluation criteria seen in Table 5: Summary of On-Site Alternatives in Comparison to the Preferred Alternative.

TABLE 5: SUMMARY OF ON-SITE ALTERNATIVES IN COMPARISON TO THE PREFERRED ALTERNATIVE

	ALTERNATIVE 1: 420 MW	**ALTERNATIVE 2: CROSSINGS**			**ALTERNATIVE 3: LAYOUT**		**ALTERNATIVE 4: NO ACTION**	**ALTERNATIVE 5: PREFERRED ALTERNATIVE**
EVALUATION CRITERIA	**ON-SITE ALTERNATIVE 1**	**LWC AND MULTISPAN BRIDGE**	**FREE SPAN BRIDGE**	**SINGLE SPAN BRIDGE**	**SMALL BLOCKS ARRAY SCENARIO**	**FULL BLOCKS ARRAY SCENARIO**	**NO PERMITTED ACTIVITY**	**SINGLE SPAN BRDIGE WITH EAST SIDE DISTURBANCE**
Impacts to Jurisdictional Waters of the U.S.[1]	Low - Similar to Proposed	**Moderate - Greater than proposed**	None	Low (Proposed Project)	Low - Similar to proposed	Low- Similar to proposed	None	Low (Proposed Project)
Meets OPP	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Practicability (cost/ logistics/ technology)	Yes	N/A	**No**	Yes	**No**	Yes	No	Yes
Other environmental consequences[2]	**High**	N/A	N/A	**Low**	N/A	**High**	**High**	**Low**

N/A: Evaluation criteria not evaluated due to the site being eliminated based on prior criteria

1. **None**: No jurisdictional features impacted. **Low**: 0.121 acre of jurisdictional features impacted. **Moderate**: impacts are greater than 0.121 but less than one acre. **High**: jurisdictional features on-site would likely be impacted significantly, greater than 1 acre.
2. **Low**: Limited to no suitable habitat for special status species present. Impacts to special status species would be minimal. **Moderate**: suitable habitat and species occurrences present on-site, but surrounding habitat is degraded. **High**: suitable habitat and species occurrences present on-site. Surrounding habitat also presents suitable habitat from which species may emigrate or immigrate.

7.0 LEDPA Determination

The Single Span Bridge provided for in On-Site Alternative 3 is the best overall least environmentally damaging and practicable alternative bridge design based on the evaluation criteria for the west side of the Proposed Project and the Proposed Project layout for the east side drainages is the best overall least environmentally damaging and practicable alternative for the east side of the Proposed Project.

8.0 Proposed Compensatory Mitigation

The EPA Section 404(b)(1) Guidelines require compensatory mitigation for unavoidable impacts to waters of the U.S. As defined in the Guidelines:

> Compensatory mitigation means the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved (40 CFR 230.92 (73 FR 19670 et seq. [April 10, 2008]).

Construction of the Proposed Project will result in impacts to four federal jurisdictional drainages totaling approximately 0.121 acre of impacts to waters of the U.S.

The Applicant proposes to compensate for the loss of waters of the U.S. though the following mitigation efforts:

- Removal and enhancement of seven debris dump sites (0.40 acre) with seeding of native vegetation and potential erosion control measures if necessary
- Creation of three CTS breeding pools (0.50 acre)
- Partial livestock exclusion to restore native vegetation and riparian areas on portions of Panoche Creek (11.16 acres).

On July 28, 2015 biological staff from McCormick Biological Inc. conducted a site visit to determine if the proposed mitigation efforts (debris removal, CTS pond creation, and cattle exclusion) could potentially impact waters of the U.S. Results from the site visit indicated the following mitigation efforts may potentially impact waters of the U.S. and may be subject to USACE jurisdiction:

- Debris Removal Area 1b (0.003-acre area)
- Debris Removal Area 4 (0.093-acre area)

Although impacts to waters of the U.S. is not anticipated, potential dredge and fill from mitigation efforts to remove debris from Debris Removal Areas 1b and 4 could result in up to 0.096 acres of impacts to waters of the U.S. **(Figures 18A and 18A)**.

All of the protection, enhancement and restoration efforts are incorporated into an enforceable Wetland Monitoring and Mitigation Plan.

9.0 References

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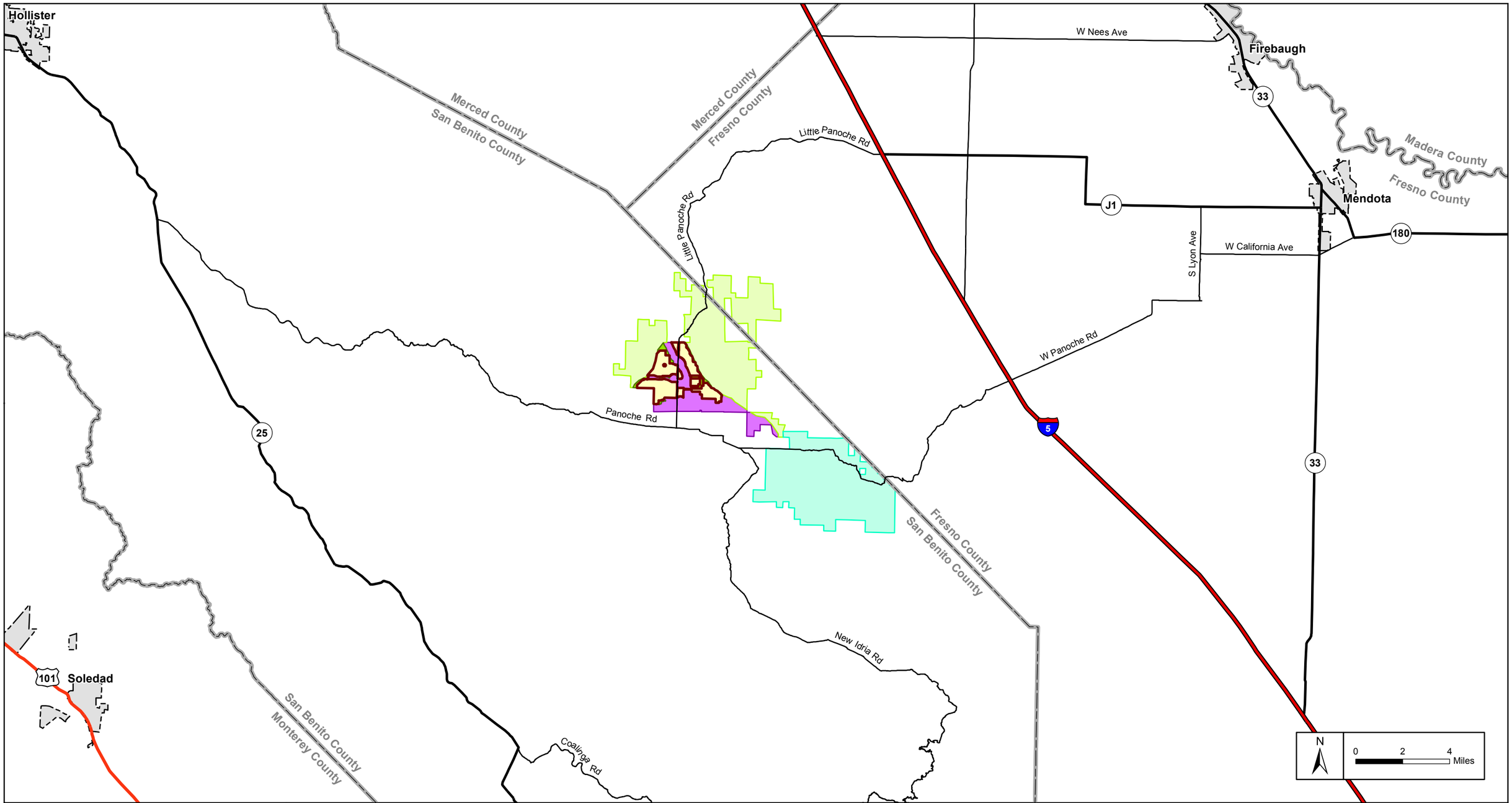
APPENDICES

APPENDIX A
Figures



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Legend

- Project Footprint
- On-site Conservation Lands
- Silver Creek Ranch Conservation Lands
- Valadeao Ranch Conservation Lands
- Valley Floor Conservation Lands
- City

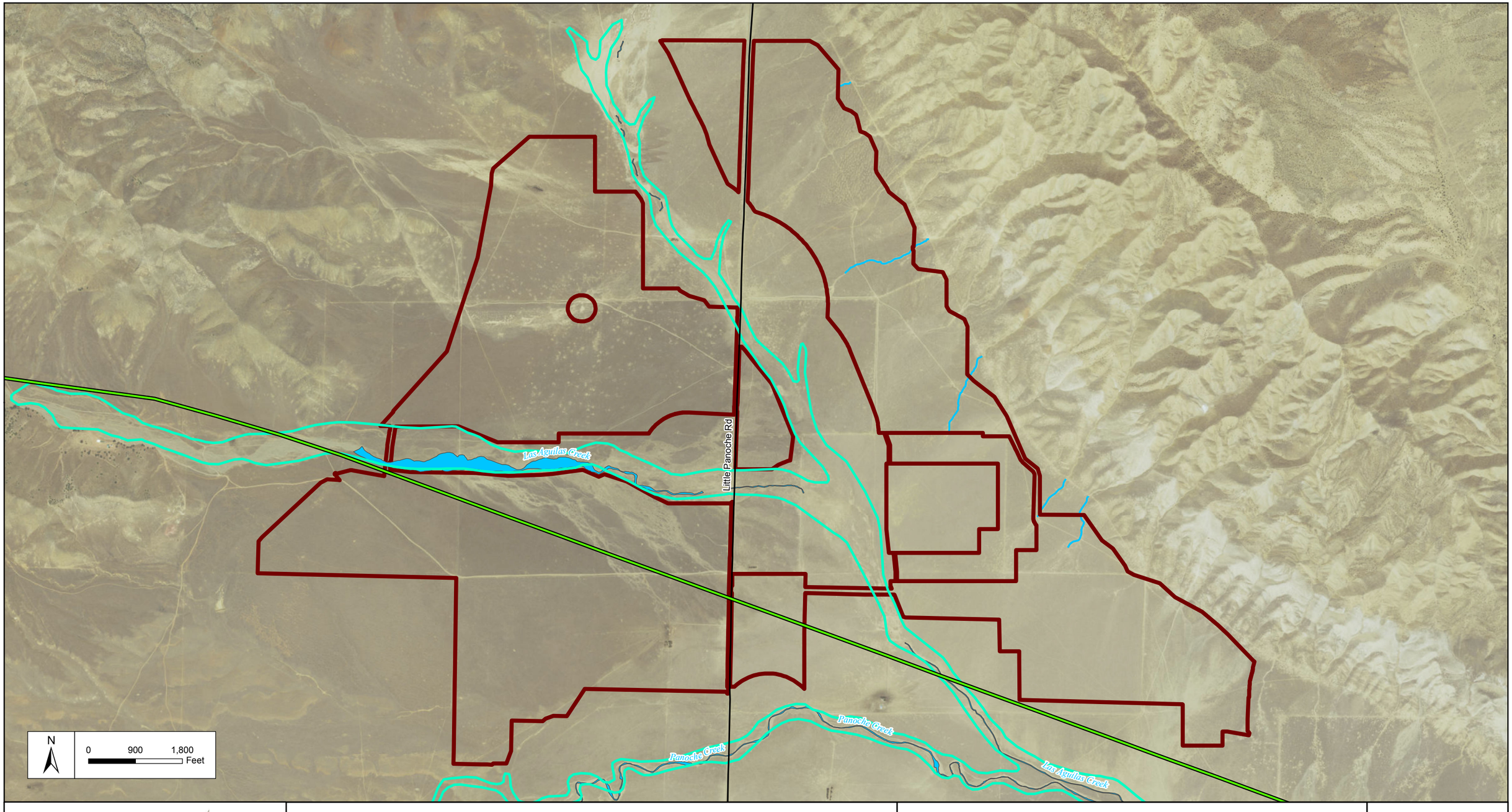
Panoche Valley Solar Project

Proposed Project Location

FIGURE

1

JH 2015-12-09



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Legend

- Project Footprint
- Existing Transmission Line
- Ordinary High Water Mark
- Jurisdictional Drainage
- 100-year Floodplain

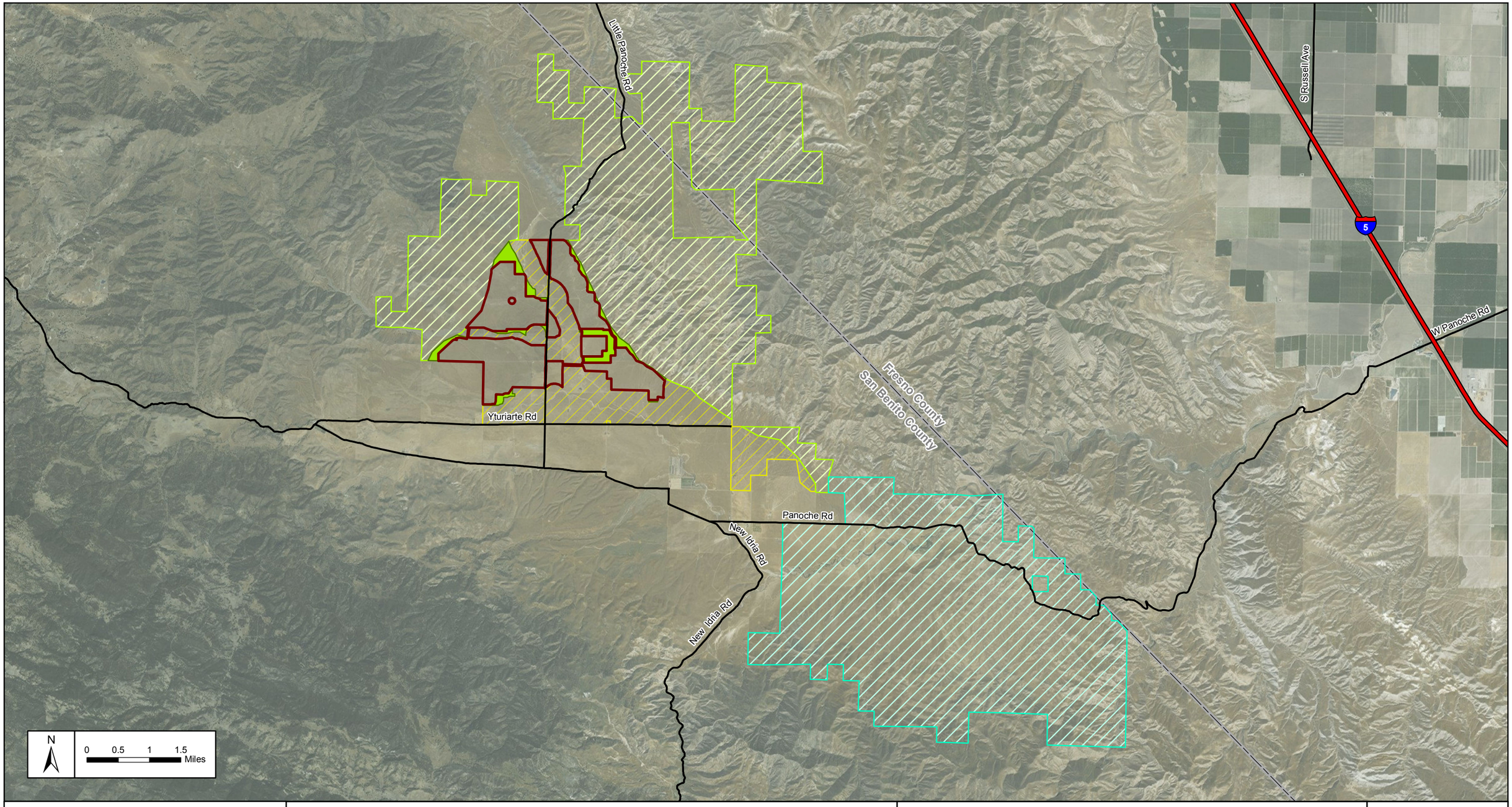
Panoche Valley Solar Project

Proposed Project Site

FIGURE

2

JH 2015-12-09



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Legend

- Project Footprint
- On-site Conservation Lands
- Silver Creek Ranch Conservation Lands
- Valadeao Ranch Conservation Lands
- Valley Floor Conservation Lands

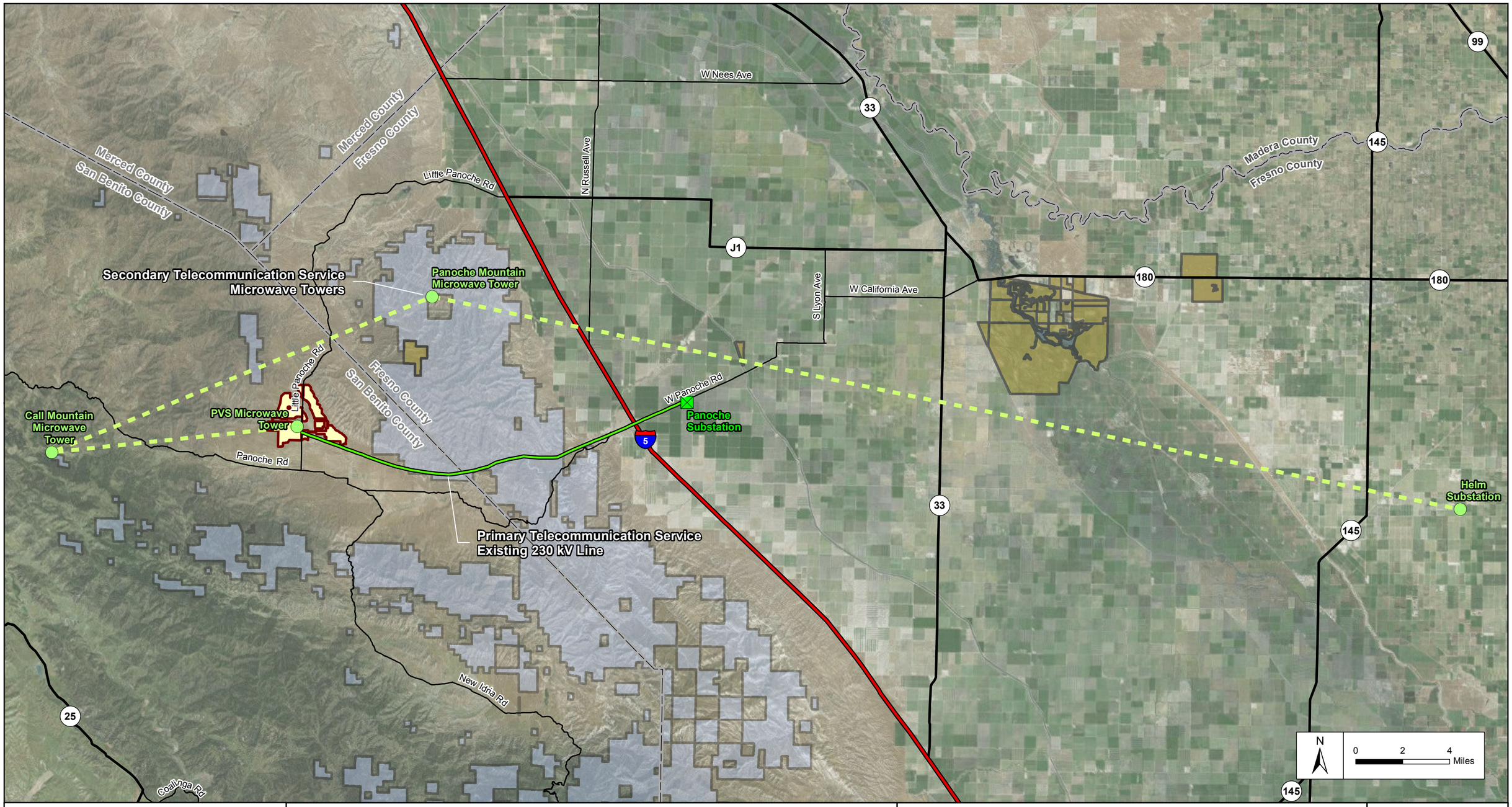
Panoche Valley Solar Project

Proposed Project Site and Conservation Lands

FIGURE

3

JH 2015-12-09



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Legend

- Project Footprint
- BLM Land
- State Land
- Proposed Microwave Repeater Site
- Microwave Line of Sight
- Existing 230 kV Transmission Line

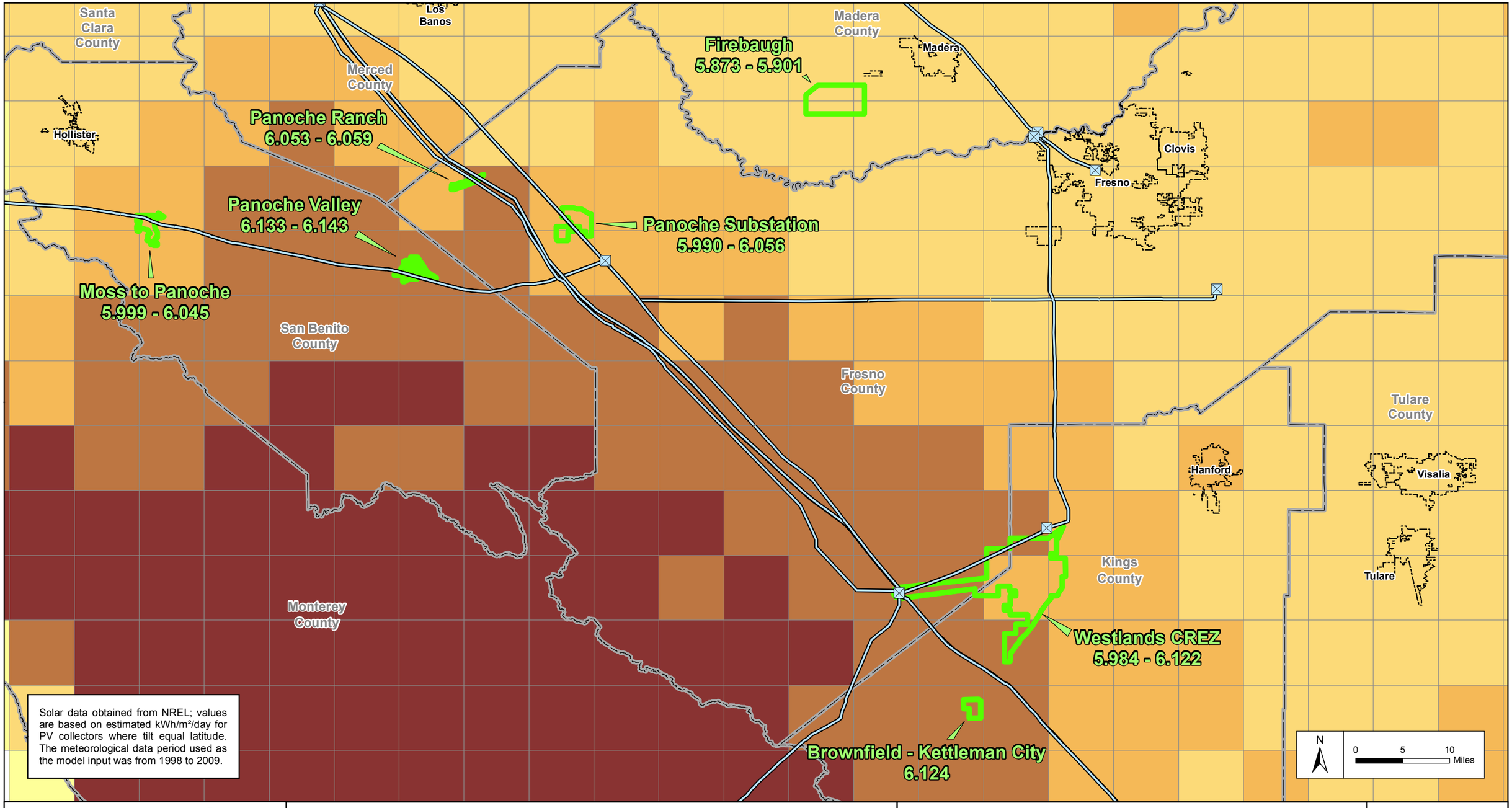
Panoche Valley Solar Project

Proposed Telecommunication Upgrade

FIGURE

4

JH 2015-12-09



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Legend

- Site
- Electric Substation
- Electric Transmission

Solar Resource (kWh/m²/day)

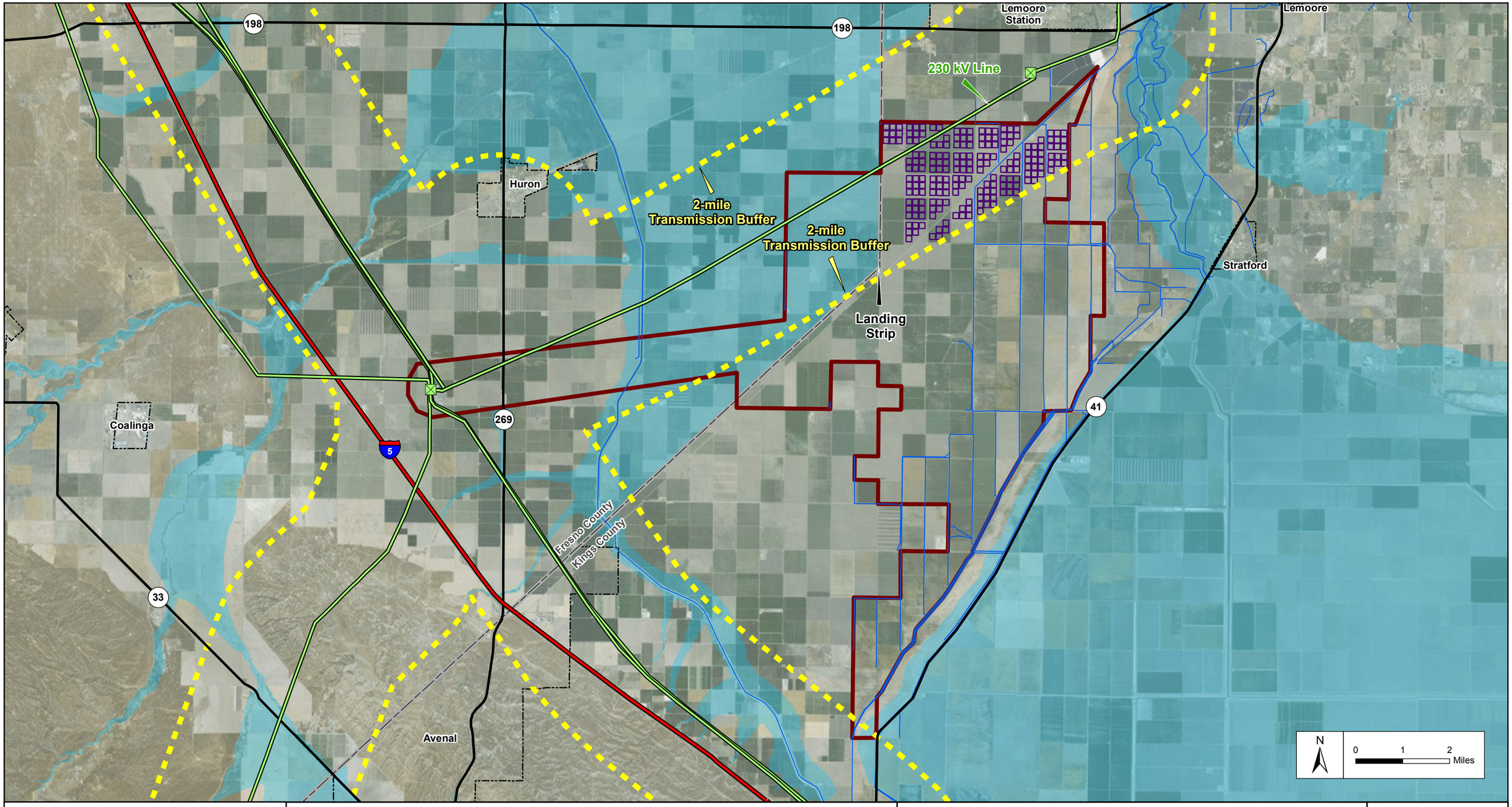
- 5.58 - 5.77
- 5.78 - 5.96
- 5.97 - 6.06
- 6.07 - 6.18
- 6.19 - 6.33

Panoche Valley Solar Project

Regional Solar

FIGURE 5

JH 2015-12-09



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Legend

- Site
- City Limit
- 2 MW Array Block (200)
- Electric Substation
- Electric Transmission
- Canal, Drainage
- FEMA 100-year Floodplain

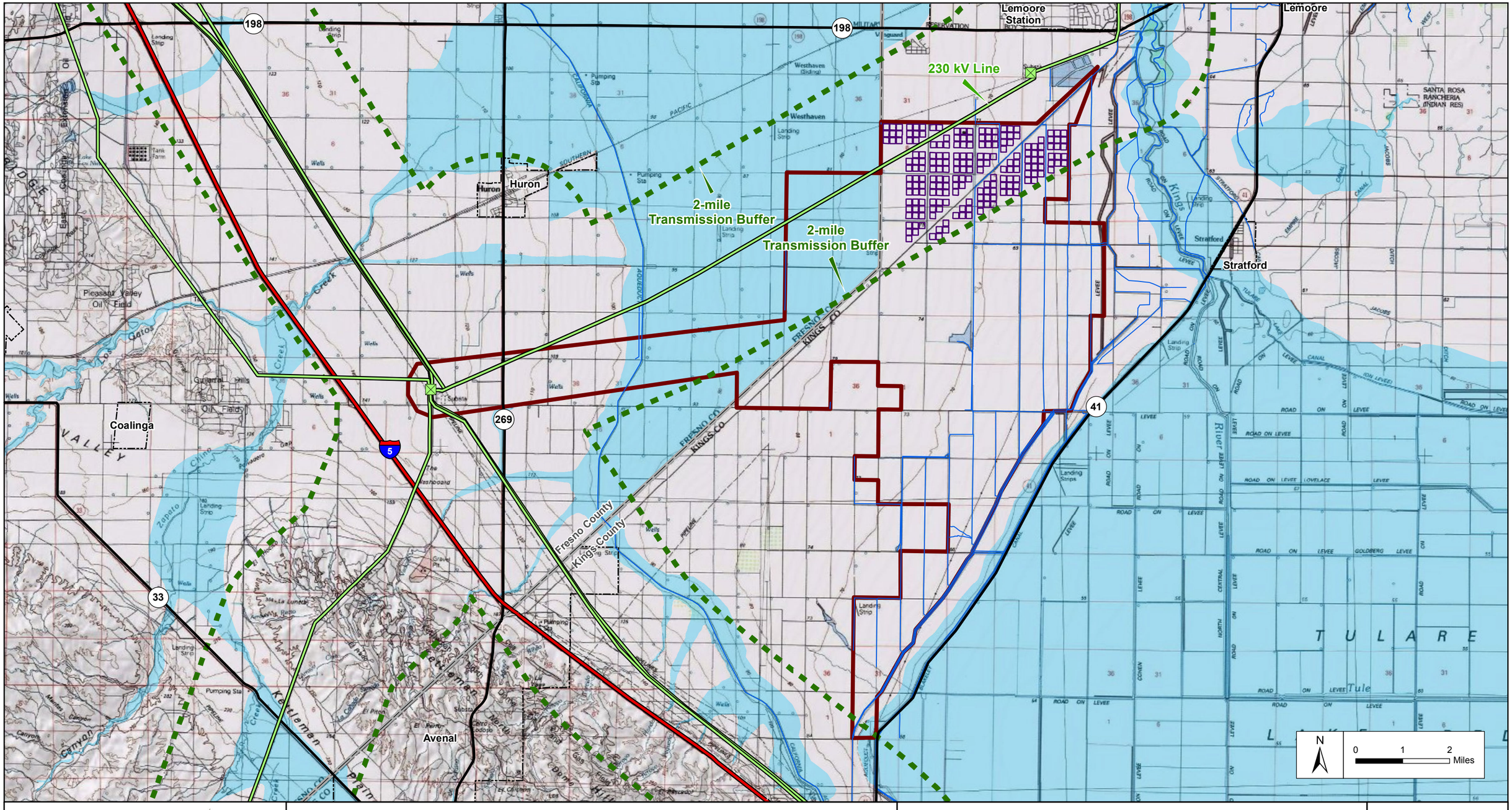
Panoche Valley Solar Project

Westlands CREZ Alternative Site

FIGURE

6A

JH 2015-08-26



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Legend

- Site
- City Limit
- 2 MW Array Block (200)
- Electric Substation
- Electric Transmission
- Canal, Drainage
- FEMA 100-year Floodplain

Panoche Valley Solar Project

Westlands CREZ Alternative Site

FIGURE

6B

JH 2015-08-26

230 kV Lines

Nearest 230 kV Line
Approx. 3.5 Miles Away

N

0 0.25 0.5 Mile

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Legend

- Site
- Solar Array Block
- Electric Transmission
- Arroyo, Drainage (NHD)
- FEMA 100-year Floodplain

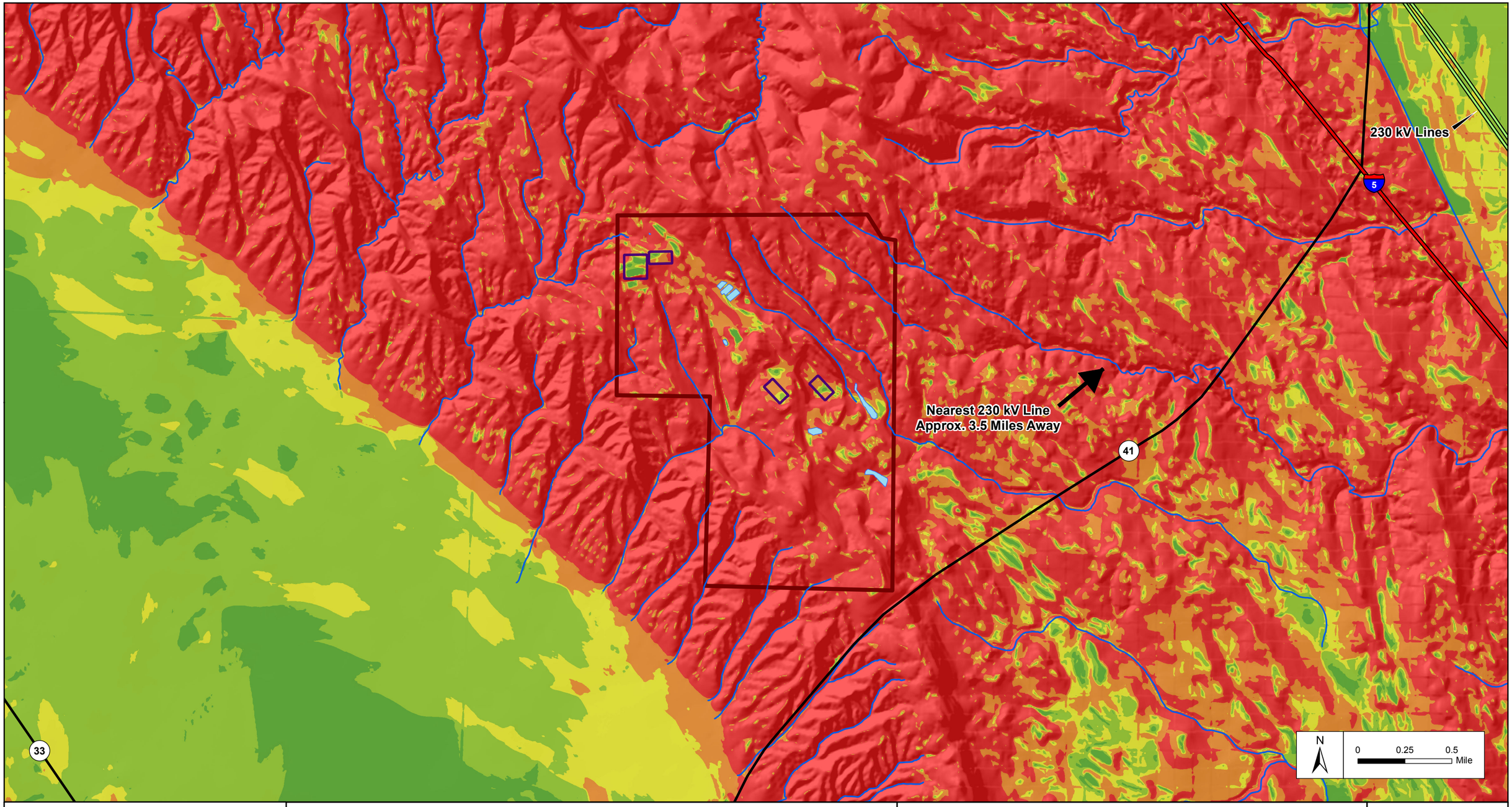
Panoche Valley Solar Project

Brownfield-Kettleman City Alternative Site

FIGURE

7A

JH 2015-08-26



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Legend

- Site
- Solar Array Block
- Electric Transmission
- Arroyo, Drainage (NHD)
- Water Body (NHD)

Slope

- 0% - 1.0%
- 1.1% - 2.0%
- 2.1% - 3.0%
- 3.1% - 6.0%
- > 6.0%

Panoche Valley Solar Project

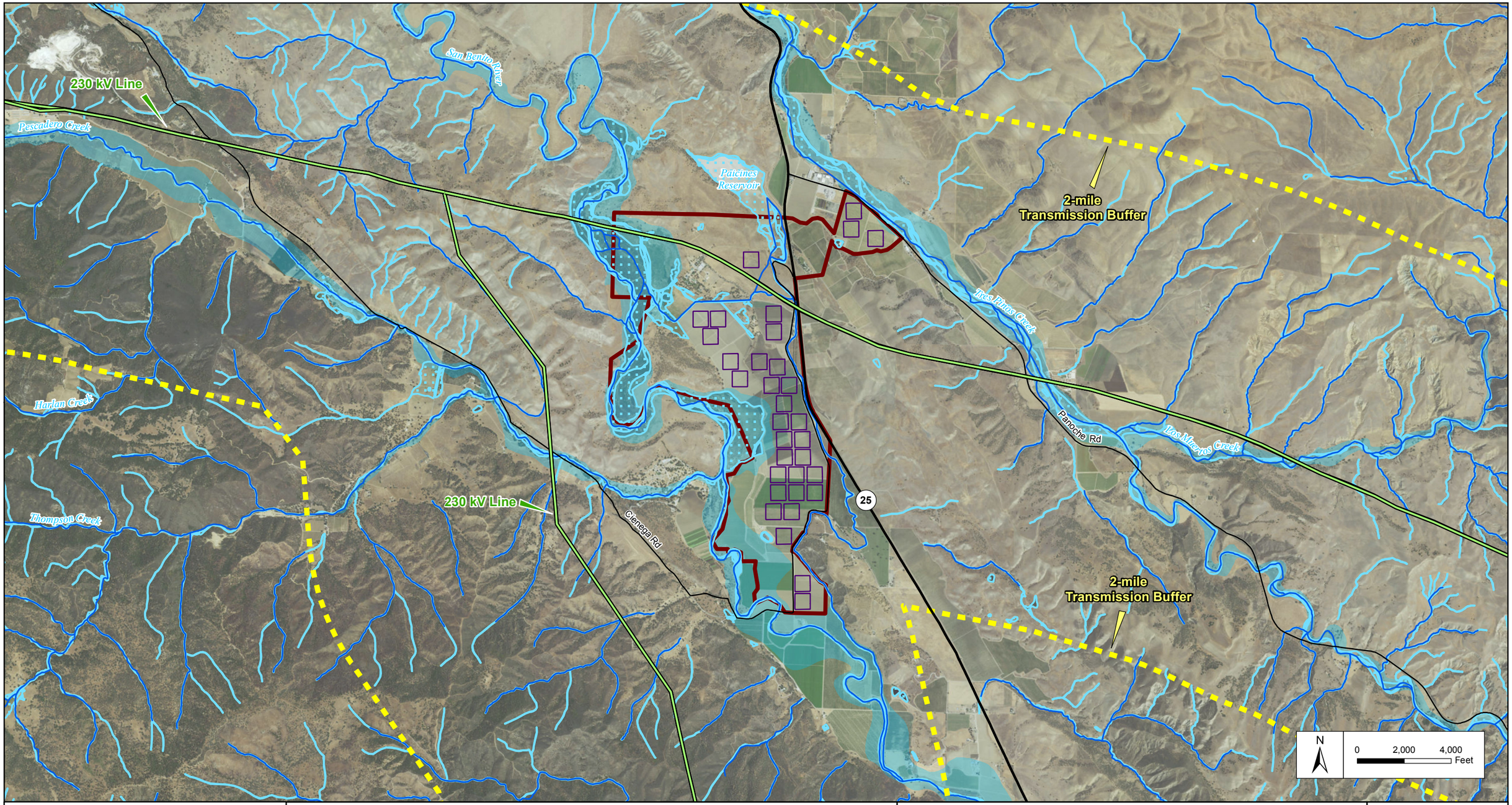
Brownfield-Kettleman City Alternative Site

Slope based on USGS 10m NED

FIGURE

7B

JH 2015-08-26



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Legend

- Site
- 2 MW Array Block (33)
- Electric Transmission
- Canal, Drainage (NHD)
- Wetland (NWI)
- FEMA 100-year Floodplain

Panoche Valley Solar Project

Moss Landing-Panoche Alternative Site

FIGURE

8A

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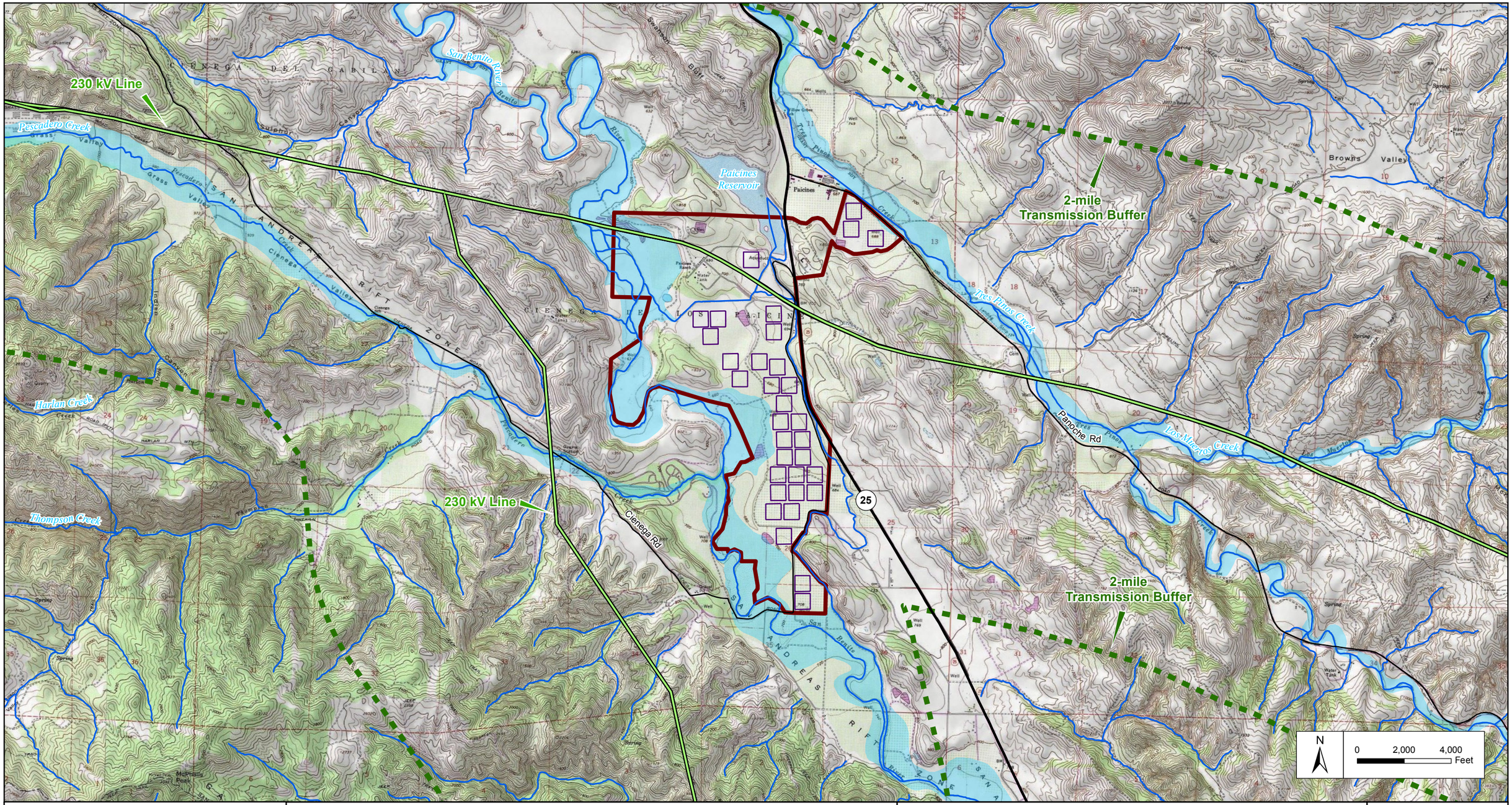

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Legend

- Site
- 2 MW Array Block (33)
- Electric Transmission
- Canal, Drainage (NHD)
- FEMA 100-year Floodplain

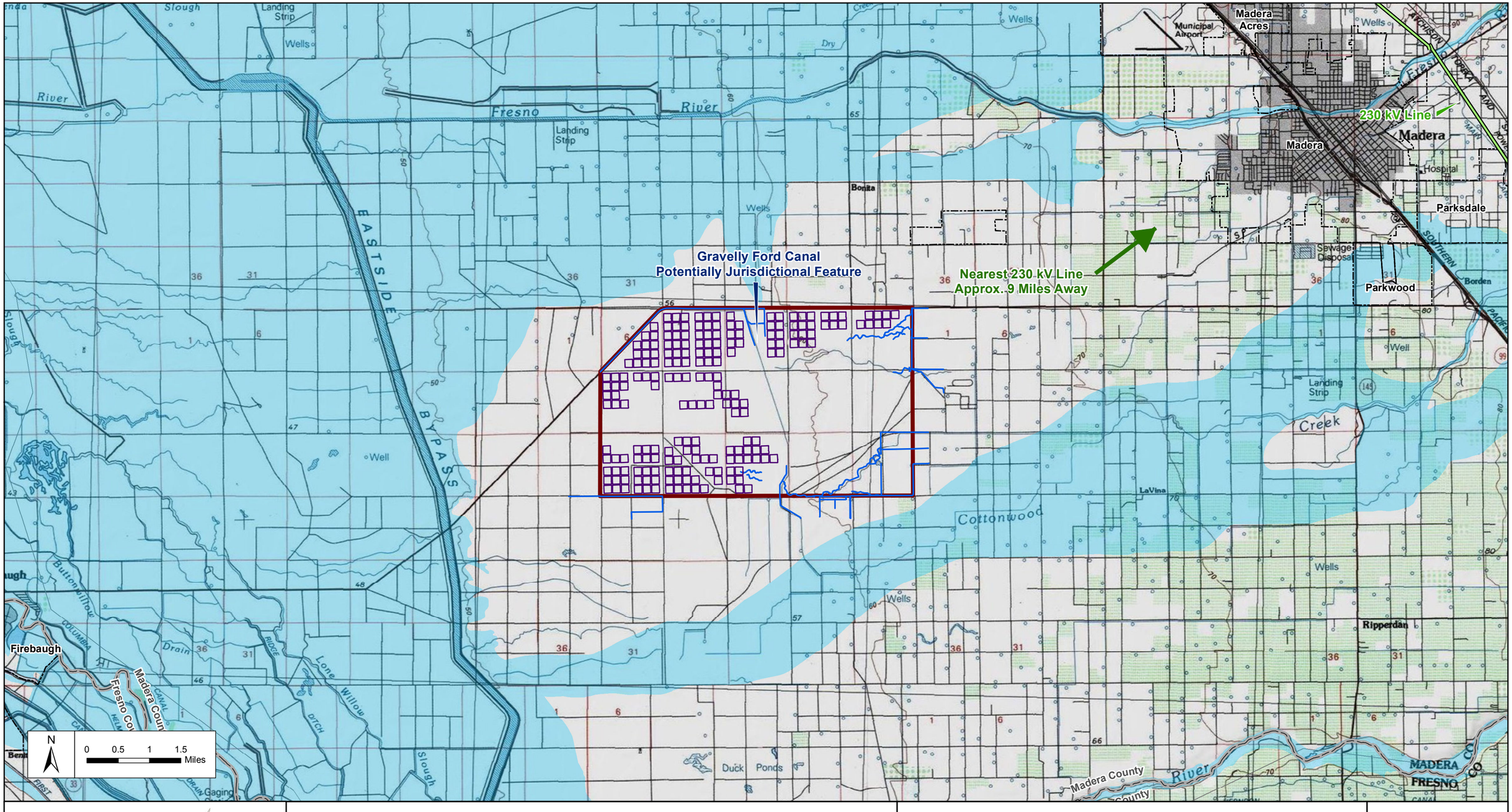
Panoche Valley Solar Project

Moss Landing-Panoche Alternative Site

FIGURE

8B

JH 2015-08-26



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Legend

- Site
- City Limit
- 2 MW Array Block (200)
- Electric Transmission
- Canal, Drainage
- FEMA 100-year Floodplain

Panoche Valley Solar Project

Firebaugh Alternative Site

FIGURE

9A

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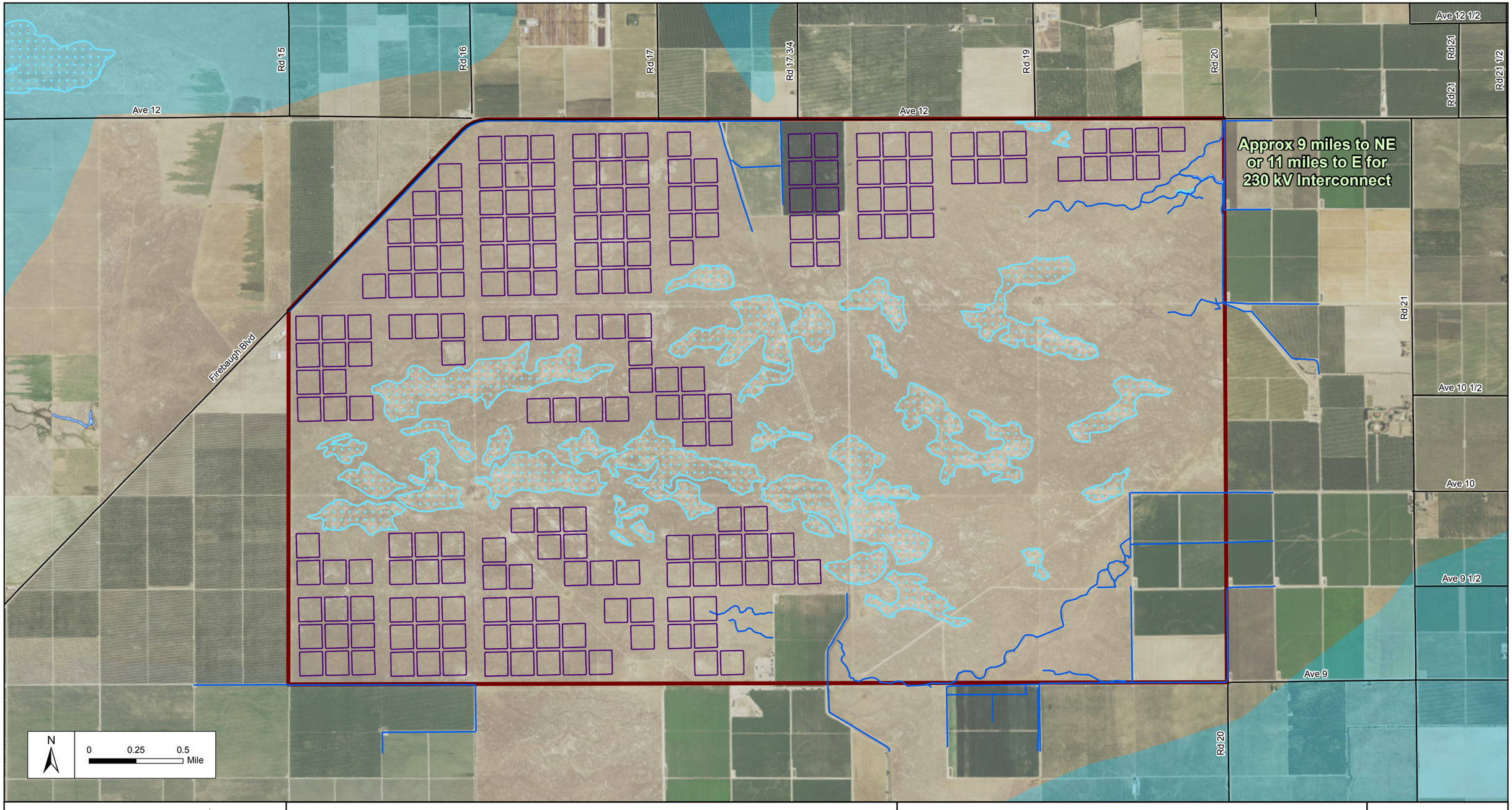

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Legend

- Site
- 2 MW Array Block (200)
- Canal, Drainage
- FEMA 100-year Floodplain
- Potential Emergent Wetland
- Riverine

Panoche Valley Solar Project

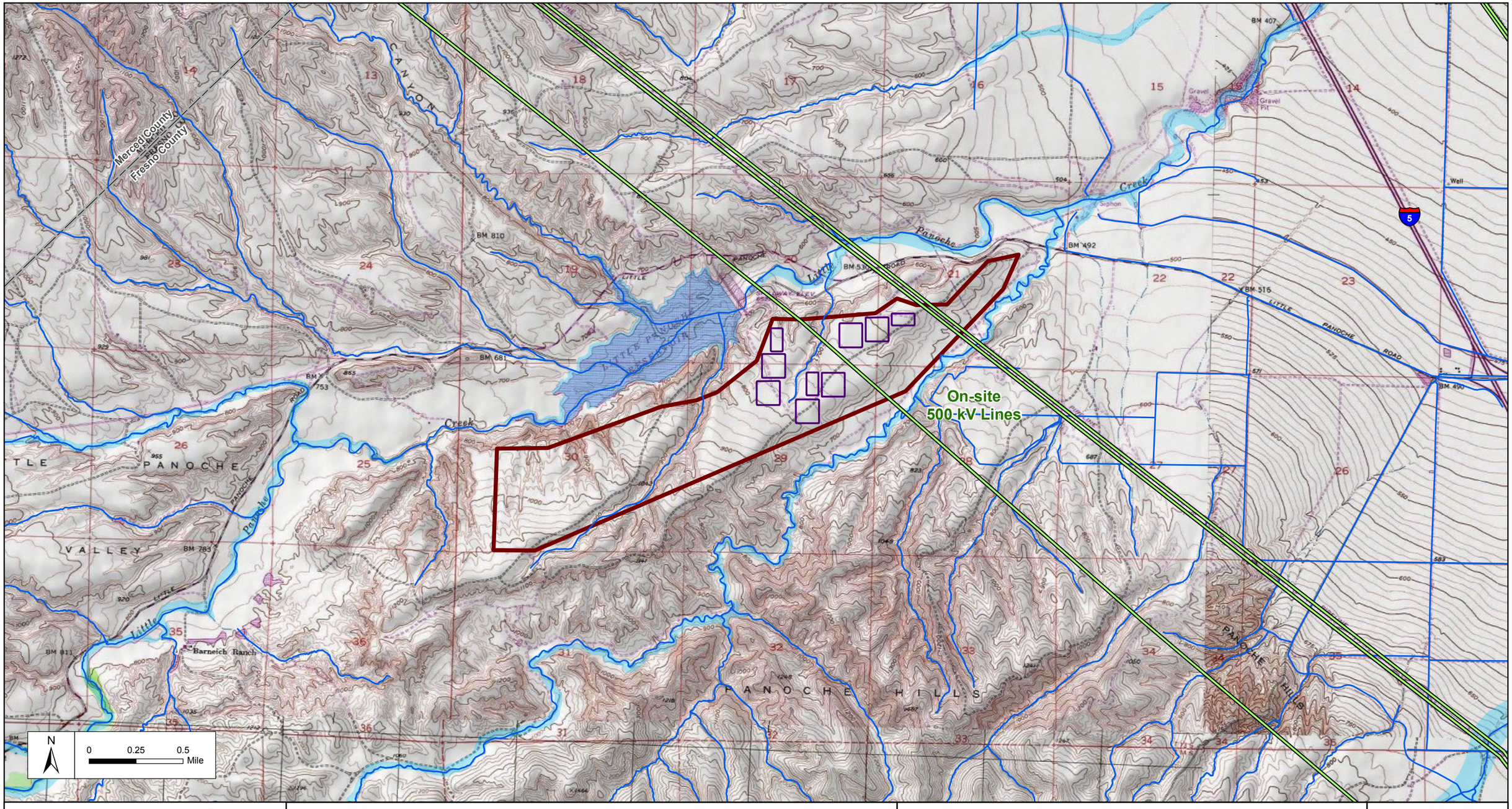
Firebaugh Alternative Site

Wetland data obtained from California Department of Water Resources;
Produced by California State University, Chico, Geographic Information Center

FIGURE

9B

JH 2015-08-26



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Legend

- Site
- Solar Array Block
- Electric Transmission
- Arroyo, Drainage (NHD)
- FEMA 100-year Floodplain

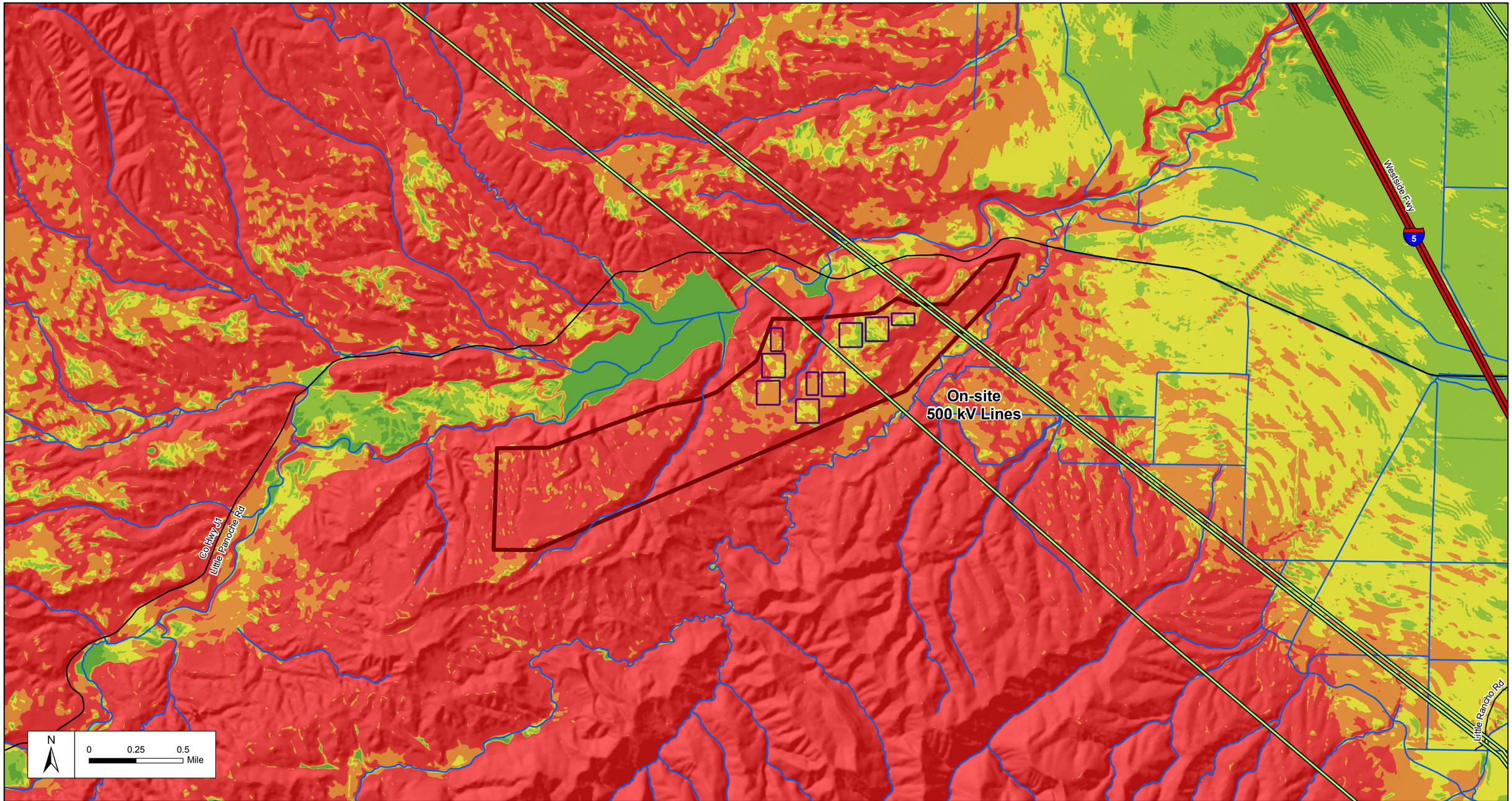
Panoche Valley Solar Project

Panoche Ranch Alternative Site

FIGURE

10A

JH 2015-08-26



305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal
PARTNERS, LLC

Legend

- Site
- Arroyo, Drainage (NHD)
- Solar Array Block
- Electric Transmission

Slope

- 0% - 1.0%
- 1.1% - 2.0%
- 2.1% - 3.0%
- 3.1% - 6.0%
- > 6.0%

Panoche Valley Solar Project

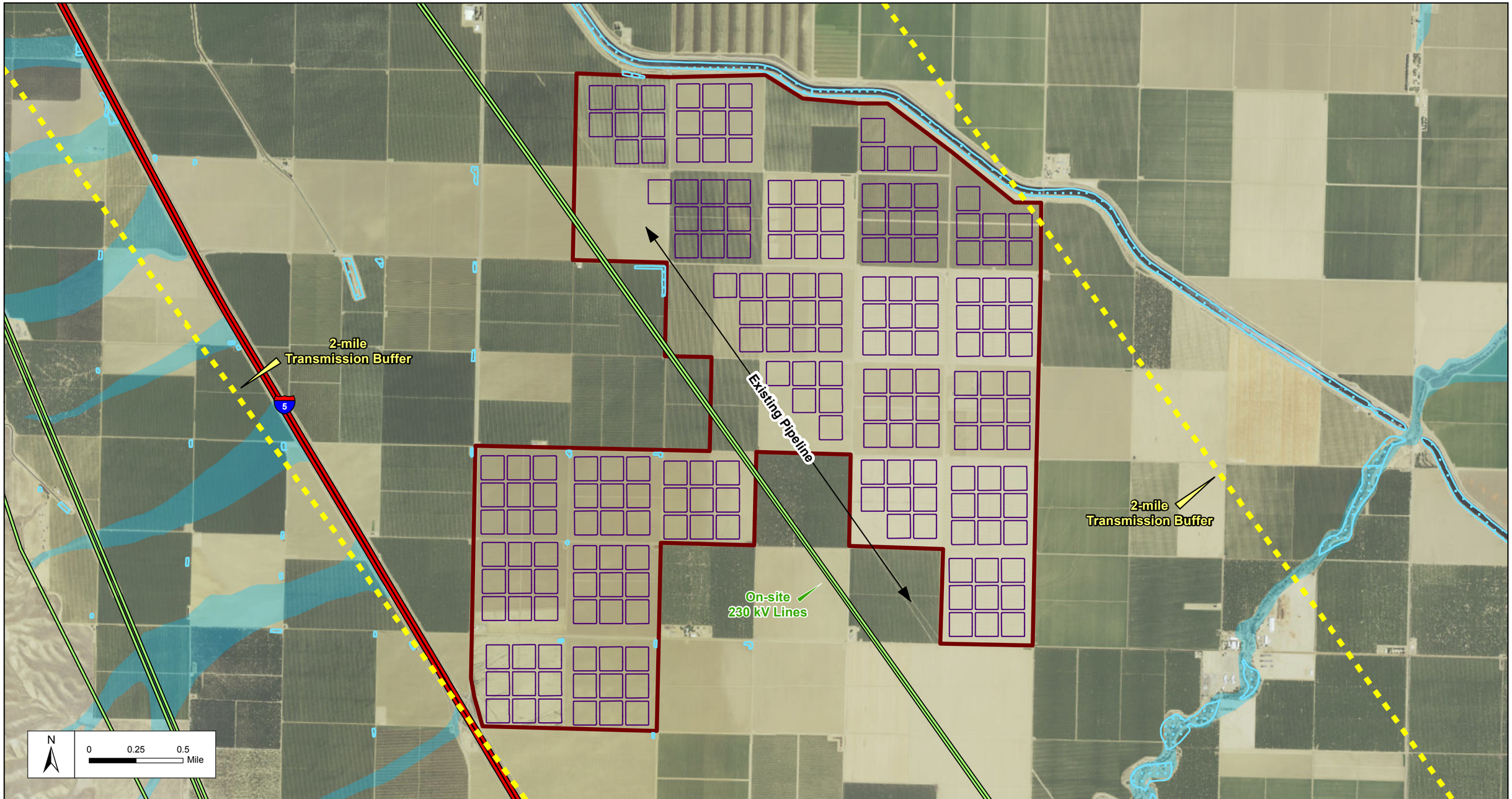
Panoche Ranch Alternative Site

Slope based on USGS 10m NED

FIGURE

10B

JH 2015-08-26



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PARTNERS, LLC

Legend

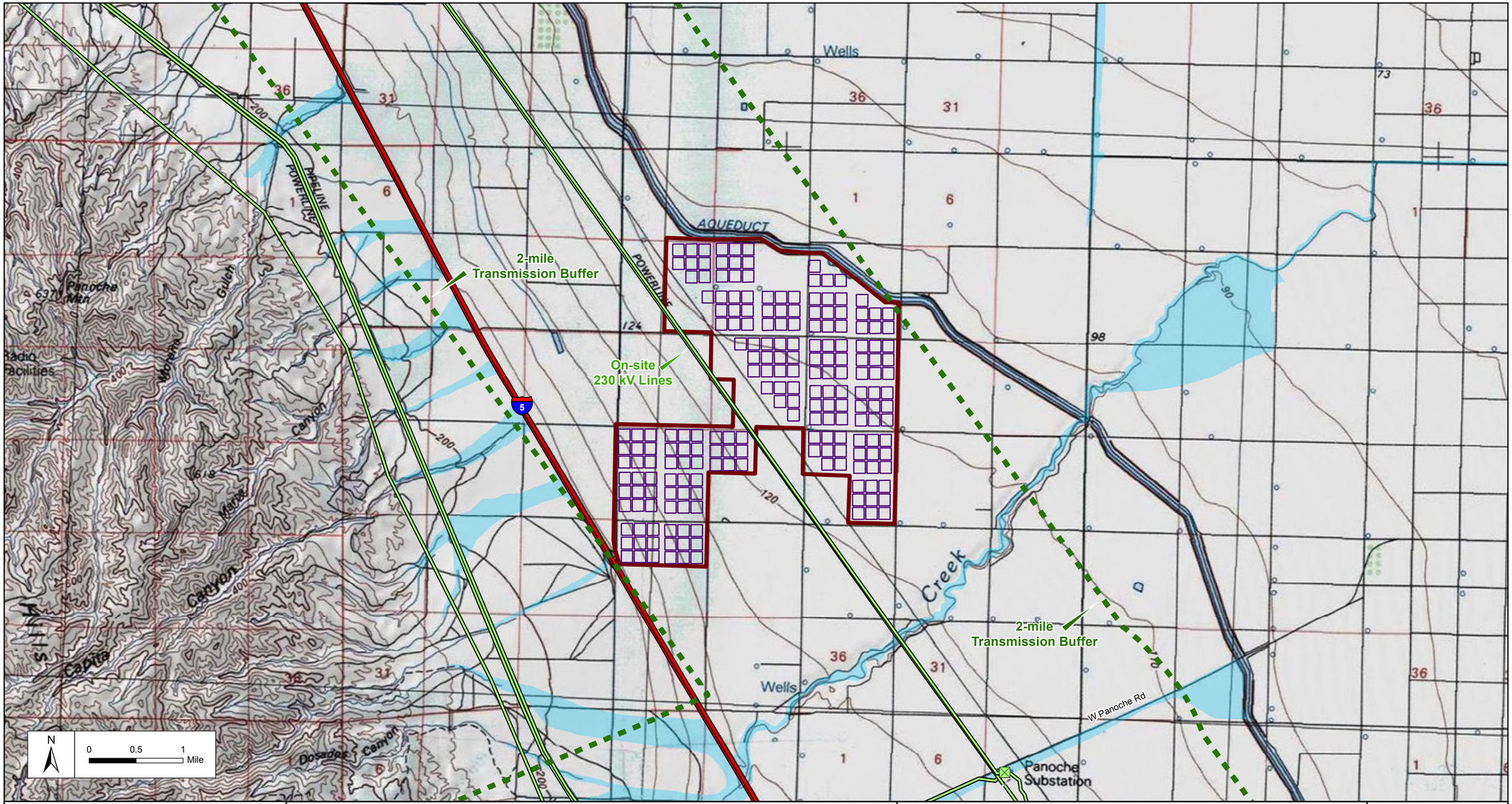
- Site
- 2 MW Array Block (200)
- Electric Transmission
- Wetland (NWI)
- FEMA 100-year Floodplain

Panoche Valley Solar Project

Panoche Substation Alternative Site

FIGURE
11A

JH 2015-08-26



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PARTNERS, LLC

Legend

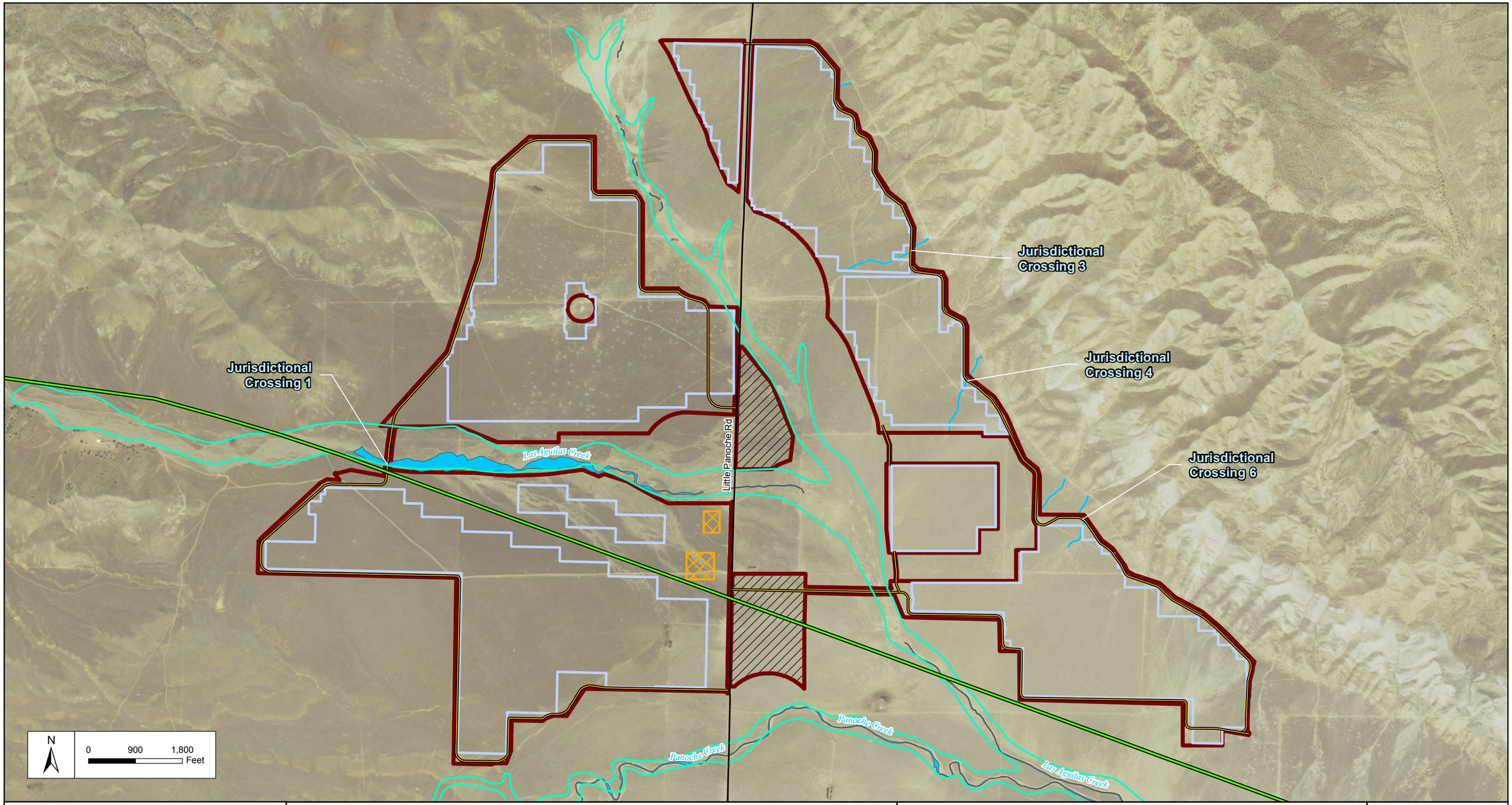
- Site
- 2 MW Array Block (200)
- Electric Substation
- Electric Transmission
- FEMA 100-year Floodplain

Panoche Valley Solar Project

Panoche Substation Alternative Site

FIGURE
11B

JH 2015-08-26



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Energy Renewal
PARTNERS, LLC

Legend

- Project Footprint
- Proposed Panel Block
- Substation, Switchyard
- Existing Transmission Line
- Perimeter Road
- Temporary Laydown Yard
- Jurisdictional Drainage
- Ordinary High Water Mark
- 100-year Floodplain

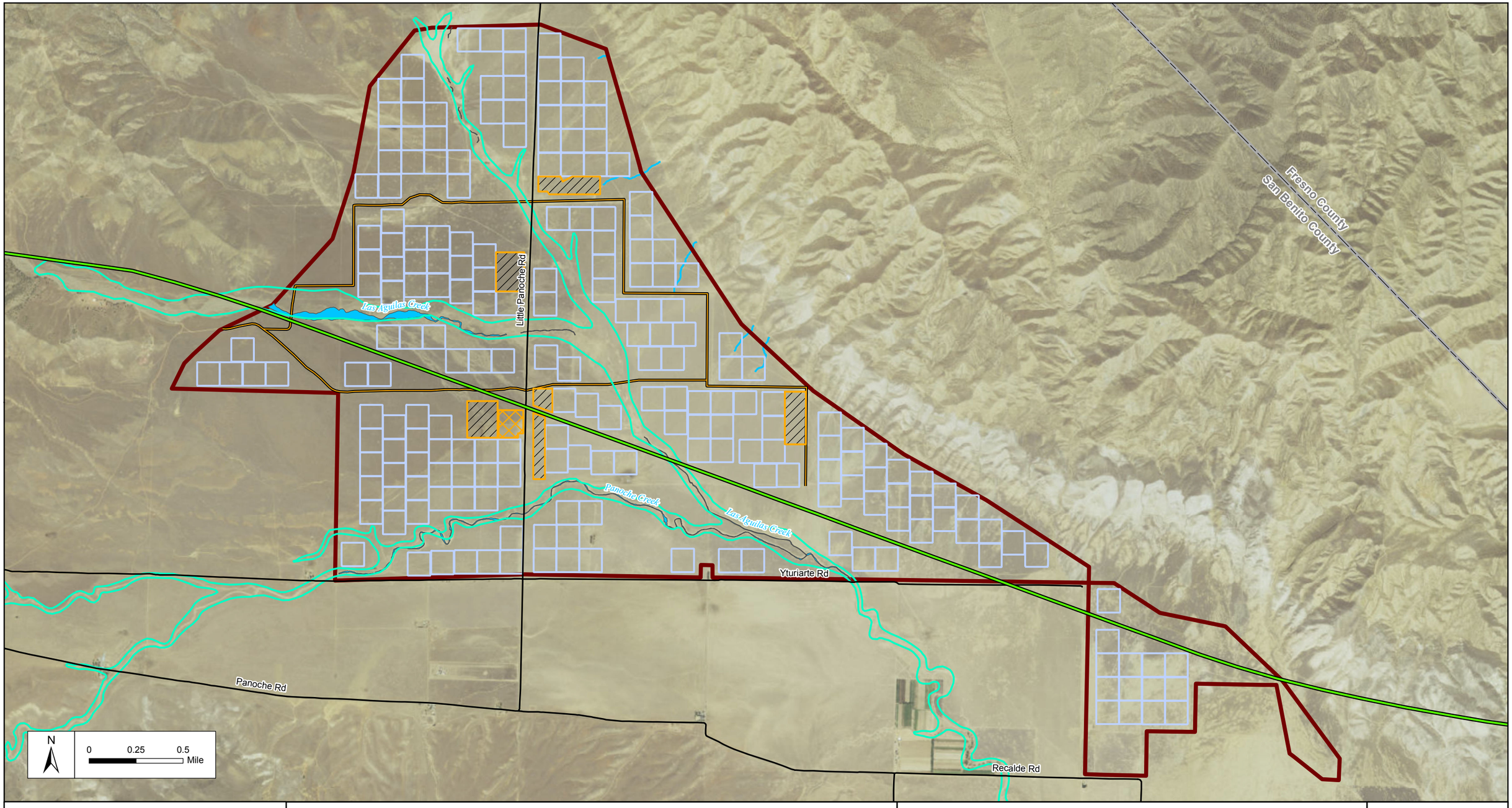
Panoche Valley Solar Project

Proposed Project Site (Preferred Alternative)

FIGURE

12

JH 2015-12-09



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Energy Renewal
PARTNERS, LLC

Legend

- Project Footprint
- Proposed Panel Block
- Project Substation
- Existing Transmission Line
- Project Road
- Laydown Yard
- Jurisdictional Drainage
- Ordinary High Water Mark
- 100-year Floodplain

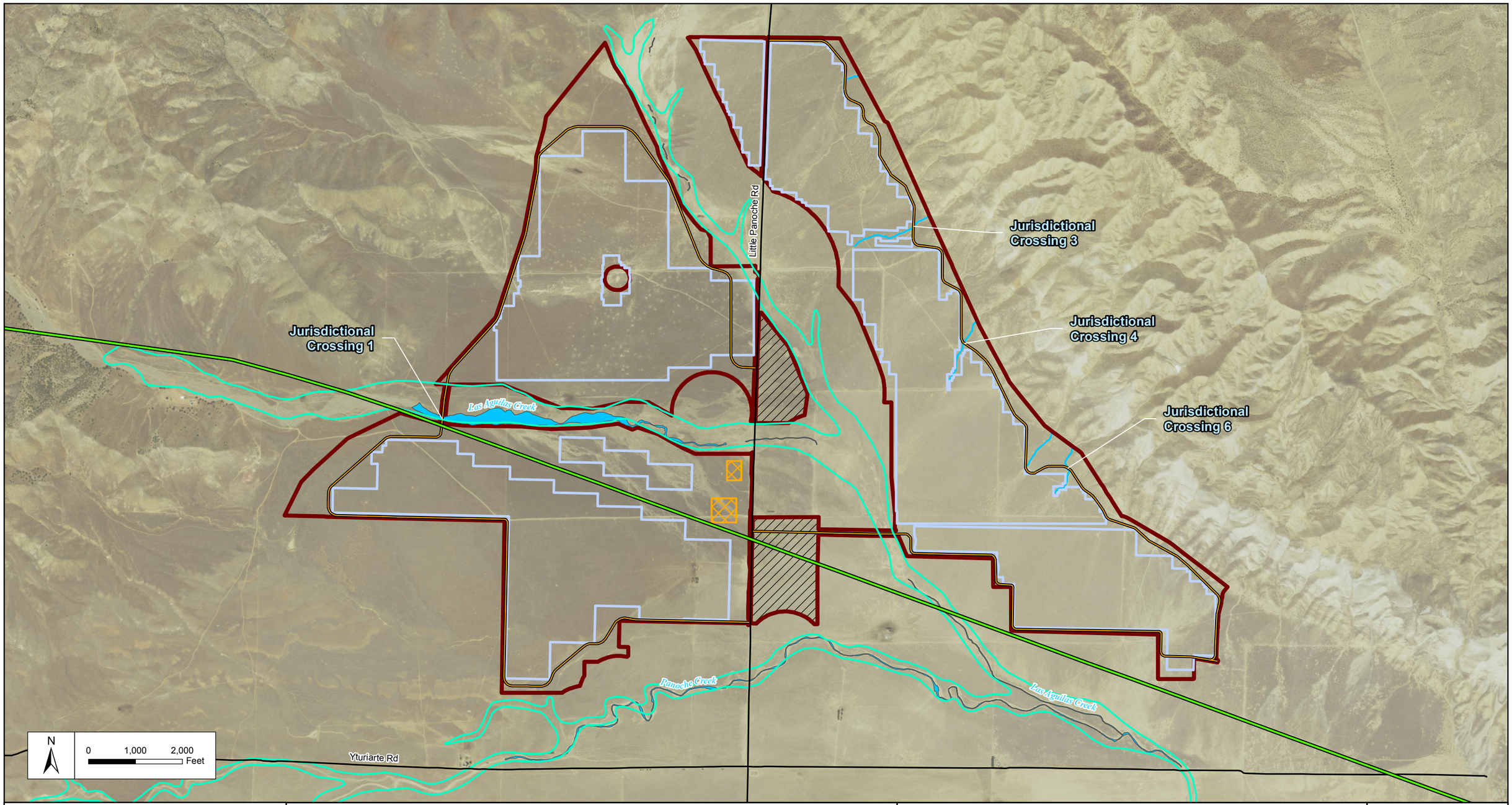
Panoche Valley Solar Project

On-Site Alternative 1 (420 MW)

FIGURE

13

JH 2015-08-26



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Energy Renewal
PARTNERS, LLC

Legend

- Project Footprint
- Proposed Panel Block
- Substation, Switchyard
- Existing Transmission Line
- Perimeter Road
- Temporary Laydown Yard
- Jurisdictional Drainage
- Ordinary High Water Mark
- 100-year Floodplain

Panoche Valley Solar Project

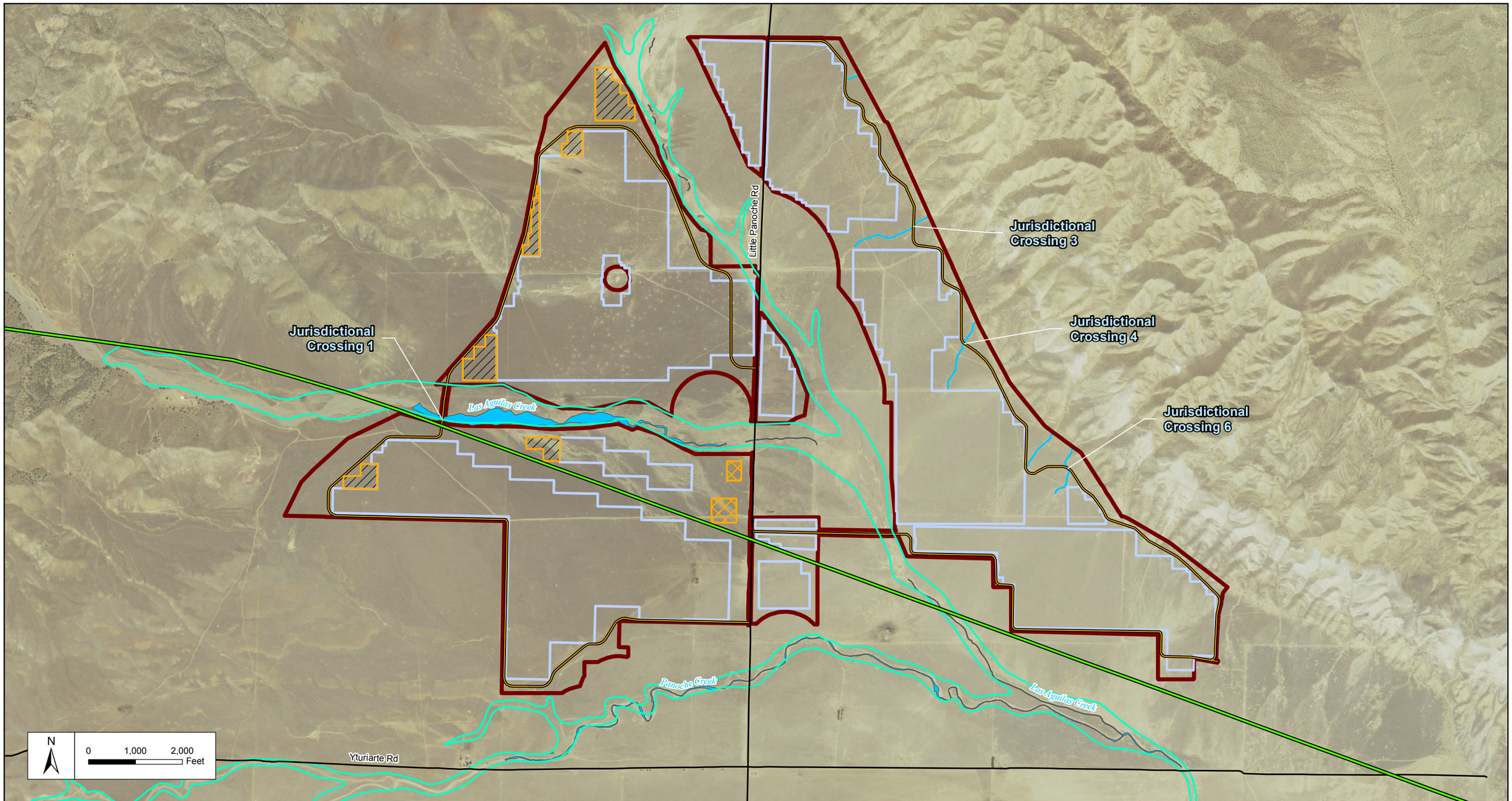
On-Site Alternative 3 (Alternative Layout)

Small Blocks Array Scenario 1

FIGURE

14

JH 2015-08-26



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Energy Renewal
PARTNERS, LLC

Legend

- Project Footprint
- Proposed Panel Block
- Substation, Switchyard
- Existing Transmission Line
- Perimeter Road
- Laydown Yard
- Jurisdictional Drainage
- Ordinary High Water Mark
- 100-year Floodplain

Panoche Valley Solar Project

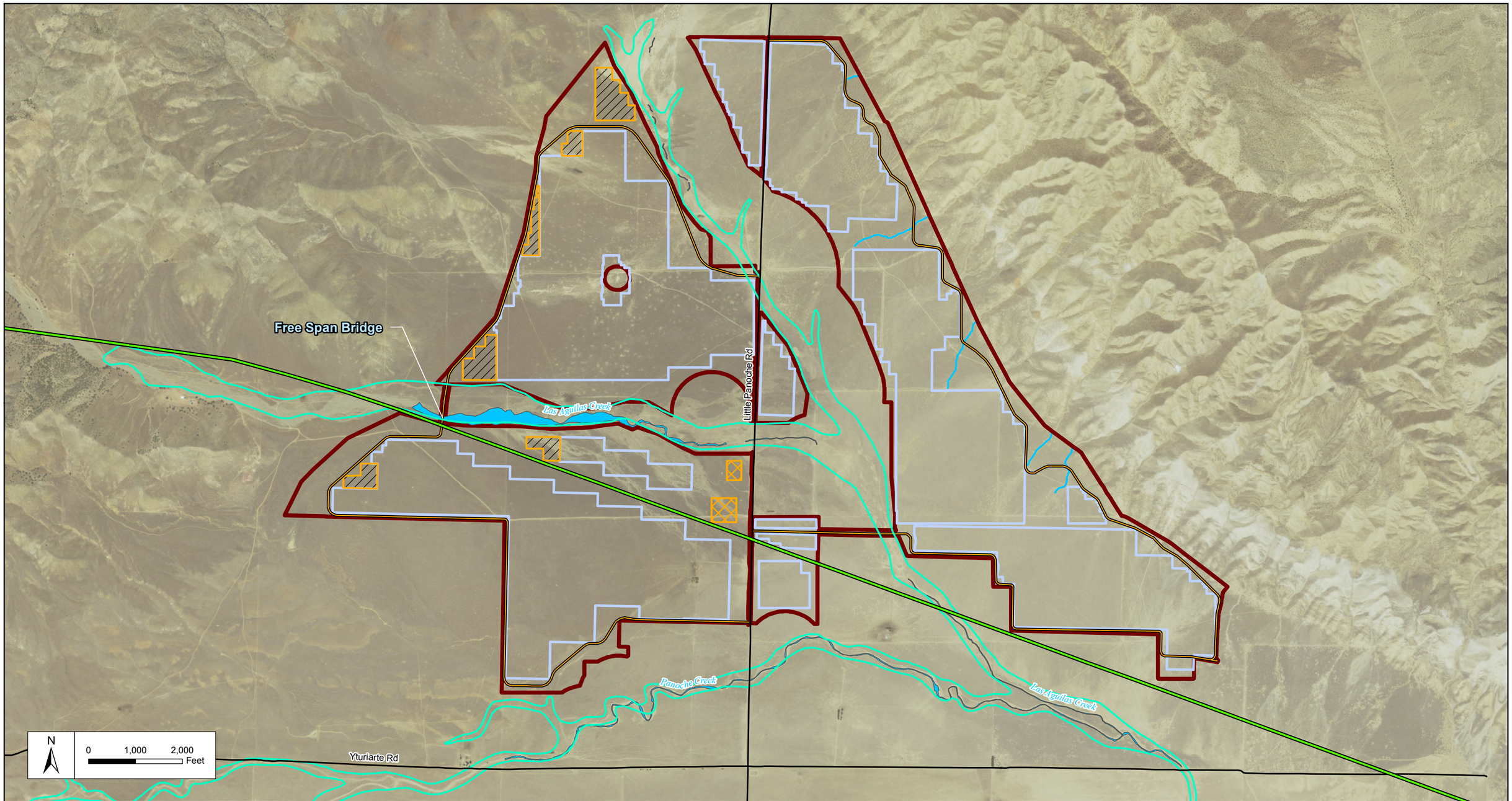
On-Site Alternative 3 (Alternative Layout)

Full Blocks Array Scenario 2

FIGURE

15

JH 2015-08-26



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West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal
PARTNERS, LLC

Legend

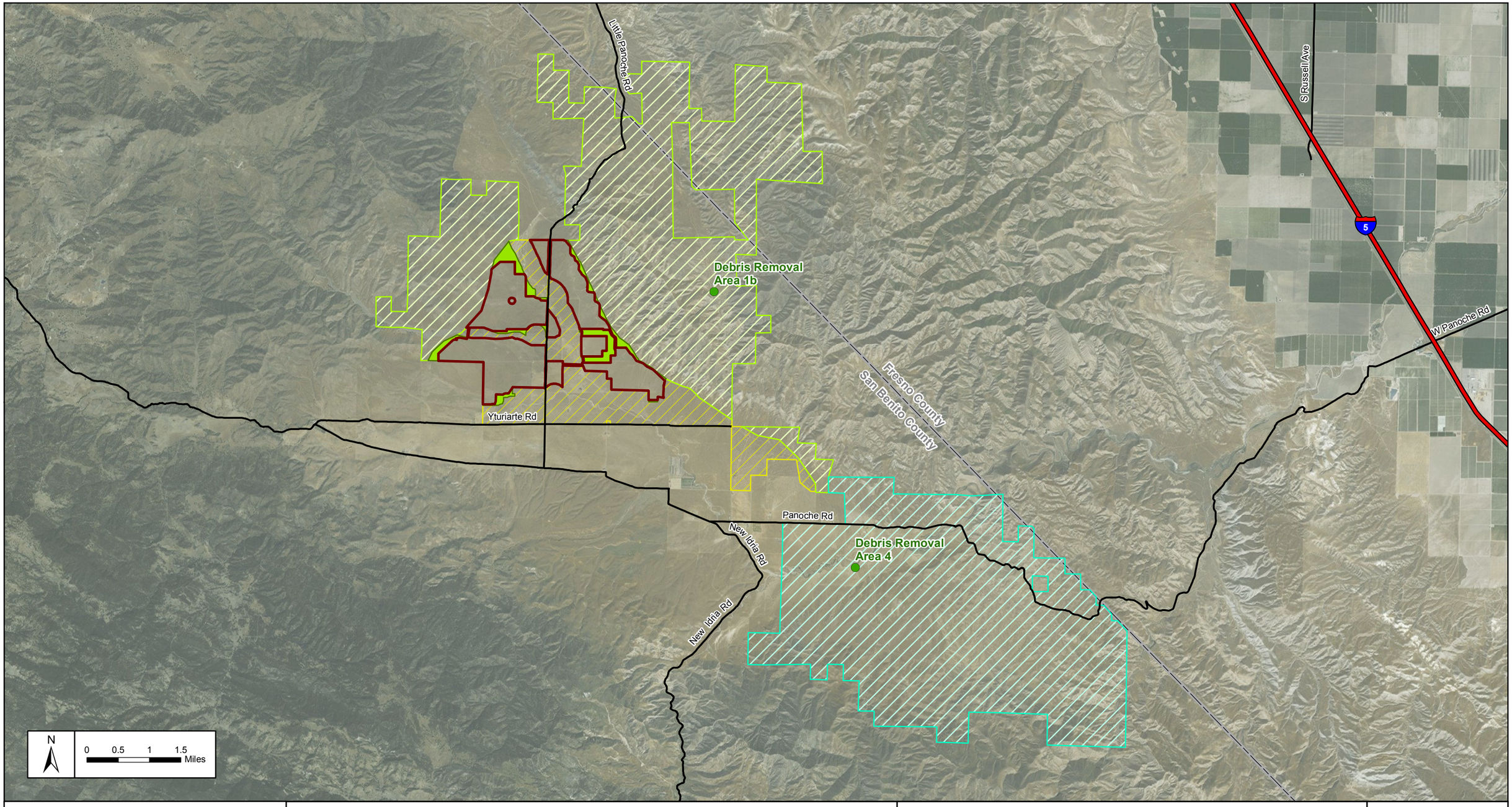
- Project Footprint
- Proposed Panel Block
- Substation, Switchyard
- Existing Transmission Line
- Perimeter Road
- Laydown Yard
- Jurisdictional Drainage
- Ordinary High Water Mark
- 100-year Floodplain

Panoche Valley Solar Project

On-Site Alternative 4 (No Action Alternative)

FIGURE
16

JH 2015-08-26



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Energy Renewal
PARTNERS, LLC

Legend

- Project Footprint
- On-site Conservation Lands
- Silver Creek Ranch Conservation Lands
- Valadeao Ranch Conservation Lands
- Valley Floor Conservation Lands

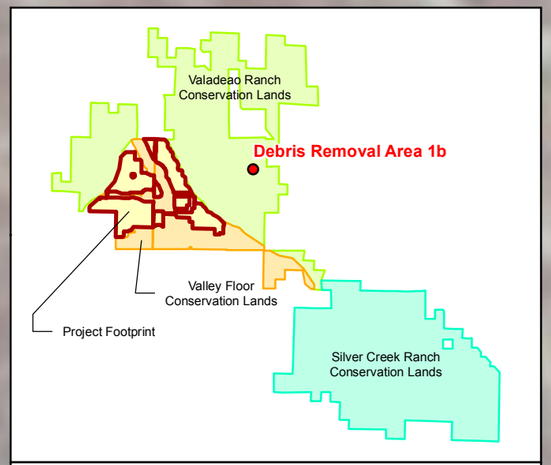
Panoche Valley Solar Project

Proposed Mitigation with Potential Impacts to Waters of the U.S.

FIGURE

17

JH 2015-12-09



Overview Map

0 2 4 Miles

Approximate Potential Impact to Waters from Debris Removal Area 1b	
Length	30 linear feet
Federal	134 ft²

N

0 10 20 Feet

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Legend

Debris Removal Area

Potential Impact to Federal Waters

Panoche Valley Solar Project

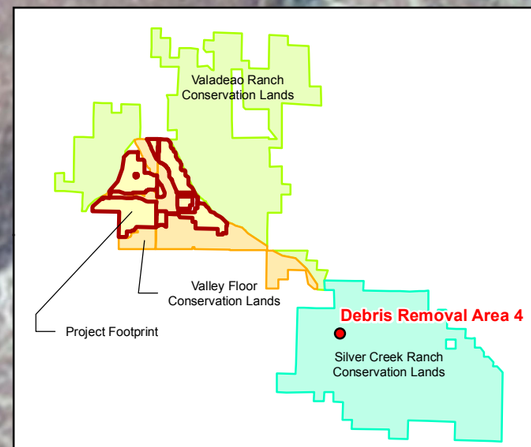
Potential Impacts to Waters of the U.S.

Debris Removal Area 1b

FIGURE

18A

JH 2015-12-09



Overview Map

0 2 4 Miles

Debris Removal Area 4

Approximate Potential Impact to Waters from Debris Removal Area 4	
Length	323 linear feet
Federal	4038 ft²

N

0 30 60 Feet

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Energy Renewal
PARTNERS, LLC

Legend

Debris Removal Area

Potential Impact to Federal Waters

Panoche Valley Solar Project

Potential Impacts to Waters of the U.S.

Debris Removal Area 4

FIGURE

18B

JH 2015-12-09

APPENDIX B
Photographs

Photo 1. View of the PVS Project Action Area looking west. Note the numerous transmission towers

Photo 2. View of the PVS Project Action Area and VFCL looking north. Note the cattle and numerous transmission towers.

Photo 3. View of the PVS Project Action Area and VFCL looking north northwest. Note the wash habitat in the VFCL.

Photo 4. View of typical wash habitat within the VFCL looking west.

APPENDIX C
Correspondence

Hollister Fire Department Correspondence

HOLLISTER FIRE DEPARTMENT

Firehouse 1 110 Fifth Street ● Hollister, CA 95023-3926
Headquarters (831) 636-4325 4325 • Fax (831) 636-4329

October 17, 2013

Eric Cherniss
PV2 Energy, LLC
431 Burgess Dr,. 2nd Floor
Menlo Park, CA 94025

San Benito County Fire Department reviewed requirements for emergency access/egress to the project area. During our conversation we discussed the bulleted points below to which I have made adjustments:

- The fire department requires a contiguous emergency access/egress road that surrounds the entire perimeter of the project area.
- **Means of emergency access and egress from various points on the** perimeter roads are required in the event of an emergency
- Emergency access/egress roads must be designed and maintained to support the imposed loads of fire apparatus of up to 30,000 lbs and shall be surfaced so as to provide all-weather driving capabilities
- Emergency access/egress roads shall support a 15 foot wide fire truck
- Pullouts are required every 2,000 -5,000 feet along the perimeter road to allow for a fire truck to pass another vehicle if needed
- Perimeter roads must contain a sufficient turning radius to allow a fire truck with a length of 31 feet to make the turn
- No overhead restrictions are allowed on emergency access/egress roads that are lower than 12 feet due to the height of the fire trucks

Thank you,

Chief O'Connor

HOLLISTER FIRE DEPARTMENT

Firehouse 1
Head Quarters

110 Fifth Street • Hollister, CA 95023-3926
(831) 636-4325 • Fax (831) 636-4329

October 2, 2014

Jeffery R. Single, Ph.D.
Regional Manager, Central Region
California Department of Fish and Wildlife
Central Region
1234 East Shaw Avenue
Fresno, California 93710

Subject: Fire Code Requirements and Access to the Proposed Panoche Valley Solar Farm

Dear Mr. Single,

Thank you for your letter dated September 22, 2014 regarding the fire access design on the proposed Panoche Valley Solar Project. As a result of your letter, which repeats our previous discussion while visiting the site on July 9, 2014 with David Hacker of Department of Fish and Wildlife, we once again considered your alternative fire access route. Our office has again determined that your suggested redesign of fire access roads does not provide a sufficient ingress and egress points to ensure the safety of my crews, project personnel, or the public at large, in the event that a fire starts on site or migrates to site from an off-site location. Please refer to our July 14, 2014 addressed to David Hacker that sets forth additional points that we considered before reaching our conclusion.

Therefore and while I appreciate the Department's efforts in preparing and explaining its proposed alternative design, as the official charged with the administration, interpretation, and enforcement of County and State Fire Code and based on consultation with my team, the Hollister/San Benito County Fire Department is requiring that the project proponent construct the fire access roads and related bridge crossings as currently designed and discussed during our recent site visit.

Sincerely,

Chief O'Connor

Firehouse 2 1000 Union Road
Hollister, CA 95023
(831) 636-4141

Firehouse 3 30 Airport Dr.
Hollister, CA 95023
(831)636-4346

Firehouse 4 24 Polk Street
San Juan Bautista, CA 95045
(831) 623-4513

HOLLISTER FIRE DEPARTMENT

Firehouse 1
Head Quarters
110 Fifth Street • Hollister, CA 95023-3926
(831) 636-4325 • Fax (831) 636-4329

cc: David Hacker, California Department of Fish and Wildlife
david.hacker@wildlife.ca.gov

Julie Vance, California Department of Fish and Wildlife
julie.vance@wildlife.ca.gov

Katerina Galacatos, United States Army Corps of Engineers
katerina.Galacatos@usace.army.mil

Byron Turner, County of San Benito Planning Department
bturner@cosb.us

Firehouse 2 1000 Union Road
Hollister, CA 95023
(831) 636-4141

Firehouse 3 30 Airport Dr.
Hollister, CA 95023
(831)636-4346

Firehouse 4 24 Polk Street
San Juan Bautista, CA 95045
(831) 623-4513

HOLLISTER FIRE DEPARTMENT

Fire Station 1 *Headquarters* 110 Fifth Street • Hollister, CA 95023-3926
(831) 636-4325 • Fax (831) 636-4329

August 27, 2015

Eric Cherniss
John Pimentel
Panoche Valley Solar LLC
845 Oak Grove Avenue, Suite 202
Menlo Park, California 94025

Panoche Valley Solar Farm

Dear Mr. Cherniss and Mr. Pimentel:

I would like to thank you for meeting with me on August 12, 2015 to brief me on the Panoche Solar Project, and to discuss emergency ingress and egress to the Project site and associated environmental concerns. We are an all-risk fire department, therefor our concerns involve not only fire prevention and fire response, but also hazardous material releases, vehicle accidents, medical aid requests and specialized rescue. We must therefore ensure we have adequate access to and throughout the Project site, all year around and under all conditions.

I have reviewed the current Project design, including its design of the perimeter road, and ingress and egress points from that perimeter road. I have also reviewed the decisions and related correspondence prepared by my predecessors (Battalion Chief Avila, and Chief O'Connor) on that topic. I also reviewed input previously received from the California Department of Fish and Wildlife, and considered carefully the most recent views of the Department regarding the proposed bridge crossing of Panoche Creek which you described to me in detail during our meeting. Finally, I conducted a comprehensive site tour several days after our meeting, so that I could assess the situation on the ground.

I agree completely with my predecessors about the absolute need for a continuous perimeter road around the Project, the necessary specifications for that road, and the need for multiple ingress and egress points at a variety of locations around the Project. All else being equal, I would strongly prefer the current Project design not be changed insofar as emergency access is concerned. At the same time, however, I am sensitive to the specific concerns raised by the Department with respect to the bridge over Panoche Creek. Knowing that you have worked very hard to address such concerns throughout the development of the Project design, I felt obligated to take a fresh look at the whole emergency access design, including the proposed Panoche Creek bridge.

HOLLISTER FIRE DEPARTMENT

Fire Station 1 110 Fifth Street • Hollister, CA 95023-3926
Headquarters (831) 636-4325 • Fax (831) 636-4329

Based on my review, I would strongly prefer from an emergency response standpoint to keep the proposed Panoche Creek bridge, as designed. However, eliminating the Panoche Creek bridge is acceptable, under two conditions. First, all of the other Project emergency access elements in the current Project design must be retained and be constructed as currently designed. This includes constructing the perimeter road (including the bridge crossing over Las Aguilas Creek on the west side of the Project and the crossings over unnamed drainages on the east side of the Project site) to meet All Weather standards, meaning that it is capable of carrying a 42 ton loading or equivalent during and after a 10 year storm with no significant damage to the road. Second, to compensate for the reduction in emergency response capabilities caused by the loss of the Panoche Creek bridge, emergency access areas must be established on the Project. Those emergency access areas must be included in the Project's Emergency Response Plans/Emergency Evacuation Plans(which Plans are required by the Project mitigation measures imposed by the County.) While eliminating the Panoche Creek Bridge would compromise Fire Department response times to, and egress from, the west and southwest portions of the Project site, the combination of existing road access through the south-central portion of the Project (via Little Panoche Road) and pre-defined emergency access areas is sufficient under these circumstances.

Thank you for working with the Hollister Fire Department to ensure the safety of your project and of those in the Panoche Valley.

Very truly yours,

Bob Martin Del Campo
Hollister Fire Chief

Westlands Correspondence

BURNS McDONNELL

January 27, 2015

Westside Holdings, LLC
4125 W. Noble Ave., Suite 310
Visalia, CA 93277

Westlands Water District Office
3130 N. Fresno Street
P.O. Box 6056
Fresno, CA 93703-6056

Re: Westlands Solar Park Competitive Renewable Energy Zone (CREZ) – Property Inquiry

Dear Sir or Madam:

On behalf of Panoche Valley Solar LLC (PVS) please accept this letter requesting information regarding the availability of an approximately 2,500-acre parcel of land located within the proposed 24,000 acre Westlands Solar Park CREZ that is suitable for construction of a 247 megawatt (MW) solar electrical generating facility.

We are requesting information on specific 2,500-acre parcels that would meet the following minimum criteria:

1. Available for immediate purchase or long-term lease within Westlands Solar Park;
2. Within 2,000-feet of an existing double circuit 230 kilovolt (kV) transmission line with sufficient capacity to support 247 MW of solar generation
3. Capable of facilitating interconnection to PG&E's existing electrical system before the year 2020.
4. Completion of required local, state, and federal permitting (including CEQA compliance) to allow for a start of construction by 2018. We understand that a Notice of Preparation of a draft Environmental Impact Report (EIR) was issued in April 2013, yet a draft EIR has not yet been issued for public comment. Please provide an update on the anticipated issuance date of a Final EIR.

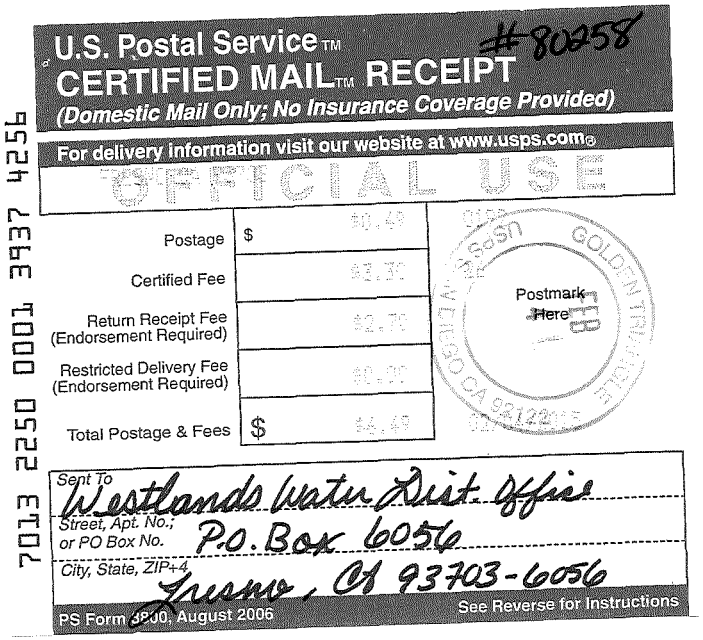
We appreciate your attention to this matter. Please feel free to contact me at 858-320-2941 with any questions or comments.

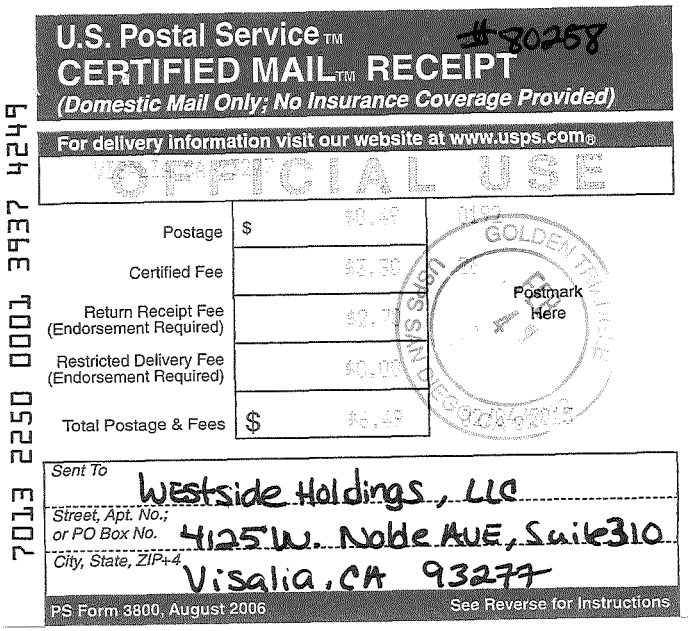
Sincerely,

Jennifer L. Kaminsky
Project Manager

4225 Executive Square \ Suite 500 \ La Jolla, CA 92037
O 858-320-2920 \ **F** 858-550-9951 \ burnsmcd.com
CA Contractor License 755238

cc: Eric Cherniss, Panoche Valley Solar LLC
Trisha Elizondo, Energy Renewal Partners





SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: #80258

Westlands Water Dist. Office
P.O. Box 6056
Fresno, CA 93703-6056

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7013 2250 0001 3937 4256

PS Form 3811, July 2013 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: #80258

Westside Holdings, LLC
4125 W. Noble Ave., Suite 310
Visalia, CA 93277

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☒ Agent
☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery 2.7.15

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7013 2250 0001 3937 4249

PS Form 3811, July 2013 Domestic Return Receipt

USACE Preliminary Jurisdictional Delineation Correspondence

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET, 16TH FLOOR
SAN FRANCISCO, CALIFORNIA 94103-1398

inREPLY TO
ATTENTION OF

Regulatory Division

OCT 18 2010

Subject: File No. 2009-00443S

Mr. Kevin Lincoln
Power Engineers, Inc.
P.O. Box 1066
3940 Glenbrook Drive
Hailey, Idaho 83333

Dear Mr. Lincoln:

This letter is written in regard to our February 5, 2010, preliminary jurisdictional determination for the Panoche Valley Solar Farm project site. This project site is located approximately thirty miles south of Los Banos, in San Benito County, California. The project site encompasses approximately 4, 900 acres in Sections 3-5, 8-11, and 13-16, of Township 14S, Range 10E and Sections 18-19 of Township 15S, 11E of the Cerro Colorado, Llanda, Mercy Hot Springs, and Panoche USGS 7.5 minute topographic quadrangle maps, respectively.

A preliminary jurisdictional determination was issued for this project site on February 5, 2010, pursuant to the Regulatory Guidance Letter, RGL 08-02. The District Engineer retains the discretion to use an approved jurisdictional determination in any other circumstance where he determines that it is appropriate given the facts of the particular case. The San Francisco District has re-examined the conditions of the project site and in particular the surface hydrologic connection between the project site and a navigable water of the U.S. We have determined that the waters present on this project site are jurisdictional waters of the United States. Therefore, we are rescinding the February 5, 2010, preliminary jurisdictional determination and are issuing an approved jurisdictional determination (see enclosed map dated October 15, 2010). The October 15, 2010, map supersedes the preliminary jurisdictional determination map dated February 1, 2010.

The enclosed delineation map entitled, "SPN File 2009-00443S, Approved Jurisdictional Determination, Panoche Valley Solar Farm," in one (1) sheet dated October 15, 2010, accurately depicts the extent and location of other waters of the United States within the boundary area of the site that are subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act. This approved jurisdictional determination is based on the current conditions of the site, as verified during a field investigation of December 14, 2009, and a review of other data submitted by EPA Region 9. This approved jurisdictional determination will expire in five (5) years from the date of this letter, unless new information or a change in field conditions warrants a revision to the delineation map prior to the expiration date. The lateral

defined by the presence of scouring, sediment deposits, shelving, debris lines, and transitional vegetation on the banks. The basis for this approved jurisdictional determination is further explained in the enclosed *Approved Jurisdictional Determination Form*. This approved jurisdictional determination is presumed to be consistent with the official interagency guidance of June 5, 2007, interpreting the Supreme Court decision, *Rapanos v. United States*, 126 S. Ct. 2208 (2006).

You are advised that the approved jurisdictional determination may be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. Part 331 (65 Fed. Reg. 16,486; Mar. 28, 2000), and outlined in the enclosed flowchart and *Notification of Administrative Appeal Options, Process, and Request for Appeal* (NAO-RFA) Form. If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to this office for reconsideration of this decision. If you do not provide new information to this office, you may elect to submit a completed NAO-RFA Form to the Division Engineer to initiate the appeal process; the completed NAO-RFA Form must be submitted directly to the Appeal Review Officer at the address specified on the NAO-RFA Form. You will relinquish all rights to a review or an appeal, unless this office or the Division Engineer receives new information or a completed NAO-RFA Form within sixty (60) days of the date on the NAO-RFA Form. If you intend to accept the approved jurisdictional determination, you do not need to take any further action associated with the Administrative Appeal Process.

You may refer any questions on this matter to Katerina Galacatos of my Regulatory staff by telephone at 415-503-6778 or by e-mail at Katerina.Galacatos@usace.army.mil. All correspondence should be addressed to the Regulatory Division, South Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: http://www.spn.usace.army.mil/regulatory/.

Sincerely,

Jane M. Hicks

Jane M. Hicks
Chief, Regulatory Division

Enclosures

Copy Furnished (w/ encls):
Solargen Energy, Cupertino, CA (Attn. Eric Cherniss)

Copy Furnished (w/ encl 1 only):
CA RWQCB, Fresno, CA

Copies Furnished (w/o encls):
U.S. EPA, San Francisco, CA
CA SWRCB, Sacramento, CA

PRELIMINARY JURISDICTIONAL DETERMINATION FORM
San Francisco District

This Preliminary Jurisdictional Determination finds that there *"may be"* waters of the United States in the subject review area and identifies all such aquatic features, based on the following information:

Regulatory Division: South Branch **File Number**: 2009-00443S **PJD Completion Date**: 12-5-14

Review Area Location
City/County: San Benito County State: California
Nearest Named Waterbody: Panoche Creek/LasAquilas Creeks
Approximate Center Coordinates of Review Area
Latitude (degree decimal format): 36°37'55.11"°N
Longitude (degree decimal format): -120°52'35.51°W
Approximate Total Acreage of Review Area: 5020 acres

File Name: Panoche Solar

Applicant or Requestor Information
Name: Mr. Eric Cherniss
Company Name: PV2, LLC
Street/P.O. Box: 845 Oak Grove Ave, Suite 202
City/State/Zip Code: Menlo Park, Ca, 94025

Estimated Total Amount of Waters in Review Area

Non-Wetland Waters: 40199 lineal feet feet wide and/or
31.80 acre(s) Flow Regime: Ephemeral

Wetlands: None lineal feet feet wide and/or
acre(s) Cowardin Class: Select

Name of Section 10 Waters Occurring in Review Area
Tidal: None
Non-Tidal: None

☐ Office (Desk) Determination
☒ Field Determination:
Date(s) of Site Visit(s): 11-10-14

SUPPORTING DATA: Data reviewed for Preliminary JD (check all that apply – checked items should be included in case file and, where checked and requested, appropriately reference sources below)

☒ Maps. Plans, plots or plat submitted by or on behalf of applicant/requestor (specify): JD Determination Pioneer Engineers, November 2009 and Panoche Valley Solar Project Transmission Line Jurisdictional Determination Report, October 30, 2014

☐ Data sheets submitted by or on behalf of applicant/requestor (specify):

- ☐ Corps concurs with data sheets/delineation report.
- ☐ Corps does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps.
☐ Corps navigable waters' study (specify):
☐ U.S. Geological Survey Hydrologic Atlas:
- ☐ USGS NHD data.
- ☐ USGS HUC maps.

☒ U.S. Geological Survey map(s) (cite quad name/scale):
☐ USDA Natural Resources Conservation Service Soil Survey.
☐ National wetlands inventory map(s) (specify):
☐ State/Local wetland inventory map(s) (specify):
☐ FEMA/FIRM maps.
☐ 100-year Floodplain Elevation (specify, if known):
☒ Photographs: ☒ Aerial (specify name and date): Google earth images
☒ Other (specify name and date): Photographs provided in aboved referenced documents
☒ Previous JD determination(s) (specify File No. and date of response letter): October 10, 2010 JD
☐ Other information (specify):

IMPORTANT NOTE: If the information recorded on this form has not been verified by the Corps, the form should not be relied upon for later jurisdictional determinations.

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable) 12/10/14

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

Aquatic Resource I.D.	Latitude (degree decimal format)	Longitude (degree decimal format)	Cowardin Class and Flow Regime	Estimated Area or Lineal Feet of Aquatic Resource	Type of Aquatic Resource
lac1	36.636589°N	-120.8921°W	Riverine Flow: Intermittent	7058 lineal ft ft wide 19.65 acre(s)	River
lac2	36.625231°N	-120.884664°W	Riverine Flow: Intermittent	1618 lineal ft ft wide 0.54 acre(s)	River
lac3	36.621492°N	-120.857069°W	Riverine Flow: Intermittent	5931 lineal ft ft wide 2.05 acre(s)	River
pc1	36.623733°N	-120.870194°W	Riverine Flow: Intermittent	18092 lineal ft ft wide 8.77 acre(s)	River
ud1	36.659022°N	-120.884458°W	Riverine Flow: Ephemeral	343 lineal ft ft wide 0.12 acre(s)	Natural Creek
ud2	36.655167°N	-120.884453°W	Riverine Flow: Ephemeral	176 lineal ft ft wide 0.06 acre(s)	Natural Creek
ud3	36.654292°N	-120.884158°W	Riverine Flow: Ephemeral	236 lineal ft ft wide 0.08 acre(s)	Natural Creek
ud4	36.652453°N	-120.883211°W	Riverine Flow: Ephemeral	359 lineal ft ft wide 0.12 acre(s)	Natural Creek
ud5	36.651278°N	-120.881994°W	Riverine Flow: Ephemeral	238 lineal ft ft wide 0.08 acre(s)	Natural Creek
ud6	36.650419°N	-120.881994°W	Riverine Flow: Seasonal	197 lineal ft ft wide 0.07 acre(s)	Natural Creek
ud10	36.656508°N	-120.870847°W	Riverine Flow: Seasonal	294.4 lineal ft 3 ft wide 0.02 acre(s)	Natural Creek
ud14	36.648083°N	-120.866283°W	Riverine Flow: Seasonal	1868.8 lineal ft 1.5 ft wide 0.06 acre(s)	Natural Creek
ud19	36.641997°N	-120.861289°W	Riverine Flow: Seasonal	1652.3 lineal ft 1.5 ft wide 0.06 acre(s)	Natural Creek
ud21	36.635244°N	-120.856461°W	Riverine Flow: Seasonal	935 lineal ft 3 ft wide 0.06 acre(s)	Natural Creek
ud22	36.634064°N	-120.853742°W	Riverine Flow: Seasonal	1201 lineal ft 2 ft wide 0.06 acre(s)	Natural Creek
	°Select	- °Select	Select Flow: Select	lineal ft ft wide acre(s)	Select
	°Select	- °Select	Select Flow: Select	lineal ft ft wide acre(s)	Select
	°Select	- °Select	Select Flow: Select	lineal ft ft wide acre(s)	Select

JOHNSON MARIGOT CONSULTING, LLC

December 10, 2014

Regulatory Division
Attn: Ms. Katerina Galacatos
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, California 94103

RE: Panoche Solar, Preliminary Jurisdictional Determination Request

Dear Ms. Galacatos:

In response to your request, please find the enclosed documents in support of the Panoche Solar project located in San Benito County, California. Enclosed you will find revised jurisdictional determination maps depicting all waters of the U.S. located within the project area study boundary. The enclosed maps are based on the project site verification completed by USACE in November of 2009, the report titled, "*Panoche Valley Solar Project Transmission Line*" submitted on October 30, 2014, the report tilted, "*Transmission Line Natural Resources Assessment Report*" dated October 1, 2014, and a field visit conducted on November 10, 2014. Additionally, please find the enclosed signed preliminary jurisdictional determination form and a photo-log documenting the site visit completed in November of 2014.

We hope that with submittal of the enclosed documents, you have all items necessary to finalize a preliminary jurisdictional determination for the project site. If you have any questions, concerns, or would like to schedule a site visit please contact me at your earliest convenience at (415) 317- 4941 or by email Paula.Gill@Johnson-Marigot.com.

Respectfully,

Paula Gill

Johnson Marigot Consulting, LLC

PRELIMINARY JURISDICTIONAL DETERMINATION FORM
San Francisco District

This Preliminary Jurisdictional Determination finds that there *"may be"* waters of the United States in the subject review area and identifies all such aquatic features, based on the following information:

Regulatory Division: South Branch **File Number**: 2009-00443S **PJD Completion Date**: 12-5-14

Review Area Location
City/County: San Benito County State: California
Nearest Named Waterbody: Panoche Creek/LasAquilas Creeks
Approximate Center Coordinates of Review Area
Latitude (degree decimal format): 36°37'55.11"°N
Longitude (degree decimal format): -120°52'35.51°W
Approximate Total Acreage of Review Area: 5020 acres

File Name: Panoche Solar

Applicant or Requestor Information
Name: Mr. Eric Cherniss
Company Name: PV2, LLC
Street/P.O. Box: 845 Oak Grove Ave, Suite 202
City/State/Zip Code: Menlo Park, Ca, 94025

Estimated Total Amount of Waters in Review Area

Non-Wetland Waters: 40199 lineal feet feet wide and/or
31.80 acre(s) Flow Regime: Ephemeral

Wetlands: None lineal feet feet wide and/or
acre(s) Cowardin Class: Select

Name of Section 10 Waters Occurring in Review Area
Tidal: None
Non-Tidal: None

☐ Office (Desk) Determination
☒ Field Determination:
Date(s) of Site Visit(s): 11-10-14

SUPPORTING DATA: Data reviewed for Preliminary JD (check all that apply – checked items should be included in case file and, where checked and requested, appropriately reference sources below)

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	°Select	- °Select	Select Flow: Select	lineal ft ft wide acre(s)	Select
	°Select	- °Select	Select Flow: Select	lineal ft ft wide acre(s)	Select

UD1
UD2
UD3
UD4
UD5
UD6
UD10
UD14
UD19
UD21
UD22
LAC1
LAC2
LAC3
PC1
Las Aguilas Creek
Las Aguilas Creek
Las Aguilas Creek
Panoche Creek
Little Panoche Rd
Ytuarte Rd
Ytuarte Rd
Fresno County
San Benito County

Jurisdictional Water		
ID	Linear Feet	Acres
LAC1	7058	19.65
LAC2	1618	0.54
LAC3	5931	2.05
PC1	18092	8.77
UD1	343	0.12
UD2	176	0.06
UD3	236	0.08
UD4	359	0.12
UD5	238	0.08
UD6	197	0.07
UD10	294	0.02
UD14	1869	0.06
UD19	1652	0.06
UD21	935	0.06
UD22	1201	0.06

N

0 400 800 1,600 Feet

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

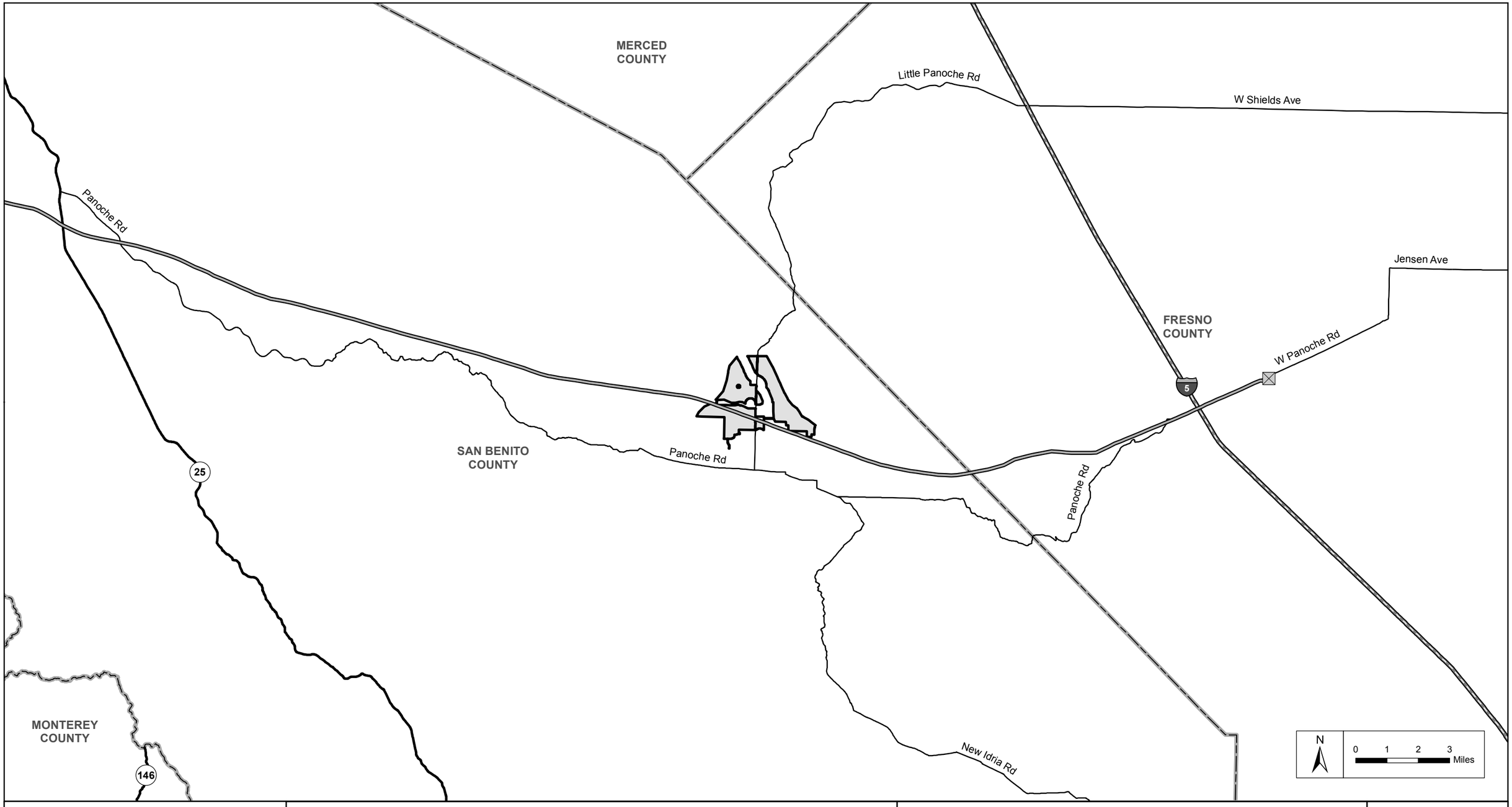
- Drainage Study Area
- Project Footprint
- Valley Floor Conservation Lands
- Existing Electric Transmission Line
- OHWM Transect Line
- Ordinary High Water Mark
- Jurisdictional Drainage Centerline

Panoche Valley Solar Project

Federal Jurisdictional Waters

FIGURE
1

JH 2014-12-09



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Energy Renewal
PARTNERS, LLC

Legend

- Project Footprint
- County Boundary
- Panoche Substation
- Electric Transmission

Panoche Valley Solar Project

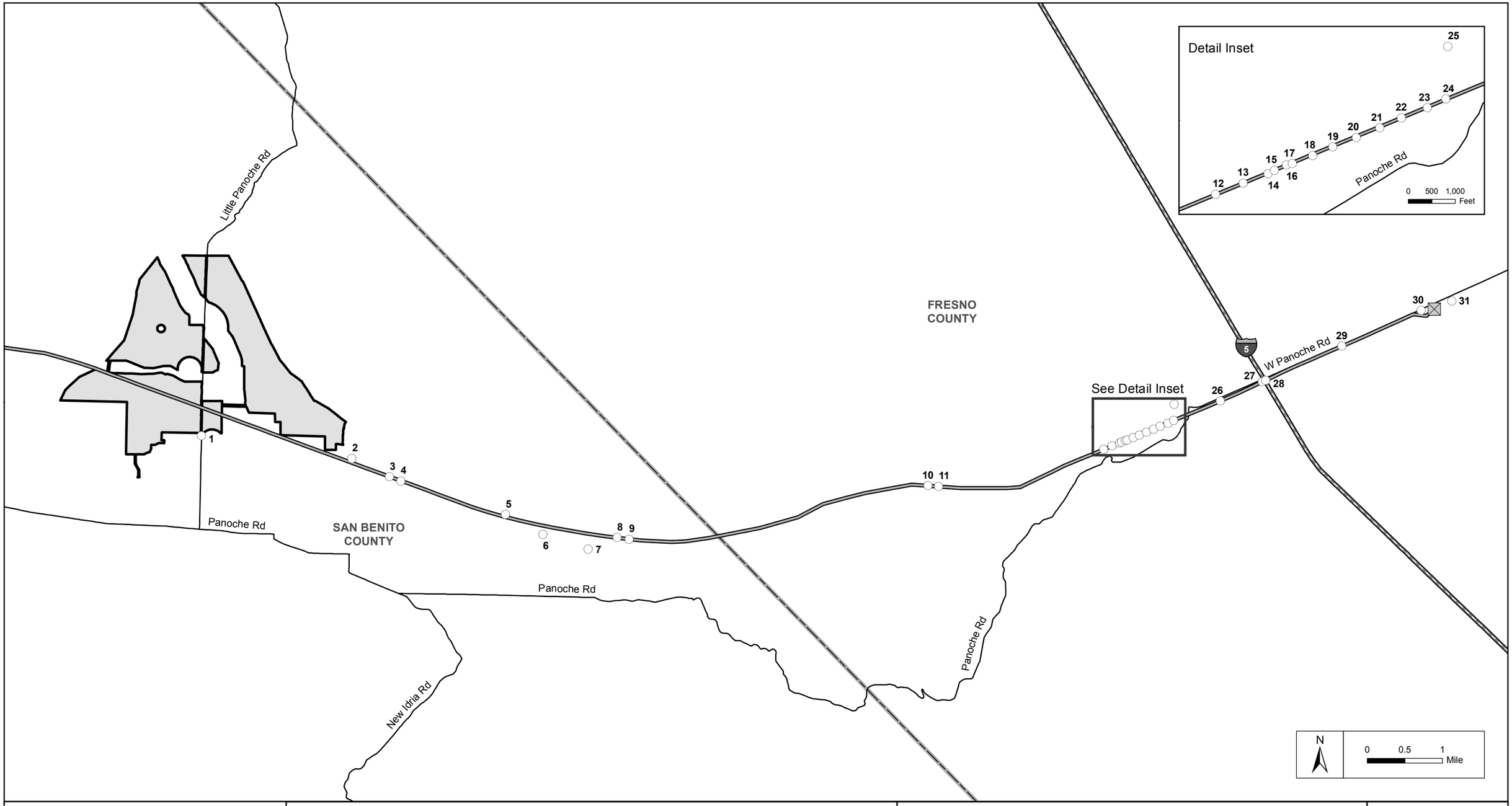
Telecom Upgrades

Regional Overview

FIGURE

2

JH 2014-12-05



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Legend

- Project Footprint
- County Boundary
- Panoche Substation
- Electric Transmission
- Location of Jurisdictional Determination Study Area

Panoche Valley Solar Project

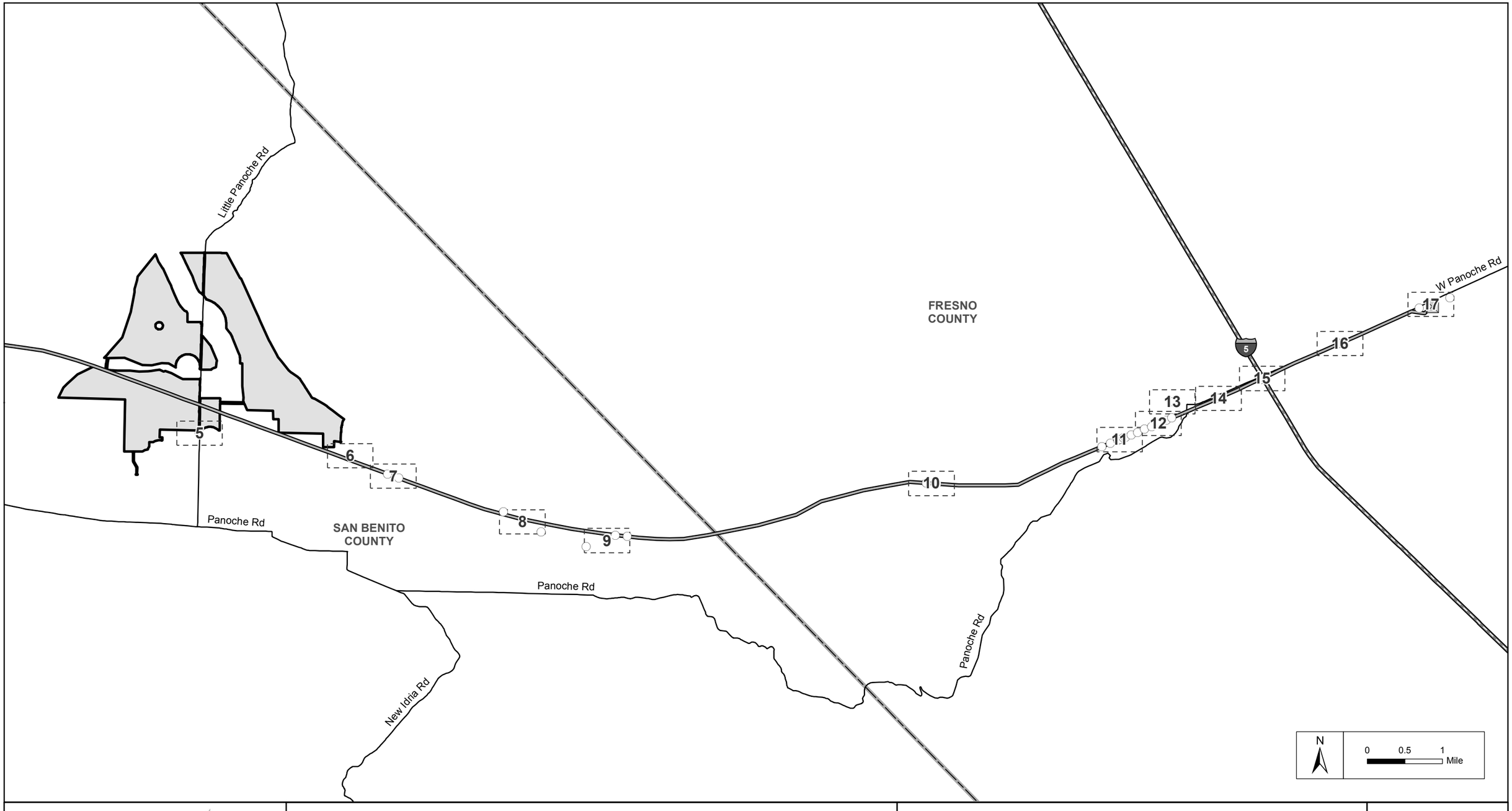
Telecom Upgrades

Project Overview

FIGURE

3

JH 2014-12-05



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Legend

- Project Footprint
- County Boundary
- Panoche Substation
- Electric Transmission
- Map Figure Boundary

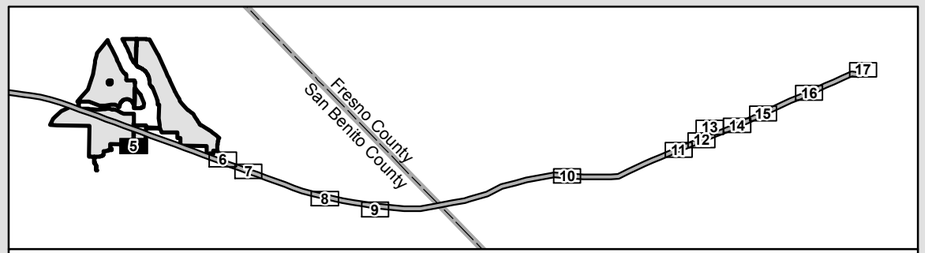
Panoche Valley Solar Project

Telecom Upgrades

Map Figure Index

FIGURE
4

JH 2014-12-05



Map Figure Index

JD Study Area 1

Little Panoche Rd

N

0 100 200 Feet

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Energy Renewal PARTNERS, LLC

Legend

- Jurisdictional Determination Study Area
- Solar Project Area
- AT&T Cable Below Ground Option

Panoche Valley Solar Project

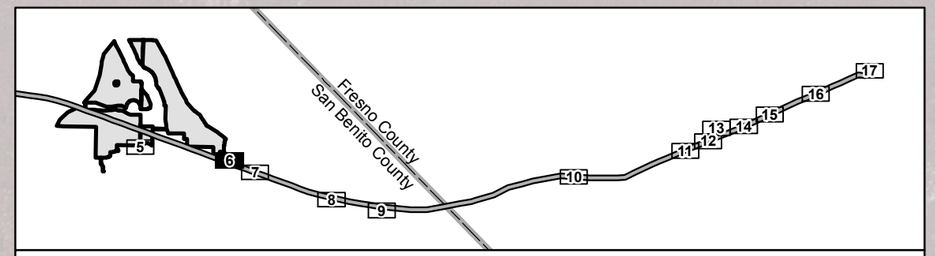
Telecom Upgrades

Jurisdictional Determination Study Area 1

FIGURE

5

JH 2014-12-05



Map Figure Index

233

JD Study Area 2

234

235

N

0 100 200 Feet

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Legend

- Jurisdictional Determination Study Area
- Solar Project Area
- Existing Transmission Structure
- Existing Electric Transmission
- Landing Zone Work Area

Panoche Valley Solar Project

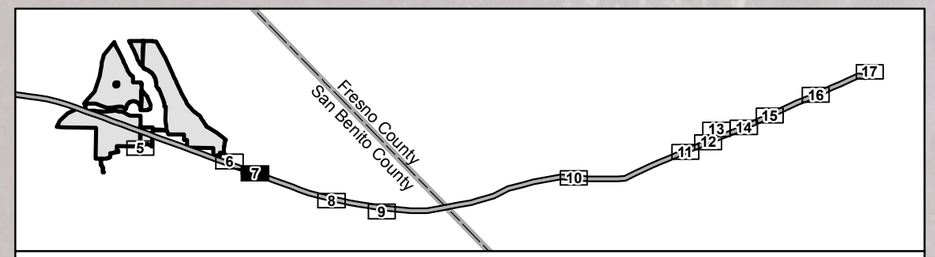
Telecom Upgrades

Jurisdictional Determination Study Area 2

FIGURE

6

JH 2014-12-05



Map Figure Index

236

JD Study Area 3

237

JD Study Area 4

238

N

0 100 200 Feet

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Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Wire Pull Site Work Area

Panoche Valley Solar Project

Telecom Upgrades

Jurisdictional Determination Study Areas 3 and 4

FIGURE

7

JH 2014-12-05

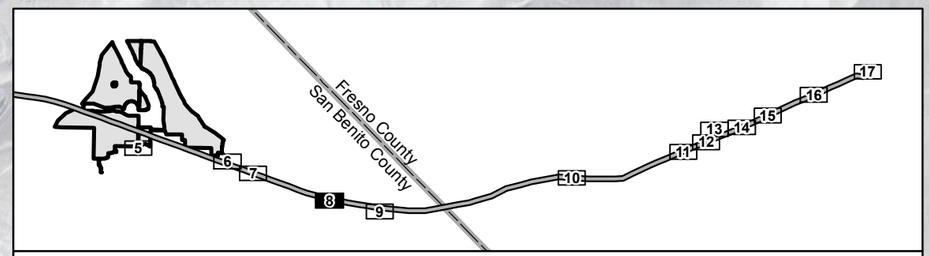
JD Study Area 5

244

245

246

JD Study Area 6



Map Figure Index

N

0 100 200 Feet

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Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Possible Bridging Location
- Drainage

Panoche Valley Solar Project

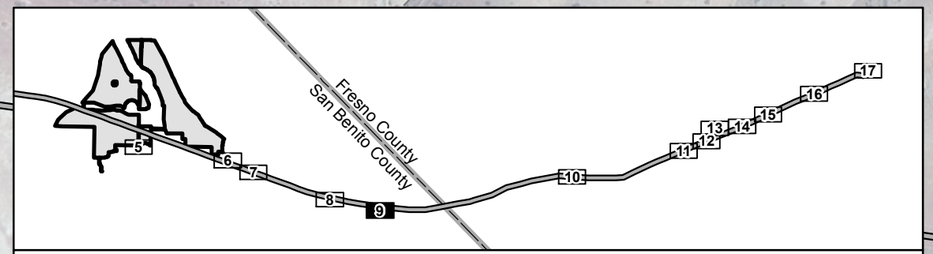
Telecom Upgrades

Jurisdictional Determination Study Areas 5 and 6

FIGURE

8

JH 2014-12-05



Map Figure Index

250

JD Study Area 8

251

JD Study Area 9

JD Study Area 7

N

0 100 200 Feet

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Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Wire Pull Site Work Area
- Possible Bridging Location
- Drainage

Panoche Valley Solar Project

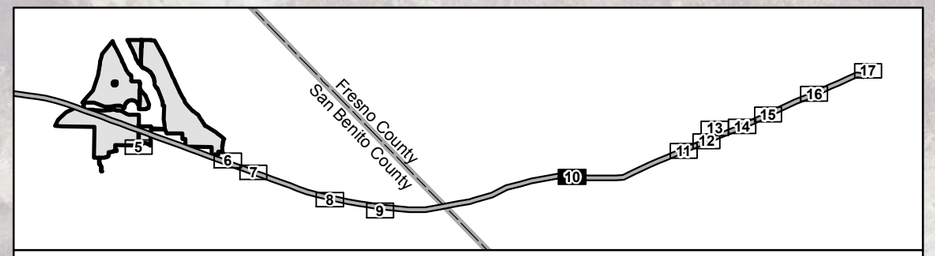
Telecom Upgrades

Jurisdictional Determination Study Areas 7 - 9

FIGURE

9

JH 2014-12-05



Map Figure Index

265

JD Study Area 10

266

JD Study Area 11

267

N

0 100 200 Feet

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Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Wire Pull Site Work Area

Panoche Valley Solar Project

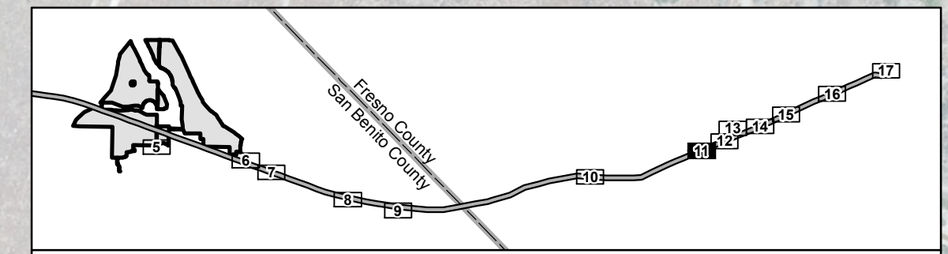
Telecom Upgrades

Jurisdictional Determination Study Areas 10 and 11

FIGURE

10

JH 2014-12-05



Map Figure Index

JD Study Area 19

280

JD Study Area 18

JD Study Area 16

JD Study Area 17

279

JD Study Area 15

JD Study Area 14

JD Study Area 13

278

JD Study Area 12

Panoche Rd

N

0 100 200 Feet

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Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- ADSS Pole Work Area
- Guard Structure Work Area
- Wire Pull Site Work Area

Panoche Valley Solar Project

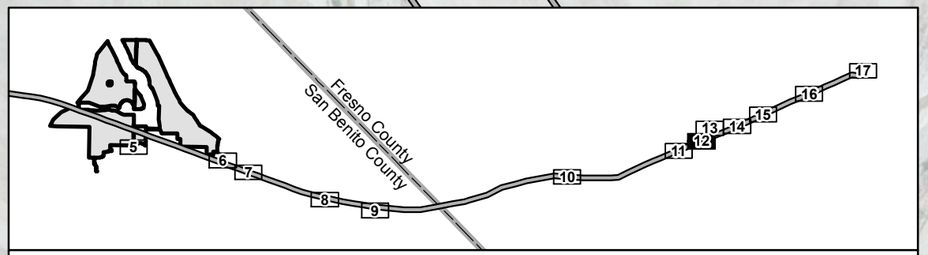
Telecom Upgrades

Jurisdictional Determination Study Areas 12 - 19

FIGURE

11

JH 2014-12-05



Map Figure Index

JD Study Area 19
280

JD Study Area 20

JD Study Area 21
281

JD Study Area 22

JD Study Area 23
282

JD Study Area 24

283

Panoche Rd

N

0 100 200 Feet

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- ADSS Pole Work Area
- Guard Structure Work Area
- Wire Pull Site Work Area

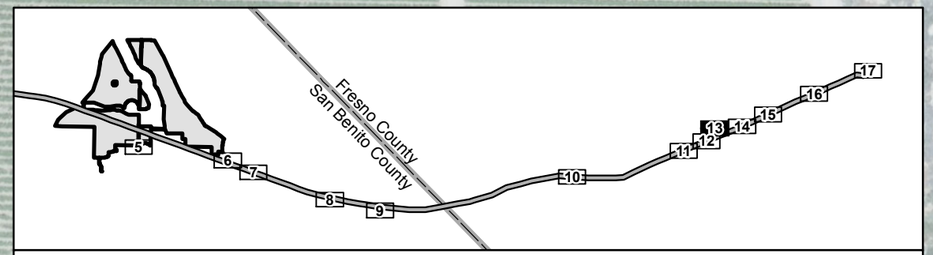
Panoche Valley Solar Project

Telecom Upgrades

Jurisdictional Determination Study Areas 19 - 24

FIGURE
12

JH 2014-12-05



Map Figure Index

JD Study Area 25

W Panoche Rd

Panoche Rd

284

N

0 100 200 Feet

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Landing Zone Work Area

Panoche Valley Solar Project

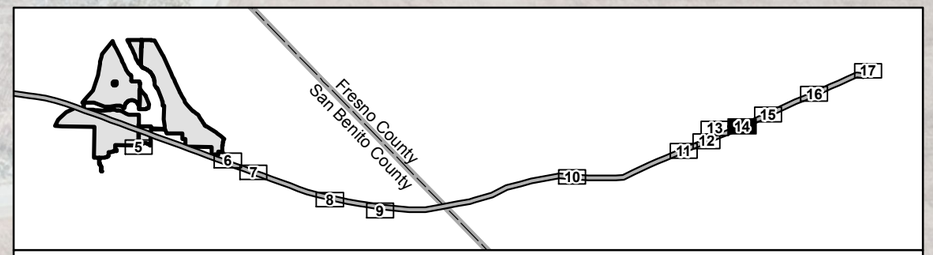
Telecom Upgrades

Jurisdictional Determination Study Area 25

FIGURE

13

JH 2014-12-05



Map Figure Index

W Panoche Rd

JD Study Area 26

285

286

287

N

0 100 200 Feet

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512-222-1125
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Energy Renewal
PARTNERS, LLC

Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Guard Structure Work Area

Panoche Valley Solar Project

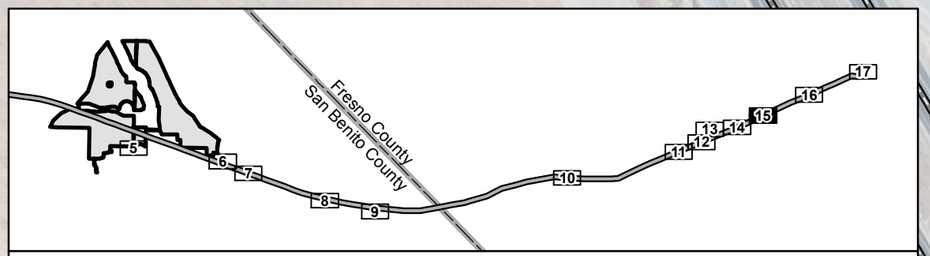
Telecom Upgrades

Jurisdictional Determination Study Area 26

FIGURE

14

JH 2014-12-05



Map Figure Index

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West Lake Hills, Texas 78746
512-222-1125
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Energy Renewal
PARTNERS, LLC

Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Guard Structure Work Area

Panoche Valley Solar Project

Telecom Upgrades

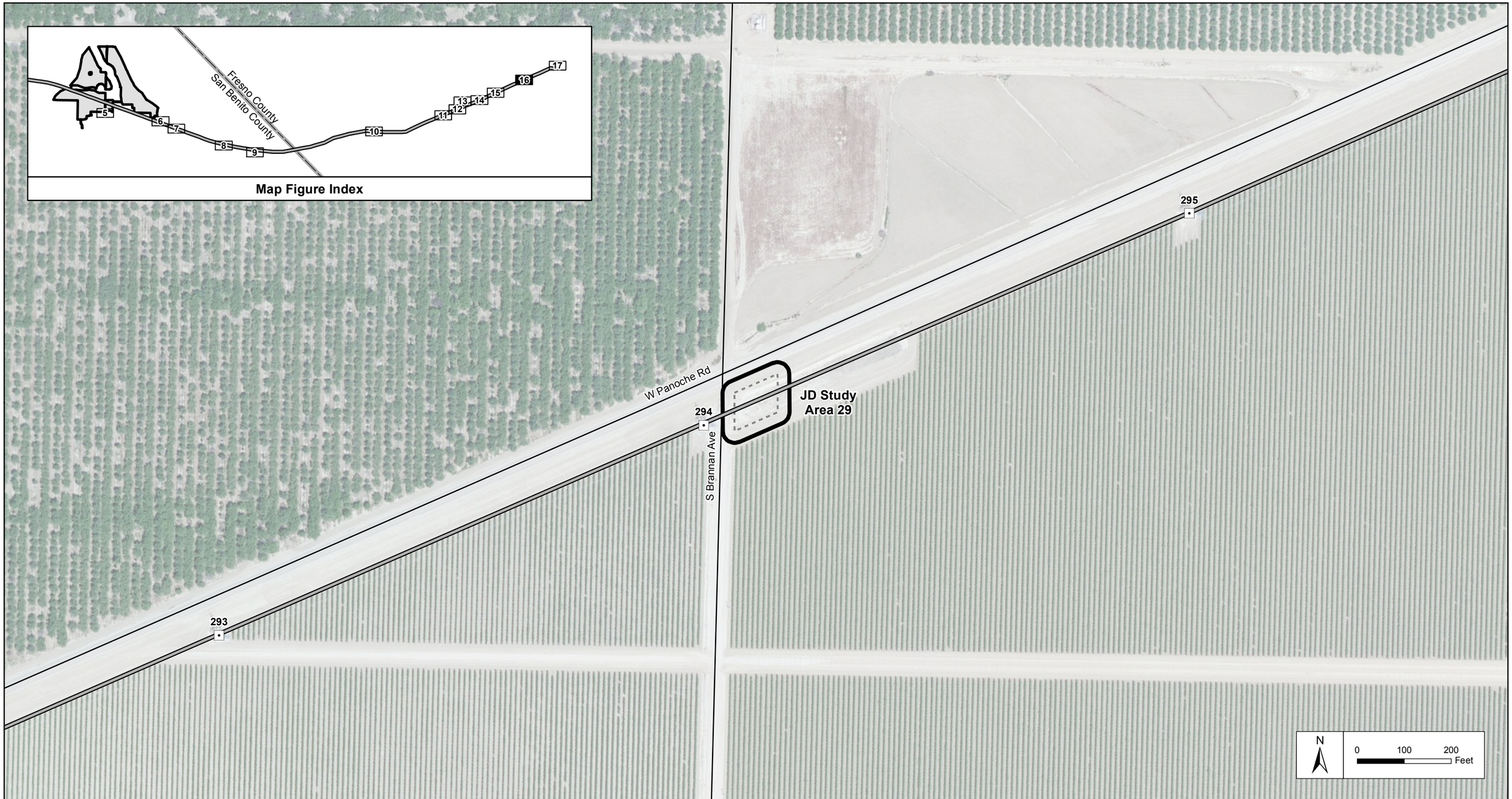
Jurisdictional Determination Study Areas 27 and 28

FIGURE

15

JH 2014-12-05

Map Figure Index



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West Lake Hills, Texas 78746
512-222-1125
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Energy Renewal
PARTNERS, LLC

Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Guard Structure Work Area

Panoche Valley Solar Project

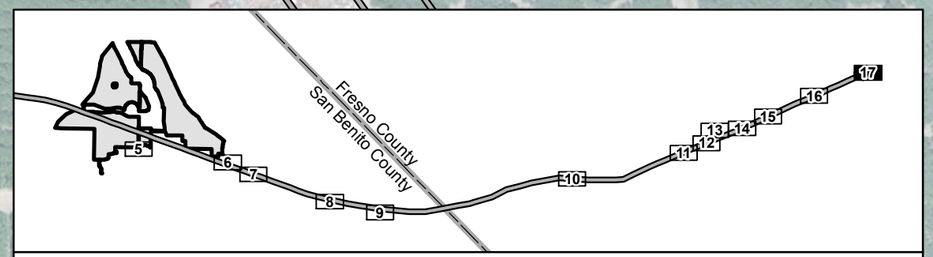
Telecom Upgrades

Jurisdictional Determination Study Area 29

FIGURE

16

JH 2014-12-05



Map Figure Index

JD Study Area 31

W Panoche Rd

Panoche Substation

JD Study Area 30

300

N

0 100 200 Feet

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

- Jurisdictional Determination Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Landing Zone Work Area
- Panoche Substation OPGW UG Work Area
- Wire Pull Site Work Area

Panoche Valley Solar Project

Telecom Upgrades

Jurisdictional Determination Study Areas 30 and 31

FIGURE

17

JH 2014-12-05

Field Visit Summary:

A site visit was completed on 11/10/14 by USACE Project Manager Katerina Galacatos, Johnson Marigot Consulting staff Paula Gill, and Energy Renewal Partners Staff Julianne Wooten. The length of the eastern boundary was walked and observations were made at each drainage. Drainages were walked from the fence line to the end of drainage. Photographs were taken and are summarized in the below photo log. Photo log (slide) numbers correspond to numbers on Figure 4, Panoche Valley Solar Project, Drainage Impacts map dated 11/7/14 (JH). Drainages observed in the field, but not represented on the map, were numbered based on the nearest drainage to the west and given consecutive letter designations.

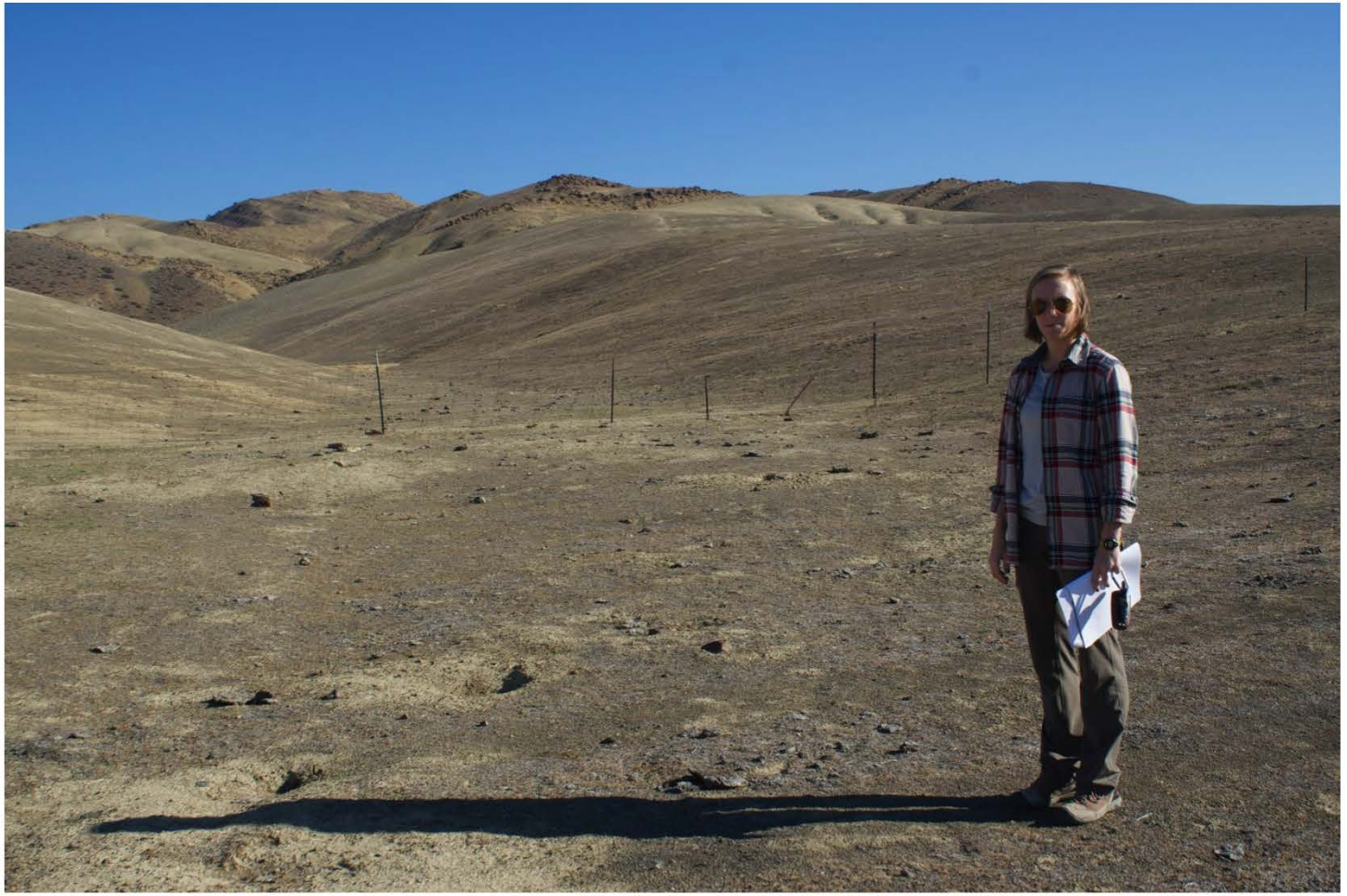
In general, the majority of drainages form in the topography beyond the project boundary (rolling hills to the east). Micro-watersheds concentrate minimal short-duration flow in the drainages. Flow events do not however maintain the volume and/or duration required to establish an OHWM. Topography (i.e., entrenched drainages) also did not necessarily coordinate with establishment of OHWM (e.g. 12).

At five drainages an OHWM was observed. In these five drainages it appears that volume and/or duration of flow events is large enough to establish OHMW character. As typically observed in the arid west (ephemeral flows) OHWM characters observed included sediment-sorting (fine deposition below the OHWM), settlement of debris (small sticks, organic matter) at the OHWM, soil cracking below the OHWM, and absence of vegetation below the OHWM. Generally the lateral extent of the waters was limited to 5' - 1.5'. The length of each drainage was determined by direct observation in the field. Where the OHWM was no longer visible, the end of the drainage was noted.

The below photo log and associated notes represent information gathered in the field by all three participants and summarizes consensus based on observed characters. No wetland characters were observed. No in-stream wetlands are present within the hillside drainages.

JOHNSON MARIGOT CONSULTING, LLC

Drainage 25: No observed bed and bank, no OHWM, very minimal sediment sorting.
Field Verification: Not a water of the U.S.



Photograph taken looking NE toward hills

Drainage 24: No observed bed and bank, no OHWM, very minimal sediment sorting.
Field Verification: Not a water of the U.S.

Photograph taken looking NE toward hills

Photograph taken looking SW toward valley

Drainage 24a: No observable bed and bank, no OHWM, minimal sediment sorting.
Field Verification: Not a water of the U.S.

Photograph taken looking SW toward valley

Drainage 24b: No observed bed and bank, no OHWM, minimal sediment sorting.
Field Verification: Not a water of the U.S.

Photograph taken looking NE toward hills

Photograph taken looking SW toward valley

Drainage 24c: No observed bed and bank, no OHWM, minimal sediment sorting.
Field Verification: Not a water of the U.S.

Photograph taken looking NE toward hills

Photograph taken looking SW toward valley

Drainage 23: No OHWM, minimal sediment sorting. Some observed topography.
Field Verification: Not a water of the U.S.

Photograph taken looking NE toward hills

Photograph taken looking SW toward valley

Drainage 23a: No bed and bank, no OHWM, minimal sediment sorting.
Field Verification: Not a water of the U.S.

Photograph taken looking NE toward hills

Photograph taken looking SW toward valley

Drainage 22/32/33: OHWM evident based on observed shelving, settled debris, and sediment sorting. Flow lines observed and sediment cracking observed in the lower portions of the drainage.
Field Verification: water of the U.S.

Shelving formed by flowing water

Top of drainage near project area fence, lateral extent approximately 3’

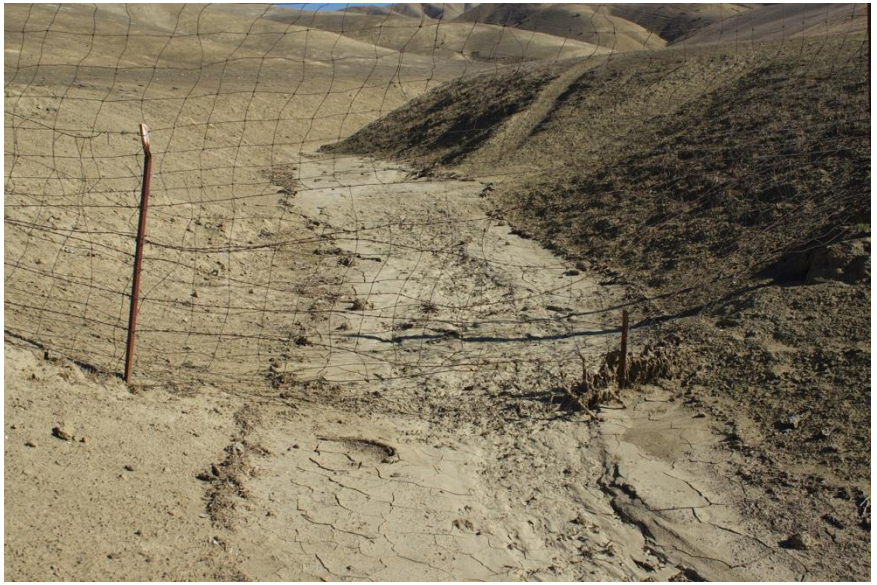
Mid-drainage clear bed and bank condition

Mid-drainage clear bed and bank condition

Drainage 22/32/33 (continued): OHWM evident observed characters include: shelving, settled debris, and sediment sorting. Flow lines observed. Field Verification: water of the U.S.

Toward bottom of drainage, lateral extent narrows to 1’

Debris (sticks and vegetation) accumulated at edge OHWM



Debris (sticks and vegetation) trapped in fencing indicating 8-10” of flow.

Drainage 22/32/33 (continued): Photographs taken beyond fork in drainage caused by informal roadway (2-track).
Field Verification: Feature to east (left) did not demonstrate an OHWM and was therefore not jurisdictional. Drainage to the west (right) maintained an OHWM down the western fork for a short distance.

East drainage, no debris accumulation, no OHWM, no bed and bank

West drainage with shelving to indicate OHWM

Drainage 21: Form and character similar to Drainage 22/32/22. Clear OHWM evident due to accumulation of debris, shelving, and sediment sorting. Line of vegetation occurs at the OHWM. Soil cracking in channel also observed below OHWM.
Field Verification: water of the U.S.

Drainage 21 (continued): Form and character similar to Drainage 22/32/22. Clear OHWM evident due to accumulation of debris, shelving, and sediment sorting. Line of vegetation occurs at the OHWM. Soil cracking in channel, below OHWM, also observed.

.

Photograph looking toward hills and eastern project boundary

Drainage 21: No bed and bank, no OHWM, limited sediment sorting.
Field Verification: Not a water of the U.S.

Photograph taken looking NE toward hills

Photograph taken looking SW toward valley

Drainage 21a: No bed and bank, no OHWM, limited sediment sorting.
Field Verification: Not a water of the U.S.

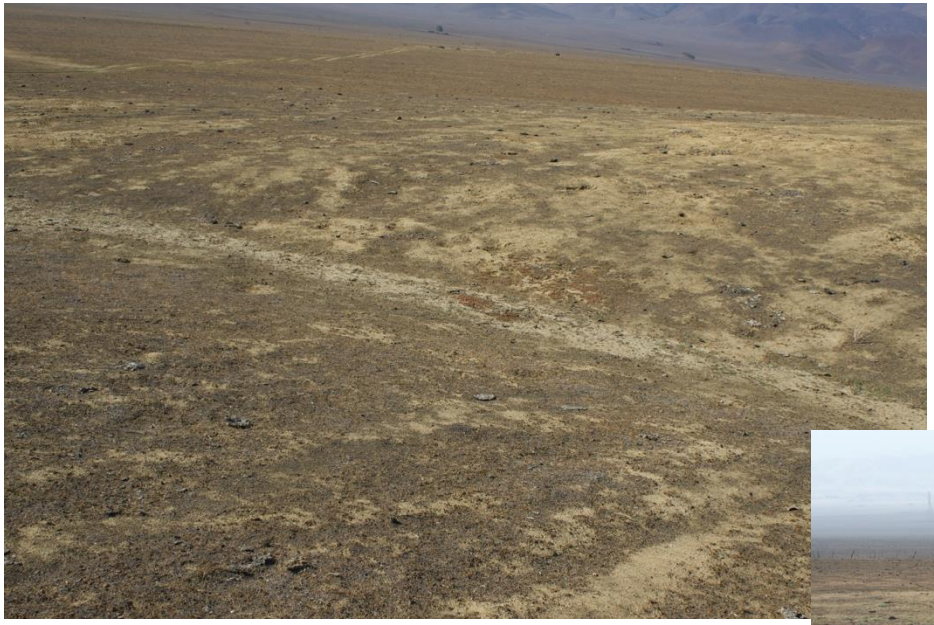
Photograph taken looking NE toward hills

Photograph taken looking SW toward valley

Drainage 20: No bed and bank, no OHWM, limited sediment sorting.
Field Verification: Not a water of the U.S.

Photograph taken looking NE toward hills

Drainage 20a: No bed and bank, no OHWM, limited sediment sorting.
Field Verification: Not a water of the U.S.



Photograph taken looking NE toward hills

Photograph taken looking SW toward valley

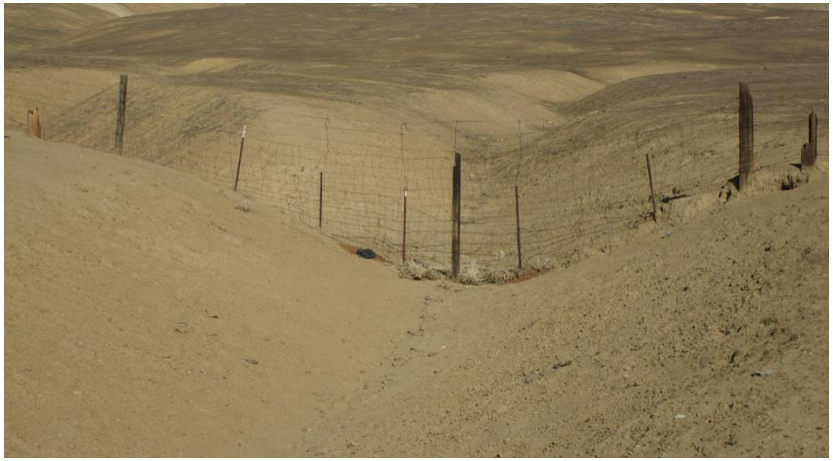
Drainage 19: Form and character similar to Drainage 22/32/22 and 21. From top of bank very steep slopes. Lateral extent of waters approximately 1.5’ throughout. Extends to fence. Clear OHWM evident due to accumulation of debris, shelving, and sediment sorting. Soil cracking in channel also observed. Well defined bed and bank.
Field Verification: water of the U.S.

Photograph taken at eastern project boundary looking north from east bank

Photograph taken on east bank looking south

Lateral extent approximately 1.5’

Drainage 18/17/30: Well defined topography (in excess of 6-7'), bed and bank, no OHWM, no debris, limited sediment sorting, minimal observed cracking.
Field Verification: Not a water of the U.S.



Photograph taken within the drainage looking east

Photograph taken on east bank of drainage looking north

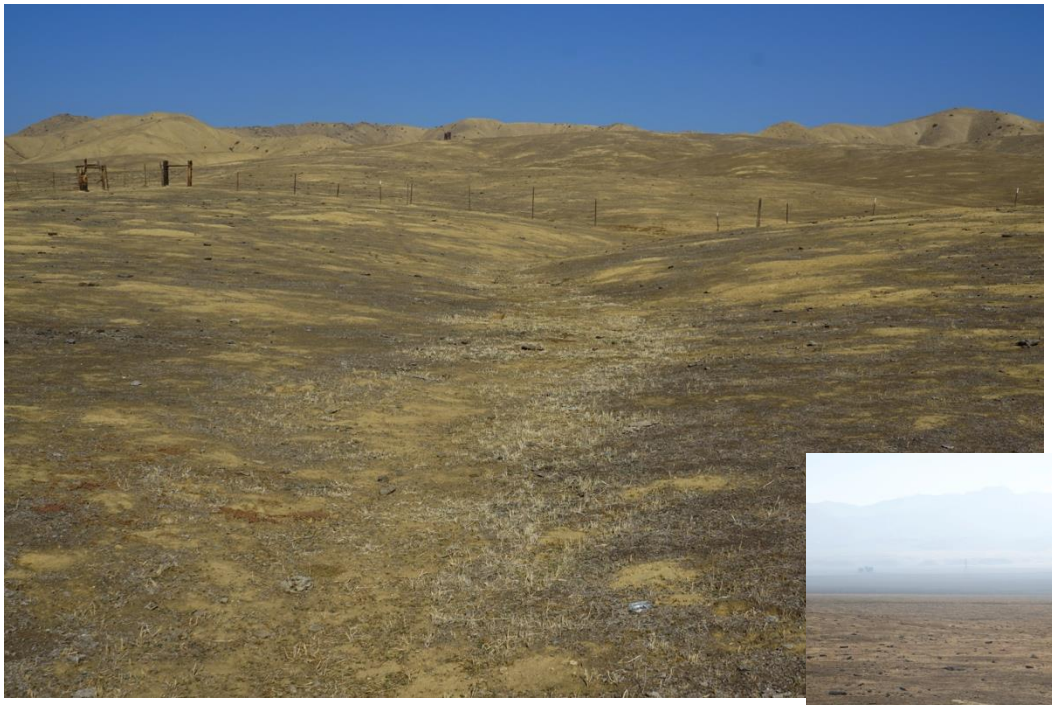
Bottom of drainage

Drainage 17 (continued): No bed and bank, no OHWM, no debris, limited sediment sorting, minimal observed cracking.
Field Verification: Not a water of the U.S.

Photograph taken looking south toward the valley

Photograph taken looking north toward the hills

Drainage 16: No bed and bank, no OHWM, no debris, no sediment sorting. Extremely small drainage
Field Verification: Not a water of the U.S.



Photograph taken looking north toward the eastern project boundary

Photograph taken looking south toward the valley

Drainage 15: Very small short drainage, hardly visible.
Field Verification: Not a water of the U.S.

Photograph taken looking south toward an internal fence

Drainage 14: Form and character similar to Drainage 22/32, 21, and 19. Very steep topography. Lateral extent of waters approximately 1.5’ throughout. Extends to fence. Clear OHWM evident due to accumulation of debris, shelving, and sediment sorting. Soil cracking in channel also observed. Well defined bed and bank.
Field Verification: water of the U.S.

Photograph taken in the drainage looking toward the valley

Observed shelving

Photograph taken from top of bank looking toward the valley

Bottom of drainage where OHWM is no longer observable, becomes a vegetated swale (not wetland)

Drainage 13: Vegetated swale (no evidence of wetland). No bed and bank, no OHWM, no debris, no sediment sorting.
Field Verification: Not a water of the U.S.

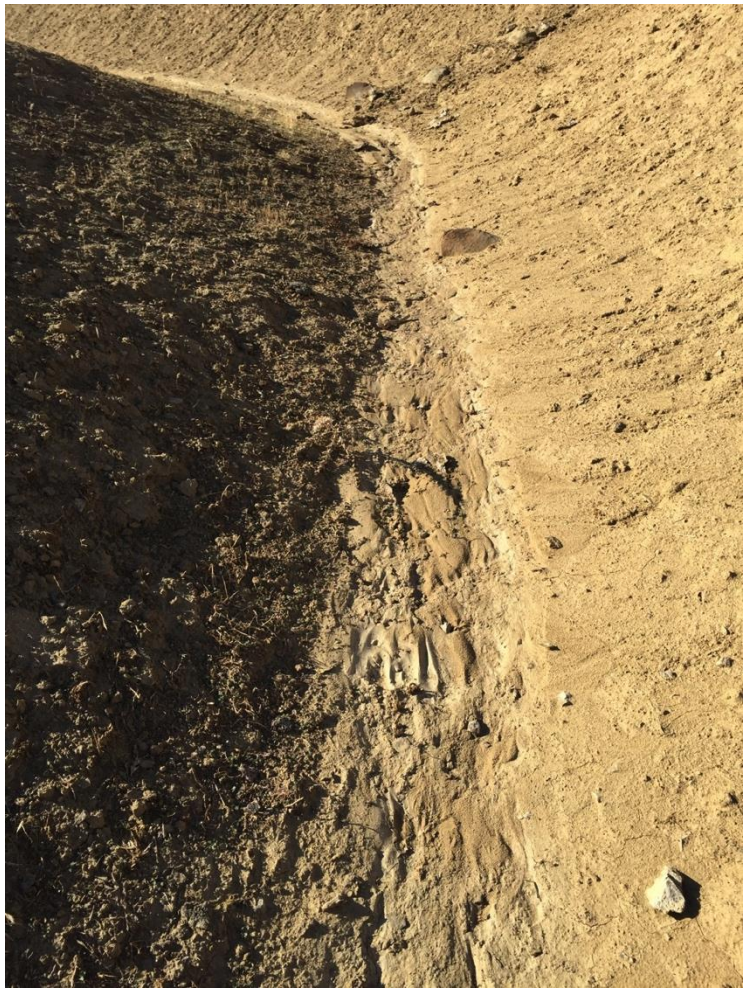
Photograph taken in the drainage looking toward hills

Photograph (to left) taken in the drainage looking toward the valley

Drainage 12: Very established, deep topography. No OHWM, no debris, no sediment sorting.
Field Verification: Not a water of the U.S.

Photograph (top left) taken in the drainage looking toward the eastern project boundary (fence). Steep topography with very narrow flow pattern (to left). Evidence of minimal flow (sediment) but lack of OHMW (top right, i.e., no debris, sediment cracking, shelving).

Drainage 11: Mild topography, No bed and bank, no OHWM, no sediment sorting.
Field Verification: Not a water of the U.S. Tributary to drainage 12.

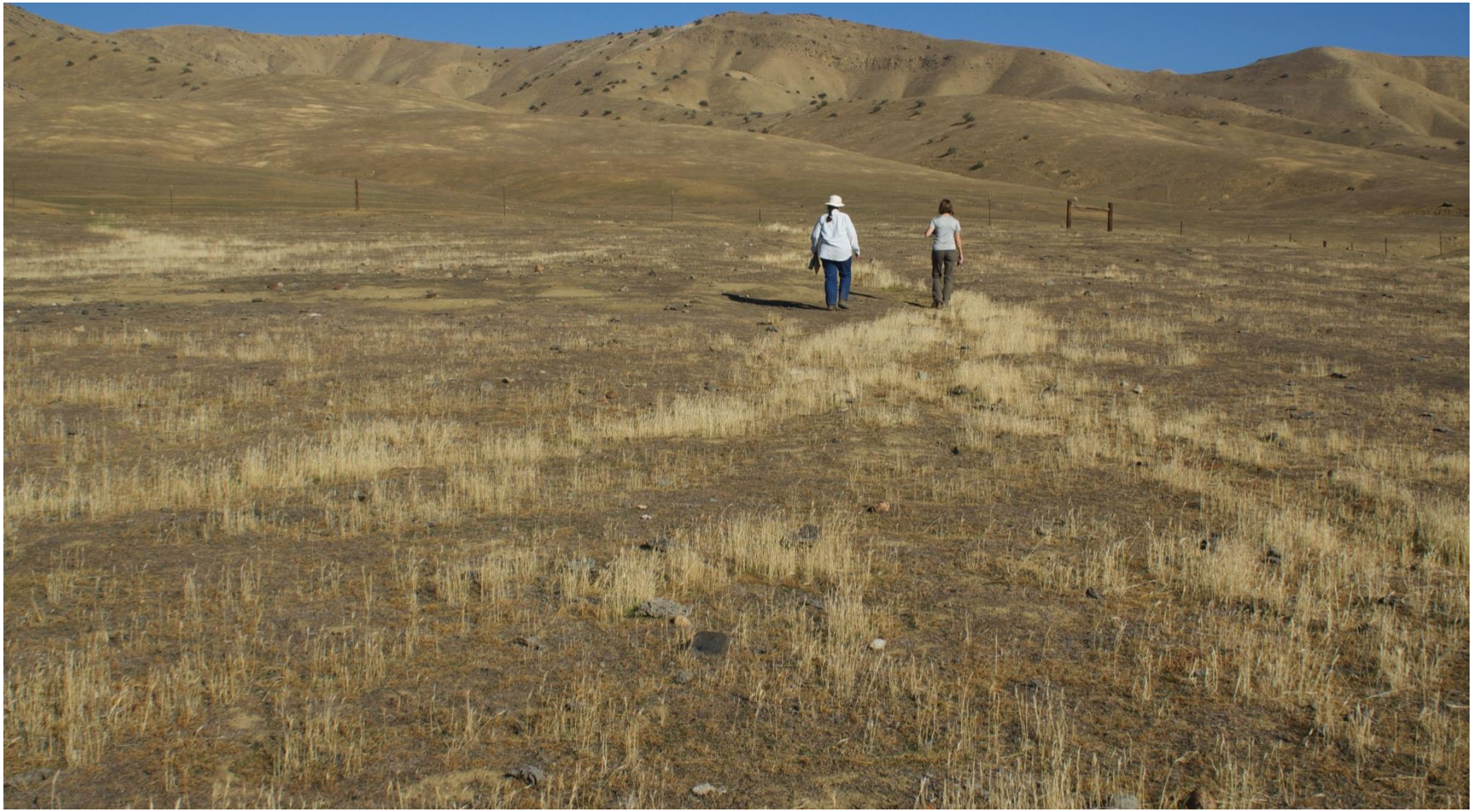


Photograph taken of the bottom of the channel

Drainage 10: Mild topography, however an OHWM was observed. Observed characters included sinuosity, shelving, rocks scattered within the drainage, debris accumulated in barb wire within the drainage, and some sediment sorting. Lateral extent of waters approximately 3' throughout.
Field Verification: water of the U.S.

Photograph (top left) taken in the drainage looking toward the eastern project boundary (fence) demonstrates drainage sinuosity. Barb wire with debris accumulation (bottom left). Shelving and undercutting observed along the rocks within the drainage (top right).

Drainage 9: Vegetated swale (no wetland parameters observed) No bed and bank, no OHWM, very minimal sorting of sediments.
Field Verification: Not a water of the U.S.



Photograph taken looking toward the eastern project boundary
(fence).

Drainage 8: Vegetated swale (no wetland) No bed and bank, no OHWM, very minimal sorting of sediments.
Field Verification: Not a water of the U.S.

Photograph taken in the drainage looking toward the eastern project boundary (fence).

Photograph taken in the drainage looking toward the valley.

Drainage 7: No bed and bank, no OHWM, no sorting of sediments.
Field Verification: Not a water of the U.S.

Photograph taken looking north toward the eastern project boundary

Photograph taken looking south toward the valley

Drainage 6: No bed and bank, no OHWM, no sorting of sediments.
Field Verification: Not a water of the U.S.

Photograph taken looking south toward the valley

Drainage 5: No bed and bank, no OHWM, no sorting of sediments.
Field Verification: Not a water of the U.S.

Photograph taken looking south toward the valley

PRELIMINARY JURISDICTIONAL DETERMINATION FORM
Sacramento District

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Regulatory Branch: **Regulatory Division** File/ORM #: **SPN-2009-00443** PJD Date: **June 24, 2015**

State: **CA** City/County: **San Benito County, Fresno County**
Nearest Waterbody: **Panoche Creek**
Location (Lat/Long): **36.63637°, -120.85500; see attached**
Size of Review Area: **981** acres

Name/Address Of Property Owner/ Potential Applicant: **Panoche Valley Solar**
Attn: Mr. John Pimentel
845 Oak Grove Avenue, Suite 202
Menlo Park, California 94024

Identify (Estimate) Amount of Waters in the Review Area
Non-Wetland Waters:
linear feet ft wide **0.39** acre(s)
Stream Flow: **Intermittent and Ephemeral**

Wetlands: acre(s)
Cowardin Class: **N/A**

Name of any Water Bodies on the site identified as Section 10 Waters: Tidal: Non-Tidal:

☒ Office (Desk) Determination
☐ Field Determination:
Date(s) of Site Visit(s):

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply – checked items should be included in case file and, where checked and requested, appropriately reference sources below)

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: **Jurisdictional Determination drawings prepared by Energy Renewal Partners, LLC.**
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Data sheets prepared by the Corps.
☐ Corps navigable waters' study.
☐ U.S. Geological Survey Hydrologic Atlas:
  ☐ USGS NHD data.
  ☐ USGS HUC maps.
☐ U.S. Geological Survey map(s). Cite scale & quad name:
☐ USDA Natural Resources Conservation Service Soil Survey.
☐ National wetlands inventory map(s).
☐ State/Local wetland inventory map(s).
☐ FEMA/FIRM maps.
☐ 100-year Floodplain Elevation (if known):
☒ Photographs: ☒ Aerial
  ☒ Other
☒ Previous determination(s). File no. and date of response letter: **SPN-2009-00443, dated February 5, 2010 and October 18, 2010**
☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable) 7/9/15

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Panoche Valley Solar	File No.: SPN-2009-00443	Date: June 24, 2015

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Lisa M. Gibson
Regulatory Permit Specialist
Regulatory Division
U.S. Army Corps of Engineers
1325 J Street, Room 1350
Sacramento, California 95814-2922
Phone: 916-557-5288, FAX 916-557-7803
Email: Lisa.M.Gibson2@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX 415-503-6646)
Email: Thomas.J.Cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Panoche-Moss Landing 230 kV Transmission Line Location Descriptions

1. Review Area 1: On and adjacent to the east of Little Panoche Road and north of Yturiarte Road, in Sections 21 and 22, Township 15 South, Range 10 East, Mount Diablo Meridian, Latitude 36.61553° North, Longitude 120.87658° West, in San Benito County, California.

2. Review Area 2: SW 1/4 Section 13 and SW 1/4 Section 14, Township 15 South, Range 10 East, Mount Diablo Meridian, Latitude 36.62109° North, Longitude 120.840453° West, in San Benito County, California.

3. Review Area 3: S 1/2 Section 13, Township 15 South, Range 10 East, Mount Diablo Meridian, Latitude 36.61761° North, Longitude 120.83130° West, in San Benito County, California.

4. Review Area 4: NE 1/4 Section 24, , Township 15 South, Range 10 East, Mount Diablo Meridian, Latitude 36.61683° North, Longitude 120.82863° West, in San Benito County, California.

5. Review Area 5: NW 1/4 Section 19, Township 15 South, Range 11 East, Mount Diablo Meridian, Latitude 36.610766° North, Longitude 120.803433° West, in San Benito County, California.

6. Review Area 6: SW 1/4 Section 20, Township 15 South, Range 11 East, Mount Diablo Meridian, Latitude 36.60701° North, Longitude 120.79438° West, in San Benito County, California.

7. Review Area 7: SE 1/4 Section 20, Township 15 South, Range 11 East, Mount Diablo Meridian, Latitude 36.60437° North, Longitude 120.783463° West, in San Benito County, California.

8. Review Area 8: SW 1/4 Section 21, Township 15 South, Range 11 East, Mount Diablo Meridian, Latitude 36.60670° North, Longitude 120.77662° West, in San Benito County, California.

9. Review Area 9: SW 1/4 Section 21, Township 15 South, Range 11 East, Mount Diablo Meridian, Latitude 36.60649° North, Longitude 120.77387° West, in San Benito County, California.

10. Review Area 10: SW 1/4 Section 18, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.61781° North, Longitude 120.70257° West, in Fresno County, California.

11. Review Area 11: SW 1/4 Section 18, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.61776° North, Longitude 120.69997° West, in Fresno County, California.
12. Review Area 12: NE 1/4 Section 16, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.625443° North, Longitude 120.66058° West, in Fresno County, California.

13. Review Area 13: NE 1/4 Section 16, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.626151° North, Longitude 120.65858° West, in Fresno County, California.

14. Review Area 14: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.62663° North, Longitude 120.65713° West, in Fresno County, California.

15. Review Area 15: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.62697° North, Longitude 120.65635° West, in Fresno County, California.

16. Review Area 16: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.62724° North, Longitude 120.65546° West, in Fresno County, California.

17. Review Area 17: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.62731° North, Longitude 120.65502° West, in Fresno County, California.

18. Review Area 18: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.62776° North, Longitude 120.65357° West, in Fresno County, California.

19. Review Area 19: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.62832° North, Longitude 120.65210° West, in Fresno County, California.

20. Review Area 20: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.62891° North, Longitude 120.65041° West, in Fresno County, California.

21. Review Area 21: NE 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.62951° North, Longitude 120.64872° West, in Fresno County, California.

22. Review Area 22: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.63010° North, Longitude 120.64713° West, in Fresno County, California.

23. Review Area 23: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.63071° North, Longitude 120.64531° West, in Fresno County, California.

24. Review Area 24: NW 1/4 Section 15, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.63125° North, Longitude 120.64399° West, in Fresno County, California.

25. Review Area 25: SE 1/4 Section 10, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.63433° North, Longitude 120.64395° West, in Fresno County, California.

26. Review Area 26: SW 1/4 Section 11, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.63514° North, Longitude 120.63283° West, in Fresno County, California.

27. Review Area 27: Adjacent to the west of Interstate 5, in the SE 1/4 Section 11, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.63891° North, Longitude 120.62302° West, in Fresno County, California.

28. Review Area 28: Adjacent to the east of Interstate 5, in the SW 1/4 Section 12, Township 15 South, Range 12 East, Mount Diablo Meridian, Latitude 36.63933° North, Longitude 120.62210° West, in Fresno County, California.

29. Review Area 29: Adjacent to the south-east of the intersection of South Brannan Avenue and West Panoche Road, in the NW SE 1/4 Section 11, Township 15 South, Range 13 East, Mount Diablo Meridian, Latitude 36.64606° North, Longitude 120.60400° West, in Fresno County, California.

30. Review Area 30: SW 1/4 Section 6 and SW 1/4 Section 5, Township 15 South, Range 13 East, Mount Diablo Meridian, Latitude 36.65322° North, Longitude 120.58534° West, in Fresno County, California.

31. Review Area 31: SW 1/4 Section 5, Township 15 South, Range 13 East, Mount Diablo Meridian, Latitude 36.65517° North, Longitude 120.57795° West, in Fresno County, California.

APPENDIX D

Burns &McDonnell Transmission Capacity and Availability Memorandum

Date: December 9, 2014

To: Panoche Valley Solar, LLC

From: Hyung Shin, Burns & McDonnell

Subject: Panoche Valley Solar Project
Interconnection Constraints for Westlands CREZ

I, Hyung Shin, Ph.D., Associate Electrical Specialist with Burns & McDonnell (resume attached), conducted an analysis of the existing transmission infrastructure in the Westlands Competitive Renewable Energy Zone (CREZ) area. Specifically, I evaluated the practicability of locating a 247 megawatt (MW) solar facility in the Westlands CREZ area based on available transmission infrastructure. In the area of proposed development, the existing Gates–Gregg 230 kilovolt (kV) and the Gates–McCall transmission lines were considered the most likely Points of Interconnection (POI). Additionally, a new generator tie line connecting directly to the Gates Substation was evaluated.

The technical review indicated that system upgrades would be required for the addition of a 247 MW solar generating facility at any of the potential POI identified. In the vicinity of the Westlands CREZ area there are over 1,500 MW of projects in the California Independent System Operator (ISO) queue waiting for interconnection as shown in Table A. Based on my professional experience, the addition of 247 MW for Q829 (Panoche Valley Solar Project California ISO Queue number) in the area with over 1,500 MW of previously queued projects will likely cause reliability issues in the transmission system, and additional transmission infrastructure will be needed. In addition, interconnection studies to facilitate a change in the currently proposed Panoche Valley Solar (PVS) Project POI from the Moss Landing–Panoche 230 kV transmission line to the Gates–Gregg 230 kV transmission line would be necessary. These studies would take up to two years to complete.

Table A. Project Queue in the Vicinity of Westlands CREZ

Queue	Queue Date	Project Type	Project MW	Point of Interconnection
Q254	8/21/2007	Combined Cycle	600	Gates Substation 230kV bus
Q272	11/1/2007	Solar PV	123	Henrietta Substation 70kV bus
Q633	6/2/2010	Solar PV	18	Gates-Coalinga 70 kV Line #1
Q643W	7/31/2010	Solar PV	100	Gates-Gregg 230 kV and Gates-McCall 230 kV
Q877	4/2/2012	Solar PV	280	Morro-Gates 230kV line
Q954	4/30/2013	Solar PV	150	Gates 230kV Substations (30900 Gates 230)
Q1027	4/30/2014	Battery Storage	20	Gates Substation 230kV
Q1031	4/30/2014	Solar PV	20	Gates Substation 230kV
Q1036	4/30/2014	Solar PV / Battery Storage	203	Mustang Switchyard 230 kV (on Gates-Gregg 230 kV and Gates-McCall 230 kV)
Total			**1,514**	

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An interconnection study was completed by Pacific Gas & Electric Company (PG&E) for Cluster 4 Phase II. This study included the proposed 230 kV switching station that would support the PVS project. The Cluster 4 Phase II Study for the PVS project was completed in November 2012. A change to the POI would nullify the results of that study and a new interconnection study process would need to be initiated using a different POI (e.g. the Gates–Gregg 230 kV transmission line). A revised 230 kV switching station would also lose its queue position. Table A, above includes a list of other projects in the queue in or near the Westlands CREZ[1]. By changing the POI, the Q829 PVS project will have to re-enter the California ISO queue behind the other projects currently in queue.

The California ISO limits interconnection study applications to a brief window; once annually. The next admission window is in April 2015[2] (Cluster 8 Study Process). The Cluster 8 study would likely be completed in December 2016 after which the Generation Interconnection Agreement negotiation can begin.

In order to execute an Interconnection Agreement, the Applicant would need to identify and scope out appropriate network upgrades on the California ISO transmission system[3]. Based on Burns & McDonnell's past experience and the experience of Panoche Valley Solar LLC, this process could take up to a year (i.e., December 2017).

Following the Interconnection Agreement process and identification of network upgrades, the Utility (in this case, PG&E) would be responsible for preparing an Environmental Assessment and performing preliminary engineering in support of a Notice of Construction (NOC) filing, application for a Permit to Construct (PTC) or a Certificate of Public Convenience and Necessity (CPCN). Depending on the complexity of the upgrades, this process could take 6-18 months (the best case scenario would result in the study being completed between June and December 2018). The utility would communicate with the CPUC in the 3-6 months prior to filing the NOC, PTC or CPCN to ensure that the application is as complete as possible. After the utility files the PTC or CPCN application with the CPUC, a review period of approximately 12-18 months is required[4] for the CPUC to review the application and complete CEQA and NEPA documents as required. If Notice of Construction is filed, the process from preparation to effectiveness would take approximately 6 months.[5]

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[1] The California ISO Generator Interconnection Queue is available here: http://www.caiso.com/planning/Pages/GeneratorInterconnection/Default.aspx .

[2] Generator Interconnection and Deliverability Allocation Procedures Cluster Process Summary available here: http://www.caiso.com/planning/Pages/GeneratorInterconnection/GeneratorInterconnectionApplicationProcess/Default.aspx

[3] This would not take into account upgrades or impacts to non-California ISO infrastructure.

[4] The CPUC timeframes are indicated on their website, available here: http://www.cpuc.ca.gov/NR/rdonlyres/A54AA9F9-581A-450A-9E90-96BEBC5919CB/0/CPCNwithpuclogo.doc

[5] A Notice of Construction would be filed in accordance with GO 131-D and would be allowable if the only interconnection upgrades necessary to support the project included: replacement of existing power line facilities or supporting structures with equivalent facilities or structures; minor relocation of existing power line facilities up to 2,000 feet in length, or the intersecting of additional support structures between existing support structures; the conversion of existing overhead lines to underground; placing of new or additional conductors, insulators, or their accessories on supporting structures already built; the power lines or substations to be relocated or constructed undergo environmental review pursuant to CEQA as part of a larger project, and the final CEQA document finds no significant unavoidable environmental impacts caused by the proposed line or substation; power line facilities or substations to be located in an existing franchise, road-widening setback easement, or

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However, it is likely that the project would require a PTC or CPCN rather than an Advice Letter (if the project is proposed for the Westlands Alternative Site) due to the potential requirement for transmission line upgrades. Specific network upgrades have not yet been identified, but our analysis assumes conservatively, that a PTC or CPCN would be required. This conservative timeframe is supported by a review of publically available information, including a Notice of Preparation (NOP) for the Westlands Solar Park (referenced in a letter sent from PVS to the Corps on 11/25/14) which focuses on planning energy generation infrastructure in the Westlands CREZ area. The Westlands Solar Park NOP indicates that three transmission line upgrades would be required to support interconnection of that project. The required transmission line upgrades would entail construction of approximately 121 miles of new transmission line for the Henrietta to Gates Transmission Corridor[6] (11 miles), the Westlands Transmission Corridor[7] (87 miles), and the Helm to Gregg Transmission Corridor[8] (23 miles). The construction of new transmission lines would result in the need to apply for a PTC or CPCN rather than a Notice of Construction according to the CPUC's General Order 131(d). General Order 131(d)[9].

Other environmental permits (e.g. federal or state Incidental Take Permits) would likely require a minimum of one year from completion of the environmental assessment and preliminary engineering to issuance. Assuming a best case scenario, permitting would likely be completed between June and December 2019, assuming there are no permit issues or challenges to the permit.

The utility would then construct the project, which would take between 1-5 years, depending on size and complexity. Assuming a (best case) construction schedule of approximately 12 months, this process would result in a project in service by mid-2020. However, as demonstrated in the Transmission Projects List from the CPUC website[10], projects of similar magnitude generally take much longer between the date of commission approval and the in service date projected. Table B, below depicts a summary of the timeframes associated with the California ISO and CPUC processes.

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public utility easement; or in a utility corridor designated, precisely mapped and officially adopted pursuant to law by federal, state, or local agencies for which a final Negative Declaration or EIR finds no significant unavoidable environmental impacts; or the construction would be statutorily or categorically exempt pursuant to Section 15260 et seq. of the Guidelines adopted to implement the CBQA, 14 Code of California Regulations 8 15000 et seq. (CEQA Guidelines).

[6] The full buildout of WSP solar development will require transmission upgrades to convey the generated power to the Gates Substation. The planned upgrades would involve the construction of a new 230-kV transmission line running parallel to the existing Henrietta-Gates corridor, commencing from a new substation planned for construction inside the north WSP boundary, and running southwestward for a distance of about 11 miles to the Gates Substation on Jayne Avenue near I-5.

[7] The full buildout of the WSP plan area would require the addition of transmission capacity to the existing 500-kV Central California Transmission Corridor along I-5. This would involve the construction of a 500-kV transmission line running generally parallel to the existing transmission corridor from the Gates Substation north for a distance of about 87 miles to the Los Banos Substation.

[8] This new transmission corridor would branch off the planned Westlands Transmission Corridor at the Helm Substation near the City of San Joaquin and head northward across the San Joaquin River, and then eastward to the Gregg Substation located north of Fresno and east of State Route 99.

[9] It is available to review here: http://docs.cpuc.ca.gov/PUBLISHED/Graphics/589.PDF

[10] Available here: http://www.cpuc.ca.gov/NR/rdonlyres/3ED667F7-B622-4DB3-A068-6512A0DEC539/0/122909TransmissionProjectTrackingSpreadsheetexternalversion.xls

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Table B. Timeframes to complete California ISO and CPUC Processes

Process	Timeframe to complete	Likely Completion Date[10]
California ISO Interconnection Study	20 months[11]	December 2016
Interconnection Agreement and scope network upgrades	1 year	December 2017[12]
PG&E prepares EA and preliminary engineering	6-18 months	December 2018
CPUC issues CEQA document; other permits issued	12-18 months	December 2019
PG&E constructs project	1-5 years	December 2020

[10] This completion date is an estimate based on Burns & McDonnell's past experience and professional opinion. These dates are subject to change depending on numerous factors and may be extended beyond the timeframes depicted here.

[11] The application window is limited. The next available timeframe to apply would be April 2015.

[12] PVS Phase II Study was completed on 11/5/2012, and Generator Interconnection Agreement was executed on 1/9/2014.

This timeframe would exceed the timeframe for construction stated in the PVS Project objectives. Furthermore, as stated above, the new Gates-Gregg 230 kV transmission line is not expected to be in service until 2022, which (if utilized as the POI for the Westlands Alternative Site) would exceed the window for the Renewable Portfolio Standard (RPS) goal of 2020 as stated in the Purpose and Need section of the Environmental Impact Statement for the PVS Project.

Based on this review of the reliability of the system with the addition of a 247 MW project, the timeframes for completing the California ISO interconnection and the CPUC and other agency's permitting processes, it is unlikely that the project would be in service before 2020 and therefore would not meet the RPS goal for the Project Objectives.

Respectfully,

Hyung Shin, Ph.D.
Associate Electrical Specialist
Burns & McDonnell

Enclosures
-Hyung Shin Resume

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Hyung S. Shin, PhD

Expertise

- Transmission Planning
- Generation Planning
- Distribution Planning
- Power System Modeling
- Power System Economics
- Electric Railroad Systems

Education

- B.S. in Electrical Engineering, Seoul National University, 1980
- M.S. in Electrical Engineering, Seoul National University, 1982
- Ph. D. in Electrical Engineering, Seoul National University, 1991

Organizations

- Institute of Electrical and Electronics Engineers

Total Years of Experience

30

Years With Burns & McDonnell

11

Start Date

December 2002

Dr. Shin is a Project Manager and Senior Project Engineer in Business & Technology Services at Burns & McDonnell. During his career, he has gained a broad range of experience across generation, transmission, and distribution. He has extensive experience of power system analyses for both regional grid power systems and local distribution systems. He has strong expertise in application of analytical and optimization techniques to power system planning and operation. His expertise also includes computer applications in power system planning and analysis, and he developed several software programs that have been used in numerous projects.

Dr. Shin has managed or acted a lead engineer on numerous generation interconnection or transmission planning studies that included flow-gate impact and transfer capability analyses, as well as standard load flow, short circuit, and stability analyses. Dr. Shin has managed distribution planning projects that included distribution system database development and load flow and short circuit analyses. A summary of Dr. Shin's engagements is listed below.

CAISO Interconnection Process Support, PG&E

San Francisco, CA, 2011-2014

Mr. Shin served as project manager in supporting PG&E's transmission planning group to manage, perform, and oversee the CAISO Cluster Studies. Mr. Shin participated in the interconnection process including the interconnection request review, scoping meetings, technical studies, report writing and results meetings. Mr. Shin also performed power flow and transient stability analysis as a part of the effort. The study tasks included identifying mitigation options from steady state power flow analysis results, performing transient stability analysis to identify potential stability issues, and developing mitigation options.

Induced Voltage Evaluation Study, NIPSCO

Merrillville, IN, 2014

Mr. Shin served as project manager for the Induced Voltage Evaluation study. The purpose of the study was to evaluate induced voltages from a new 345 kV transmission line on the existing 345 kV line in the same corridor. The analysis model was developed using EMTP/ATP software. The transmission lines were modeled with the tower configuration considered. The analysis was performed for various normal operating and faulted conditions.

Transmission Alternatives Comparison Study, SDG&E

San Diego, CA, 2013-2014

Mr. Shin served as lead engineer for the transmission alternatives comparison study. The purpose of the study was to compare of several alternatives to increase the import capability of SDG&E's transmission system with an addition of a 500 kV AC/DC transmission line interconnecting with the neighbor system. Load flow, short circuit, transfer capability, and transient stability analyses were performed to assess the system performance for each of the alternatives.

Long-Range Transmission Planning Study, Midwest Energy, Inc.

Hays, KS, 2013

Mr. Shin served as project manager for a long-range transmission planning study. The purpose of the study was to examine the ability of the transmission system to serve the projected load levels in the near-term and longer-term planning horizons. The study tasks included power flow analysis, load pocket analysis, short circuit analysis, and stability analysis. Recommendations for system upgrades and planning strategy to

maintain the adequate level of system reliability.

System Operating Limit Study, Alberta Electric System Operator
Alberta, Canada, 2012

Mr. Shin served as project manager for a System Operating Limit (SOL) study. The purpose of the study was to assess the SOLs for the Alberta interties with the Western Electricity Coordinating Council (WECC). Steady state, voltage stability, and dynamic stability analyses were conducted for the near-term and longer-term study horizons in order to determine the changes in the SOL with the changes in system configuration, loading, and generation. The study identified steady state and voltage stability limits under specific contingency conditions.

Sub-Synchronous Resonance Study, NRG Energy
Houston, TX, 2011

Mr. Shin performed sub-synchronous resonance study for solar thermal generation project in Southern California. The purpose of the study was to identify sub-synchronous natural frequencies of the network that may arise due to the series compensated transmission lines. The sub-synchronous frequencies can create resonance and cause damages to the shaft system of the solar thermal generator unit. Mr. Shin developed a PSCAD model of the surrounding transmission system and performed harmonic frequency scans to identify the natural frequency of the network.

Switching Transient Study, Cross Texas Transmission
Pampa, TX, 2011

Mr. Shin performed a switching transient study for the 345 kV transmission facilities which will be built as part of the Texas Competitive Renewable Energy Zones (CREZ) Transmission Project to deliver renewable energy from the CREZ to urban load centers. The objective of the study was to assess the transient and temporary overvoltages and transient recovery voltage related with the new 345 kV lines. The switching transient analysis was performed using the EMTP software.

Transient Stability Analysis, Federal Research Center – White Oak
Silver Spring, MD, 2010

Mr. Shin performed transient stability analysis to evaluate the capability of the plant power system to respond to disturbances and transition to a new stable operating condition. The analysis also included a scenario for the plant to go into an islanding mode. The system including the plant generators and the low voltage motor loads were modeled using the SKM I*SIM software. Mr. Shin provided the analysis results for the transient stability performance of the generators for various fault scenarios.

Distribution Network Modeling and Study, City of Holyoke Gas & Electric
Holyoke, Massachusetts, 2010

Mr. Shin served as a lead engineer for a distribution network modeling and study project for HG&E. Burns & McDonnell provided services for developing a distribution model database and power flow analysis to provide recommendations for orderly development of the City of Holyoke's electric distribution network. The project involved extensive efforts for collection and processing of the distribution network data.

Solar Photovoltaic Generation Interconnection Study, Old Dominion Electric Cooperative
Glen Allen, VA, 2010

Mr. Shin performed harmonics analysis and voltage flicker study for solar photovoltaic

generation plants. Mr. Shin developed a PWM inverter model using the EMTP software to analyze harmonics created by the solar photovoltaic generation plants. Mr. Shin performed power flow analysis to assess potential voltage flicker considering variable output due to cloud covering.

Solar Photovoltaic Generation Plant Capacitor Sizing Analysis, Sempra Energy Resources

San Diego, CA, 2010

Mr. Shin performed power flow modeling and analysis for a solar photovoltaic generation plant. The purpose of the study was to estimate the required capacitor bank size to offset the reactive power loss on the system. The solar photovoltaic generation plant was modeled with an equivalent inverter step-up transformer, a station transformer and a double circuit 240 kV transmission line.

Transient Stability Analysis, ExxonMobil Torrance Refinery

Torrance, CA, 2009

Mr. Shin performed transient stability analysis in the process of relay programming scheme for the refinery plant substation. Mr. Shin modeled the plant generators and the low voltage motor loads using the SKM I*SIM software. Mr. Shin provided the analysis results for the transient stability performance of the generators for various fault scenarios.

Voltage Unbalance Study, AltaLink

Alberta, Canada, 2010

Burns & McDonnell was retained by AltaLink to provide technical analyses for series compensator application on a new double circuit 240 kV transmission line. Mr. Shin performed voltage unbalance analysis for evaluation of transposition options. Mr. Shin developed an EMTP model to analyze voltage unbalance for various line transposition configurations.

Analysis of the Control Performance Standard, Northern Indiana Public Service Co.

Hammond, IN, 2005-2008

Mr. Shin performed evaluation of CPS compliance for NIPSCO to identify measures to improve the control performance: ACE, CPS1 and CPS2. He developed a computer simulation tool to analyze the effect of the improvement measures on the control performance. He developed the sign-check scheme to improve the CPS1 value while reducing AGC actions. The simulation tool helps increase the margin to comply with CPS1 as the system frequency varies.

Generation Interconnection System Impact Study, Midwest Independent Transmission Operator

Carmel, IN, 2003-2010

Mr. Shin served as the project manager and/or lead analyst for numerous generator interconnection studies for interconnection of new combustion turbine or wind farm generating facilities. The interconnection studies included load flow, transfer capability, short circuit, and stability analyses. Mr. Shin built the stability model using NMORWG (Northern MAPP Operation Review Working Group) stability study package and analyzed the transient stability analysis results.

Wind Generation Interconnection Study, Alberta Electric System Operator

Alberta Canada, 2009-2010

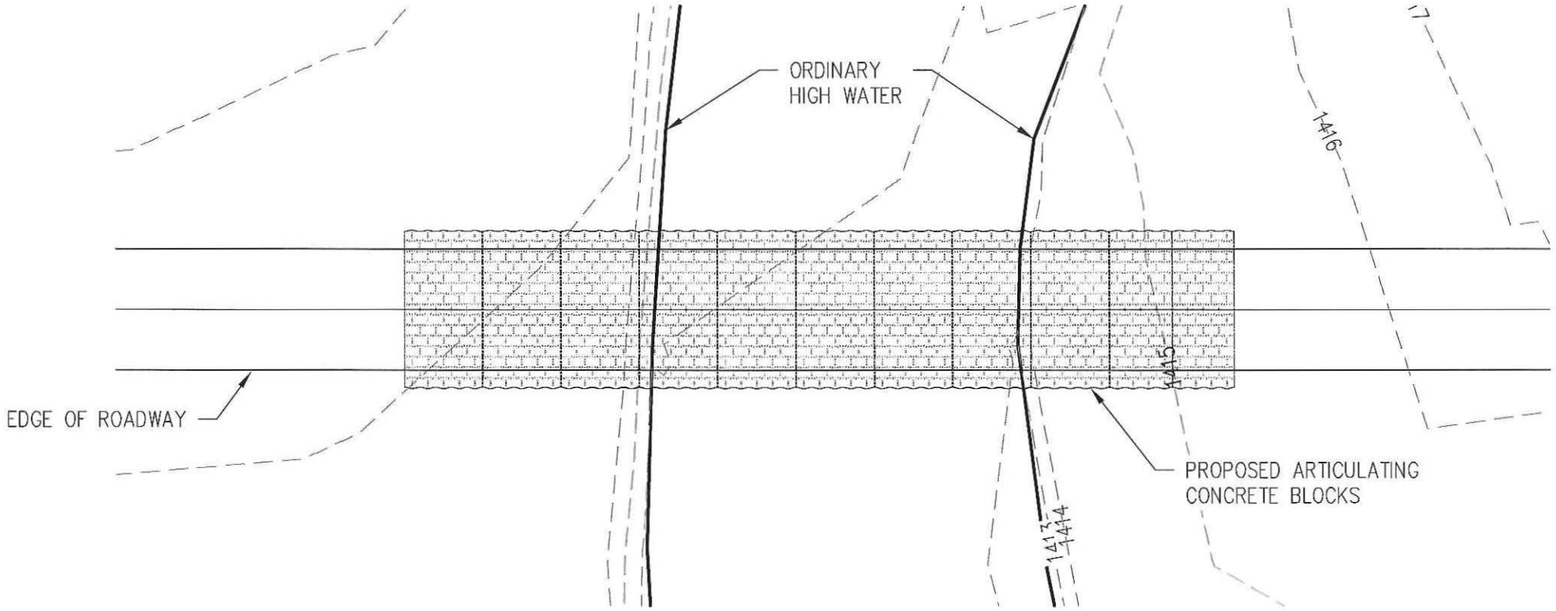
Mr. Shin served as the project manager and/or lead analyst for the Generation Interconnection Studies for the Alberta Electric System Operator (AESO). Mr. Shin performed load flow, short circuit, and stability analyses. Burns & McDonnell provided the AESO with the technical analysis results for the Needs Identification Document submitted to the Alberta Utilities Commission.

Transmission Expansion Planning, Southwest Power Pool

Little Rock, AR, 2006

Mr. Shin provided services for SPP's Transmission Expansion Planning. Mr. Shin performed load flow analysis to find resolutions to the thermal and voltage violations for long range transmission expansion planning. Fifteen load flow dispatch scenarios were evaluated to capture potential problems in various operating conditions.

APPENDIX E
WH Pacific Report



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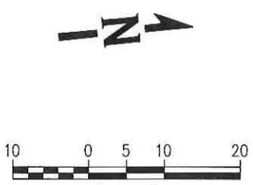

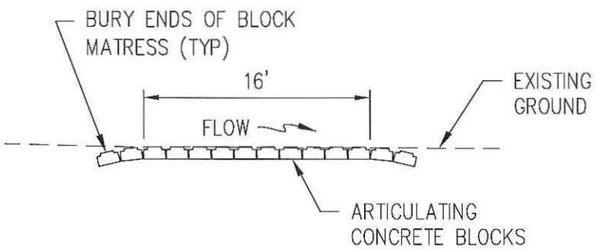

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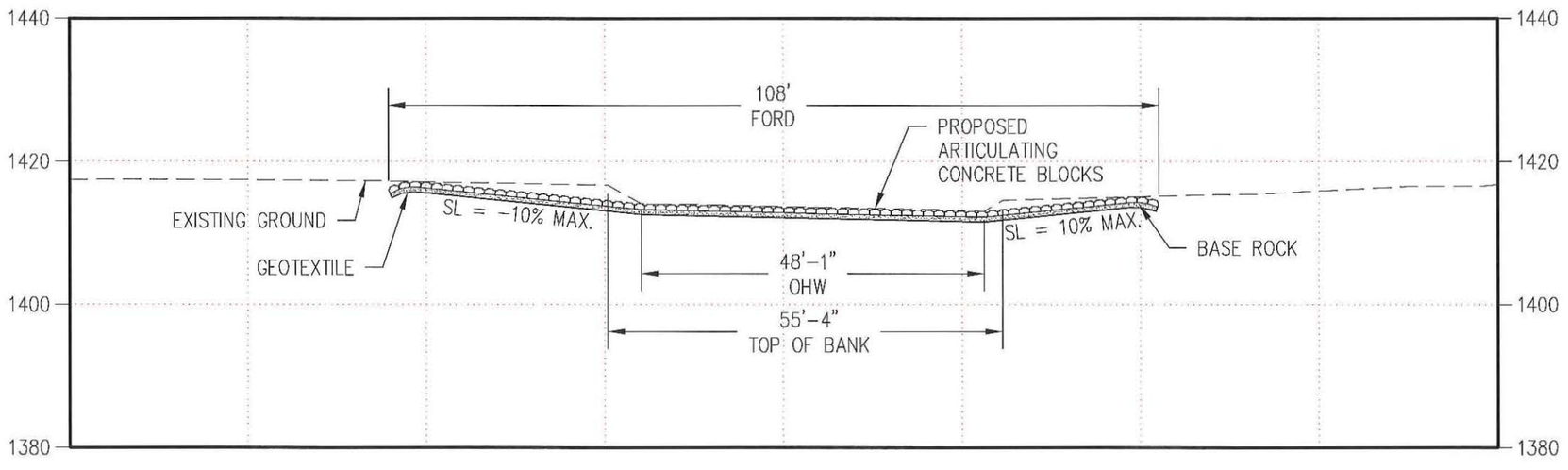

ELEVATION

CROSSING 4 - FORD

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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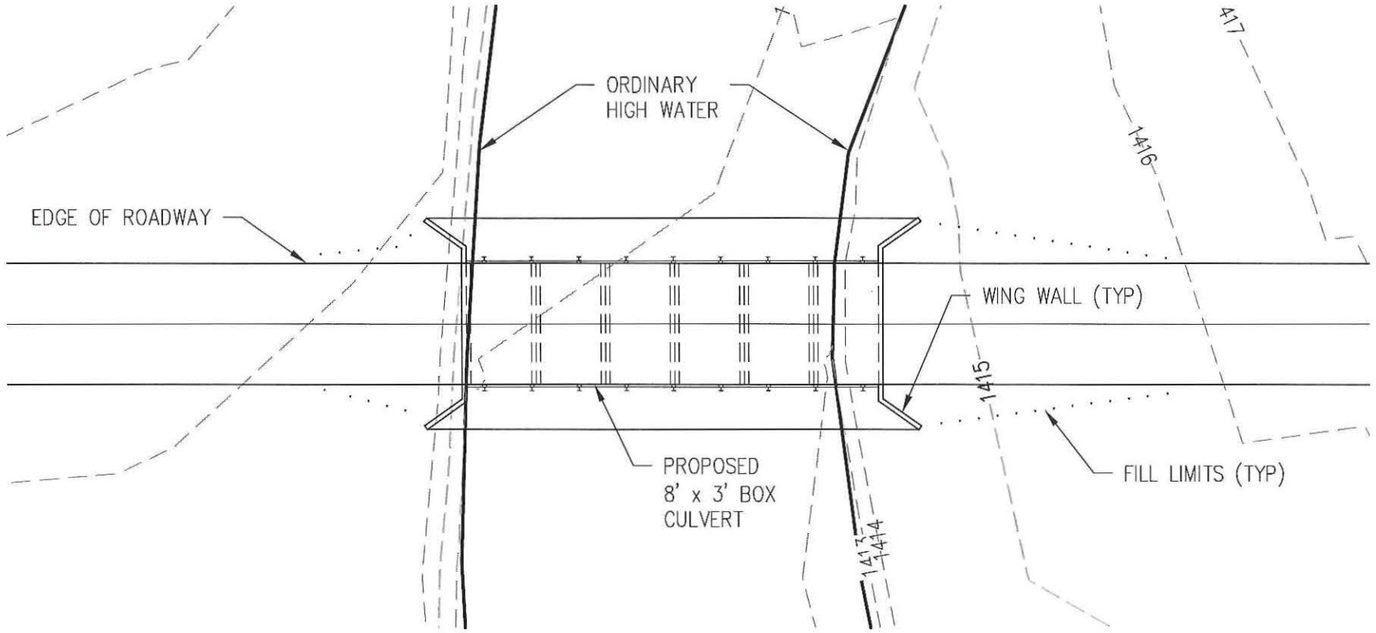

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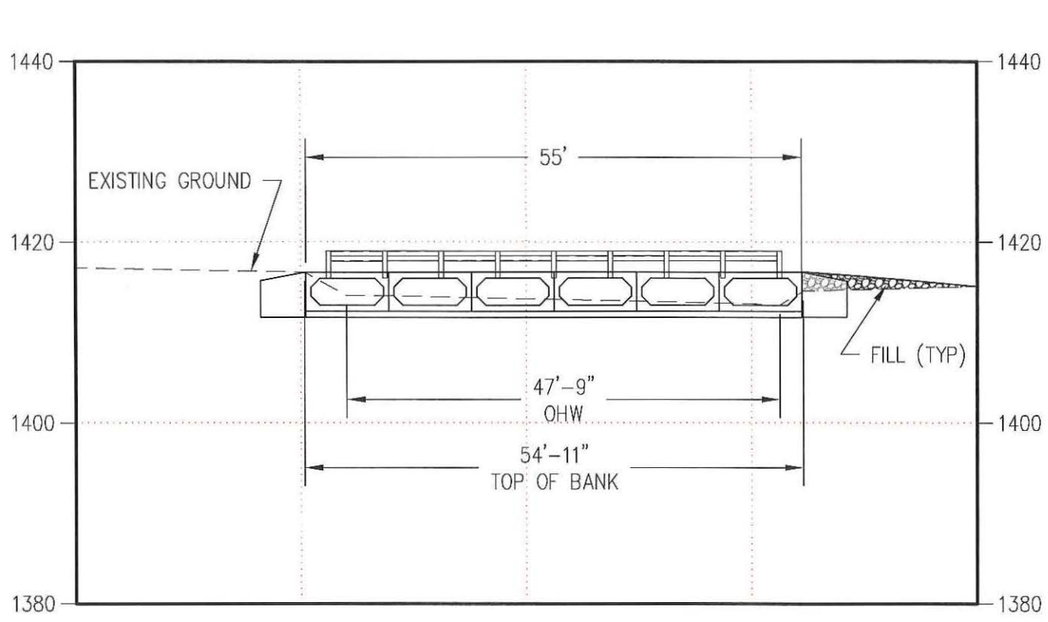
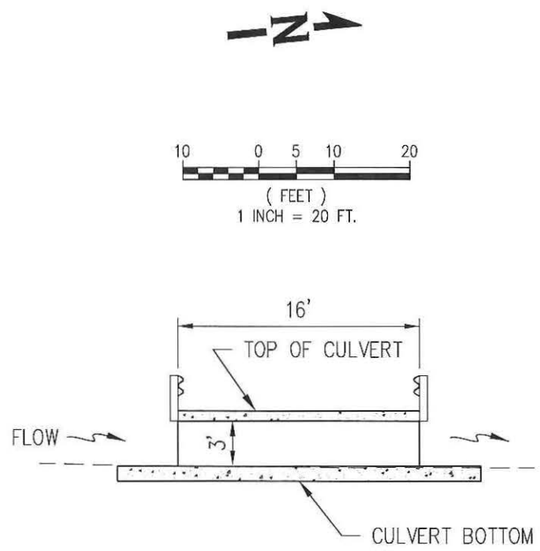


ELEVATION



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NOT TO SCALE

CROSSING 4 - CULVERT

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

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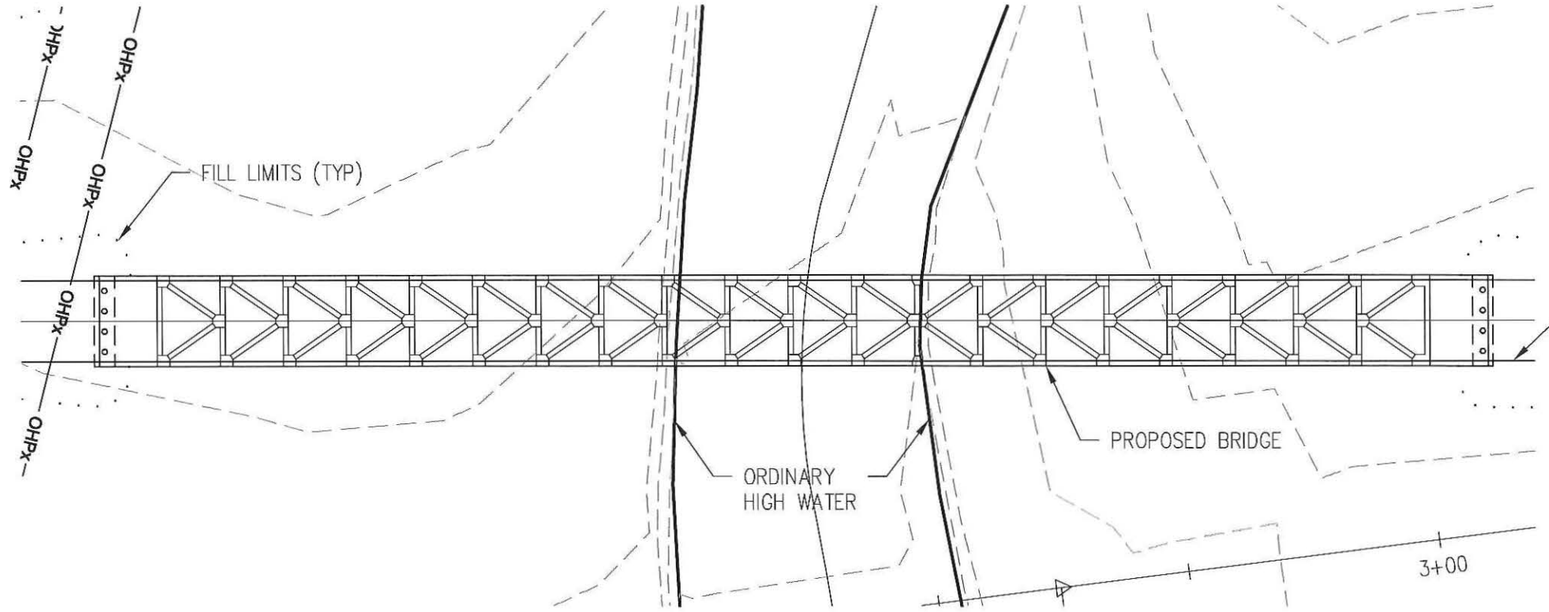

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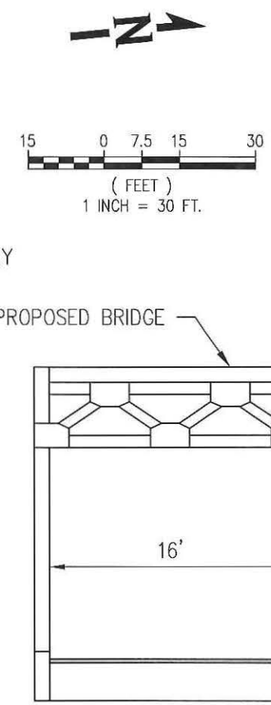

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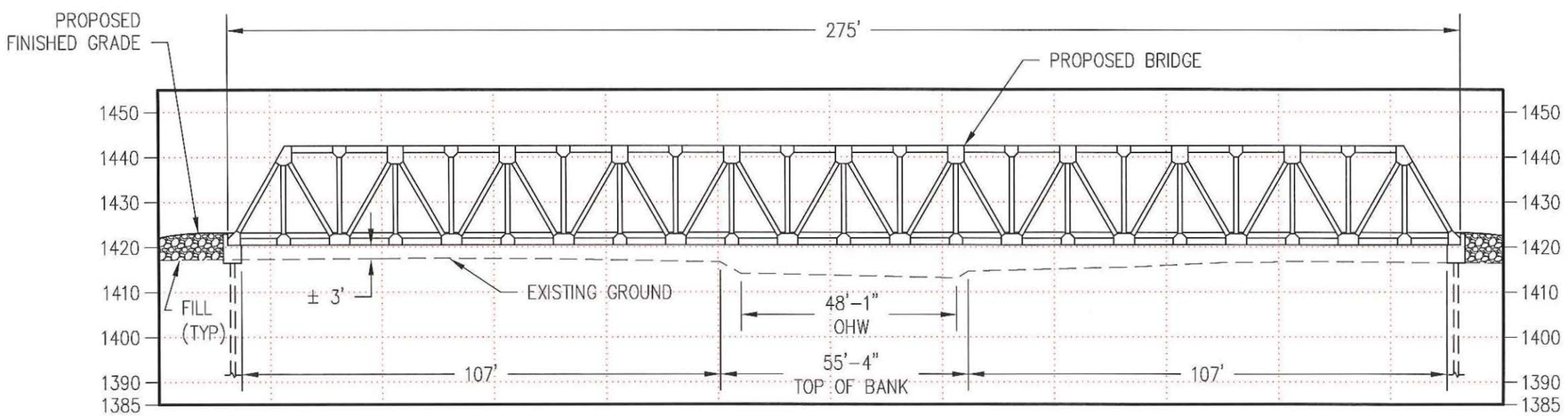

ELEVATION

CROSSING 4 - FREE SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

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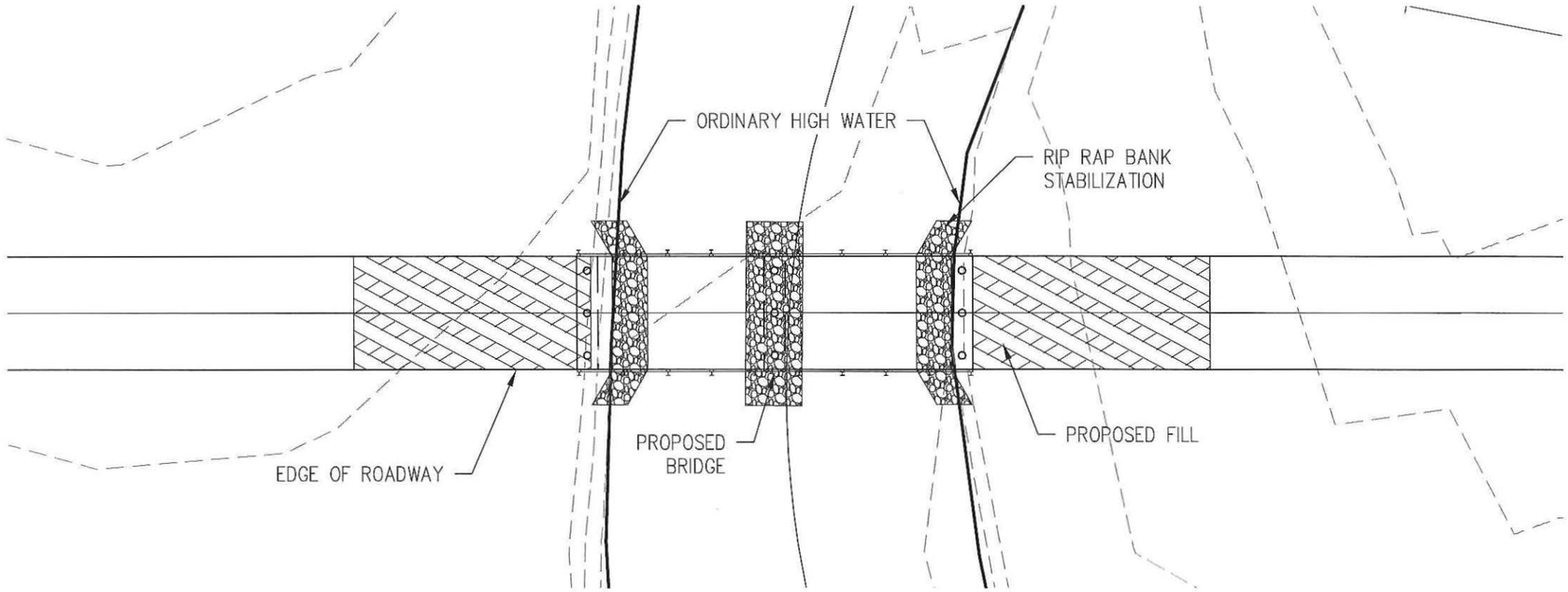

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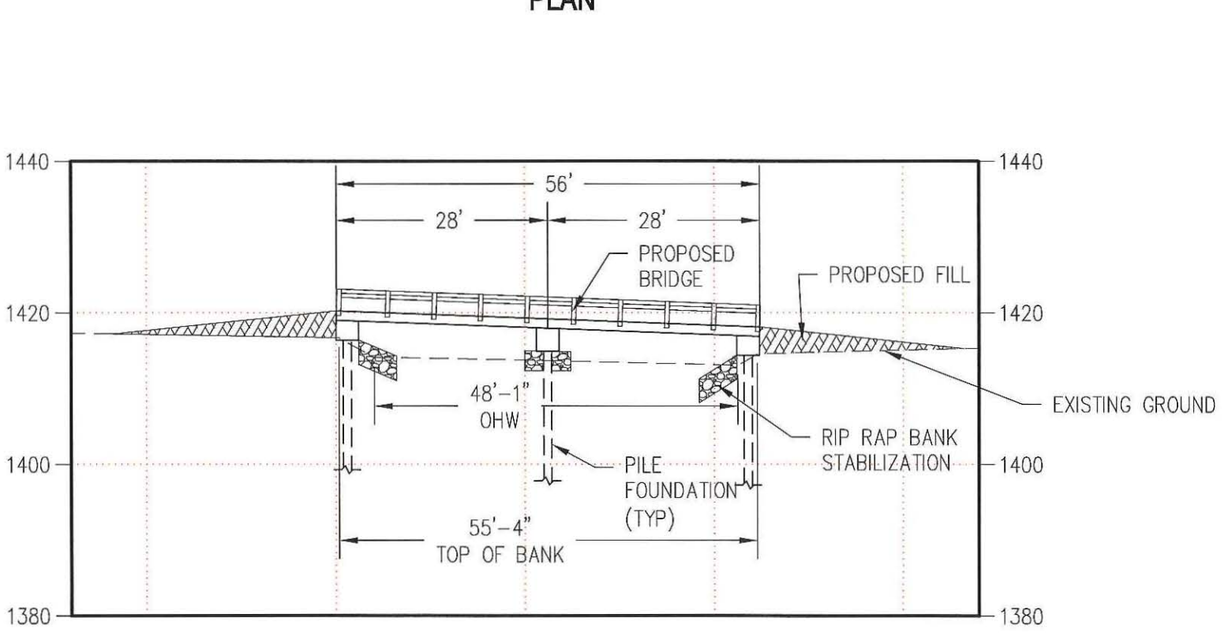

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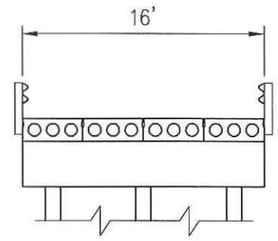

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TYPICAL SECTION
NOT TO SCALE

CROSSING 4 - MULTI SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

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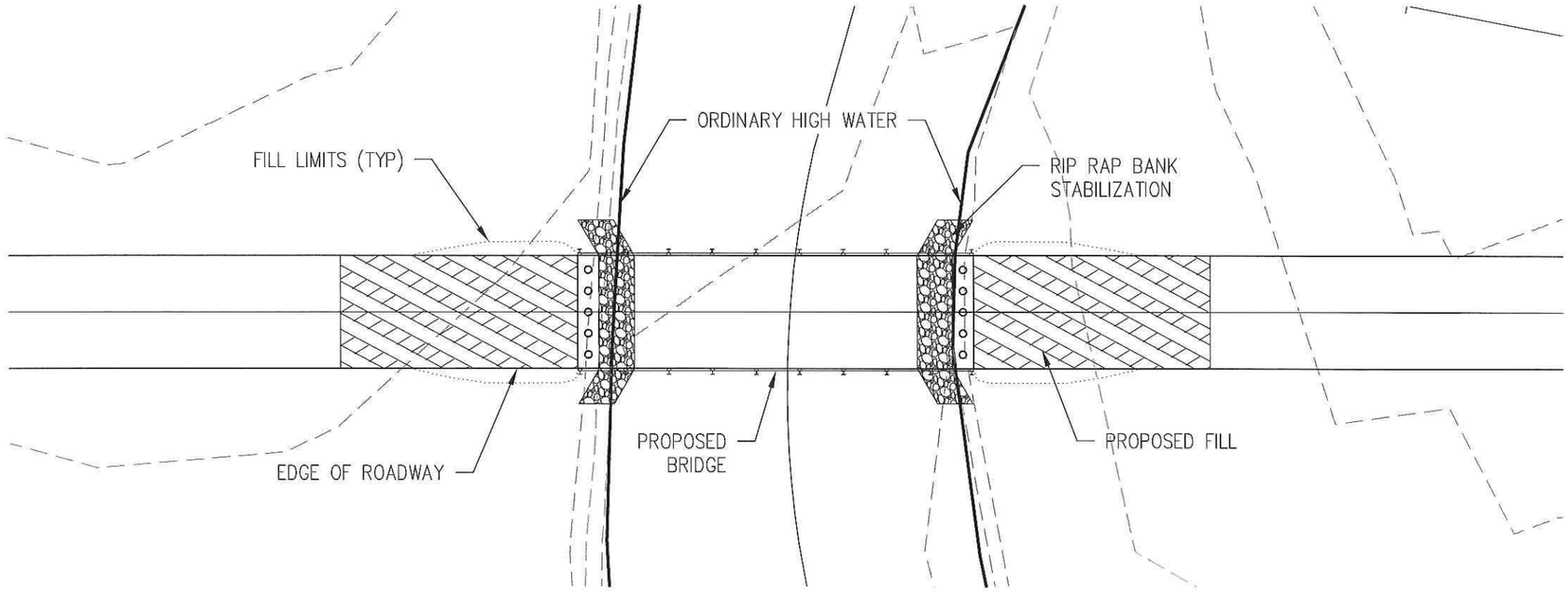

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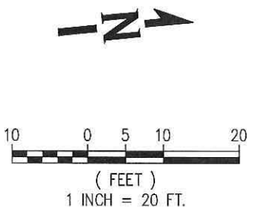

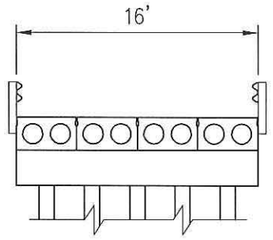

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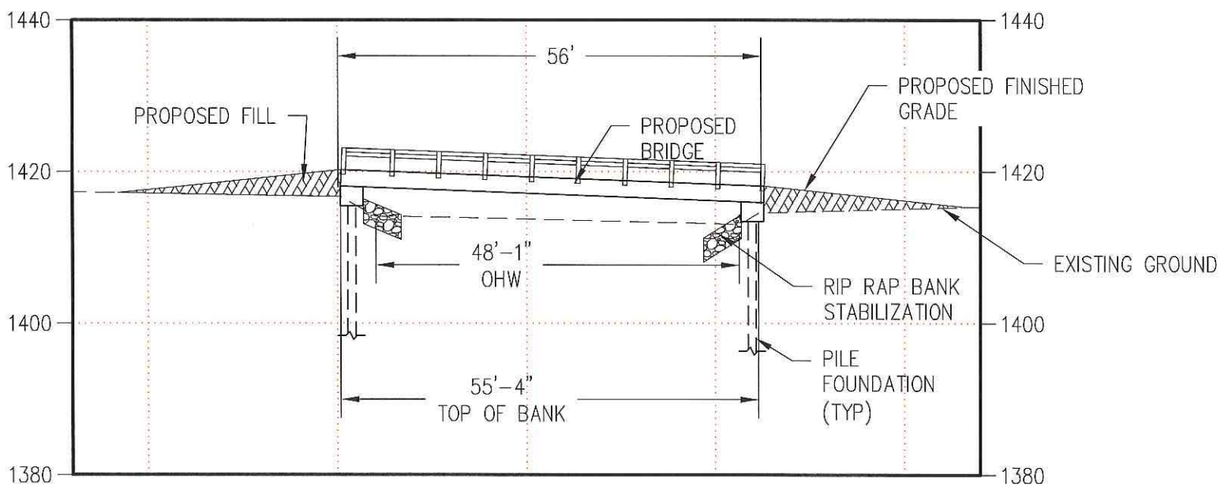

ELEVATION

CROSSING 4 - SINGLE SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

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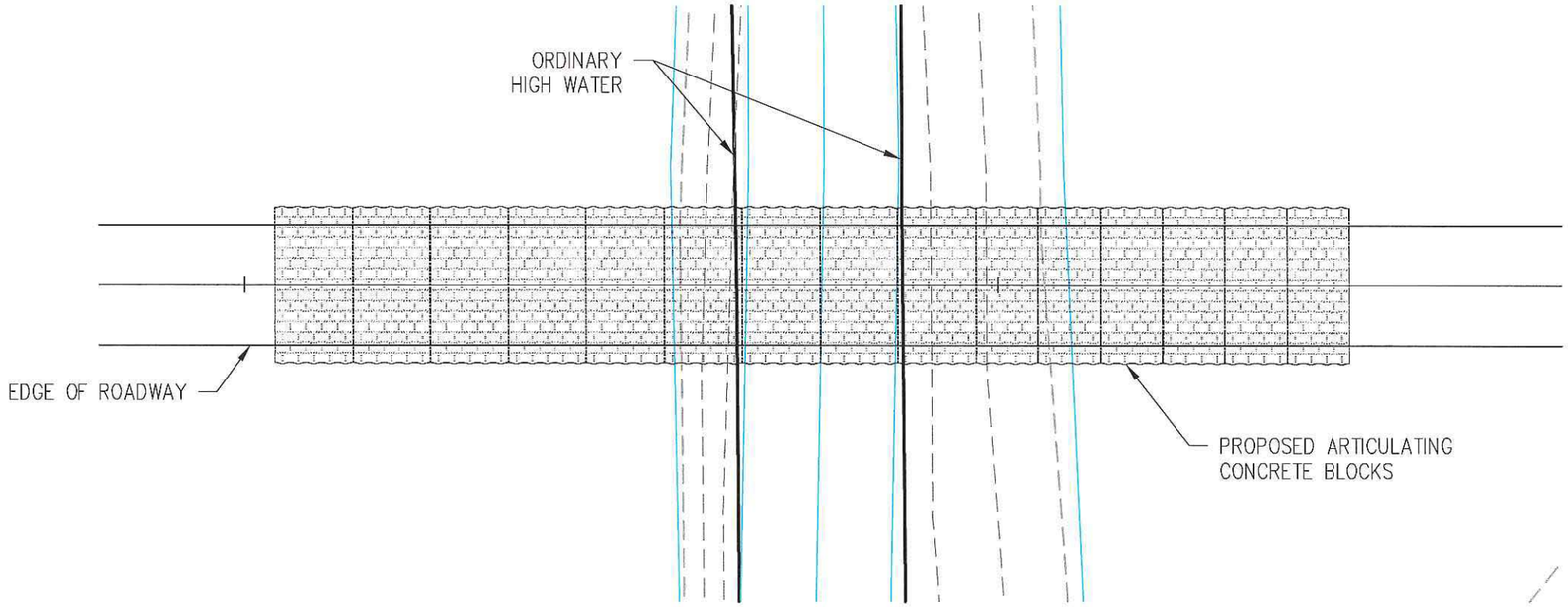

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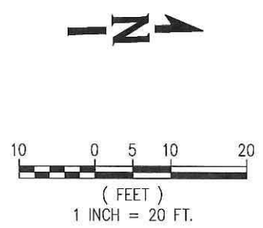

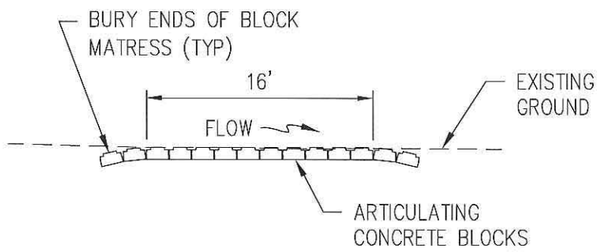

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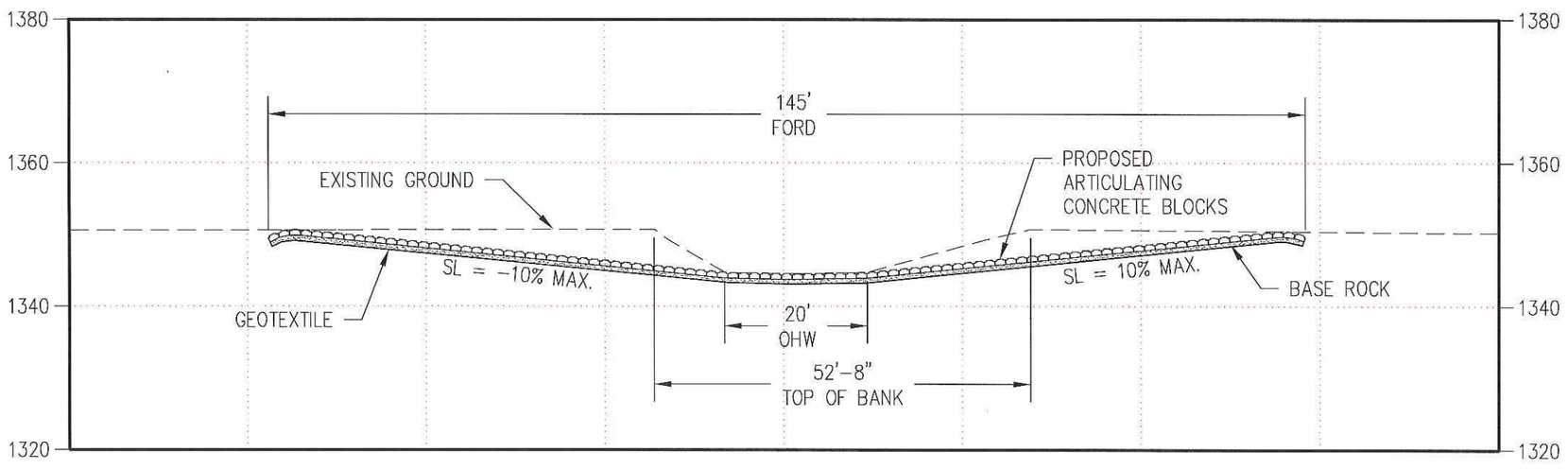

ELEVATION

CROSSING 5 - FORD

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

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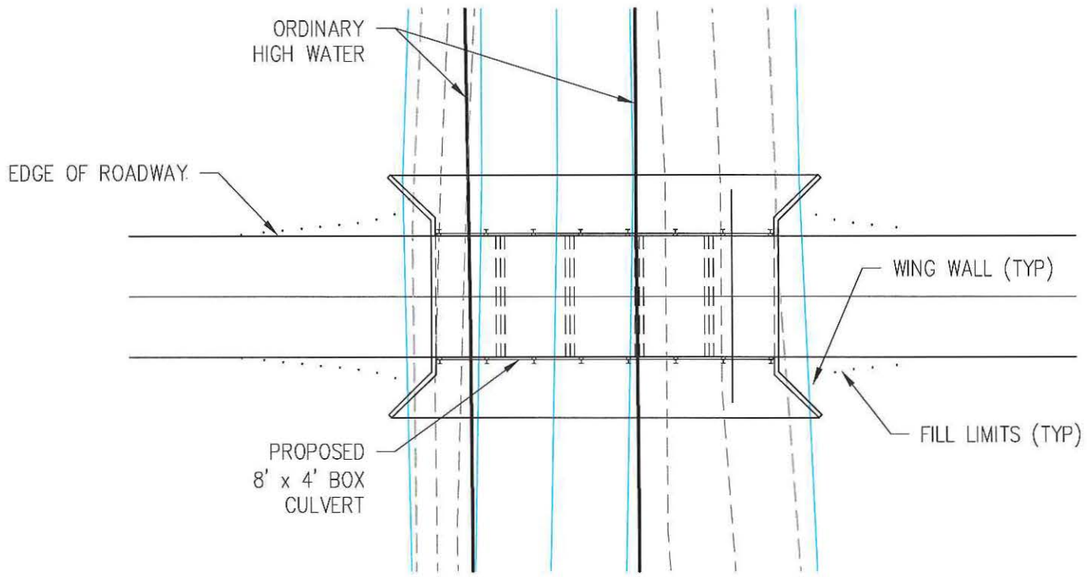
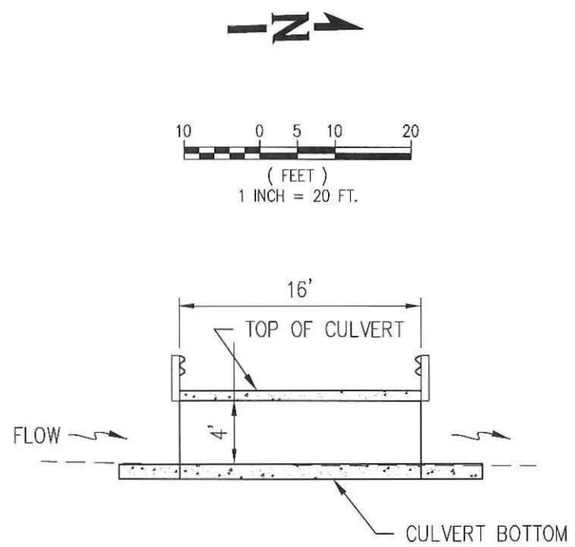


PLAN



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TYPICAL SECTION
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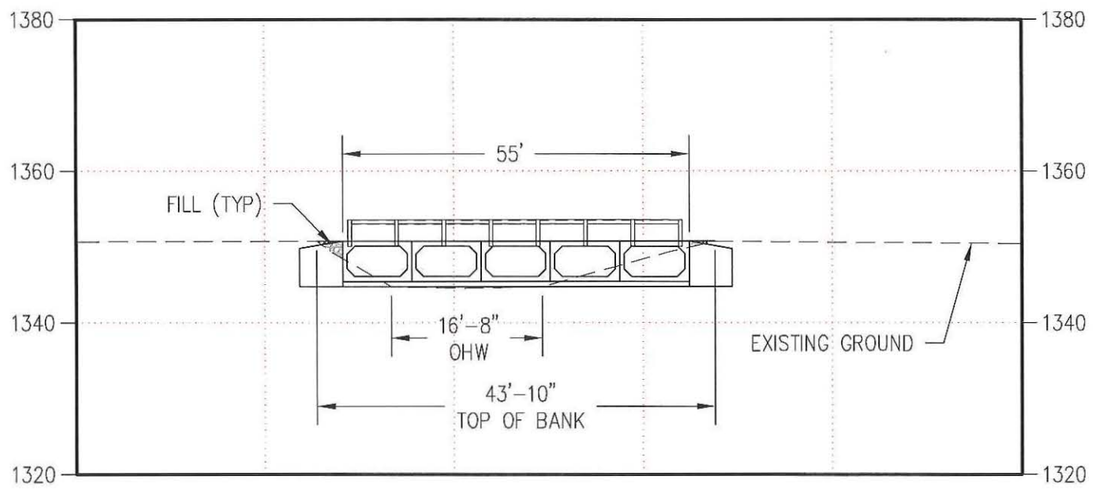

ELEVATION

CROSSING 5 - CULVERT

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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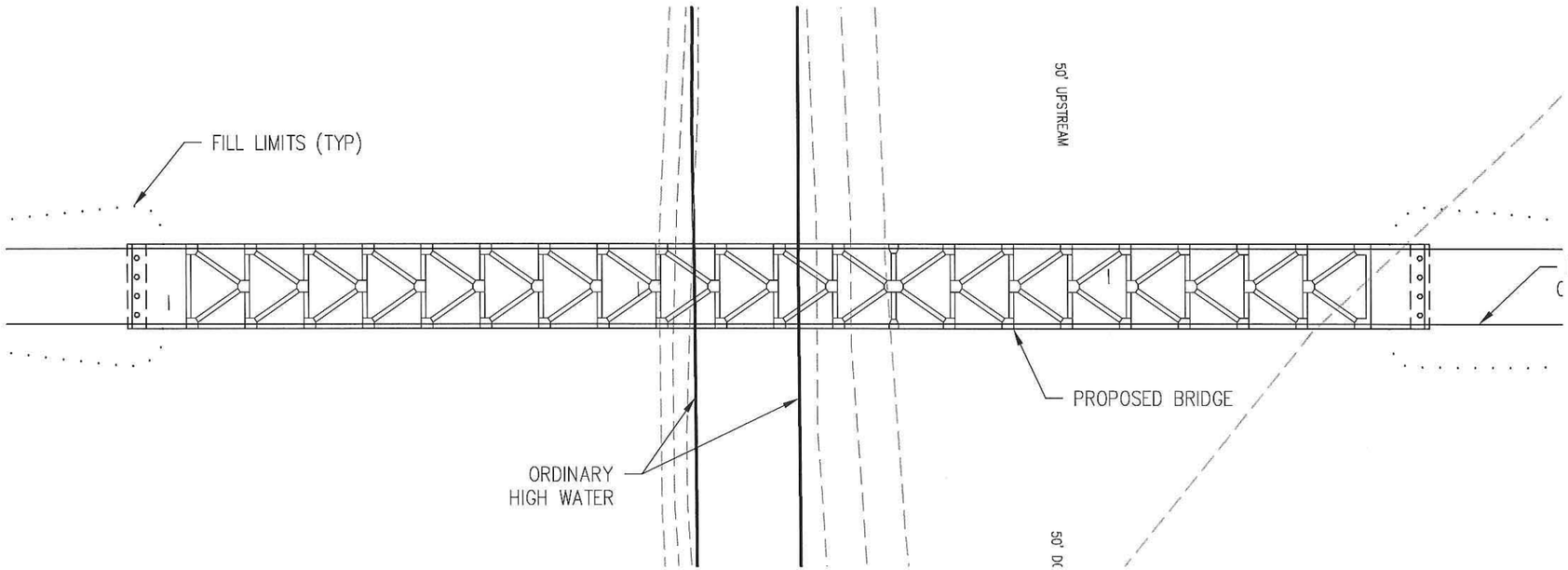
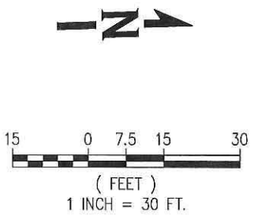
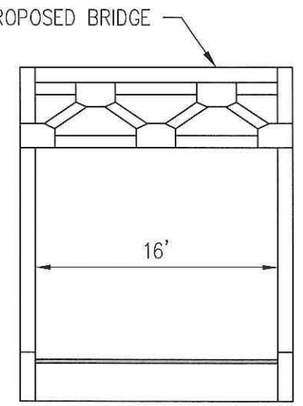


PLAN





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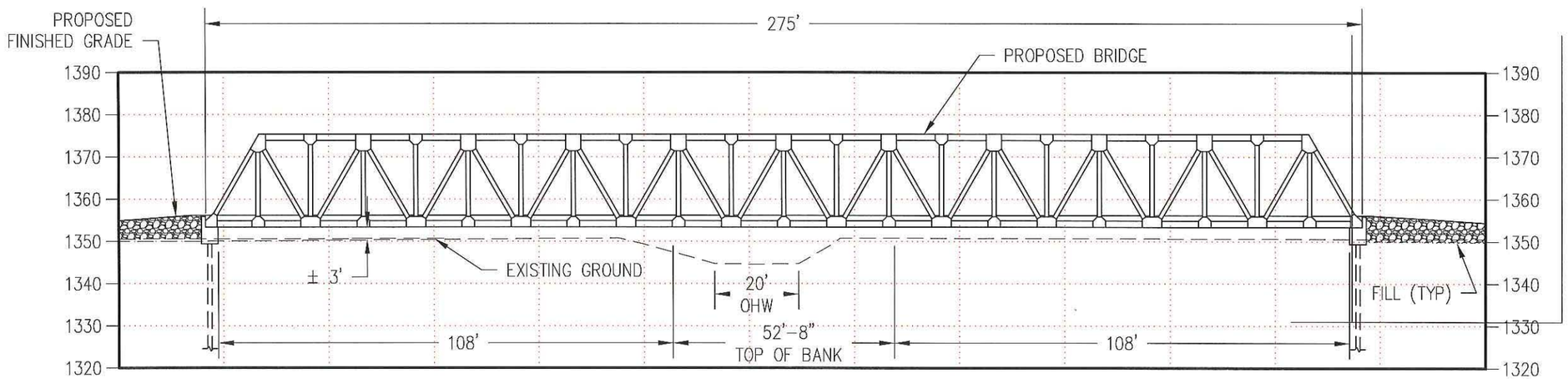

ELEVATION

CROSSING 5 - FREE SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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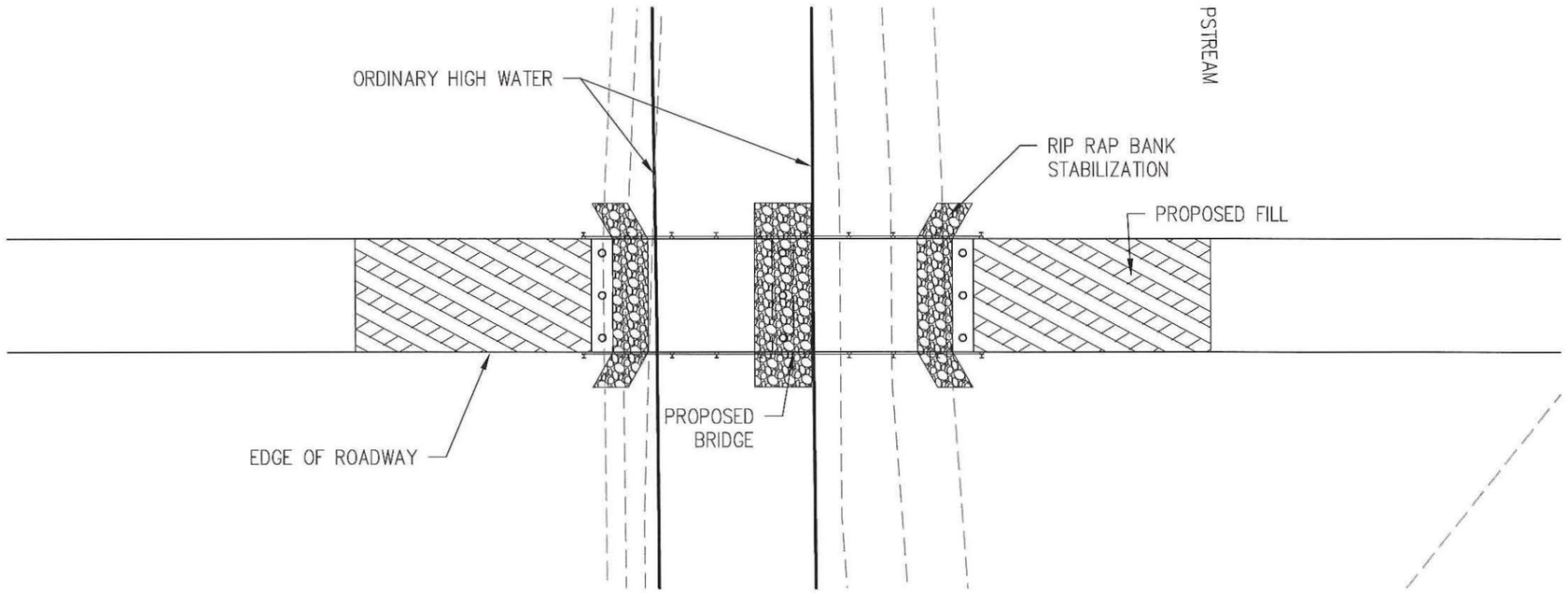

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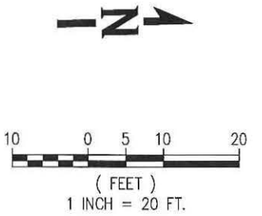

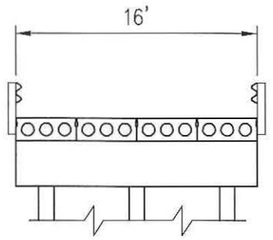

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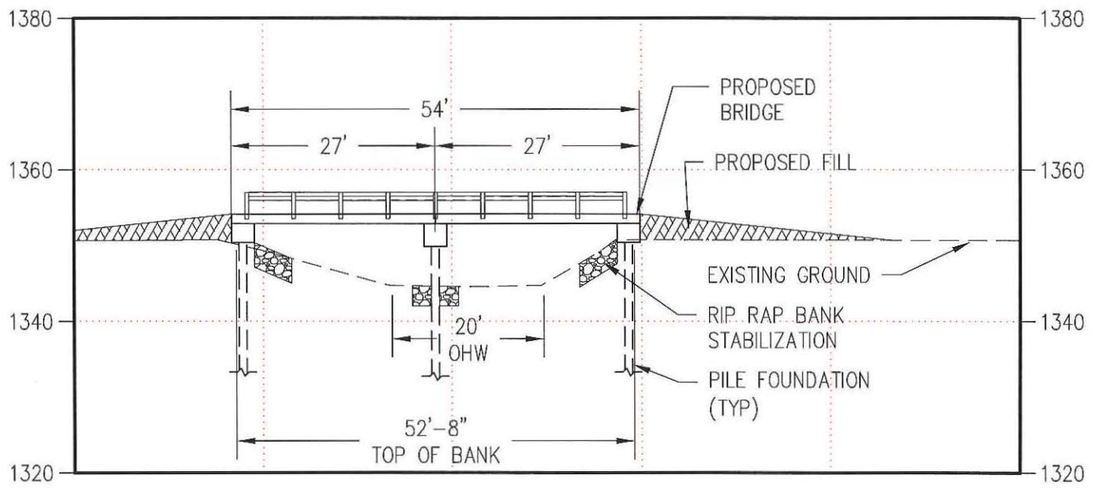

ELEVATION

CROSSING 5 - MULTI SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

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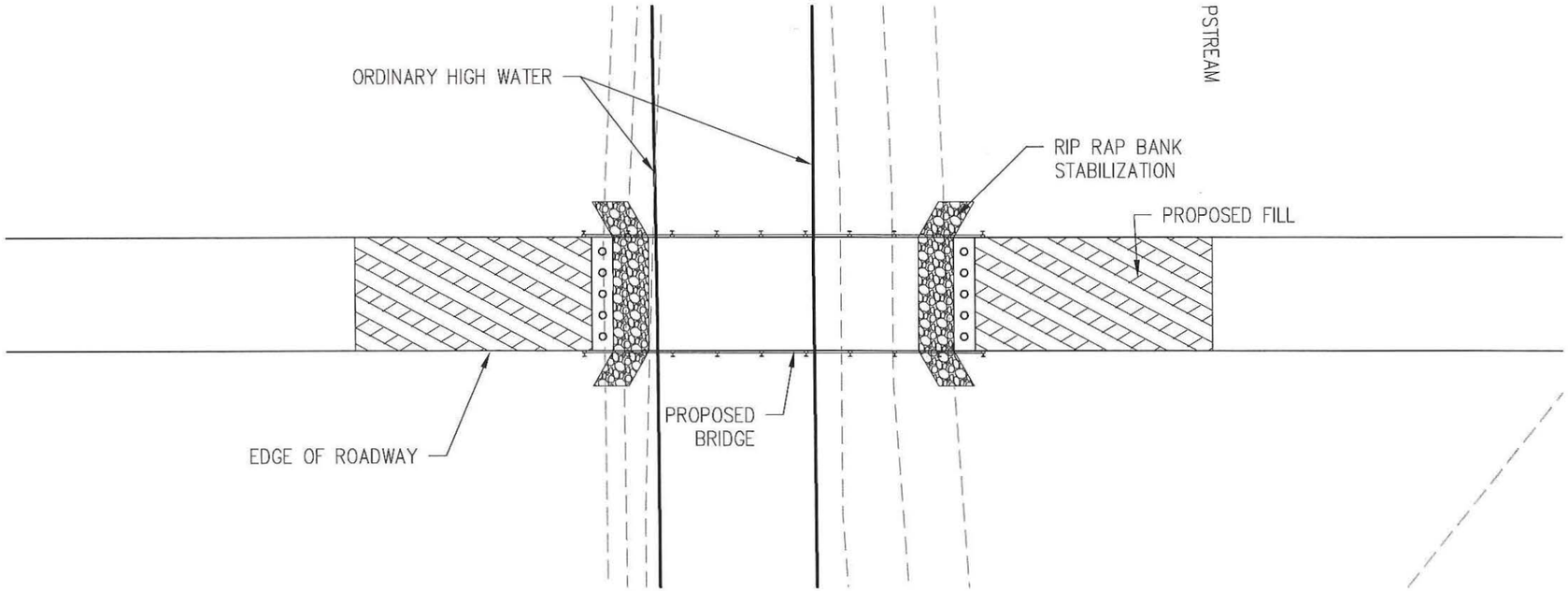

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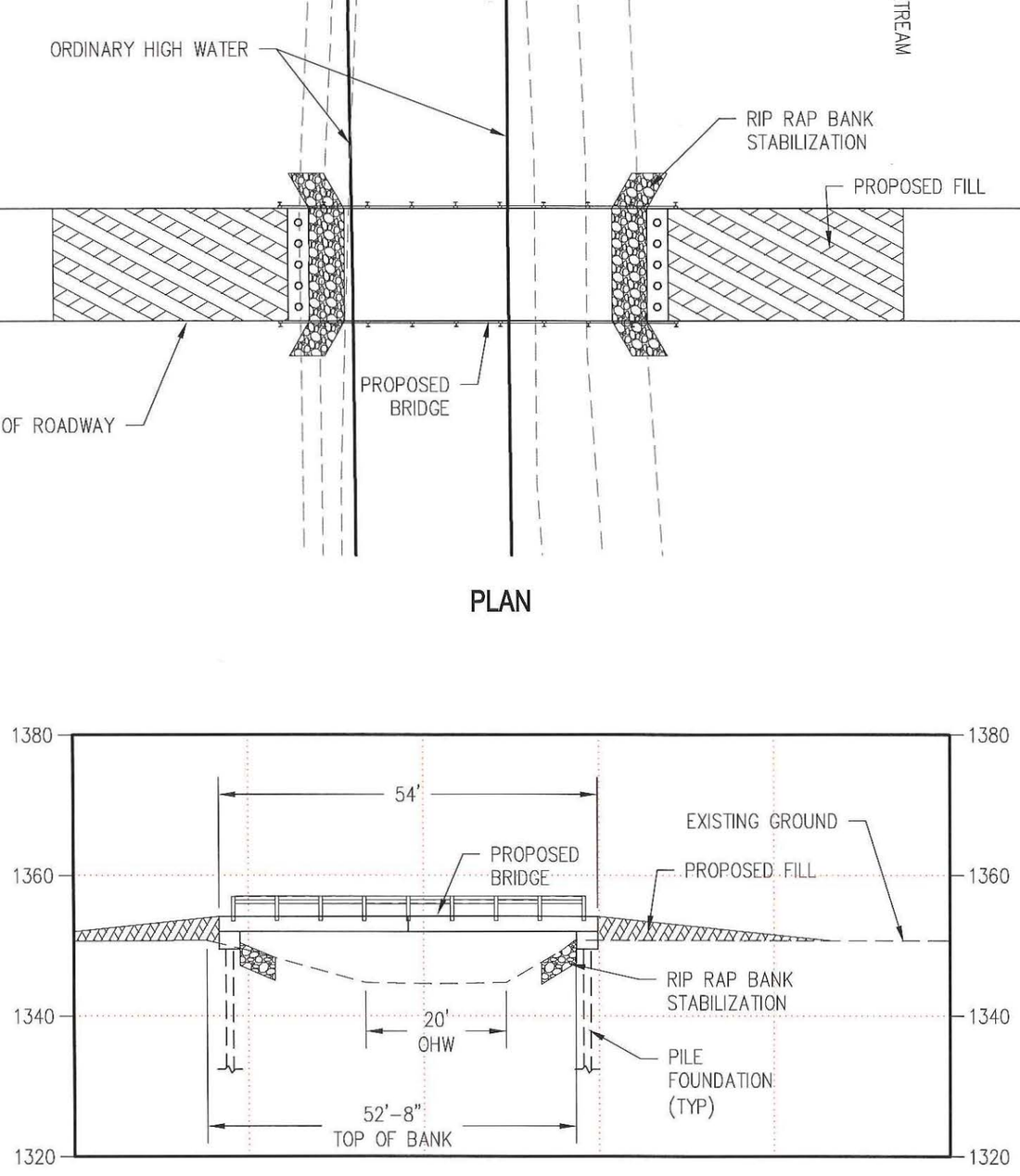

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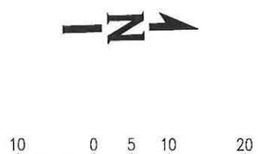

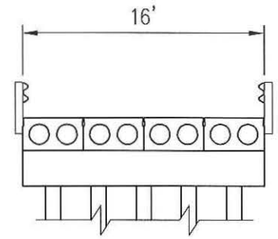

TYPICAL SECTION
NOT TO SCALE

CROSSING 5 - SINGLE SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13

Panoche Valley Solar Farm

San Benito County, California

Stream Crossing Alternative Study & Hydraulic Report

Prepared for:

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Hydraulic – John Marks, P.E., Devin Doring, E.I.T.

Original: February 12, 2014

INTRODUCTION

This report is a continuation of a previous study and addresses the hydrologic and hydraulic research and analysis that was conducted as part of the Panoche Valley Solar Facility (PVSF) project in San Benito County, California. The objective of this effort was to analyze the existing conditions and document the associated conditions with five proposed bridge locations. A hydraulic analysis was performed for the purpose of designing bridge structures and at grade fords at creek crossings on the PVSF project that will provide access to the entire facility during a 100 year flood event.

Five bridge models are being analyzed at both creek crossing. The first bridge model is a ford crossing that requires laying back the slope and crossing at grade. The second bridge model is a multi-barreled, concrete box culvert structure. The third bridge model is a free span bridge that has abutments 100 feet distant from the top of bank on either side of the channel. This structure is intended to span the channel and both overbank areas. It will however require approach fills at both ends to allow for a minimum of 3 feet of clearance below the bridge superstructure. The fourth bridge model is a multi-span structure with abutments near the top of channel banks and a pier in the channel. The fifth bridge option is a single span bridge with abutments near the top of channel banks.

REGULATORY STANDARDS

The PVSF project is within a regulatory Federal Emergency Management Agency (FEMA) floodplain. The crossing sites are located within a Zone A region which is defined as "Special flood hazard areas subject to inundation by the 1% annual chance flood, no base flood elevation determined". If a particular scenario demonstrates a no-rise scenario, regulatory standards will easily be satisfied. However, if backwater occurs, negotiations with the appropriate authorities, San Benito County and FEMA, will be required. FEMA may defer to the local authorities. It may be possible to negotiate allowing a backwater rise, most likely limited to a foot.

BASIN RESEARCH

Three major creeks flow through the PVSF project. A unnamed creek flows from the northern edge of the project and joins Las Aguilas Creek near the center of the project. Panoche Creek flows along the southern edge of the project and forms a confluence with Las Aguilas Creek near the southeast corner of the project. Las Aguilas Creek flows from northwest to southeast and has a drainage basin of approximately 9.9 square miles above crossing site numbered 4. Panoche Creek flows from west to east and has a drainage basin of approximately 44.7 square miles above crossing site 5. The Las Aguilas Creek watershed varies in elevation from about 1415 feet at crossing site 4 to a maximum of 3639 feet. The Panoche Creek watershed varies in elevation from about 1345 feet at crossing site 5 to a maximum of 3969 feet. The watershed is subject to winter storms in which precipitation is mainly in the form of rain. High flows if they occur typically occur in the winter months.

SITE INVESTIGATION

A site investigation of the study area was conducted by John R. Marks and Paul Tappana of WHPacific on June 27, 2012 and then again on September 24, 2013. The purpose of the site investigation was to review the sites for hydrologic, hydraulic and scour concerns that may affect the proposed creek crossings. Survey mapping of the area was completed by WHPacific survey crew. The survey also included a digital terrain model (DTM) that was used to develop cross sections needed in the hydraulic modeling. Google Earth data was used to supplement elevation data for the extensive floodplain outside the extents of the survey. The following observations were made during the site visit.

1. **Lateral Channel Stability**

   The creek alignment meanders slightly within moderately moving channel boundaries of the adjacent grass land.

2. **Aggradation /Degradation**

   The relatively low slope condition of the creek channel and the steepness of the channel's banks indicate that both aggradation and degradation will be unlikely.

3. **Manning's *n***

   The left and right overbank areas through all reaches consist of grassland. A Manning's n value of 0.030 was assigned for this condition. The main channel throughout consists of silt, sand and gravel with scattered cobbles. A Manning's n value of 0.030 was assigned for the channel.

4. **Riprap**

   No riprap is present.

5. **Bed Material**

   The bed material was observed to be silt, sand and gravel with scattered cobbles with an estimated D_{50} of 0.1 mm.

6. **Evidence of Scour**

   There is some evidence of isolated scour on the outside of bends on both creeks.

7. **Abutment Alignment**

   There are no bridges at the proposed bridge sites.

8. **Hydraulic Controls**

   No hydraulic controls are present.

9. **High Water Marks**

   No high water marks were observed.

10. **Debris**

    The woody debris potential for the watershed appears to be moderate to high.

Based on this information WHPacific also looked at long term scour and have included additional removal and fill to help stabilize the long term features of the crossings due to erosion.

HYDROLOGY

The peak discharges for these ungauged watersheds have been taken from a USGS online application called StreamStats for California (http://streamstats.usgs.gov/california.html). Storm event flows were provided at standard intervals. The discharges used in the hydraulic analysis of the proposed crossing structures are provided below:

Crossing Site 4

Q_2 = 25 cfs

Q_5 = 115 cfs

Q_{10} = 243 cfs

Q_{25} = 498 cfs

Q_{50} = 793 cfs

Q_{100} = 1170 cfs

Q_{500} = 2470 cfs

Crossing Site 5

Q_2 = 105 cfs

Q_5 = 473 cfs

Q_{10} = 970 cfs

Q_{25} = 1940 cfs

Q_{50} = 3070 cfs

Q_{100} = 4430 cfs

Q_{500} = 9090 cfs

HYDRAULICS

The US Army Corps of Engineers, Hydrologic Engineering Centers River Analysis System computer program (HEC- RAS Version 4.1.0) was used to compute the channel hydraulics. Hydraulic models were developed for the "natural channel" conditions of the sites and the requested bridge/culvert alternatives. Ten stream cross-sections were used to develop the hydraulic models at sites 4 and 5. The cross-sections were selected to adequately model flow through the site locations for both Las Aguilas Creek and Panoche Creek.

The proposed alternatives, except for the free span bridges, were modeled to provide maximum conveyance through the sites with using minimal approach fill. The single and multi-span structures were modeled with approach fills to elevate the superstructure above the overbank area. The water surface elevations for each model were calculated using the provided flow data from StreamStats. It should be noted that on the bridge profile sheets where water surface elevations are depicted, that some storms which are higher than the stated maximum conveyable storm for a site may appear as though it can "fit" under the bridge or culvert. However, what is not seen is that these storms cover the approach roadway past the extents of the profile window. Detailed printouts of the results are provided in the Appendix.

TABLE 1. Hydraulic Data Sheet for the Existing Condition and Proposed Bridges at Site 4.

	Natural Conditions			56-Foot Multi-span		56-Foot Single-span	
	25-Year Flood	50-Year Flood	100-Year Flood	Conveyable Storm Event for Site[5]	100-Year Flood	Conveyable Storm Event for Site[5]	100-Year Flood
Discharge (ft^3/s)	498	793	1170	498	1170	498	1170
Recurrence Interval (yrs)	25	50	100	25	100	25	100
Approach Section H.W. Elevation with Natural Channel[1] (ft)	1415.98	1416.38	1416.74	1415.98	1416.74	1415.98	1416.74
Approach Section H.W. Elevation with Bridge[1]	-	-	-	1416.12	1417.10	1416.07	1417.09
Backwater (ft)	-	-	-	0.14	0.36	0.09	0.35
H.W. Elevation at Upstream Face of Bridge[2] (ft)	1415.34	1415.75	1416.19	1415.32	1417.15	1415.28	1417.14
H.W. Elevation at Downstream Face of Bridge[3] (ft)	1414.90	1415.37	1415.79	1414.90	1417.05	1414.84	1417.03
Waterway Area at Downstream Face of Bridge[3,4] (ft^2)	73.5	109.4	149.5	68.0	413.1	67.4	415.9
Average Velocity at Downstream Face of Bridge[3] (ft/s)	6.8	7.2	7.8	7.3	2.8	7.4	2.8

[1] Approach section is the location where the flow within the cross section is fully effective. The approach section for this bridge was determined to be 56 feet upstream of the edge of proposed bridge.
[2] Located at upstream face of proposed bridge along the embankment.
[3] Located at downstream face of proposed bridge opening.
[4] Area normal to channel centerline.
[5]This hydraulic analysis studied only the 2, 5, 10, 25, 50, 100, and 500 year event storms. No iteration was performed to calculate the design storm (defined as the road overtopping event).

TABLE 2. Hydraulic Data Sheet for the Existing Condition and Proposed Bridges at Site 5.

	Natural Conditions			56-Foot Multi-span		56-Foot Single-span	
	25-Year Flood	50-Year Flood	100-Year Flood	Conveyable Storm Event for Site[5]	100-Year Flood	Conveyable Storm Event for Site[5]	100-Year Flood
Discharge (ft^3/s)	1940	3070	4430	1940	4430	1940	4430
Recurrence Interval (yrs)	25	50	100	25	100	25	100
Approach Section H.W. Elevation with Natural Channel[1] (ft)	1350.15	1351.53	1351.92	1350.15	1351.92	1350.15	1351.92
Approach Section H.W. Elevation with Bridge[1]	-	-	-	1351.15	1352.83	1350.15	1352.00
Backwater (ft)	-	-	-	0.0	0.91	0.00	0.08
H.W. Elevation at Upstream Face of Bridge[2] (ft)	1350.60	1351.39	1351.80	1350.55	1352.41	1350.58	1352.40
H.W. Elevation at Downstream Face of Bridge[3] (ft)	1350.50	1351.77	1352.18	1350.37	1352.32	1350.50	1352.06
Waterway Area at Downstream Face of Bridge[3,4] (ft^2)	209.70	276.85	291.90	209.72	305.90	209.7	291.90
Average Velocity at Downstream Face of Bridge[3] (ft/s)	9.25	6.50	7.18	9.25	7.07	9.25	7.18

[1] Approach section is the location where the flow within the cross section is fully effective. The approach section for this bridge was determined to be 56 feet upstream of the edge of proposed bridge.
[2] Located at upstream face of proposed bridge along the embankment.
[3] Located at downstream face of proposed bridge opening.
[4] Area normal to channel centerline.
[5]This hydraulic analysis studied only the 2, 5, 10, 25, 50, 100, and 500 year event storms. No iteration was performed to calculate the design storm (defined as the road overtopping event).

SUMMARY

The conclusions drawn from the hydraulic analysis at each site are as follows:

Site 4		
Type	Conveyable Storm Event for Site (yr.)	Backwater Rise @ 100 yr. Event (ft.)
Multi-span (2 - 28' spans)	25	0.36
Single-span	25	0.35

The multi-span and single-span structures passed the 10-year, 25 year, 50-year and 100-year storm events, respectively. The only structure that presents a "no-rise" water surface for the 100-year flood at the approach section to the structure is the free span structure. The multi-span caused a 0.36 foot water surface rise and the single-span caused a 0.35 foot water surface rise, respectively, at the approach section.

Site 5		
Type	Conveyable Storm Event for Site (yr.)	Backwater Rise @ 100 yr. Event (ft.)
Multi-span (2 – 28' spans)	25	0.91
Single-span	25	0.08

The multi-span and single-span structures passed the 10-year, 25 year, 50-year and 100-year storm events, respectively. The only structure that presents a "no-rise" water surface for the 100-year flood at the approach section to the structure is the free span structure. The multi-span caused a 0.91 foot water surface rise and the single-span caused a 0.08 foot water surface rise, respectively, at the approach section.

Some depth of approach fill is used to raise the superstructure of the bridges. Raising the brides allows debris to pass underneath and limits the rise of the watersurface.

In addition to this hydraulic analysis there are various other factors that should be considered in assessing the bridge crossing. Below are two tables, Table 4 - "General Pros and Cons of Crossing type", and Table 5 - "General Considerations of Crossing Type". Additionally,

Table 6 includes calculations of disturbed areas and materials for each crossing and each alternative within the ordinary high water (OHW) and top-of-bank to top-of-bank limits.

Table 4 - GENERAL PROS AND CONS OF CROSSING TYPE		
Crossing Type	Pros	Cons
Ford	- no change in existing hydraulic conditions - satisfies “no-rise” condition - lowest construction and maintenance costs	- crossing is not available during a high hydraulic event - significant disturbance to bed and bank habitat during construction
Culvert	- crossing is available during a low hydraulic event - lowest construction and maintenance costs	- crossing is not available during a high hydraulic event - significant disturbance to the bed and bank habitat during construction
Free Span	- crossing is available during high water events - satisfies "no-rise" situation	- moderate upland habitat disturbance during construction and lifecycle - very high cost to benefit ratio - high maintenance cost - visual impact structure is out of place for environment
Multi-span	- crossing is available during high water events - moderate construction and maintenance costs	- moderate disturbance to bed and bank habitat during construction due to excavation and foundation installation and equipment
Single-span	- crossing is available during high water events - moderate construction and maintenance costs	- moderate disturbance to bed and bank habitat during construction due to excavation and foundation installation and equipment

Table 5 - GNEREAL CONSIDERATION OF CROSSING TYPE	
Ford	- will pass the 100-year flood event - a "no-rise" will result for the 100-year flood event - will require excavation of bank material to reduce slopes and excavation below existing ground to accommodate armoring and achieve an all-weather road - made of articulated concrete block mattress cabled together - increase in hydraulic opening - increase in hydraulic opening
Culvert	- excavation is required in the creek channel for a culvert bottom or footings - fill is required at the ends of the culverts to avoid removing native material only to replace it with a concrete structure that is buried - spread footings or solid bottom culvert
Free Span	- chose a +/-3' clearance from the existing ground to allow any maintenance that might be required, passes a larger hydraulic event, avoids maintenance problems if the structure is off the ground surface, caused by acidity and high water / debris - fill is required at each end of the span to accommodate the higher deck elevation - pile foundation assumed - truss type structure chosen to minimize beam depth under the bridge
Multi-span	- minimal excavation is required for abutments and disturbance in the creek channel due to pile installation - precast, pre-stressed concrete slabs chosen because they are simple, inexpensive and readily available - pile foundation assumed because geotechnical report indicated low bearing capacity on the surface soil, but will require further geotechnical investigation, assumed 40' deep pile - precast slabs assumed to be 15" thick to minimize hydraulic interference
Single-span	- minimal excavation is required for abutments and disturbance in the creek channel due to pile installation - precast, pre-stressed concrete slabs chosen because they are simple, inexpensive and readily available - pile foundation assumed because geotechnical report indicated low bearing capacity on the surface soil, but will require further geotechnical investigation, assumed 40' deep pile - precast slabs assumed to be 18" thick to minimize hydraulic interference

Additionally, the table below includes calculations of disturbed areas and materials for each crossing and each alternative within the ordinary high water (OHW) and top-of-bank to top-of-bank limits

TABLE 6 - DISTURBED CHANNEL QUANTITIES

Site 4	Outside OHW								Inside OHW			
	Outside Top of Bank				Within Top of Bank							
Crossing Type	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*
Ford	0	0	0	0	1792	1200	62	98	962	962	46	46
Culvert	0	0	0	0	421	1113	39	38	1337	1337	24	37
Free Span	0	4550	520	0	0	0	0	0	0	0	0	0
Multi-Span	0	1140	90	0	96	96	27	15	48	48	10	4
Single Span	0	1510	150	0	96	96	10	10	32	32	6	5

Site 5	Outside OHW								Inside OHW			
	Outside Top of Bank				Within Top of Bank							
Crossing Type	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*
Ford	0	0	0	0	2400	2400	130	319	1200	1200	45	45
Culvert	0	0	0	0	838	1698	35	112	920	1096	10	12
Free Span	0	4550	500	0	0	0	0	0	0	0	0	0
Multi-Span	0	1140	90	0	160	96	27	15	48	48	20	15
Single Span	0	1510	150	0	160	160	10	10	24	24	10	10

*Displaced volume includes fill and excavation of soil or other material

In addition to the hydraulic parameters addressed in this report, the selection of the best solution for a creek crossing, may also consider cost, accessibility, environmental impact, and other relevant factors.

Rock armoring (riprap) was considered in the volume calculations to protect both the single-span and multi-span bridges. This armoring would occur at the abutments and piers to protect the long term life of the structure. Below are typical details of the rock armoring that would be used. If larger rock (Based on Velocity) is un-available grouting would be required.

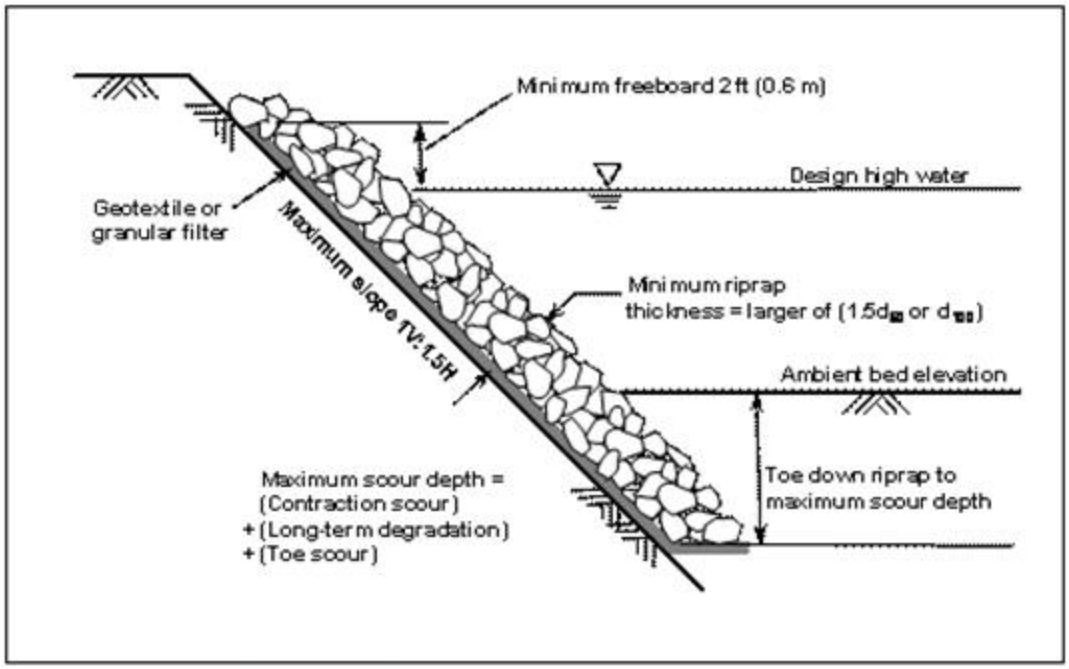

Figure 1. Riprap revetment with buried toe.

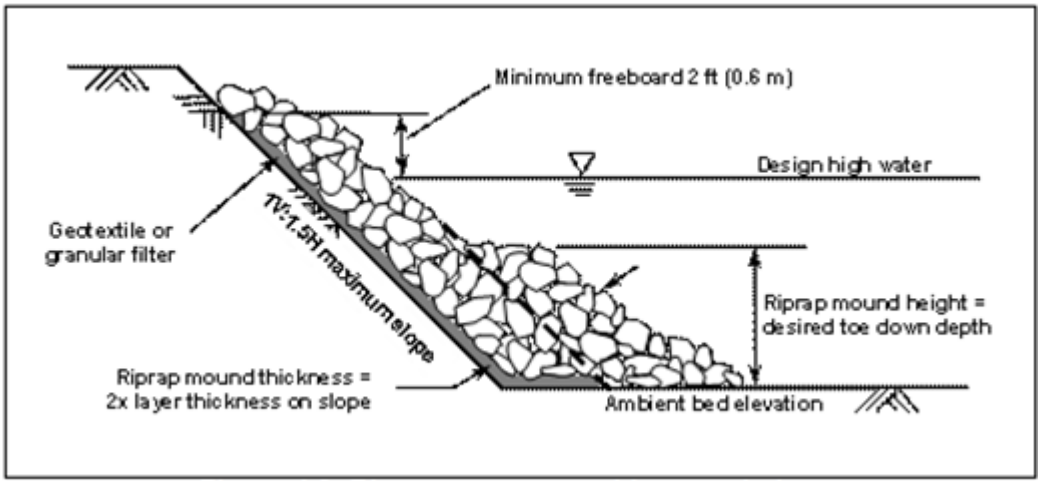

Figure 2. Riprap revetment with mounded toe.

REFERENCES

Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map Nos. 06069C425D, 06069C450D, 06069C550D and 06069C570D, San Benito County, California (Uninc. Area) Revised April 16, 2009.

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HEC-RAS River Analysis System Hydraulic Reference Manual, US Army Corps of Engineers, Ver. 4.1, 2010.

United States Geological Survey (USGS), "StreamStats". http://streamstats.usgs.gov/california.html

Waananen, A.O. and Crippen, J.R., 1977, Magnitude and frequency of floods in California: U.S. Geological Survey Water-Resources Investigations Report 77-21, 102p.

CONCEPTUAL CROSSING 4 - FORD COST ESTIMATE

PROJECT		CLIENT
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS
ALTERNATIVE	DATE	Prepared by:
Crossing 4 Ford	2/13/2014	WHPACIFIC, INC

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 3,262.80
	EXCAVATION	CUYD	165.00	$ 45.00	$ 7,425.00
	3/4 INCH - 0 AGGREGATE BASE	CUYD	40.00	$ 12.00	$ 480.00
	ARTICULATING CONCRETE BLOCK MATTRESS	SQFT	2160.00	$ 15.00	$ 32,400.00
	EMBANKMENT GEOTEXTILE	SQYD	240.00	$ 2.00	$ 480.00
SUBTOTAL, BIDDABLE ITEMS					**$ 44,047.80**
	CONTINGENCIES, for all work listed			25.0%	$ 11,011.95
CONSTRUCTION COST					**$ 55,059.75**

CONCEPTUAL CROSSING 4 - CULVERT COST ESTIMATE

PROJECT		CLIENT	
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS	
ALTERNATIVE	DATE	Prepared by:	
Crossing 4 Culvert	2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 11,318.40
	EMBANKMENT	CUYD	45.00	$ 25.00	$ 1,125.00
	STRUCTURE EXCAVATION	CUYD	125.00	$ 45.00	$ 5,625.00
	REINFORCEMENT	LS	All	$ 9,480.00	$ 9,480.00
	REINFORCED CONCRETE BOX CULVERT	FOOT	96.00	$ 700.00	$ 67,200.00
	WINGWALLS AND APRONS	CUYD	60.00	$ 830.00	$ 49,800.00
	W BEAM STEEL RAIL	LS	All	$ 8,250.00	$ 8,250.00
SUBTOTAL, BIDDABLE ITEMS					**$ 152,798.40**
	CONTINGENCIES, for all work listed			25.0%	$ 38,199.60
CONSTRUCTION COST					**$ 190,998.00**

CONCEPTUAL CROSSING 4 - FREE SPAN COST ESTIMATE

PROJECT		CLIENT
	Panoche Valley Solar Farm	**ENERGY RENEWAL PARTNERS**
ALTERNATIVE	DATE	Prepared by:
Crossing 4 - 275' Free Span Bridge	**2/13/2014**	**WHPACIFIC, INC**

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 114,957.60
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	320.00	$ 45.00	$ 14,400.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	8.00	$ 650.00	$ 5,200.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 17,850.00	$ 17,850.00
	REINFORCEMENT	LS	All	$ 5,520.00	$ 5,520.00
	PREFABRICATED STEEL TRUSS	FOOT	275.00	$ 4,800.00	$ 1,320,000.00
	FURNISH CRANE FOR LIFTING TRUSS	LS	All	$ 50,000.00	$ 50,000.00
	ASHPALT PAVING	TON	60.00	$ 100.00	$ 6,000.00
SUBTOTAL, BIDDABLE ITEMS					**$ 1,551,927.60**
	CONTINGENCIES, for all work listed			25.0%	$ 387,981.90
CONSTRUCTION COST					**$ 1,939,909.50**

CONCEPTUAL CROSSING 4 - MULTI-SPAN BRIDGE COST ESTIMATE

PROJECT			CLIENT	
Panoche Valley Solar Farm			ENERGY RENEWAL PARTNERS	
ALTERNATIVE		DATE	Prepared by:	
Crossing 4 - 2 Span 56' Bridge		2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 9,560.40
	STRUCTURE EXCAVATION	CUYD	75.00	$ 45.00	$ 3,375.00
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	360.00	$ 45.00	$ 16,200.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	9.00	$ 650.00	$ 5,850.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 21,000.00	$ 21,000.00
	REINFORCEMENT	LS	All	$ 6,360.00	$ 6,360.00
	15 INCH PRECAST PRESTRESSED SLABS	FOOT	224.00	$ 180.00	$ 40,320.00
	W BEAM STEEL RAIL	LS	All	$ 8,400.00	$ 8,400.00
SUBTOTAL, BIDDABLE ITEMS					**$ 129,065.40**
	CONTINGENCIES, for all work listed			25.0%	$ 32,266.35
CONSTRUCTION COST					**$ 161,331.75**

CONCEPTUAL CROSSING 4 - SINGLE SPAN BRIDGE COST ESTIMATE

PROJECT		CLIENT	
Panoche Valley Solar Farm		**ENERGY RENEWAL PARTNERS**	
ALTERNATIVE	DATE	Prepared by:	
Crossing 4 - Single Span 56' Bridge	**2/13/2014**	**WHPACIFIC, INC**	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 9,174.00
	STRUCTURE EXCAVATION	CUYD	65.00	$ 45.00	$ 2,925.00
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	300.00	$ 45.00	$ 13,500.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	10.00	$ 650.00	$ 6,500.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 15,750.00	$ 15,750.00
	REINFORCEMENT	LS	All	$ 4,800.00	$ 4,800.00
	26 INCH PRECAST PRESTRESSED SLABS	FOOT	224.00	$ 200.00	$ 44,800.00
	W BEAM STEEL RAIL	LS	All	$ 8,400.00	$ 8,400.00
SUBTOTAL, BIDDABLE ITEMS					**$ 123,849.00**
	CONTINGENCIES, for all work listed			25.0%	$ 30,962.25
CONSTRUCTION COST					**$ 154,811.25**

CONCEPTUAL CROSSING 5 - FORD COST ESTIMATE

PROJECT		CLIENT
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS
ALTERNATIVE	DATE	Prepared by:
Crossing 5 Ford	2/13/2014	WHPACIFIC, INC

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 4,736.80
	EXCAVATION	CUYD	320.00	$ 45.00	$ 14,400.00
	3/4 INCH - 0 AGGREGATE BASE	CUYD	55.00	$ 12.00	$ 660.00
	ARTICULATING CONCRETE BLOCK MATTRESS	SQFT	2900.00	$ 15.00	$ 43,500.00
	EMBANKMENT GEOTEXTILE	SQYD	325.00	$ 2.00	$ 650.00
SUBTOTAL, BIDDABLE ITEMS					**$ 63,946.80**
	CONTINGENCIES, for all work listed			25.0%	$ 15,986.70
CONSTRUCTION COST					**$ 79,933.50**

CONCEPTUAL CROSSING 5 - CULVERT COST ESTIMATE

PROJECT		CLIENT	
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS	
ALTERNATIVE	DATE	Prepared by:	
Crossing 5 Culvert	2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 11,441.20
	EMBANKMENT	CUYD	5.00	$ 25.00	$ 125.00
	STRUCTURE EXCAVATION	CUYD	50.00	$ 45.00	$ 2,250.00
	REINFORCEMENT	LS	All	$ 10,440.00	$ 10,440.00
	REINFORCED CONCRETE BOX CULVERT	FOOT	80.00	$ 850.00	$ 68,000.00
	WINGWALLS AND APRONS	CUYD	65.00	$ 830.00	$ 53,950.00
	W BEAM STEEL RAIL	LS	All	$ 8,250.00	$ 8,250.00
SUBTOTAL, BIDDABLE ITEMS					**$ 154,456.20**
	CONTINGENCIES, for all work listed			25.0%	$ 38,614.05
CONSTRUCTION COST					**$ 193,070.25**

CONCEPTUAL CROSSING 5 - FREE SPAN COST ESTIMATE

PROJECT		CLIENT
Panoche Valley Solar Farm		**ENERGY RENEWAL PARTNERS**
ALTERNATIVE	DATE	Prepared by:
Crossing 5 - 275' Free Span Bridge	**2/13/2014**	**WHPACIFIC, INC**

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 114,957.60
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	320.00	$ 45.00	$ 14,400.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	8.00	$ 650.00	$ 5,200.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 17,850.00	$ 17,850.00
	REINFORCEMENT	LS	All	$ 5,520.00	$ 5,520.00
	PREFABRICATED STEEL TRUSS	FOOT	275.00	$ 4,800.00	$ 1,320,000.00
	FURNISH CRANE FOR LIFTING TRUSS	LS	All	$ 50,000.00	$ 50,000.00
	ASHPALT PAVING	TON	60.00	$ 100.00	$ 6,000.00
SUBTOTAL, BIDDABLE ITEMS					**$ 1,551,927.60**
	CONTINGENCIES, for all work listed			25.0%	$ 387,981.90
CONSTRUCTION COST					**$ 1,939,909.50**

CONCEPTUAL CROSSING 5 - MULTI-SPAN BRIDGE COST ESTIMATE

PROJECT			CLIENT	
Panoche Valley Solar Farm			ENERGY RENEWAL PARTNERS	
ALTERNATIVE		DATE	Prepared by:	
Crossing 5 - 2 Span 54' Bridge		2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 9,385.20
	STRUCTURE EXCAVATION	CUYD	65.00	$ 45.00	$ 2,925.00
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	360.00	$ 45.00	$ 16,200.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	9.00	$ 650.00	$ 5,850.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 21,000.00	$ 21,000.00
	REINFORCEMENT	LS	All	$ 6,360.00	$ 6,360.00
	15 INCH PRECAST PRESTRESSED SLABS	FOOT	216.00	$ 180.00	$ 38,880.00
	W BEAM STEEL RAIL	LS	All	$ 8,100.00	$ 8,100.00
SUBTOTAL, BIDDABLE ITEMS					**$ 126,700.20**
	CONTINGENCIES, for all work listed			25.0%	$ 31,675.05
CONSTRUCTION COST					**$ 158,375.25**

CONCEPTUAL CROSSING 5 - SINGLE SPAN BRIDGE COST ESTIMATE

PROJECT		CLIENT	
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS	
ALTERNATIVE	DATE	Prepared by:	
Crossing 5 - Single Span 54' Bridge	2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 9,022.00
	STRUCTURE EXCAVATION	CUYD	65.00	$ 45.00	$ 2,925.00
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	300.00	$ 45.00	$ 13,500.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	10.00	$ 650.00	$ 6,500.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 15,750.00	$ 15,750.00
	REINFORCEMENT	LS	All	$ 4,800.00	$ 4,800.00
	26 INCH PRECAST PRESTRESSED SLABS	FOOT	216.00	$ 200.00	$ 43,200.00
	W BEAM STEEL RAIL	LS	All	$ 8,100.00	$ 8,100.00
SUBTOTAL, BIDDABLE ITEMS					**$ 121,797.00**
	CONTINGENCIES, for all work listed			25.0%	$ 30,449.25
CONSTRUCTION COST					**$ 152,246.25**

Panoche Valley Solar Farm

San Benito County, California

Stream Crossing Alternative Study & Hydraulic Report

Prepared for:

Energy Renewal Partners
305 Camp Craft Rd, Suite 575
West Lake Hills, TX 78746

Prepared by:

WHPacific, Inc.
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Job No. 035916

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Design Engineers:
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Hydraulic – John Marks, P.E., Devin Doring, E.I.T.

Original: February 19, 2014

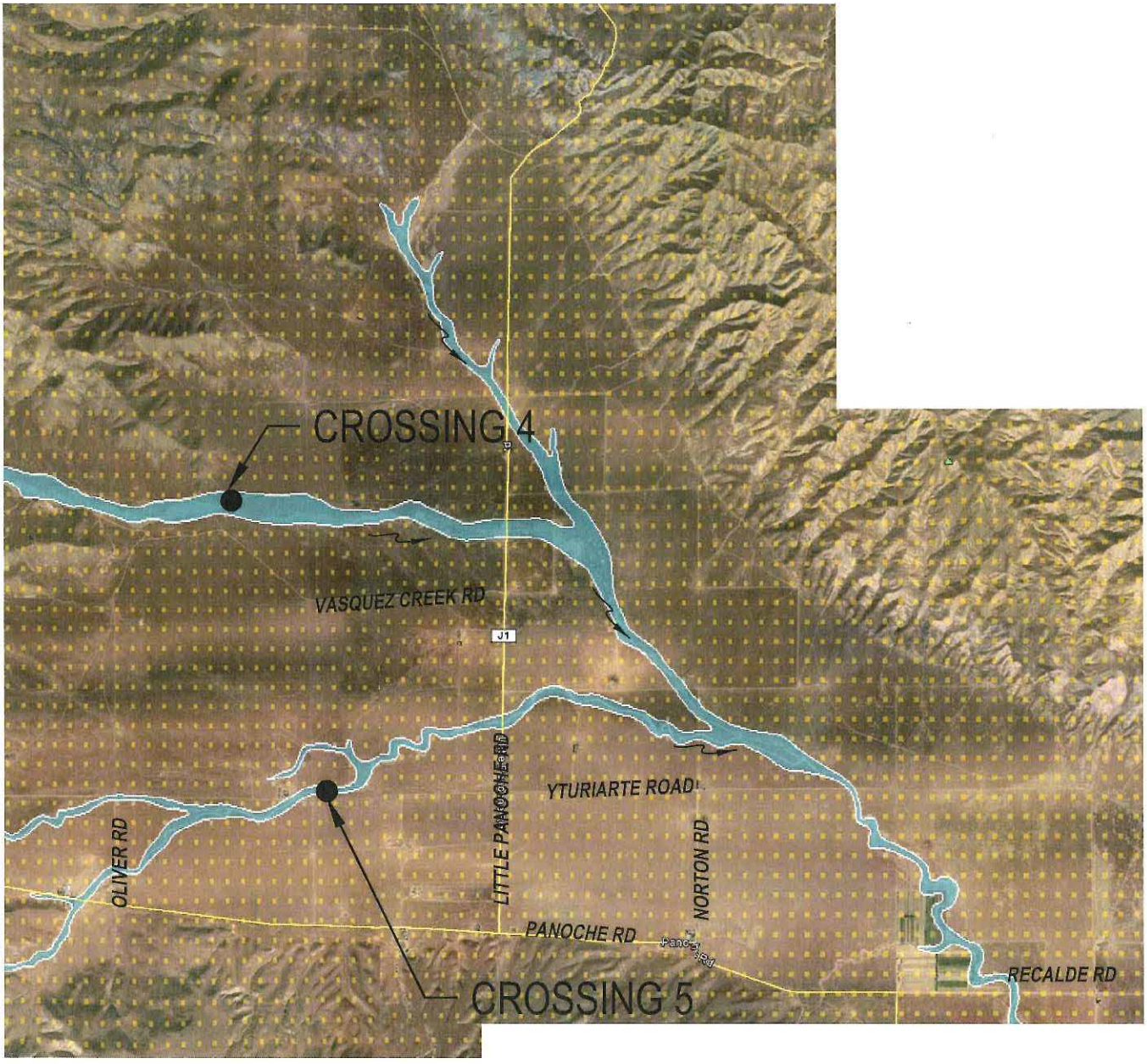
INTRODUCTION

This report is a continuation of a previous study and addresses the hydrologic and hydraulic research and analysis that was conducted as part of the Panoche Valley Solar Facility (PVSF) project in San Benito County, California. The original objective of this effort was to analyze the existing conditions and document the associated conditions with five proposed bridge locations. A hydraulic analysis was performed for the purpose of designing bridge structures and at grade fords at creek crossings on the PVSF project that will provide emergency access (fire trucks and/or rescue personnel) to the entire facility during a 100 year flood event. Following size reductions and modifications to the PVSF project, two crossings of Waters of the U.S. are needed for the project.

Five bridge models are being analyzed at both creek crossing (Figure1). The first bridge model is a ford crossing that requires laying back the slope and crossing at grade. The second bridge model is a multi-barreled, concrete box culvert structure. The third bridge model is a free span bridge that has abutments 100 feet distant from the top of bank on either side of the channel. This structure is intended to span the channel and both overbank areas. It will, however require approach fills at both ends to allow for a minimum of 3 feet of clearance below the bridge superstructure. The fourth bridge model is a multi-span structure with abutments near the top of channel banks and a pier in the channel. The fifth bridge option is a single span bridge with abutments near the top of channel banks.

REGULATORY STANDARDS

The PVSF project is within a regulatory Federal Emergency Management Agency (FEMA) floodplain. The crossing sites are located within a Zone A region which is defined as "Special flood hazard areas subject to inundation by the 1% annual chance flood, no base flood elevation determined". If a particular scenario demonstrates a no-rise scenario, regulatory standards will easily be satisfied. However, if backwater occurs, negotiations with the appropriate authorities, San Benito County and FEMA, will be required. FEMA may defer to the local authorities. It may be possible to negotiate allowing a backwater rise, most likely limited to one foot.



WHPacific

SHEET NUMBER		DRAWING INFO		SHEET INFO		
FIG 1	PANOCHE VALLEY SOLAR FACILITY VICINITY MAP SAN BENITO COUNTY, CALIFORNIA		035916-VIC NTS	DRAWN	DLB	WHPacific
				CHECKED	DLB	
				LAST EDIT	2/18/2014	
				PLOT DATE	2/18/2014	

BASIN RESEARCH

Three major creeks flow through the PVSF project. A unnamed creek flows from the northern edge of the project and joins Las Aguilas Creek near the center of the project. Panoche Creek flows along the southern edge of the project and forms a confluence with Las Aguilas Creek near the southeast corner of the project (Figure 1). Las Aguilas Creek flows from northwest to southeast and has a drainage basin of approximately 9.9 square miles above crossing site numbered 4. Panoche Creek flows from west to east and has a drainage basin of approximately 44.7 square miles above crossing site 5. The Las Aguilas Creek watershed varies in elevation from about 1415 feet at crossing site 4 to a maximum of 3639 feet. The Panoche Creek watershed varies in elevation from about 1345 feet at crossing site 5 to a maximum of 3969 feet. The watershed is subject to winter storms in which precipitation is mainly in the form of rain. High flows if they occur typically occur in the winter months.

SITE INVESTIGATION

A site investigation of the study area was conducted by John R. Marks and Paul Tappana of WHPacific on June 27, 2012 and then again on September 24, 2013. The purpose of the site investigation was to review the sites for hydrologic, hydraulic and scour concerns that may affect the proposed creek crossings. Survey mapping of the area was completed by WHPacific survey crew. The survey also included a digital terrain model (DTM) that was used to develop cross sections needed in the hydraulic modeling. Google Earth data was used to supplement elevation data for the extensive floodplain outside the extents of the survey. The following observations were made during the site visit.

1. **Lateral Channel Stability**
   The creek alignment meanders slightly within moderately moving channel boundaries of the adjacent grass land.
2. **Aggradation /Degradation**
   The relatively low slope condition of the creek channel and the steepness of the channel's banks indicate that both aggradation and degradation will be unlikely.
3. **Manning's *n***
   The left and right overbank areas through all reaches consist of grassland. A Manning's n value of 0.030 was assigned for this condition. The main channel throughout consists of silt, sand and gravel with scattered cobbles. A Manning's n value of 0.030 was assigned for the channel.
4. **Riprap**
   No riprap is present.
5. **Bed Material**
   The bed material was observed to be silt, sand and gravel with scattered cobbles with an estimated D_{50} of 0.1 mm.
6. **Evidence of Scour**
   There is some evidence of isolated scour on the outside of bends on both creeks.

7. **Abutment Alignment**
   There are no bridges at the proposed bridge sites.
8. **Hydraulic Controls**
   No hydraulic controls are present.
9. **High Water Marks**
   No high water marks were observed.
10. **Debris**
    The woody debris potential for the watershed appears to be moderate to high.

Based on this information WHPacific also looked at long term scour and have included additional removal and fill to help stabilize the long term features of the crossings due to erosion.

HYDROLOGY

The peak discharges for these ungauged watersheds have been taken from a USGS online application called StreamStats for California (http://streamstats.usgs.gov/california.html). Storm event flows were provided at standard intervals. The discharges used in the hydraulic analysis of the proposed crossing structures are provided below:

Crossing Site 4

Q_2 = 25 cfs
Q_5 = 115 cfs
Q_{10} = 243 cfs
Q_{25} = 498 cfs
Q_{50} = 793 cfs
Q_{100} = 1170 cfs
Q_{500} = 2470 cfs

Crossing Site 5

Q_2 = 105 cfs
Q_5 = 473 cfs
Q_{10} = 970 cfs
Q_{25} = 1940 cfs
Q_{50} = 3070 cfs
Q_{100} = 4430 cfs
Q_{500} = 9090 cfs

HYDRAULICS

The US Army Corps of Engineers, Hydrologic Engineering Centers River Analysis System computer program (HEC- RAS Version 4.1.0) was used to compute the channel hydraulics. Hydraulic models were developed for the "natural channel" conditions of the sites and the requested bridge/culvert alternatives. Ten stream cross-sections were used to develop the hydraulic models at sites 4 and 5. The cross-sections were selected to adequately model flow through the site locations for both Las Aguilas Creek and Panoche Creek.

The proposed alternatives, except for the free span bridges, were modeled to provide maximum conveyance through the sites with using minimal approach fill. The single and multi-span structures were modeled with approach fills to elevate the superstructure above the overbank area. The water surface elevations for each model were calculated using the provided flow data from StreamStats. It should be noted that on the bridge profile sheets where water surface elevations are depicted, that some storms which are higher than the stated maximum conveyable storm for a site may appear as though it can "fit" under the bridge or culvert. However, what is not seen is that these storms cover the approach roadway past the extents of the profile window. Detailed printouts of the results are provided in the Appendix.

TABLE 1. Hydraulic Data Sheet for the Existing Condition and Proposed Bridges at Site 4.

	Natural Conditions			56-Foot Multi-span		56-Foot Single-span	
	25-Year Flood	50-Year Flood	100-Year Flood	Conveyable Storm Event for Site[5]	100-Year Flood	Conveyable Storm Event for Site[5]	100-Year Flood
Discharge (ft^3/s)	498	793	1170	498	1170	498	1170
Recurrence Interval (yrs)	25	50	100	25	100	25	100
Approach Section H.W. Elevation with Natural Channel[1] (ft)	1415.98	1416.38	1416.74	1415.98	1416.74	1415.98	1416.74
Approach Section H.W. Elevation with Bridge[1]	-	-	-	1416.12	1417.10	1416.07	1417.09
Backwater (ft)	-	-	-	0.14	0.36	0.09	0.35
H.W. Elevation at Upstream Face of Bridge[2] (ft)	1415.34	1415.75	1416.19	1415.32	1417.15	1415.28	1417.14
H.W. Elevation at Downstream Face of Bridge[3] (ft)	1414.90	1415.37	1415.79	1414.90	1417.05	1414.84	1417.03
Waterway Area at Downstream Face of Bridge[3,4] (ft^2)	73.5	109.4	149.5	68.0	413.1	67.4	415.9
Average Velocity at Downstream Face of Bridge[3] (ft/s)	6.8	7.2	7.8	7.3	2.8	7.4	2.8

[1] Approach section is the location where the flow within the cross section is fully effective. The approach section for this bridge was determined to be 56 feet upstream of the edge of proposed bridge.

[2] Located at upstream face of proposed bridge along the embankment.

[3] Located at downstream face of proposed bridge opening.

[4] Area normal to channel centerline.

[5]This hydraulic analysis studied only the 2, 5, 10, 25, 50, 100, and 500 year event storms. No iteration was performed to calculate the design storm (defined as the road overtopping event).

TABLE 2. Hydraulic Data Sheet for the Existing Condition and Proposed Bridges at Site 5.

	Natural Conditions			56-Foot Multi-span		56-Foot Single-span	
	25-Year Flood	50-Year Flood	100-Year Flood	Conveyable Storm Event for Site[5]	100-Year Flood	Conveyable Storm Event for Site[5]	100-Year Flood
Discharge (ft^3/s)	1940	3070	4430	1940	4430	1940	4430
Recurrence Interval (yrs)	25	50	100	25	100	25	100
Approach Section H.W. Elevation with Natural Channel[1] (ft)	1350.15	1351.53	1351.92	1350.15	1351.92	1350.15	1351.92
Approach Section H.W. Elevation with Bridge[1]	-	-	-	1351.15	1352.83	1350.15	1352.00
Backwater (ft)	-	-	-	0.0	0.91	0.00	0.08
H.W. Elevation at Upstream Face of Bridge[2] (ft)	1350.60	1351.39	1351.80	1350.55	1352.41	1350.58	1352.40
H.W. Elevation at Downstream Face of Bridge[3] (ft)	1350.50	1351.77	1352.18	1350.37	1352.32	1350.50	1352.06
Waterway Area at Downstream Face of Bridge[3,4] (ft^2)	209.70	276.85	291.90	209.72	305.90	209.7	291.90
Average Velocity at Downstream Face of Bridge[3] (ft/s)	9.25	6.50	7.18	9.25	7.07	9.25	7.18

[1] Approach section is the location where the flow within the cross section is fully effective. The approach section for this bridge was determined to be 56 feet upstream of the edge of proposed bridge.

[2] Located at upstream face of proposed bridge along the embankment.

[3] Located at downstream face of proposed bridge opening.

[4] Area normal to channel centerline.

[5]This hydraulic analysis studied only the 2, 5, 10, 25, 50, 100, and 500 year event storms. No iteration was performed to calculate the design storm (defined as the road overtopping event).

SUMMARY

The conclusions drawn from the hydraulic analysis at each site are as follows:

Site 4		
Type	Conveyable Storm Event for Site (yr.)	Backwater Rise @ 100 yr. Event (ft.)
Multi-span (2 - 28' spans)	25	0.36
Single-span	25	0.35

The multi-span and single-span structures passed the 10-year, 25 year, 50-year and 100-year storm events, respectively. The only structure that presents a "no-rise" water surface for the 100-year flood at the approach section to the structure is the free span structure. The multi-span caused a 0.36 foot water surface rise and the single-span caused a 0.35 foot water surface rise, respectively, at the approach section.

Site 5		
Type	Conveyable Storm Event for Site (yr.)	Backwater Rise @ 100 yr. Event (ft.)
Multi-span (2 – 28' spans)	25	0.91
Single-span	25	0.08

The multi-span and single-span structures passed the 10-year, 25 year, 50-year and 100-year storm events, respectively. The only structure that presents a "no-rise" water surface for the 100-year flood at the approach section to the structure is the free span structure. The multi-span caused a 0.91 foot water surface rise and the single-span caused a 0.08 foot water surface rise, respectively, at the approach section.

Some depth of approach fill is used to raise the superstructure of the bridges. Raising the brides allows debris to pass underneath and limits the rise of the watersurface.

In addition to this hydraulic analysis there are various other factors that should be considered in assessing the bridge crossing. Below are two tables, Table 4 - "General Pros and Cons of Crossing type", and Table 5 - "General Considerations of Crossing Type". Additionally, Table 6 includes calculations of disturbed areas and materials for each crossing and each alternative within the ordinary high water (OHW) and top-of-bank to top-of-bank limits.

Table 4 - GENERAL PROS AND CONS OF CROSSING TYPE		
Crossing Type	Pros	Cons
Ford	- no change in existing hydraulic conditions - satisfies "no-rise" condition - lowest construction and maintenance costs	- crossing is not available during a high hydraulic event - significant disturbance to creek bed and bank habitat during construction
Culvert	- crossing is available during a low hydraulic event - lowest construction and maintenance costs	- crossing is not available during a high hydraulic event - significant disturbance to the creek bed and bank habitat during construction
Free Span	- crossing is available during high water events - satisfies "no-rise" situation	- moderate upland habitat disturbance during construction and lifecycle - very high cost to benefit ratio - high maintenance cost - visual impact structure is out of place for environment - other specie impacts such as perching habitat for raptors and significant shading.
Multi-span	- crossing is available during high water events - moderate construction and maintenance costs	- moderate disturbance to bed and bank habitat during construction due to excavation and foundation installation and equipment
Single-span	- crossing is available during high water events - moderate construction and maintenance costs	- low disturbance to bed and bank habitat during construction due to excavation and foundation installation and equipment

Table 5 - GNEREAL CONSIDERATION OF CROSSING TYPE	
Ford	- will pass the 100-year flood event - a "no-rise" will result for the 100-year flood event - will require excavation of bank material to reduce slopes and excavation below existing ground to accommodate armoring and achieve an all-weather road - made of articulated concrete block mattress cabled together - increase in hydraulic opening - increase in hydraulic opening
Culvert	- excavation is required in the creek channel for a culvert bottom or footings - fill is required at the ends of the culverts to avoid removing native material only to replace it with a concrete structure that is buried - spread footings or solid bottom culvert
Free Span	- chose a +/-3' clearance from the existing ground to allow any maintenance that might be required, passes a larger hydraulic event, avoids maintenance problems if the structure is off the ground surface, caused by acidity and high water / debris - fill is required at each end of the span to accommodate the higher deck elevation - pile foundation assumed - truss type structure chosen to minimize beam depth under the bridge
Multi-span	- minimal excavation is required for abutments and disturbance in the creek channel due to pile installation - precast, pre-stressed concrete slabs chosen because they are simple, inexpensive and readily available - pile foundation assumed because geotechnical report indicated low bearing capacity on the surface soil, but will require further geotechnical investigation, assumed 40' deep pile - precast slabs assumed to be 15" thick to minimize hydraulic interference
Single-span	- minimal excavation is required for abutments and disturbance in the creek channel due to pile installation - precast, pre-stressed concrete slabs chosen because they are simple, inexpensive and readily available - pile foundation assumed because geotechnical report indicated low bearing capacity on the surface soil, but will require further geotechnical investigation, assumed 40' deep pile - precast slabs assumed to be 18" thick to minimize hydraulic interference

Additionally, the table below includes calculations of disturbed areas and materials for each crossing and each alternative within the ordinary high water (OHW) and top-of-bank to top-of-bank limits

TABLE 6 - DISTURBED CHANNEL QUANTITIES

Site 4	Outside OHW								Inside OHW			
	Outside Top of Bank				Within Top of Bank							
Crossing Type	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*
Ford	0	0	0	0	1792	1200	62	98	962	962	46	46
Culvert	0	0	0	0	421	1113	39	38	1337	1337	24	37
Free Span	0	4550	520	0	0	0	0	0	0	0	0	0
Multi-Span	0	1140	90	0	96	96	27	15	48	48	10	4
Single Span	0	1510	150	0	96	96	10	10	32	32	6	5

Site 5	Outside OHW								Inside OHW			
	Outside Top of Bank				Within Top of Bank							
Crossing Type	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*	Cut Area (SF)	Fill Area (SF)	Fill Vol. (CY)*	Cut Vol. (CY)*
Ford	0	0	0	0	2400	2400	130	319	1200	1200	45	45
Culvert	0	0	0	0	838	1698	35	112	920	1096	10	12
Free Span	0	4550	500	0	0	0	0	0	0	0	0	0
Multi-Span	0	1140	90	0	160	96	27	15	48	48	20	15
Single Span	0	1510	150	0	160	160	10	10	24	24	10	10

*Displaced volume includes fill and excavation of soil or other material

In addition to the hydraulic parameters addressed in this report, the selection of the best solution for a creek crossing, may also consider cost, accessibility, environmental impact, and other relevant factors.

Rock armoring (riprap) was considered in the volume calculations to protect both the single-span and multi-span bridges. This armoring is recommended at the abutments and piers to protect the long term life of the structure and to ensure the bridges are available for use during and immediately following a significant rainfall event. Below are typical details of the rock armoring to be used. If larger rock (Based on Velocity) is un-available grouting would be required.

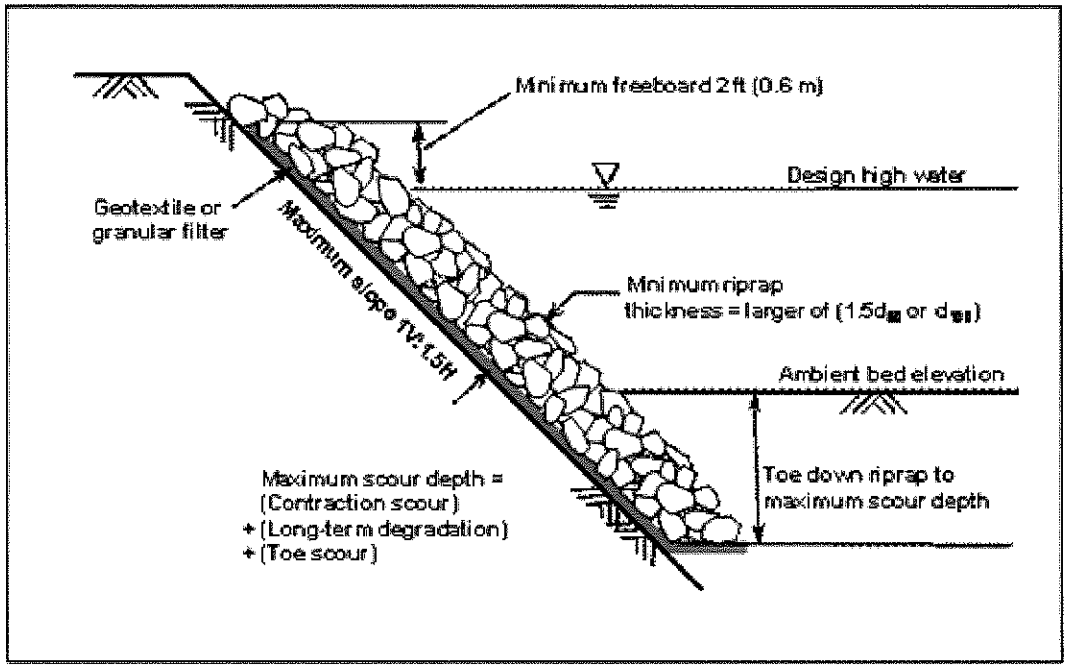


Figure 1. Riprap revetment with buried toe.

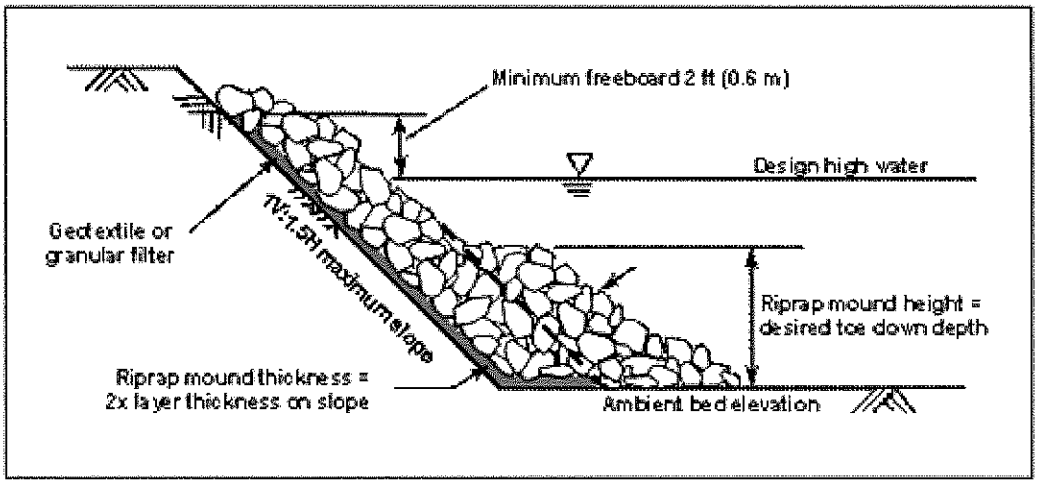


Figure 2. Riprap revetment with mounded toe.

REFERENCES

Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map Nos. 06069C425D, 06069C450D, 06069C550D and 06069C570D, San Benito County, California (Uninc. Area) Revised April 16, 2009.

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United States Geological Survey (USGS), "StreamStats". http://streamstats.usgs.gov/california.html

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CONCEPTUAL CROSSING 4 - FORD COST ESTIMATE

PROJECT			CLIENT	
Panoche Valley Solar Farm			**ENERGY RENEWAL PARTNERS**	
ALTERNATIVE		DATE	Prepared by:	
Crossing 4 Ford		2/13/2014	**WHPACIFIC, INC**	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 3,262.80
	EXCAVATION	CUYD	165.00	$ 45.00	$ 7,425.00
	3/4 INCH - 0 AGGREGATE BASE	CUYD	40.00	$ 12.00	$ 480.00
	ARTICULATING CONCRETE BLOCK MATTRESS	SQFT	2160.00	$ 15.00	$ 32,400.00
	EMBANKMENT GEOTEXTILE	SQYD	240.00	$ 2.00	$ 480.00
SUBTOTAL, BIDDABLE ITEMS					**$ 44,047.80**
	CONTINGENCIES, for all work listed			25.0%	$ 11,011.95
CONSTRUCTION COST					**$ 55,059.75**

CONCEPTUAL CROSSING 4 - CULVERT COST ESTIMATE

PROJECT			CLIENT	
Panoche Valley Solar Farm			ENERGY RENEWAL PARTNERS	
ALTERNATIVE		DATE	Prepared by:	
Crossing 4 Culvert		2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 11,318.40
	EMBANKMENT	CUYD	45.00	$ 25.00	$ 1,125.00
	STRUCTURE EXCAVATION	CUYD	125.00	$ 45.00	$ 5,625.00
	REINFORCEMENT	LS	All	$ 9,480.00	$ 9,480.00
	REINFORCED CONCRETE BOX CULVERT	FOOT	96.00	$ 700.00	$ 67,200.00
	WINGWALLS AND APRONS	CUYD	60.00	$ 830.00	$ 49,800.00
	W BEAM STEEL RAIL	LS	All	$ 8,250.00	$ 8,250.00
SUBTOTAL, BIDDABLE ITEMS					**$ 152,798.40**
	CONTINGENCIES, for all work listed			25.0%	$ 38,199.60
CONSTRUCTION COST					**$ 190,998.00**

CONCEPTUAL CROSSING 4 - FREE SPAN COST ESTIMATE

PROJECT		CLIENT
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS
ALTERNATIVE	DATE	Prepared by:
Crossing 4 - 275' Free Span Bridge	2/13/2014	WHPACIFIC, INC

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 114,957.60
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	320.00	$ 45.00	$ 14,400.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	8.00	$ 650.00	$ 5,200.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 17,850.00	$ 17,850.00
	REINFORCEMENT	LS	All	$ 5,520.00	$ 5,520.00
	PREFABRICATED STEEL TRUSS	FOOT	275.00	$ 4,800.00	$ 1,320,000.00
	FURNISH CRANE FOR LIFTING TRUSS	LS	All	$ 50,000.00	$ 50,000.00
	ASHPALT PAVING	TON	60.00	$ 100.00	$ 6,000.00
SUBTOTAL, BIDDABLE ITEMS					**$ 1,551,927.60**
	CONTINGENCIES, for all work listed			25.0%	$ 387,981.90
CONSTRUCTION COST					**$ 1,939,909.50**

CONCEPTUAL CROSSING 4 - MULTI-SPAN BRIDGE COST ESTIMATE

PROJECT			CLIENT	
Panoche Valley Solar Farm			ENERGY RENEWAL PARTNERS	
ALTERNATIVE		DATE	Prepared by:	
Crossing 4 - 2 Span 56' Bridge		2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 9,560.40
	STRUCTURE EXCAVATION	CUYD	75.00	$ 45.00	$ 3,375.00
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	360.00	$ 45.00	$ 16,200.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	9.00	$ 650.00	$ 5,850.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 21,000.00	$ 21,000.00
	REINFORCEMENT	LS	All	$ 6,360.00	$ 6,360.00
	15 INCH PRECAST PRESTRESSED SLABS	FOOT	224.00	$ 180.00	$ 40,320.00
	W BEAM STEEL RAIL	LS	All	$ 8,400.00	$ 8,400.00
SUBTOTAL, BIDDABLE ITEMS					**$ 129,065.40**
	CONTINGENCIES, for all work listed			25.0%	$ 32,266.35
CONSTRUCTION COST					**$ 161,331.75**

CONCEPTUAL CROSSING 4 - SINGLE SPAN BRIDGE COST ESTIMATE

PROJECT		CLIENT
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS
ALTERNATIVE	DATE	Prepared by:
Crossing 4 - Single Span 56' Bridge	2/13/2014	WHPACIFIC, INC

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 9,174.00
	STRUCTURE EXCAVATION	CUYD	65.00	$ 45.00	$ 2,925.00
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	300.00	$ 45.00	$ 13,500.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	10.00	$ 650.00	$ 6,500.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 15,750.00	$ 15,750.00
	REINFORCEMENT	LS	All	$ 4,800.00	$ 4,800.00
	26 INCH PRECAST PRESTRESSED SLABS	FOOT	224.00	$ 200.00	$ 44,800.00
	W BEAM STEEL RAIL	LS	All	$ 8,400.00	$ 8,400.00
SUBTOTAL, BIDDABLE ITEMS					**$ 123,849.00**
	CONTINGENCIES, for all work listed			25.0%	$ 30,962.25
CONSTRUCTION COST					**$ 154,811.25**

CONCEPTUAL CROSSING 5 - FORD COST ESTIMATE

PROJECT		CLIENT
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS
ALTERNATIVE	DATE	Prepared by:
Crossing 5 Ford	2/13/2014	WHPACIFIC, INC

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 4,736.80
	EXCAVATION	CUYD	320.00	$ 45.00	$ 14,400.00
	3/4 INCH - 0 AGGREGATE BASE	CUYD	55.00	$ 12.00	$ 660.00
	ARTICULATING CONCRETE BLOCK MATTRESS	SQFT	2900.00	$ 15.00	$ 43,500.00
	EMBANKMENT GEOTEXTILE	SQYD	325.00	$ 2.00	$ 650.00
SUBTOTAL, BIDDABLE ITEMS					**$ 63,946.80**
	CONTINGENCIES, for all work listed			25.0%	$ 15,986.70
CONSTRUCTION COST					**$ 79,933.50**

CONCEPTUAL CROSSING 5 - CULVERT COST ESTIMATE

PROJECT		CLIENT
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS
ALTERNATIVE	DATE	Prepared by:
Crossing 5 Culvert	2/13/2014	WHPACIFIC, INC

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 11,441.20
	EMBANKMENT	CUYD	5.00	$ 25.00	$ 125.00
	STRUCTURE EXCAVATION	CUYD	50.00	$ 45.00	$ 2,250.00
	REINFORCEMENT	LS	All	$ 10,440.00	$ 10,440.00
	REINFORCED CONCRETE BOX CULVERT	FOOT	80.00	$ 850.00	$ 68,000.00
	WINGWALLS AND APRONS	CUYD	65.00	$ 830.00	$ 53,950.00
	W BEAM STEEL RAIL	LS	All	$ 8,250.00	$ 8,250.00
SUBTOTAL, BIDDABLE ITEMS					**$ 154,456.20**
	CONTINGENCIES, for all work listed			25.0%	$ 38,614.05
CONSTRUCTION COST					**$ 193,070.25**

CONCEPTUAL CROSSING 5 - FREE SPAN COST ESTIMATE

PROJECT		CLIENT	
Panoche Valley Solar Farm		**ENERGY RENEWAL PARTNERS**	
ALTERNATIVE	DATE	Prepared by:	
Crossing 5 - 275' Free Span Bridge	**2/13/2014**	**WHPACIFIC, INC**	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 114,957.60
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	320.00	$ 45.00	$ 14,400.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	8.00	$ 650.00	$ 5,200.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 17,850.00	$ 17,850.00
	REINFORCEMENT	LS	All	$ 5,520.00	$ 5,520.00
	PREFABRICATED STEEL TRUSS	FOOT	275.00	$ 4,800.00	$ 1,320,000.00
	FURNISH CRANE FOR LIFTING TRUSS	LS	All	$ 50,000.00	$ 50,000.00
	ASHPALT PAVING	TON	60.00	$ 100.00	$ 6,000.00
SUBTOTAL, BIDDABLE ITEMS					**$ 1,551,927.60**
	CONTINGENCIES, for all work listed			25.0%	$ 387,981.90
CONSTRUCTION COST					**$ 1,939,909.50**

CONCEPTUAL CROSSING 5 - MULTI-SPAN BRIDGE COST ESTIMATE

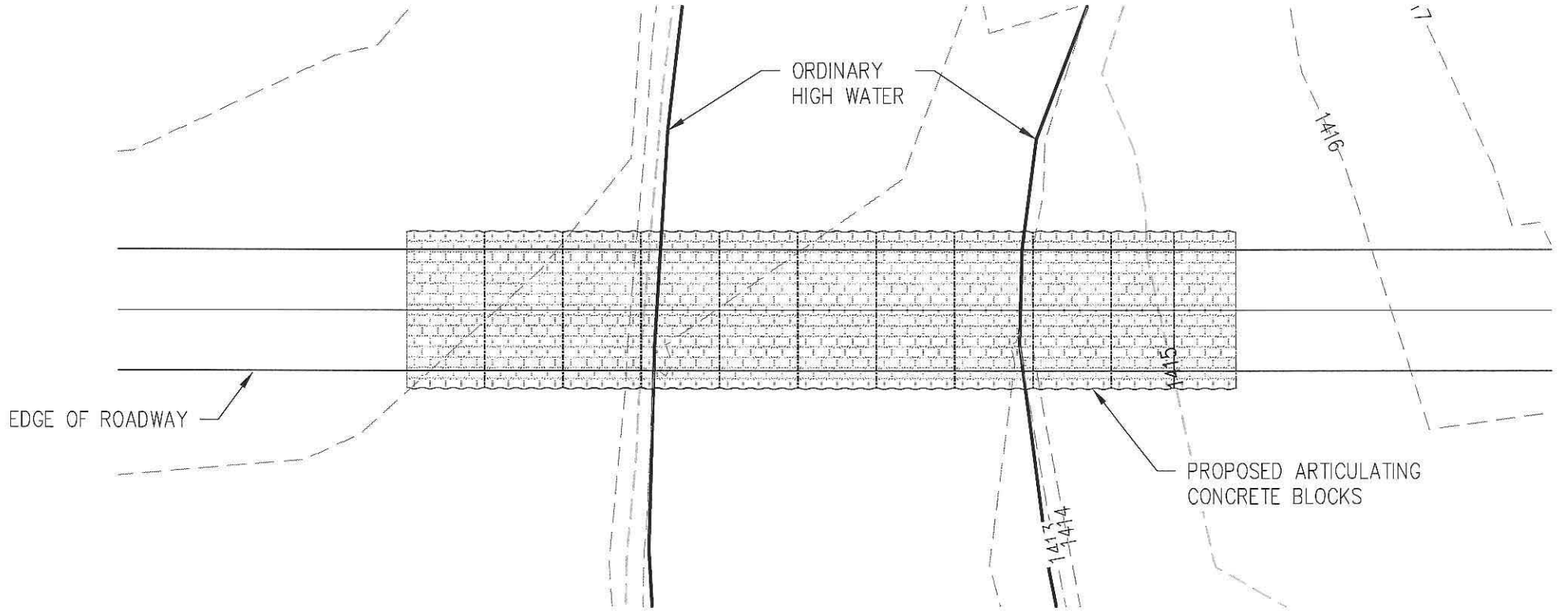
PROJECT			CLIENT	
Panoche Valley Solar Farm			ENERGY RENEWAL PARTNERS	
ALTERNATIVE		DATE	Prepared by:	
Crossing 5 - 2 Span 54' Bridge		2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 9,385.20
	STRUCTURE EXCAVATION	CUYD	65.00	$ 45.00	$ 2,925.00
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	360.00	$ 45.00	$ 16,200.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	9.00	$ 650.00	$ 5,850.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 21,000.00	$ 21,000.00
	REINFORCEMENT	LS	All	$ 6,360.00	$ 6,360.00
	15 INCH PRECAST PRESTRESSED SLABS	FOOT	216.00	$ 180.00	$ 38,880.00
	W BEAM STEEL RAIL	LS	All	$ 8,100.00	$ 8,100.00
SUBTOTAL, BIDDABLE ITEMS					**$ 126,700.20**
	CONTINGENCIES, for all work listed			25.0%	$ 31,675.05
CONSTRUCTION COST					**$ 158,375.25**

CONCEPTUAL CROSSING 5 - SINGLE SPAN BRIDGE COST ESTIMATE

PROJECT		CLIENT	
Panoche Valley Solar Farm		ENERGY RENEWAL PARTNERS	
ALTERNATIVE	DATE	Prepared by:	
Crossing 5 - Single Span 54' Bridge	2/13/2014	WHPACIFIC, INC	

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	MOBILIZATION	LS	All	8.0% Biddable	$ 9,022.00
	STRUCTURE EXCAVATION	CUYD	65.00	$ 45.00	$ 2,925.00
	FURNISH PILE DRIVING EQUIPMENT	LS	All	$ 18,000.00	$ 18,000.00
	FURNISH PP 12-3/4 X 0.375 STEEL PILES	FOOT	300.00	$ 45.00	$ 13,500.00
	DRIVE PP 12-3/4 X 0.375 STEEL PILES	EACH	10.00	$ 650.00	$ 6,500.00
	GENERAL STRUCTURAL CONCRETE, CLASS 3300	LS	All	$ 15,750.00	$ 15,750.00
	REINFORCEMENT	LS	All	$ 4,800.00	$ 4,800.00
	26 INCH PRECAST PRESTRESSED SLABS	FOOT	216.00	$ 200.00	$ 43,200.00
	W BEAM STEEL RAIL	LS	All	$ 8,100.00	$ 8,100.00
SUBTOTAL, BIDDABLE ITEMS					**$ 121,797.00**
	CONTINGENCIES, for all work listed			25.0%	$ 30,449.25
CONSTRUCTION COST					**$ 152,246.25**



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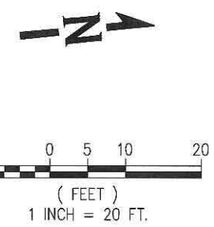

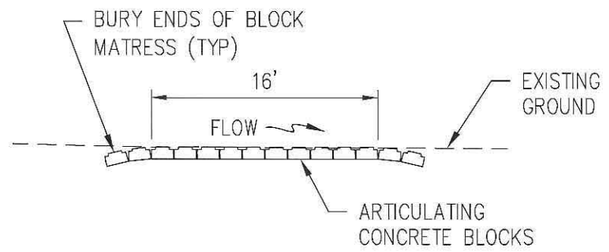

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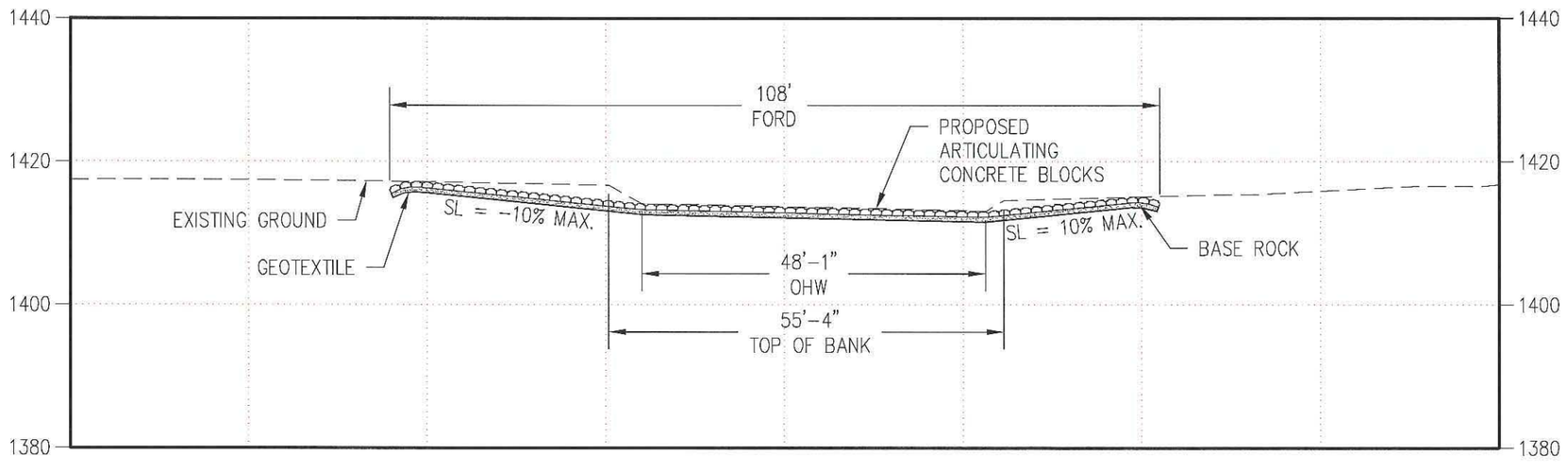
NOT TO SCALE



ELEVATION

CROSSING 4 - FORD

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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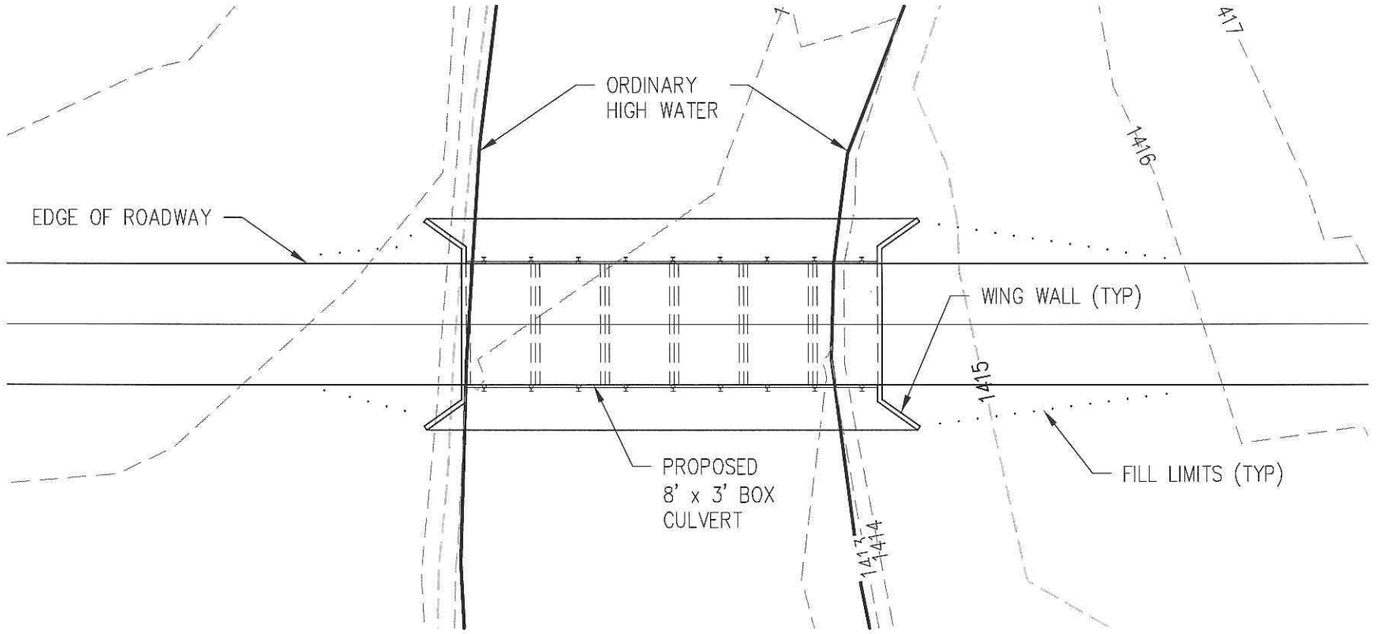

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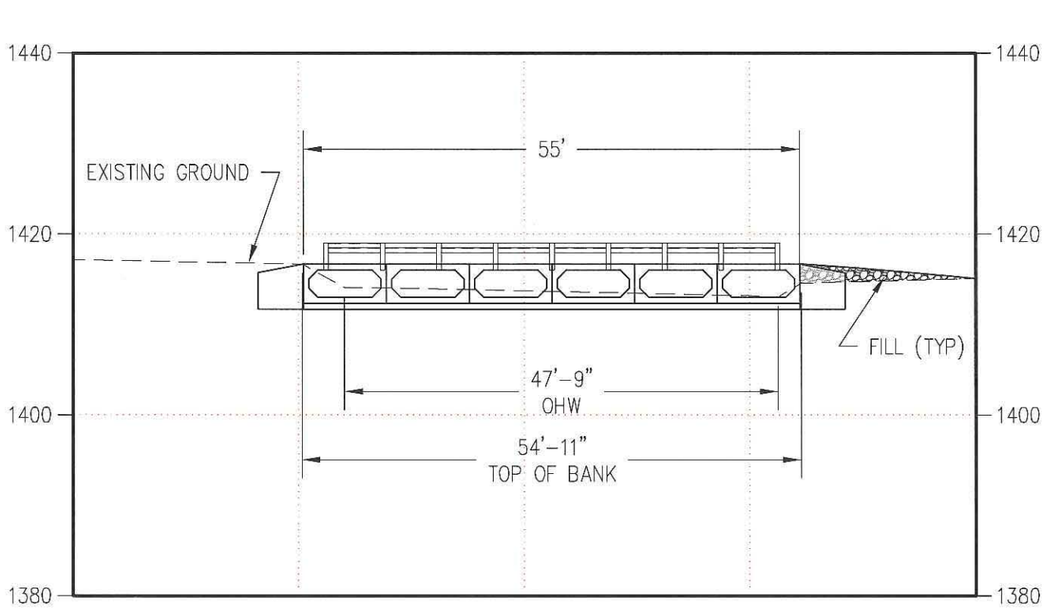

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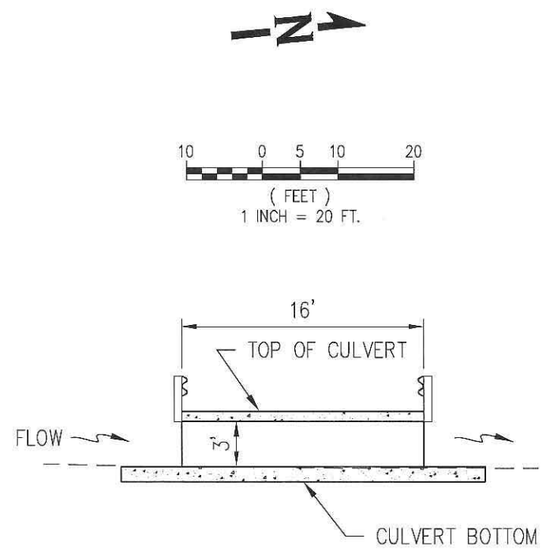

TYPICAL SECTION
NOT TO SCALE

CROSSING 4 - CULVERT

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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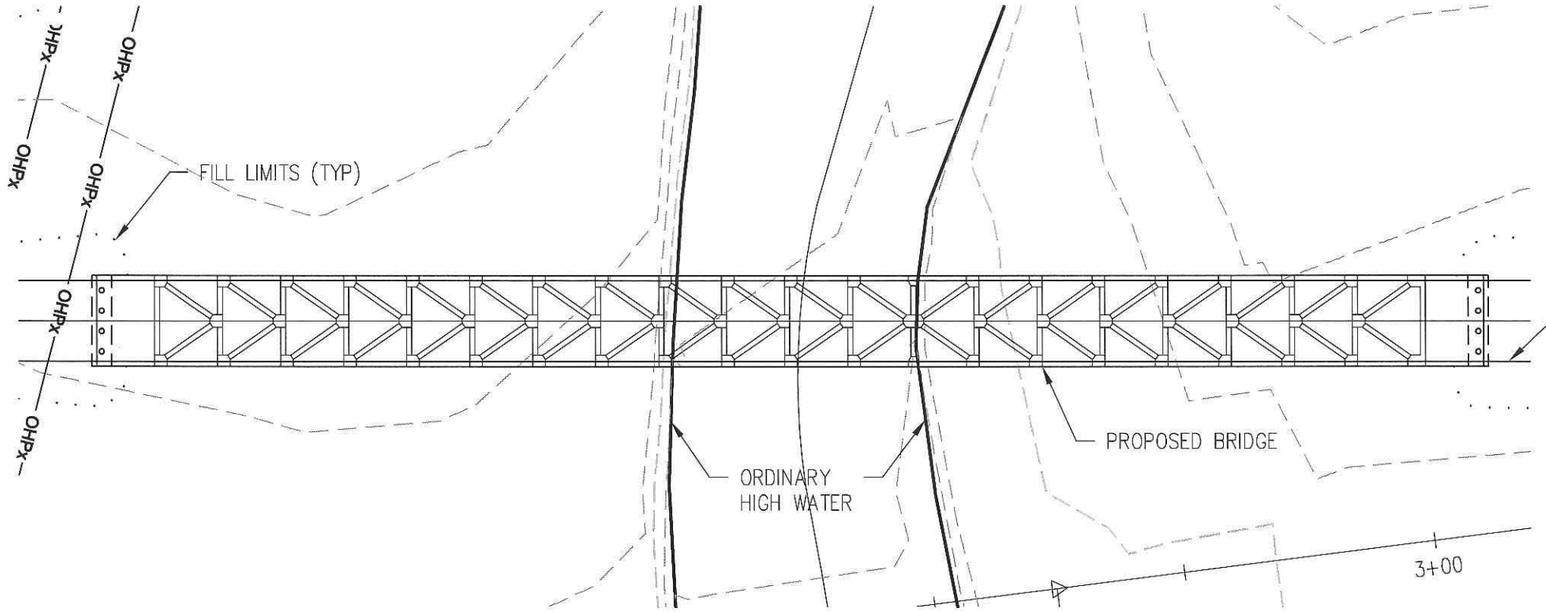

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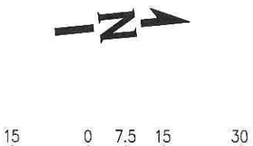

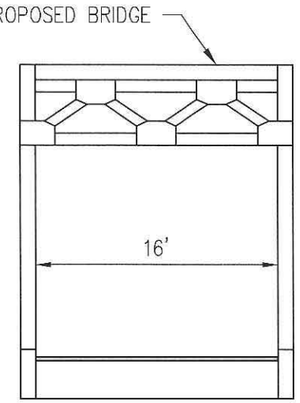

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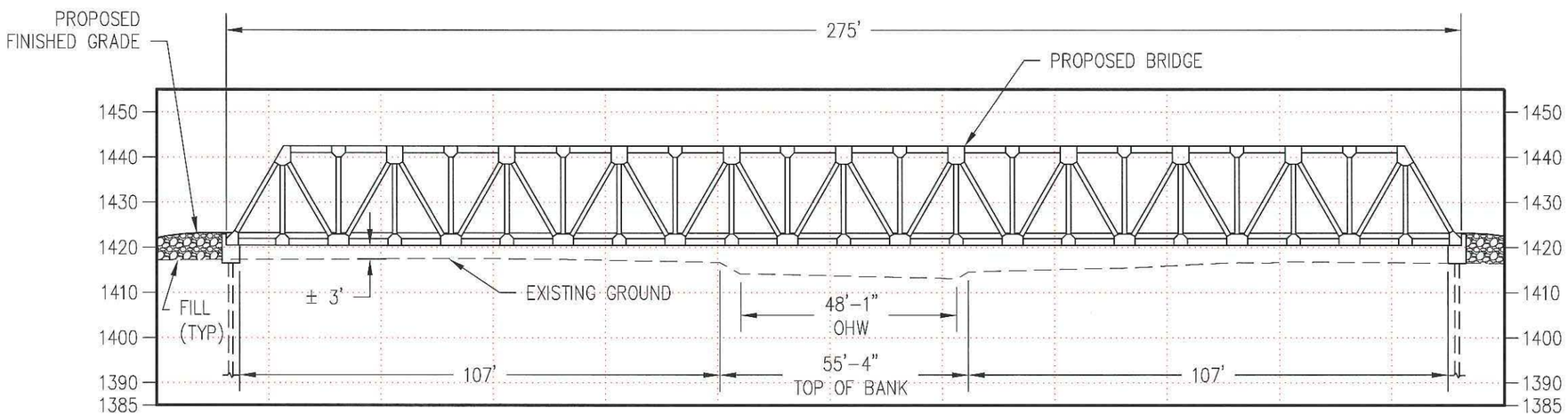

ELEVATION

CROSSING 4 - FREE SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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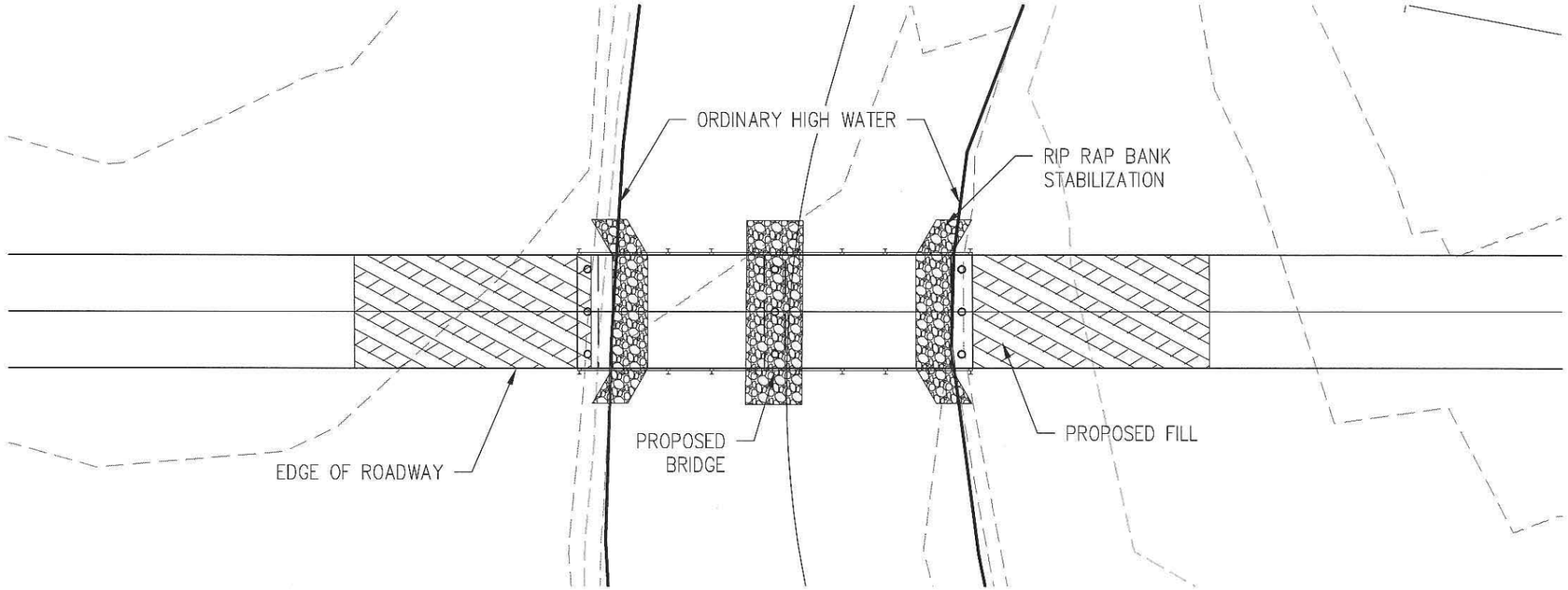

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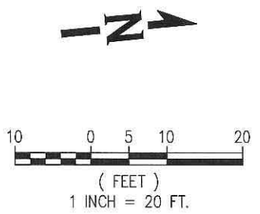

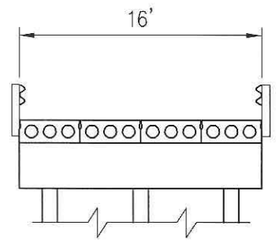

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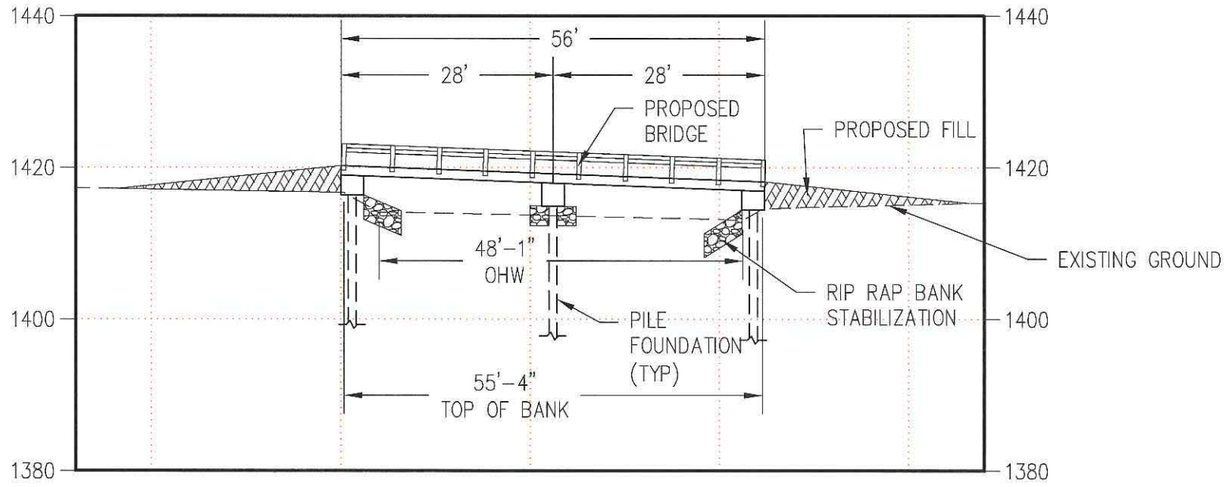

ELEVATION

CROSSING 4 - MULTI SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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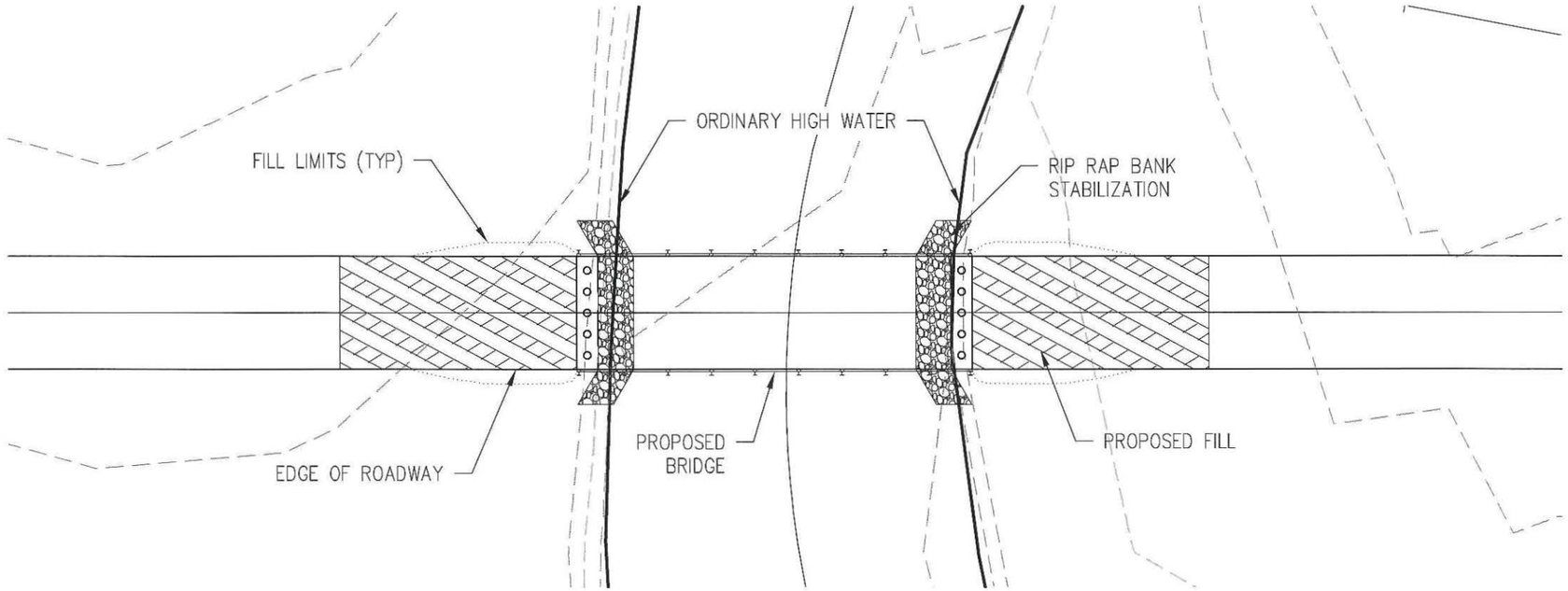

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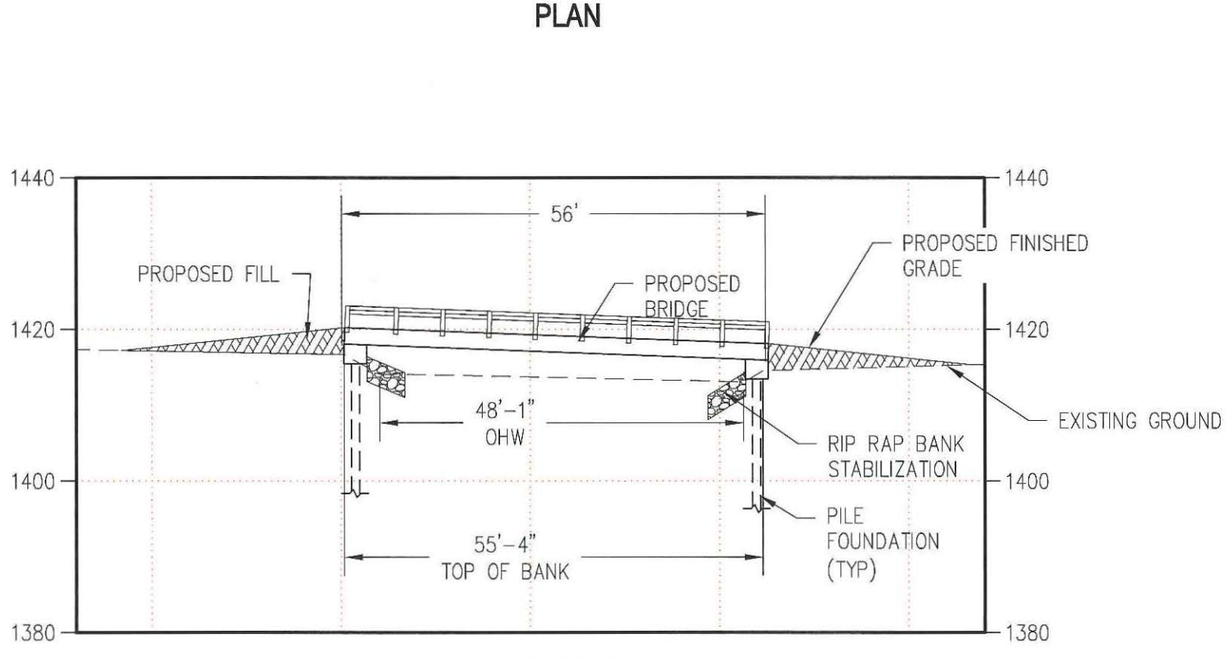

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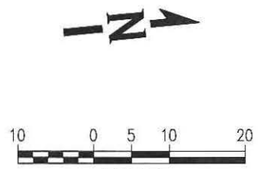

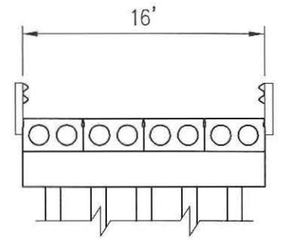

TYPICAL SECTION
NOT TO SCALE

CROSSING 4 - SINGLE SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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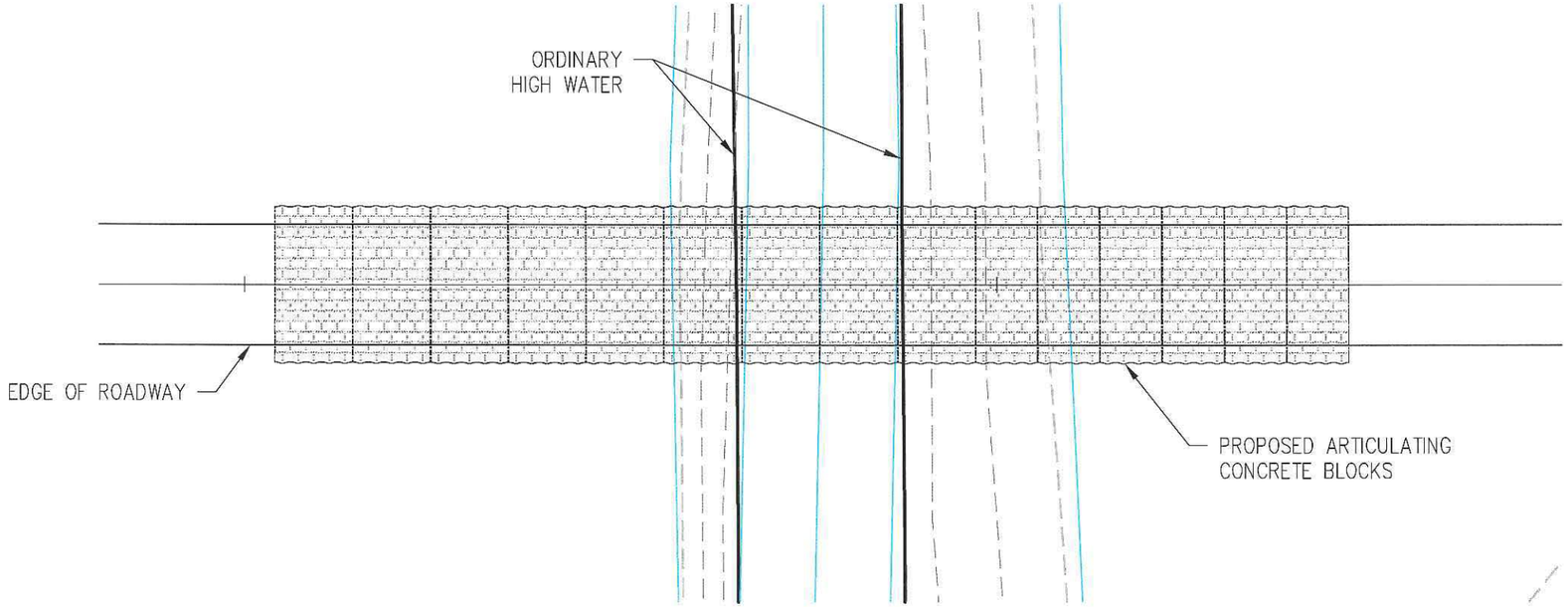

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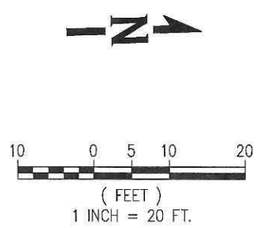

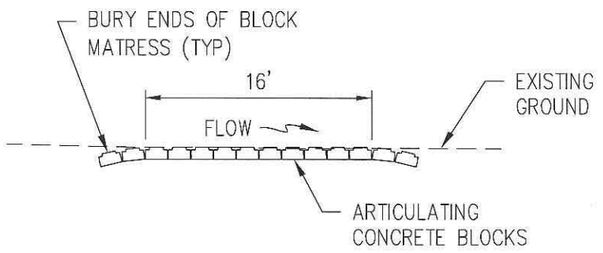

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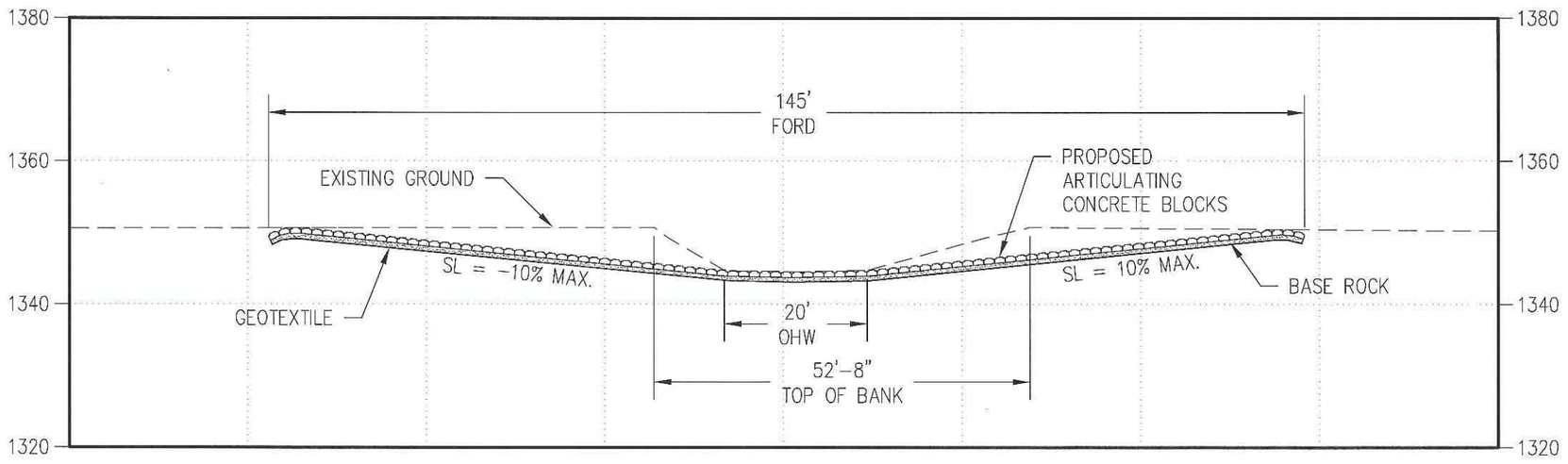

ELEVATION

CROSSING 5 - FORD

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

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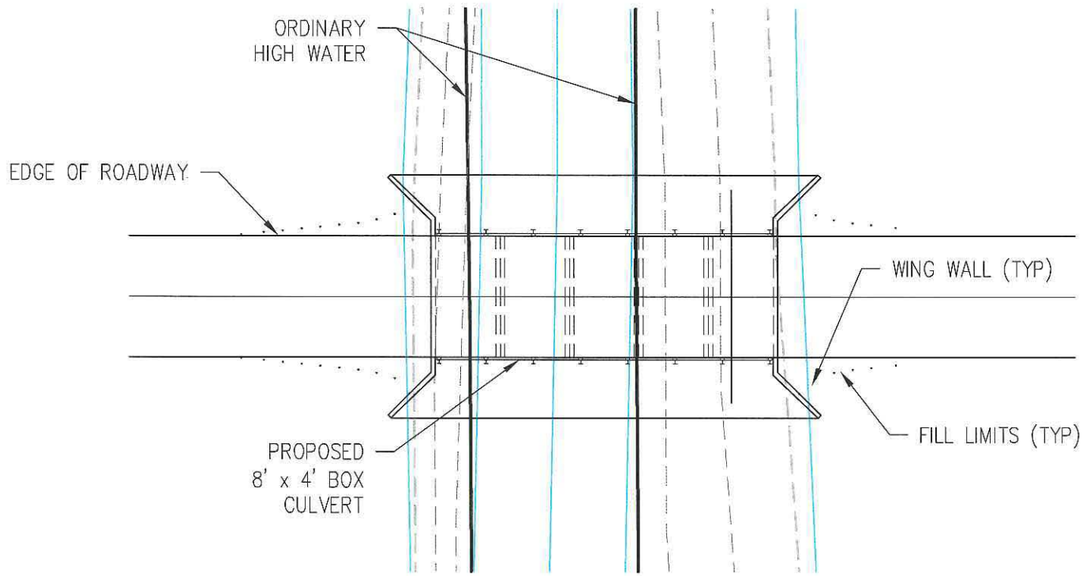

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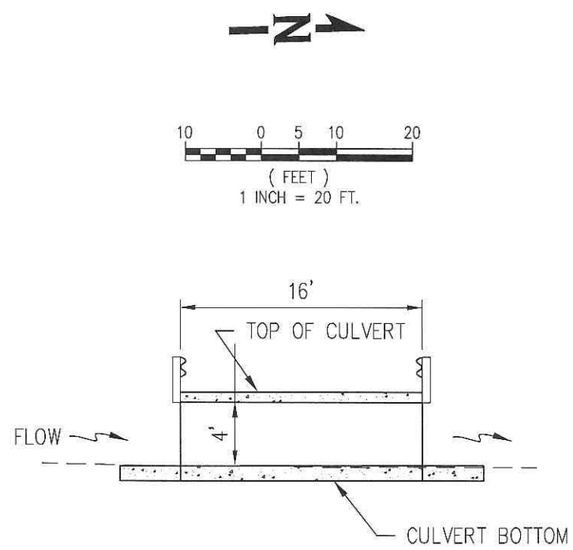

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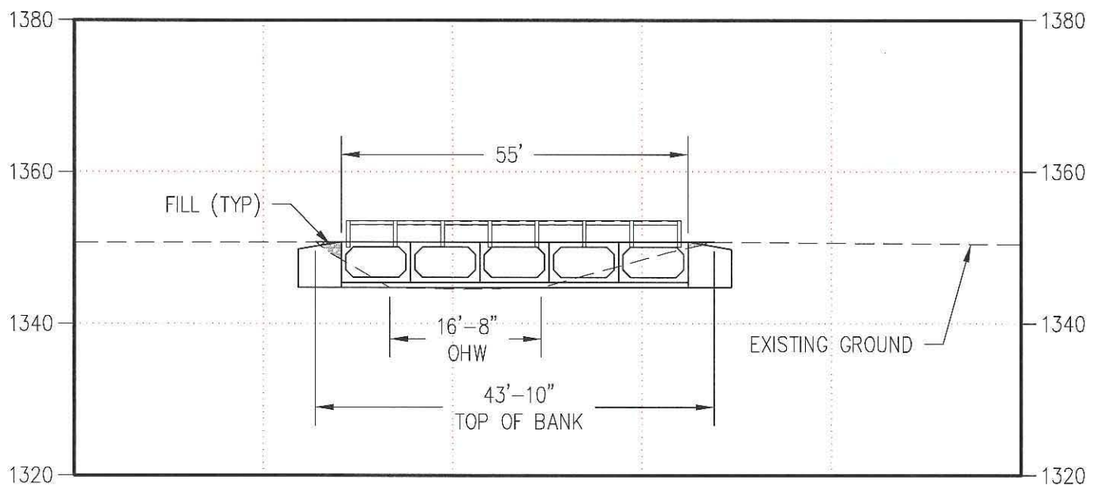

ELEVATION

CROSSING 5 - CULVERT

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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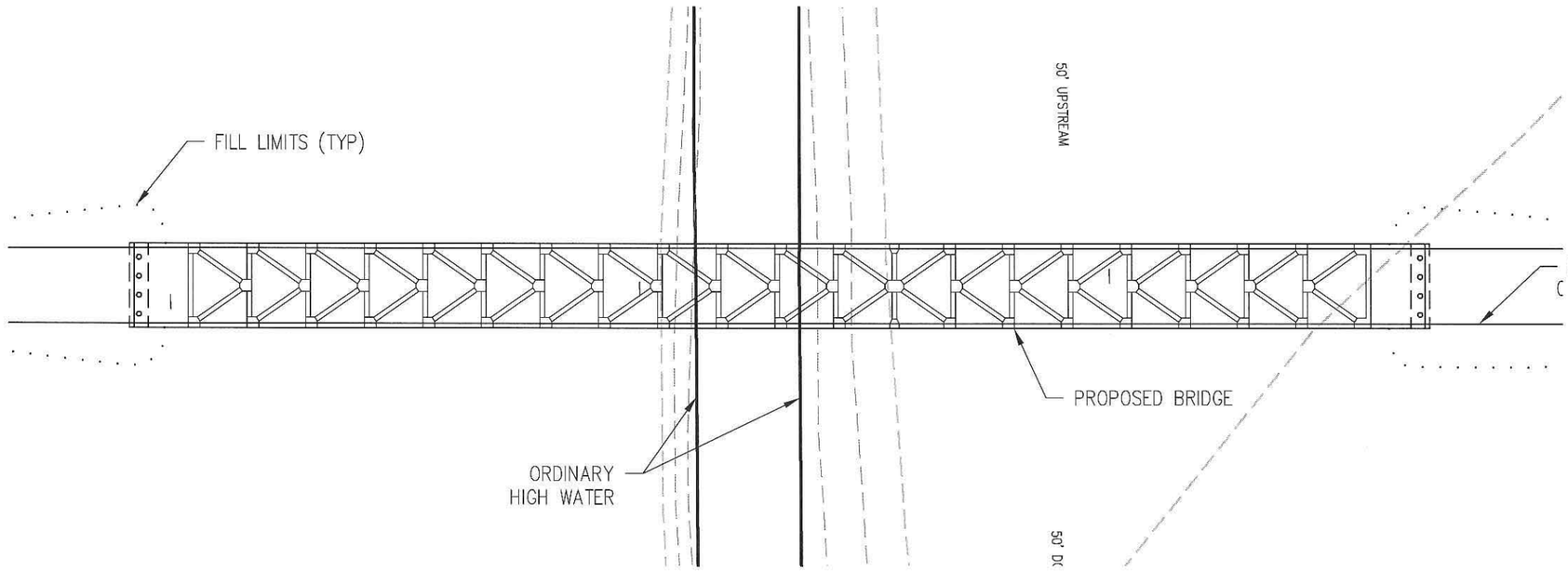
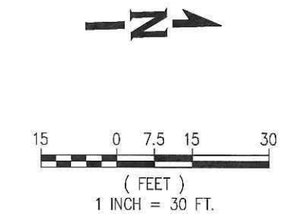
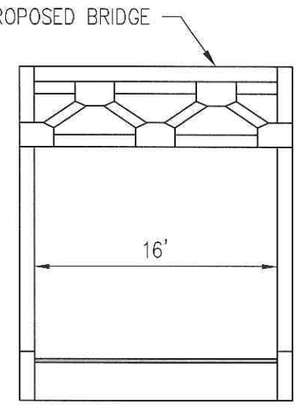


PLAN





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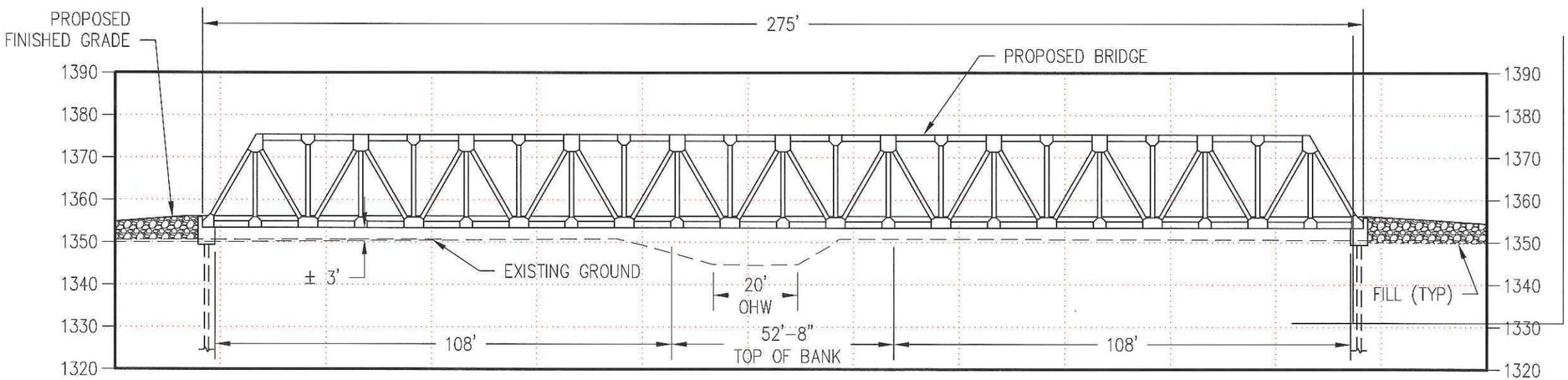

ELEVATION

CROSSING 5 - FREE SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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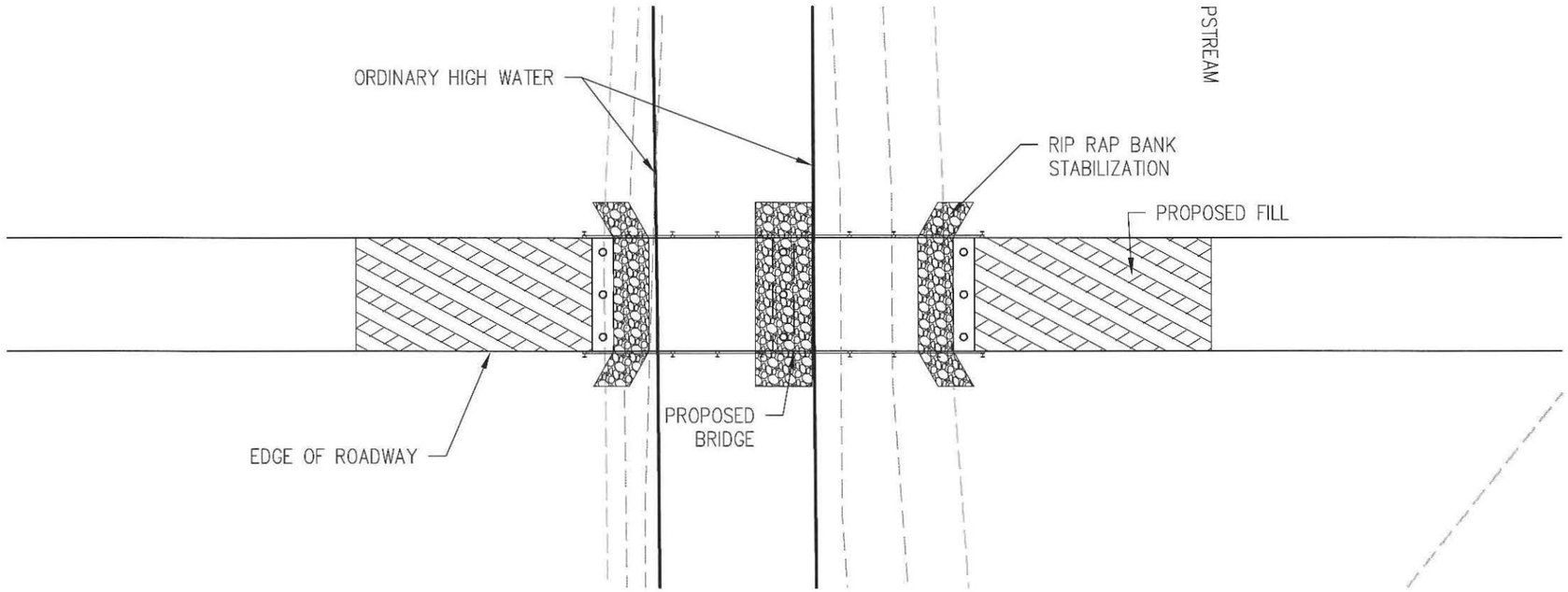
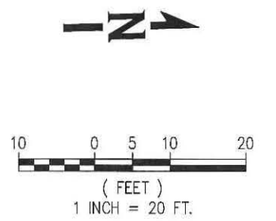
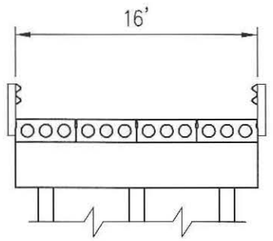


PLAN

ELEVATION





TYPICAL SECTION
NOT TO SCALE

CROSSING 5 - MULTI SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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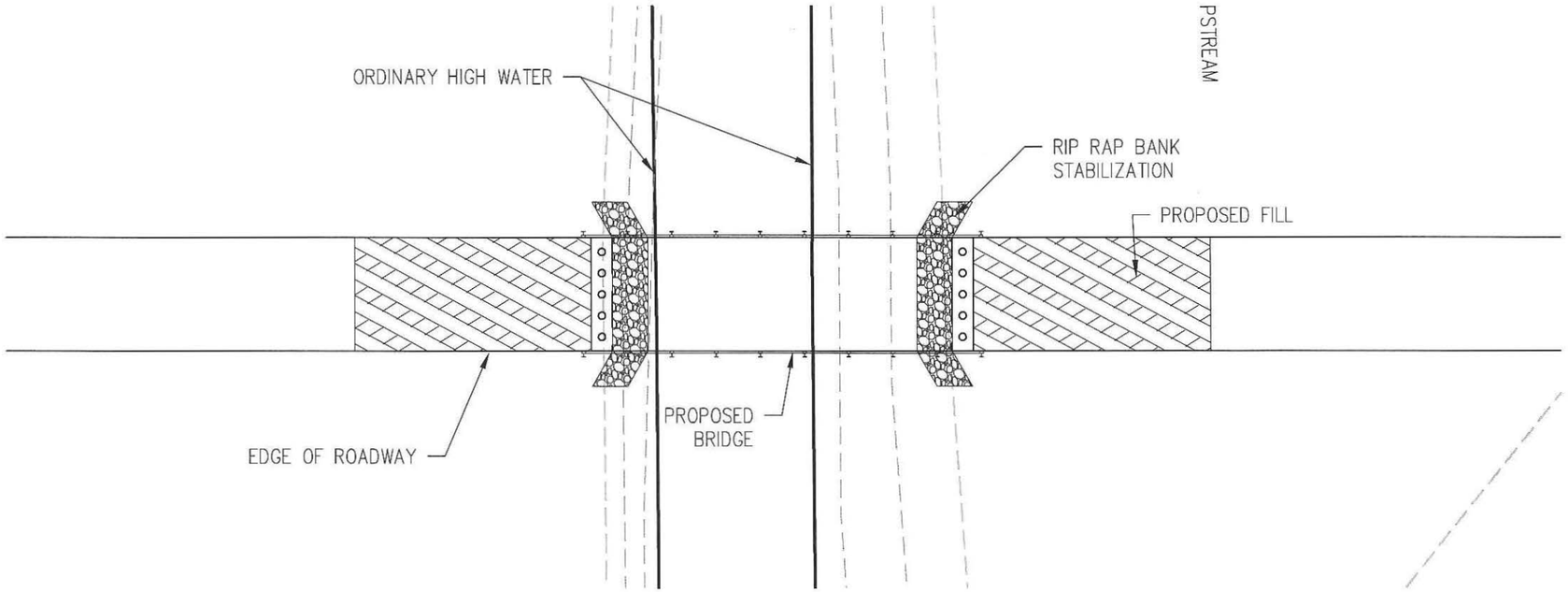
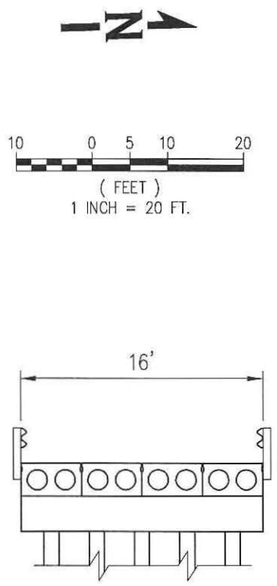


PLAN

ELEVATION



TYPICAL SECTION
NOT TO SCALE

CROSSING 5 - SINGLE SPAN

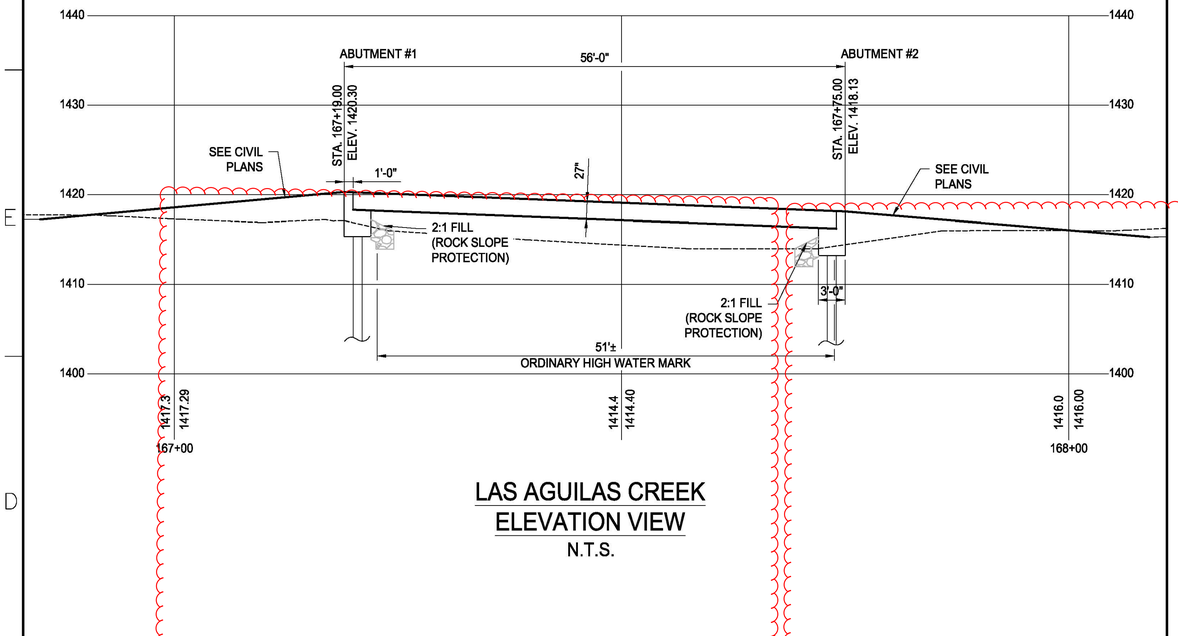
PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

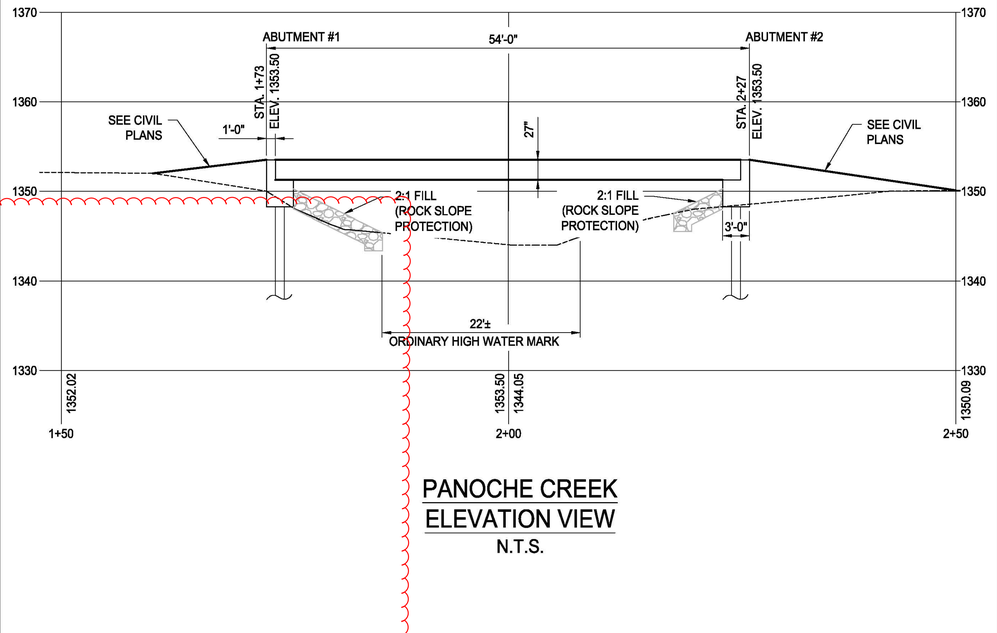
PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13

APPENDIX F

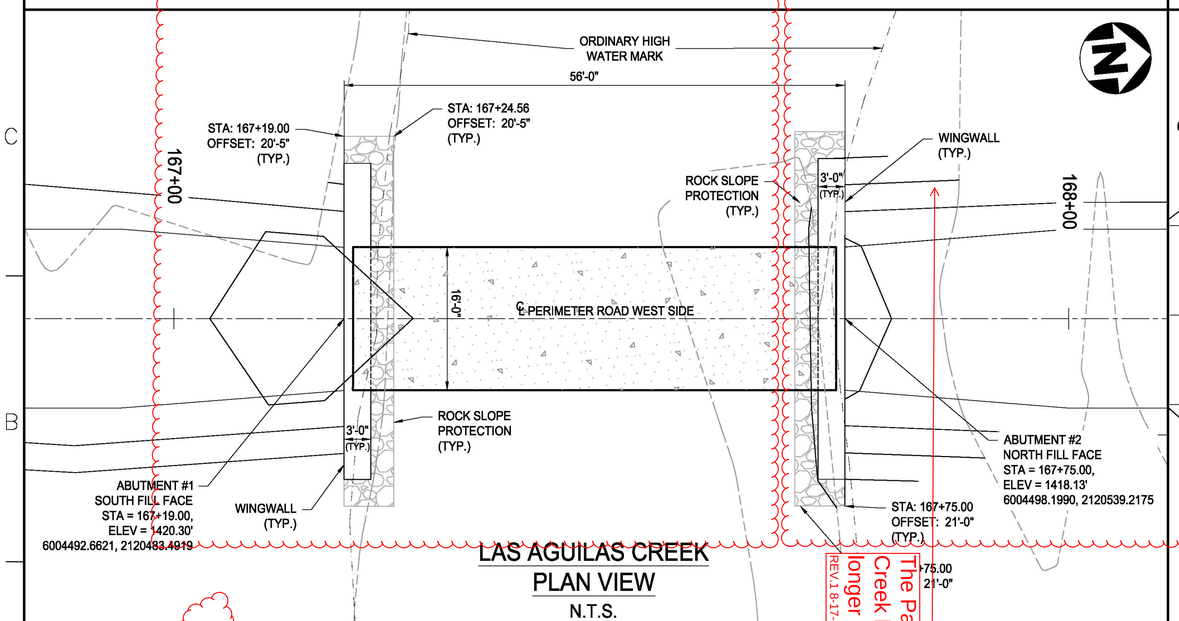
Amec Foster Wheeler Plan Views



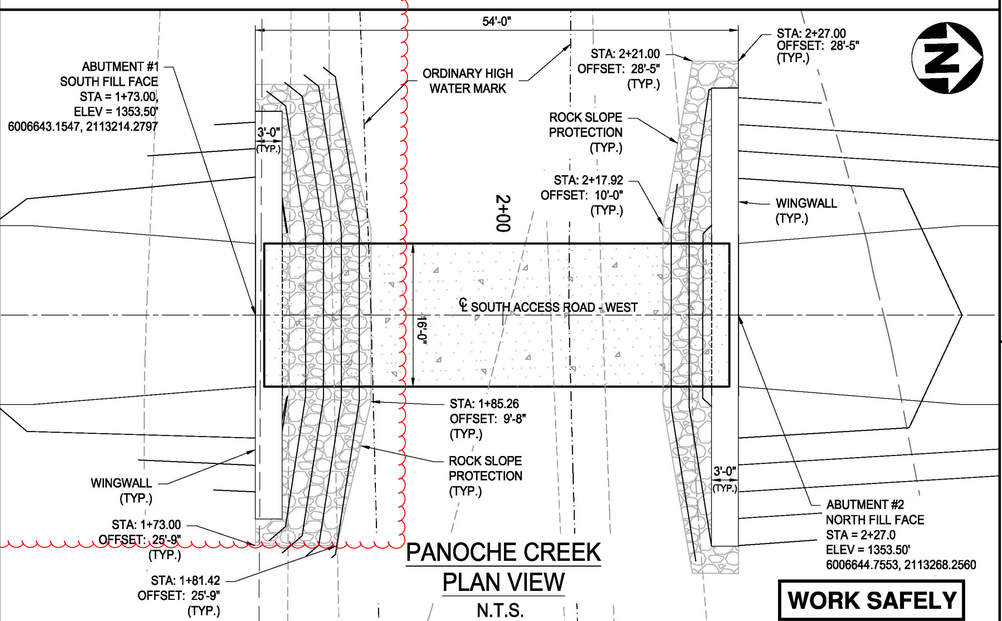
LAS AGUILAS CREEK
ELEVATION VIEW
N.T.S.



PANOCHE CREEK
ELEVATION VIEW
N.T.S.



LAS AGUILAS CREEK
PLAN VIEW
N.T.S.



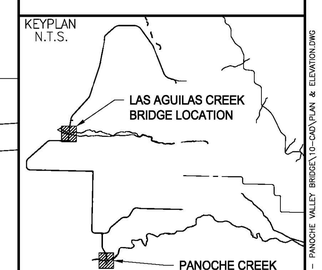
PANOCHE CREEK
PLAN VIEW
N.T.S.

WORK SAFELY

The Panoche Creek bridge is no longer proposed.
REV.1 8-17-2015

NOTES
1. NOT TO SCALE
2. LAS AGUILAS CREEK BRIDGE:
   - TOTAL DISTURBED CHANNEL QUANTITIES INSIDE ORDINARY HIGH WATER LINE = 296 SQ. FT.
   - LOW CHORD ELEVATION = 1415.88'
   - HIGH WATER ELEVATION AT UPSTREAM FACE OF BRIDGE FOR 25 YEAR STORM = 1415.28'.
   - AREA OF WATERWAY OPENING = 125.92 FT^2
3. PANOCHE CREEK BRIDGE:
   - TOTAL DISTURBED CHANNEL QUANTITIES INSIDE ORDINARY HIGH WATER LINE = 2 SQ. FT.
   - LOW CHORD ELEVATION = 1351.25'
   - HIGH WATER ELEVATION AT UPSTREAM FACE OF BRIDGE FOR 25 YEAR STORM = 1350.58'.
   - AREA OF WATERWAY OPENING = 248 FT^2
4. SEE CIVIL SHEETS C-0139, C-0144, C-0145 FOR GRADING PLAN.

KEYPLAN
N.T.S.



REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PANOCHE VALLEY SOLAR LLC

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
NTS	

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

SUBJECT
CIVIL
BRIDGE CROSSINGS
GENERAL PLAN AND ELEVATION

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0301 REV. A

ARCH D-24x36

DAD FILE: P:\STLOUIS\GD\15\235115001 - AMEC POWER - PANOCHE VALLEY BRIDGES\10-CAD\PLAN & ELEVATION.DWG

SAVED: 23-Feb-15 3:36 PM PLOTTED: 23-Feb-15 4:02 PM USER: JOHNSON, JEFFERY L

GENERAL NOTES:

SPECIFICATIONS:

DESIGN:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, WITH 2013 INTERIM REVISIONS.
CALTRANS BRIDGE DESIGN SPECIFICATIONS (2008 AMENDMENTS)

CONSTRUCTIONS:
2010 CALTRANS STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

JOB SPECIAL PROVISIONS:
IN THE CASE OF A CONFLICT BETWEEN THE STANDARD SPECIFICATIONS THE JOB SPECIAL PROVISIONS AND THE PLANS THE JOB SPECIAL PROVISIONS SHALL GOVERN OVER THE STANDARD SPECIFICATIONS AND THE PLANS SHALL GOVERN OVER ALL SPECIFICATIONS.

DESIGN LOADS:

DEAD LOADS:

CONCRETE: 150 PCF
EARTH: 120 PCF
FUTURE WEARING SURFACE: 0 PCF

LIVE LOADS:

STRENGTH I: HL-93 (33% DYNAMIC LOAD ALLOWANCE)
STRENGTH II: CALTRANS P5 THRU P15 PERMIT VEHICLE

SEISMIC DESIGN:

IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, WITH 2013 INTERIM REVISIONS SEISMIC PERFORMANCE ZONE: 4 BASED ON PEAK GROUND ACCELERATION COEFFICIENT, PGA = 0.449g, AND SITE MODIFIED SPECTRAL ACCELERATION COEFFICIENTS, SD1 = 0.601g.

DISTRIBUTION FACTORS:

LIVE LOAD DISTRIBUTION FACTOR IS ASSUMED TO BE .5 FOR SHEAR AND MOMENT FOR INTERIOR AND EXTERIOR BEAMS.
MULTIPRESENCE FACTOR = 1.0

ABUTMENTS:

INTEGRAL

MATERIALS:

CONCRETE:

ALL SITE CAST CONCRETE SHALL BE CALTRANS STRUCUTRAL CONCRETE, BRIDGE
WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,600 PSI.
CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4 INCH, UNLESS NOTED OTHERWISE ON THE PLANS.
ABUTMENT CONCRETE: DO NOT PLACE ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCT IN JOINT UNTIL THE BOX BEAMS HAVE BEEN ERECTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60 DEFORMED
MINIMUM CONCRETE COVER TO THE FACE OF ANY BAR SHALL NOT BE LESS THAN 2", UNLESS SHOWN OTHERWISE IN THE PLANS.
ALL REINFORCING STEEL SHALL BE EPOXY COATED

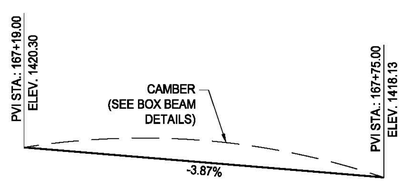
STEEL PILES:

ALL PILES SHALL BE ASTM A709 GRADE 36
MANUFACTURED PILE POINT REINFORCEMENT SHALL BE USED ON ALL PILES IN THIS STRUCTURE
FOUNDATION LOADS SHOWN ON THE PLANS ARE SERVICE LOADS

NOTES
1. NOT TO SCALE

PANOCHE BRIDGE QUANTITIES

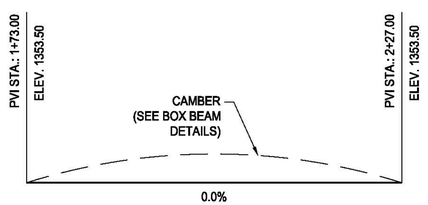
Caltrans ITEM No.	DESCRIPTION	EST. QTY	UNIT
760090	MOBILIZATION, DEMOBILIZATION, AND FINAL CLEANUP	1	LS
NA	Survey and Staking	1	LS
NA	Contractor Supplied Material Testing	1	LS
192001	STRUCTURE EXCAVATION (BRIDGE)	11	CY
721026	ROCK SLOPE PROTECTION (NO. 1, METHOD B) (CY)	21	CY
490513	FURNISH STEEL PILING (HP 12 X 53)	240	LF
490515	DRIVE STEEL PILE (HP 12 X 53)	8	EACH
510053	STRUCTURAL CONCRETE, BRIDGE	22	CY
520106	BAR REINFORCING STEEL (EPOXY COATED)	2500	LB
512222	FURNISH PRECAST PRESTRESSED CONCRETE BOX GIRDER (50'-60')	4	EACH
512502	ERECT PRECAST PRESTRESSED CONCRETE BOX GIRDER	4	EACH
NA	Bridge Mounted Twin Tube Steel Guardrail System	108	LF



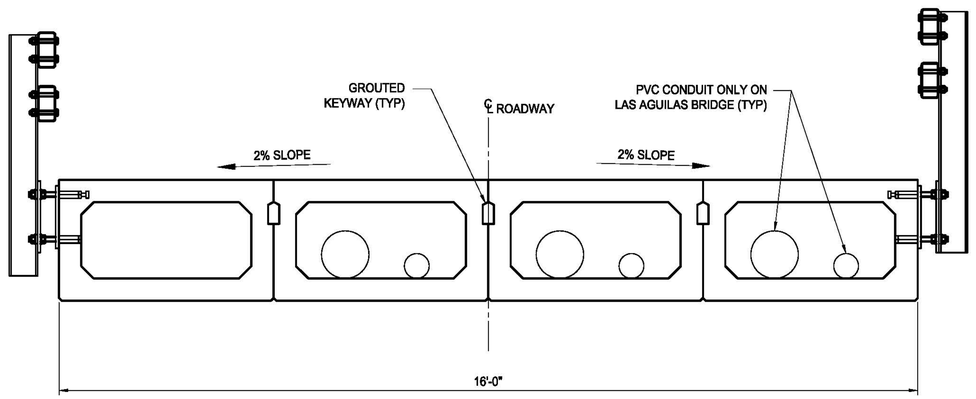
LAS AGUILAS BRIDGE PROFILE GRADE

LAS AGUILAS BRIDGE QUANTITIES

Caltrans ITEM No.	DESCRIPTION	EST. QTY	UNIT
760090	MOBILIZATION, DEMOBILIZATION, AND FINAL CLEANUP	1	LS
NA	Survey and Staking	1	LS
NA	Contractor Supplied Material Testing	1	LS
192001	STRUCTURE EXCAVATION (BRIDGE)	15	CY
721026	ROCK SLOPE PROTECTION (NO. 1, METHOD B) (CY)	14	CY
490513	FURNISH STEEL PILING (HP 12 X 53)	240	LF
490515	DRIVE STEEL PILE (HP 12 X 53)	8	EACH
510053	STRUCTURAL CONCRETE, BRIDGE	22	CY
520106	BAR REINFORCING STEEL (EPOXY COATED)	2500	LB
512222	FURNISH PRECAST PRESTRESSED CONCRETE BOX GIRDER (50'-60')	4	EACH
512502	ERECT PRECAST PRESTRESSED CONCRETE BOX GIRDER	4	EACH
NA	Bridge Mounted Twin Tube Steel Guardrail System	112	LF



PANOCHE BRIDGE PROFILE GRADE



BRIDGE ELEVATION

WORK SAFELY

KEYPLAN

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	RMK	02/2015
SCALE	PACKAGE CODE	DRN	JLJ	02/2015
NTS		CHK	JS	02/2015
		APP		

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
GENERAL NOTES AND QUANTITIES

AREA

CLIENT DWG. NO.

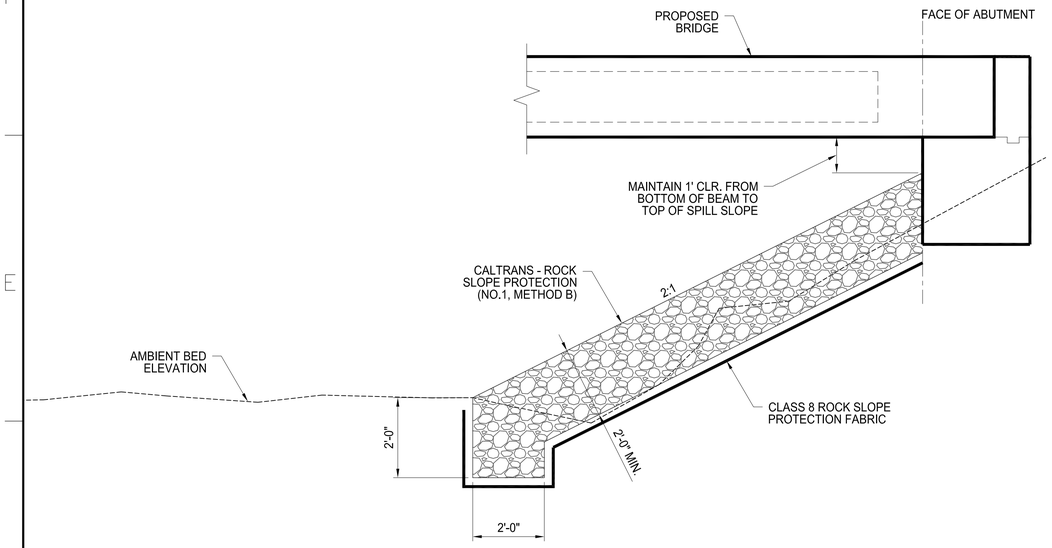
DRAWING NO. D-000-C-0302 REV. A

SAVED: 23-Feb-15 3:36 PM PLOTTED: 23-Feb-15 4:02 PM USER: JOHNSON, JEFFERY L.

CAD FILE: P:\STUDIES\2015\335115001 - AMEC POWER - PANOCHE VALLEY BRIDGES\D-CAD\PLAN & ELEVATION.DWG

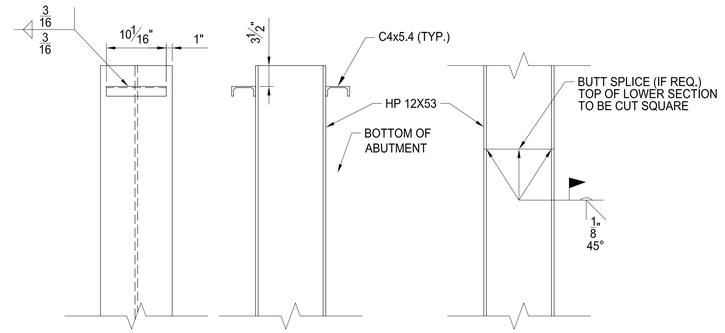
ARCH D-24x36

9 8 7 6 5 4 3 2 1



ROCK SLOPE PROTECTION

N.T.S.



TYPICAL PILE CHANNEL SHEAR CONNECTOR DETAIL

STEEL PILE SPLICE DETAIL

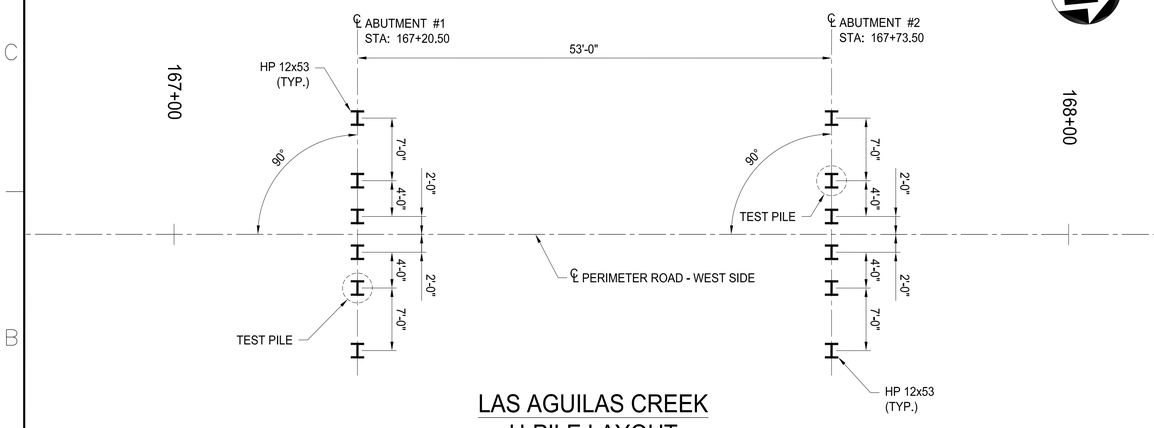
	PILE DATA			
	Las Aguilas Bridge		Panoche Bridge	
	Abutment # 1	Abutment # 2	Abutment # 1	Abutment # 2
Shape	HP12x53	HP12x53	HP12x53	HP12x53
Pile Type	Friction	Friction	Friction	Friction
Number	6	6	6	6
Approx. Length (ft.)	32	32	32	32
Pile Axial Service Load (kips)	80	80	80	80
Pile Driving Verification Method	PDA	PDA	PDA	PDA

PILE NOTES:

1. Estimated Pile Length includes 18" embendment in Abutment
2. See project special provisions for PDA testing requirements
3. Cost of channel shear connectors C4x5.4 (ASTM-A709 Grade 50) in place to be included in contract unit prices for structural steel piles.
4. Manufactured pile point reinforcement shall be used on all piles in this structure.

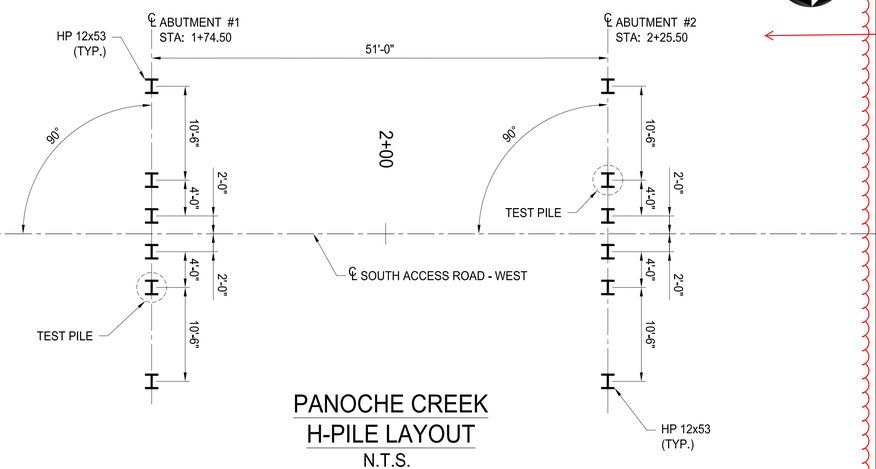
NOTES

1. NOT TO SCALE
2. SEE CIVIL PLANS FOR GRADING LIMITS.
3. ROCK SLOPE PROTECTION DETAIL IS TYPICAL FOR BOTH BRIDGES.



LAS AGUILAS CREEK H-PILE LAYOUT

N.T.S.



PANOCHE CREEK H-PILE LAYOUT

N.T.S.

WORK SAFELY

The Panoche Creek bridge is no longer proposed.
REV.1 8-17-2015

KEYPLAN

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

TMB — CLIENT PROJECT MGR.
HRM — DEPARTMENT MGR. / PROJECT MGR.

PROJECT PHASE: PANOCHE VALLEY SOLAR PROJECT

PANOCHE VALLEY SOLAR LLC

PROJECT NO.	ACTIVITY NO.
176055	
SCALE: NTS	PACKAGE CODE

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

SUBJECT: CIVIL
BRIDGE CROSSINGS
PILE LAYOUT AND ROCK SLOPE PROTECTION DETAILS

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0303

REV. A

GENERAL NOTES FOR PRESTRESSED BOX BEAMS:

DESIGN STRESSES:

PRESTRESSED CONCRETE
F'c = 6,000PSI (28-DAY)
F'ci = 4,500PSI (RELEASE)

CAST-IN-PLACE CONCRETE:
F'C = 4,500 PSI

REINFORCING STEEL:
MIN. YIELD STRENGTH = 60,000 PSI.

PRESTRESSING STRAND:
FURNISH MATERIAL CONFORMING TO (ASTM A416), GRADE 270, and LOW RELAXATION, UNCOATED, SEVEN WIRE STRAND. STRANDS SHALL BE 0.5 INCH DIAMETER WITH A TOTAL CROSS SECTIONAL AREA OF 0.153 IN². INITIAL JACKING FORCE SHALL BE 30,900 POUNDS PER STRAND.

TRANSVERSE TIE RODS SHALL BE 1" DIAMETER STEEL RODS CONFORMING TO ASTM A311, GRADE 1018, AND THREADED AT EACH END. PROVIDE A NUT AND WASHER AT EACH END. THREADS MAY BE CUT OR ROLLED. IF ROLLED THREADS ARE USED, THE MINIMUM DIAMETER AT THE ROOT OF THE THREADS SHALL BE 0.838". INSTALL AND TORQUE RODS TO APPROXIMATELY 250 FT-LBS. AFTER TIGHTENING, FILL THE RECESSES IN THE FASCIA BEAMS WITH NON SHRINK MORTAR OF THE SAME COLOR AS THE BEAM.

GALVANIZING:
GALVANIZE ANCHOR DOWEL BARS, INSERTS, TIE RODS, NUTS AND WASHERS ACCORDING TO ASTM A153.

ANCHOR DOWELS SHALL BE 1" DIAMETER SMOOTH STEEL RODS CONFORMING TO ASTM A311, GRADE 1018.

LOCATE THE ANCHOR DOWEL HOLES AND PRESTRESSING STRANDS TO AVOID MUTUAL INTERFERENCE. THE LATERAL SPACING OF THE HOLES IN THE BEAM SHALL BE AS CLOSE TO THE CENTERLINE OF BEAM AS POSSIBLE.

AFTER TENSIONING OF THE TRANSVERSE TIE RODS, DRILL 1 1/16" MINIMUM DIAMETER DOWEL HOLES FOR FIXED DOWELS INTO THE ABUTMENT. CLEAN AND DRY DOWEL HOLES AND INSTALL DOWELS.

BEAM ENDS:
SHALL BE SANDBLASTED PRIOR TO POURING ABUTMENT DIAPHRAGM CONCRETE.

DRIP GROOVES ON THE UNDERSIDE OF THE FASCIA BEAM ARE NOT PERMITTED.

SURFACE PREPARATION FOR MORTAR:
THE FABRICATOR SHALL SANDBLAST THE KEYWAY SURFACES WITHIN FOUR DAYS OF SHIPMENT TO THE PROJECT SITE. THE SANDBLASTING SHALL YIELD A VISUAL APPEARANCE AND TEXTURE EQUAL OR ROUGHER THAN 100 GRIT SANDPAPER OVER THE ENTIRE KEYWAY SURFACE. WHEN STAINS ARE VISIBLE BEFORE BLASTING THE CONCRETE, USE A DEGREASER TO ENSURE REMOVAL OF GREASE, OILS ANDOTHER SIMILAR CONTAMINATES. THE DEGREASER SHALL BE WATER SOLUBLE SO IT CAN BE REMOVED BEFORE THE BLASTING BEGINS. BEFORE MORTARING, REMOVE ALL DIRT, DUST, GREASE, OIL AND OTHER FOREIGN MATERIAL FROM THE SURFACES USING A HIGH PRESSURE WASH OF AT LEAST 1000 PSI AT A DELIVERY RATE OF AT LEAST 4 GAL/MIN.

MORTAR:
MORTAR OR GROUT FOR TIE ROD RECESSES, ANCHOR DOWEL HOLES AND KEYWAYS BETWEEN PRESTRESSED CONCRETE BOX BEAMS, SHALL BE A NON-SHRINK TYPE AS DESCRIBED. DURING THE GROUTING OPERATION, PREPARE AT LEAST THREE, 3" DIAMETER BY 6" LONG TEST CYLINDERS OF THE GROUTING MATERIAL. SUBMIT THE CYLINDERS TO THE CONTRACTOR'S LABORATORY TO DETERMINE THE MINIMUM COMPRESSIVE STRENGTH OF THE GROUT.

FURNISH MORTAR AS HIGH EARLY STRENGTH GROUT. AFTER THE TIE RODS ARE TIGHTENED, PREPARE, PLACE AND CURE THE MORTAR ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. PLACE MORTAR IN A MANNER THAT ENSURES COMPLETE AND SOLID FILLING. THE MINIMUM STRENGTH OF THE MORTAR SHALL BE 5000 PSI BEFORE CONSTRUCTION OR VEHICULAR TRAFFIC IS ALLOWED ON THE BEAMS.

BASIS OF PAYMENT: ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING THE BOX BEAMS KEYWAY GROUT, ANCHOR DOWELS AND ROOFING FELT IS CONSIDERED INCIDENTAL TO THE BOX BEAMS

FABRICATOR'S SHOP DRAWINGS SHALL SHOW COMPLETE DETAILS OF BEAM REINFORCING.

NOTES
1. NOT TO SCALE

KEYPLAN

WORK SAFELY

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	

SCALE: NTS

PACKAGE CODE:

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
GENERAL NOTES FOR BOX BEAMS

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0304

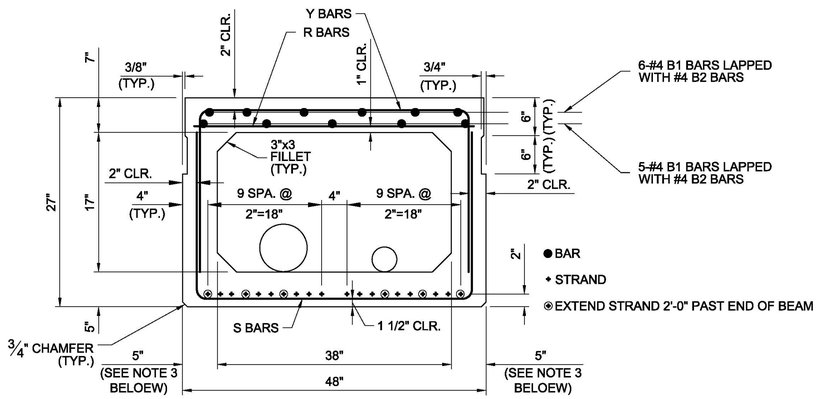
REV. A

CAD FILE: P:\ST\LOS\SOS\315253\15001 - AMEC POWER - PANOCHE VALLEY BRIDGES\D-CA\D\BOX BEAM DETAILS.DWG

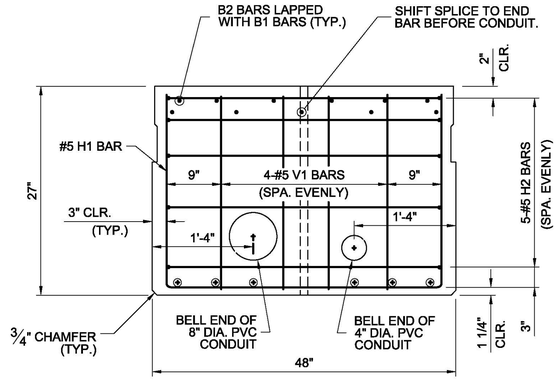
SAVED: 23-Feb-15 3:47 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

ANSI D-24x36

LAS AGUILAS BRIDGE



27X48 BOX BEAM



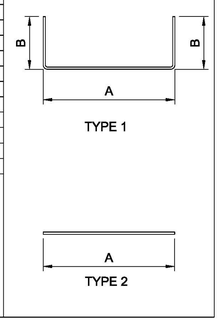
⊙ EXTEND STRAND 2'-0" PAST END OF BEAM

SHIFT BARS TO CLEAR CONDUIT

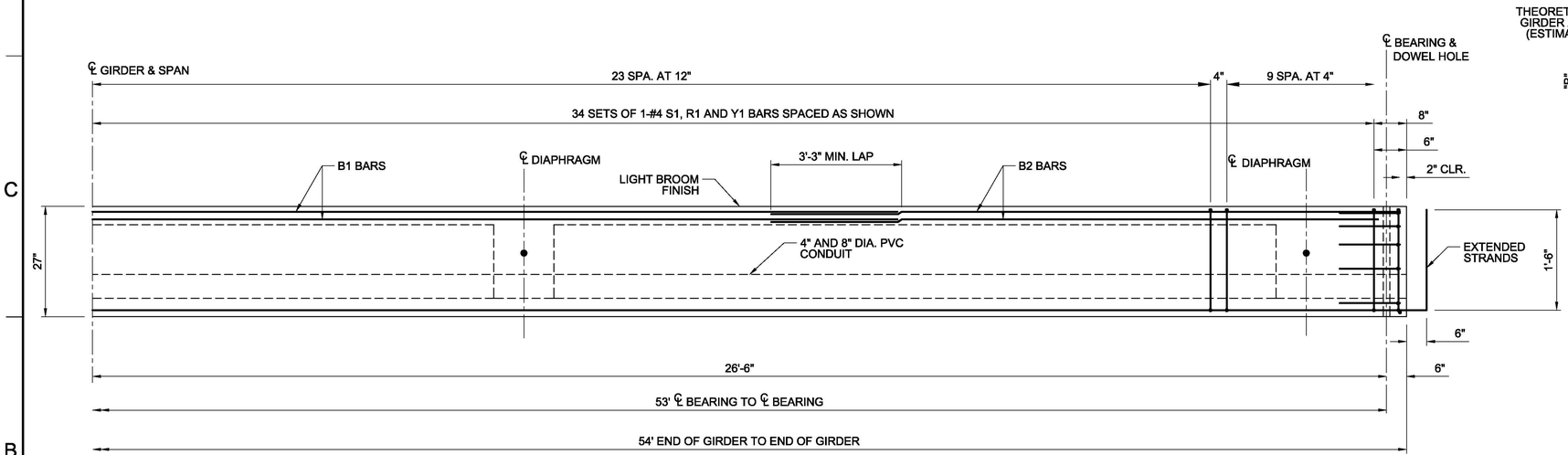
END VIEW OF BEAM

REINFORCING SCHEDULE

REINFORCING BARS								
SIZE	MARK	TYPE	A	B	C	D	E	BENDING DIAGRAMS
#4	R1	2	44"					
#4	S1	1	44"	21"				
#4	Y1	1	44"	20"				
#4	B1	2	32'-0"					
#4	B2	2	16'-0"					
#5	H1	1	42"	23"				
#5	H2	1	41"	18"				
#5	V1	2	23"					



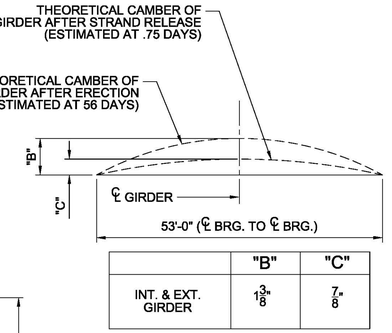
FABRICATOR'S SHOP DRAWINGS SHALL SHOW COMPLETE DETAILS OF BEAM REINFORCING.



ELEVATION

BOX BEAM GENERAL NOTES:

1) GIRDER IS SYMMETRICAL ABOUT CENTERLINE SPAN
2) SHIFT SHEAR BARS AS NEEDED TO CLEAR TRANSVERSE TIE ROD
3) COORDINATE BOX BEAM DETAILS WITH RAILING DETAILS FOR ADDITIONAL REQUIREMENTS OF EMBEDED COMPONENTS.



	"B"	"C"
INT. & EXT. GIRDER	1 3/8"	7/8"

CONVERSION FACTOR FOR GIRDER CAMBER
0.25 PT. = 0.7125 X 0.5 PT.

GIRDER CAMBER DIAGRAM

ALLOWABLE CAMBER VARIATION FROM DESIGN CAMBER = +/- 1/2" MAX.

ALLOWABLE DIFFERENTIAL CAMBER BETWEEN ADJACENT MEMBERS OF THE SAME DESIGN = 1/2" MAX. (INCLUDES DIFFERENTIAL CAMBER FOR ADJACENT BEAMS)

NOTES
1. NOT TO SCALE
2. ELECTRICAL CONDUIT NOTES:

- REFERENCE ELECTRICAL CONDUIT DETAIL ON D-000-E-0257
- PVC CONDUIT SHALL BE SCHEDULE 80 WITH THICKNESS = 0.337" FOR 4" AND THICKNESS = 0.5" FOR 8"
- CONDUIT ONLY NEEDED ON THREE EAST MOST BOX BEAMS, CONDUITS SHALL BE SHOWN ON THE SHOP DRAWINGS.

KEYPLAN

WORK SAFELY

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
NTS	

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
LAS AGUILAS CREEK BOX BEAM

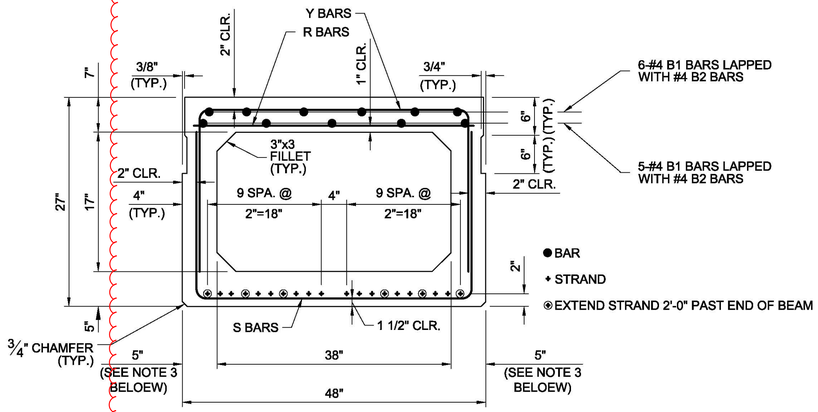
AREA

CLIENT DWG. NO.

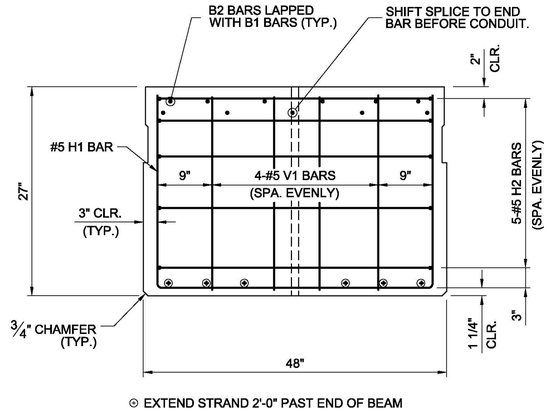
DRAWING NO. D-000-C-0305 REV. A

CAD FILE: P:\STLOUIS\50193231\501 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\BOX BEAM DETAILS.DWG
SAVED: 23-Feb-15 3:47 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

PANOCHE CREEK BRIDGE



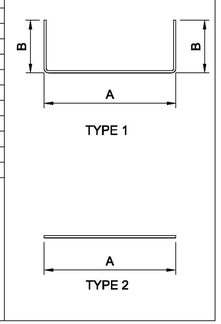
27X48 BOX BEAM



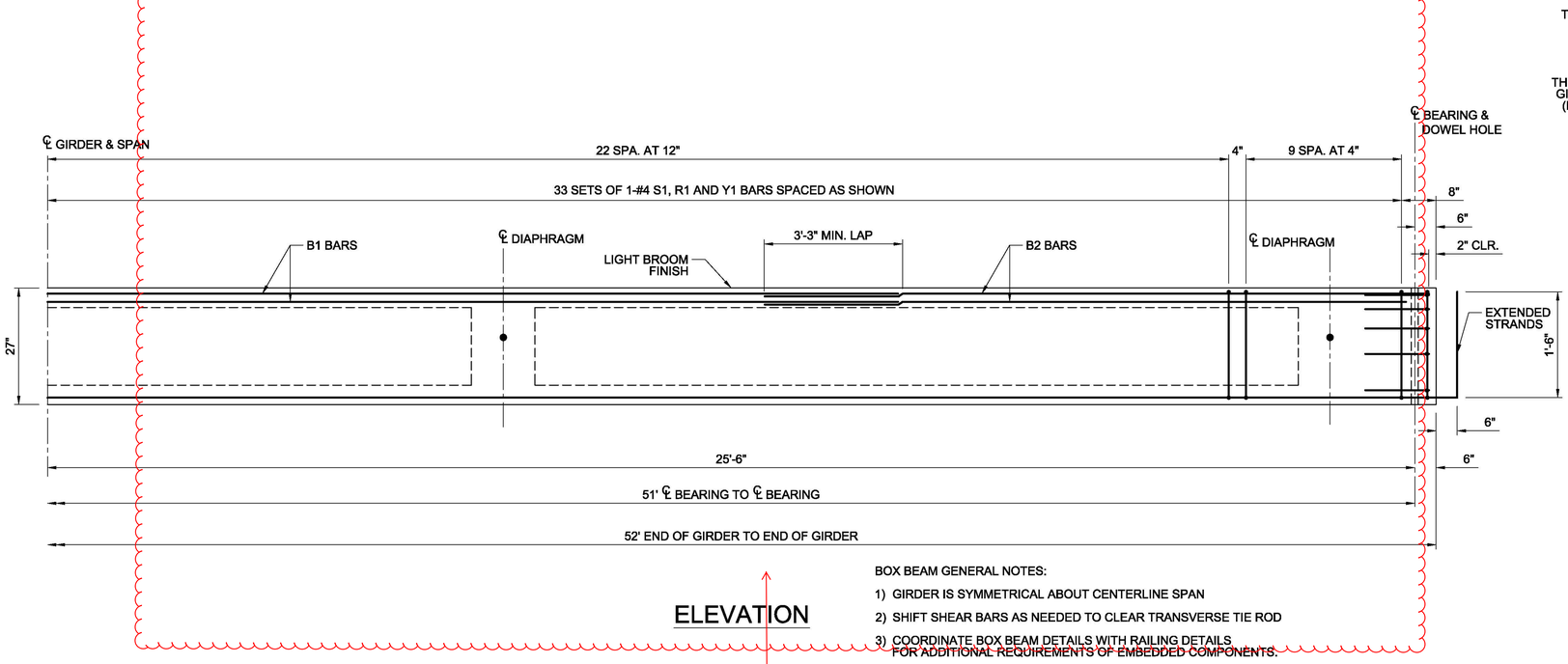
END VIEW OF BEAM

REINFORCING SCHEDULE

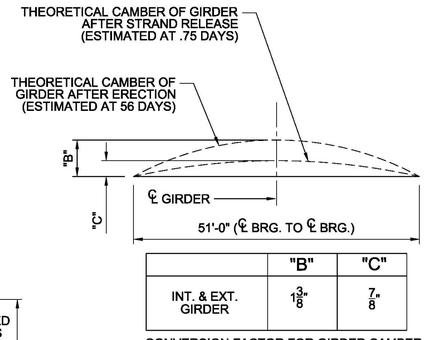
REINFORCING BARS								
SIZE	MARK	TYPE	A	B	C	D	E	BENDING DIAGRAMS
#4	R1	2	44"					
#4	S1	1	44"	21"				
#4	Y1	1	44"	20"				
#4	B1	2	30'-0"					
#4	B2	2	16'-0"					
#5	H1	1	42"	23"				
#5	H2	1	41"	18"				
#5	V1	2	23"					



FABRICATOR'S SHOP DRAWINGS SHALL SHOW COMPLETE DETAILS OF BEAM REINFORCING.



ELEVATION



	"B"	"C"
INT. & EXT. GIRDER	$1\frac{3}{8}$"	$\frac{7}{8}$"

CONVERSION FACTOR FOR GIRDER CAMBER
0.25 PT. = 0.7125 X 0.5 PT.

GIRDER CAMBER DIAGRAM

ALLOWABLE CAMBER VARIATION FROM DESIGN CAMBER = +/- 1/2" MAX.

ALLOWABLE DIFFERENTIAL CAMBER BETWEEN ADJACENT MEMBERS OF THE SAME DESIGN = 1/2" MAX. (INCLUDES DIFFERENTIAL CAMBER FOR ADJACENT BEAMS)

BOX BEAM GENERAL NOTES:

1) GIRDER IS SYMMETRICAL ABOUT CENTERLINE SPAN
2) SHIFT SHEAR BARS AS NEEDED TO CLEAR TRANSVERSE TIE ROD
3) COORDINATE BOX BEAM DETAILS WITH RAILING DETAILS FOR ADDITIONAL REQUIREMENTS OF EMBEDDED COMPONENTS.
4.) SHEAR KEY SHALL BE OMITTED AT EXTERIOR FACE OF EXTERIOR BEAMS.

NOTES
1. NOT TO SCALE

KEYPLAN

WORK SAFELY

The Panoche Creek bridge is no longer proposed.
REV.1 8-17-2015

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	

SCALE	PACKAGE CODE
NTS	

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
PANOCHE CREEK BOX BEAM

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0306

REV. A

CAD FILE: P:\ST\LOS\SOS\155253\15001 - AMEC POWER - PANOCHE VALLEY BRIDGES\D-CA\DWG\BOX BEAM DETAILS.DWG

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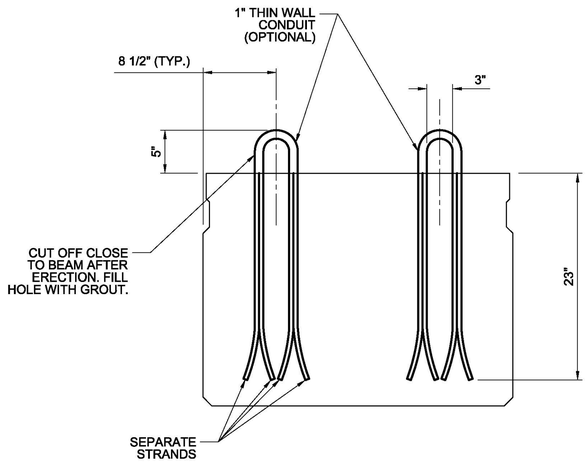
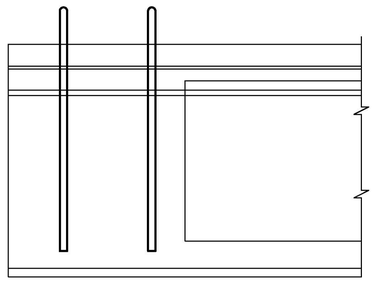
ARCH D-24x36



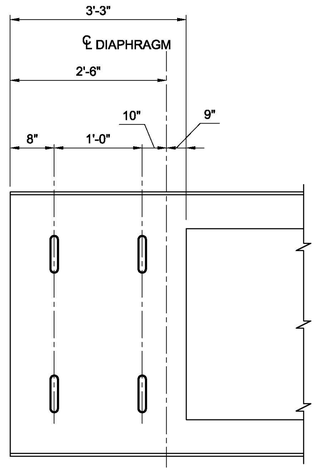
END VIEW

SHIFT LIFTING INSERTS SLIGHTLY WHERE NECESSARY TO CLEAR REINFORCEMENT, ANCHOR DOWEL HOLES OR TIE RODS

NOTE: ALL LIFTING INSERTS MUST BE UNIFORMLY ENGAGED DURING HANDLING.



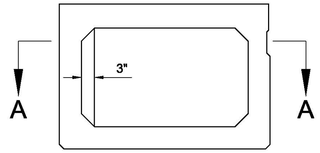
ELEVATION



PLAN

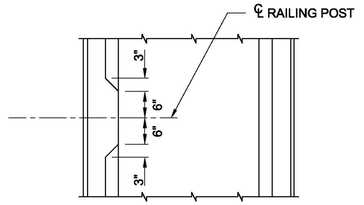
BEAM LIFTING INSERTS AT ABUTMENT

CONTRACTOR MAY PROPOSE AN ALTERNATE LIFT LUG SYSTEM TO BE APPROVED BY THE ENGINEER. SUBMIT COMPLETE DETAILS WITH BOX BEAM SHOP DRAWINGS.



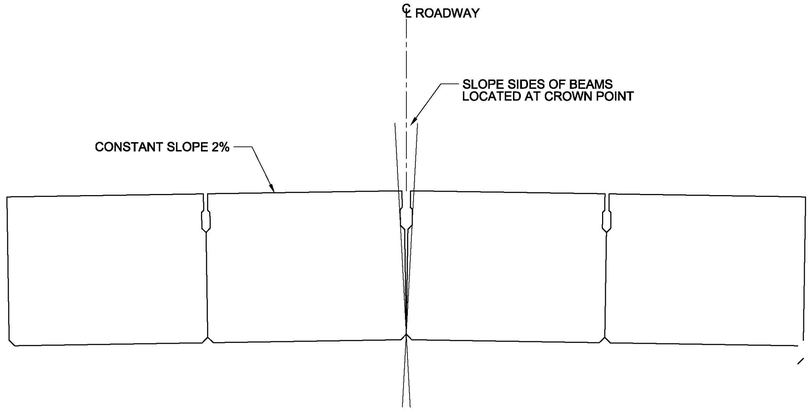
SECTION SHOWING WALL THICKENING AT RAILING ANCHORS

(REINFORCEMENT NOT SHOWN)

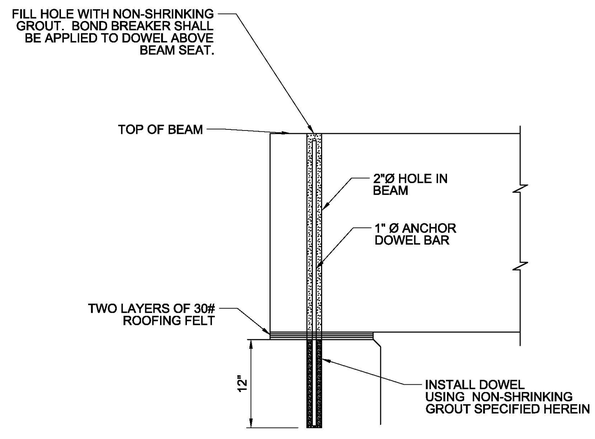


SECTION A-A

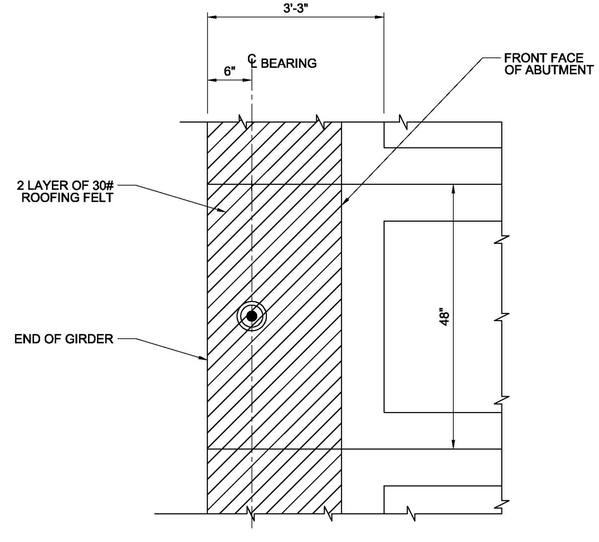
REFER TO RAILING SHEETS FOR ADDITIONAL RAILING DETAILS.



NORMAL CROWN TREATMENT AT ℄ ROADWAY



FIXED ANCHOR DOWELS



PLAN

WORK SAFELY

NOTES
1. NOT TO SCALE

KEYPLAN

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
NTS	

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
BOX BEAM DETAILS

AREA

CLIENT DWG. NO.

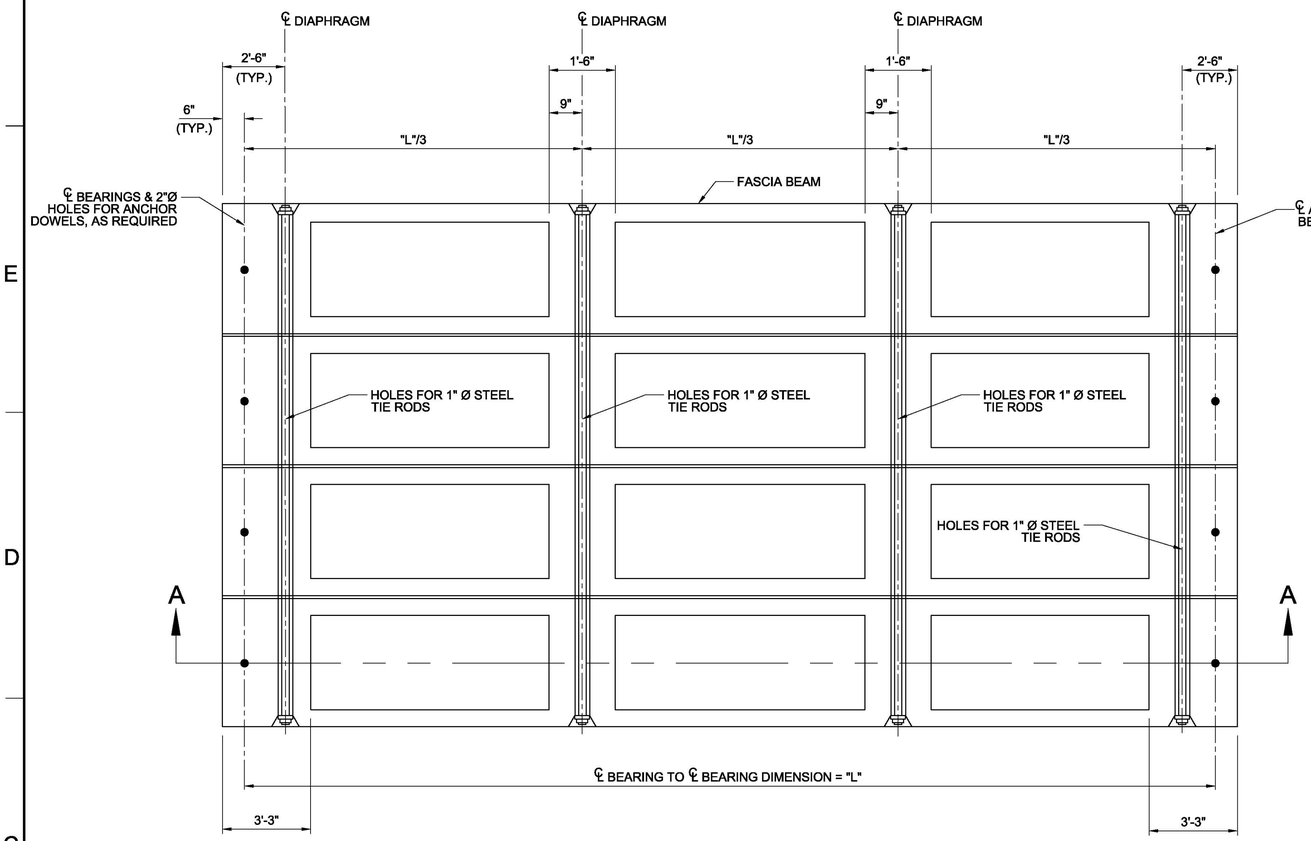
DRAWING NO. D-000-C-0307

REV. A

CAD FILE: P:\STLOUIS\OR\15\23115501 - AMEC POWER - PANOCHE VALLEY BR\DGDES\D-CA\D000 BEAM DETAILS.DWG

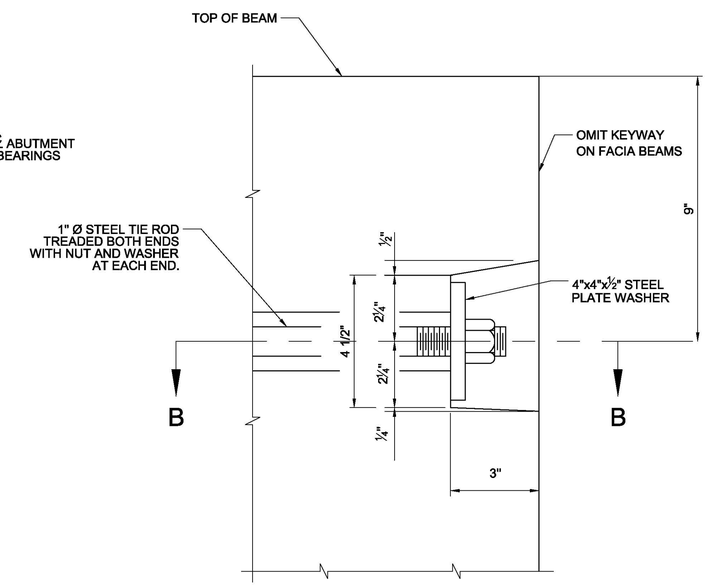
SAVED: 23-Feb-15 3:47 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L

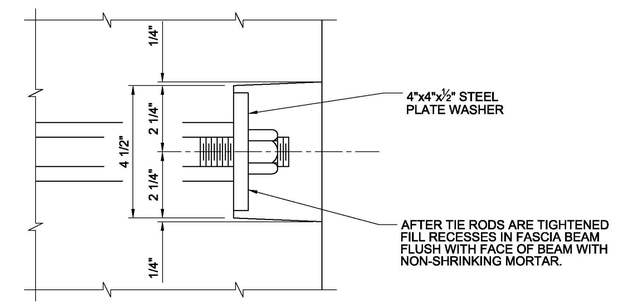
ARCH D-24x36



TYPICAL PLANS OF DIAPHRAGMS AND TRANSVERSE TIE RODS

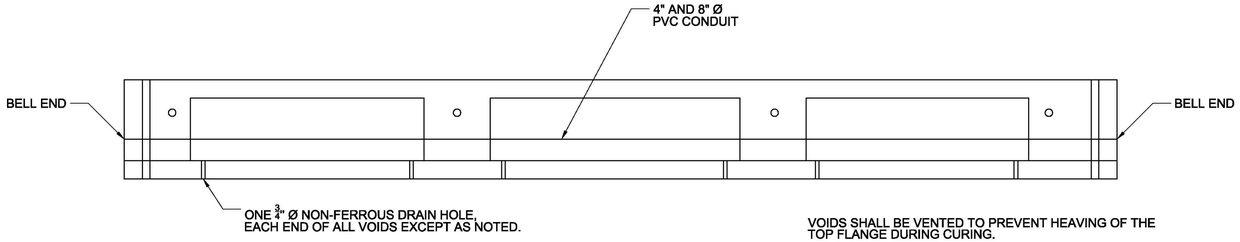
NOTE: OMIT KEYWAY ON OUTSIDE OF FASCIA BEAMS





SECTION B-B

NOTE:
HOLES IN BEAMS FOR TRANSVERSE TIE RODS SHALL BE NOT LESS THAN 2" O.C. AND NOT MORE THAN 3" O.C.



VOIDS SHALL BE VENTED TO PREVENT HEAVING OF THE TOP FLANGE DURING CURING.

CONDUIT ON LAS AGUILAS CREEK BRIDGE ONLY

SECTION A-A

END DETAILS OF TRANSVERSE TIE ROD ANCHORAGE AT FACIA GIRDER

NOTES
1. NOT TO SCALE

KEYPLAN

WORK SAFELY

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
NTS	

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
BOX BEAM DIAPHRAGM

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0308

REV. A

CAD FILE: P:\ST\LOA\200\183\261115001 - AMEC POWER - PANOCHE VALLEY BRIDGES\10-CAD\BOX BEAM DETAILS.DWG

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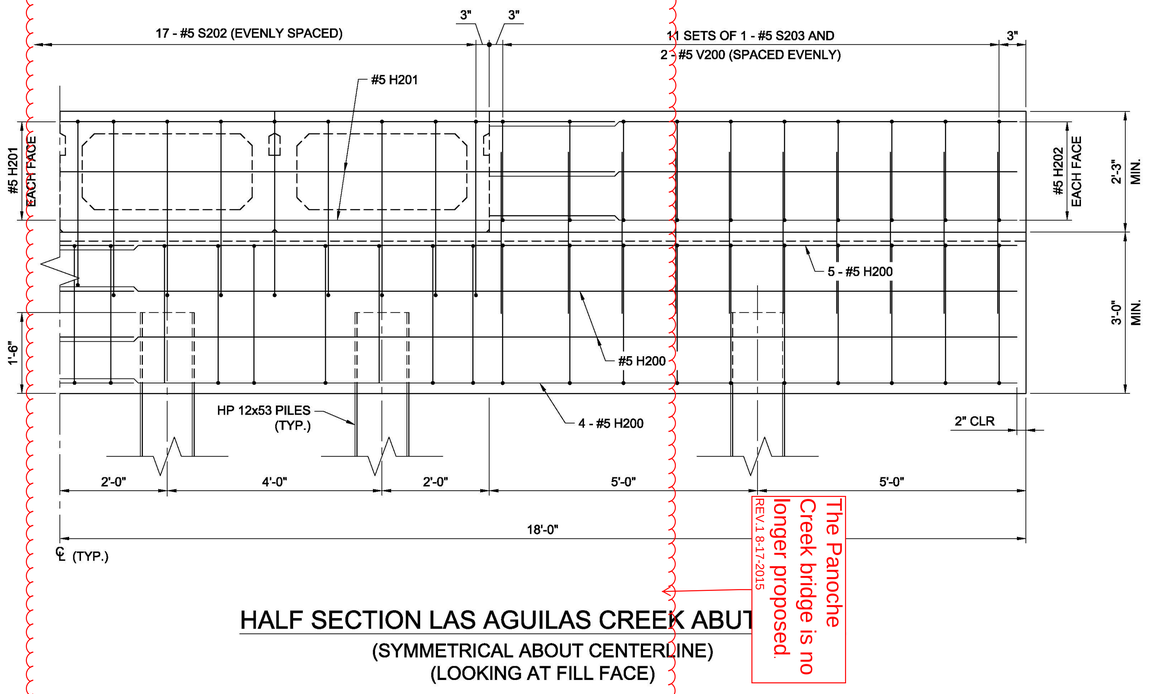
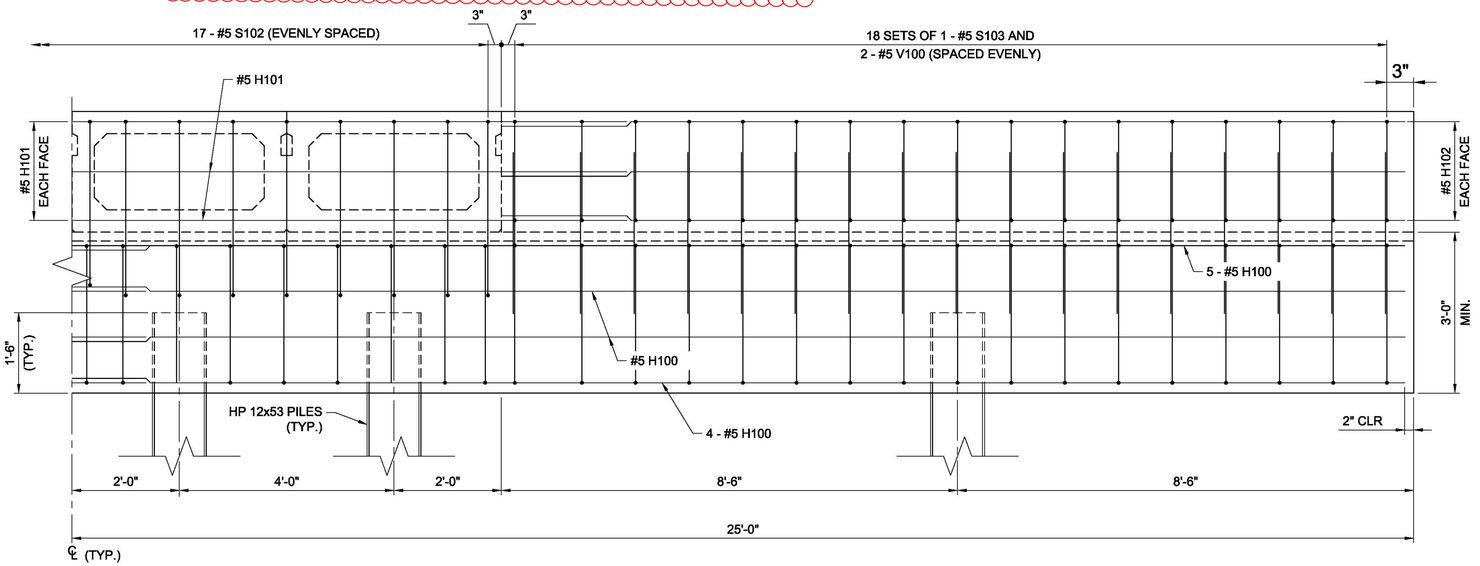
ARCH D-24X36



HALF SECTION LAS AGUILAS CREEK ABUT

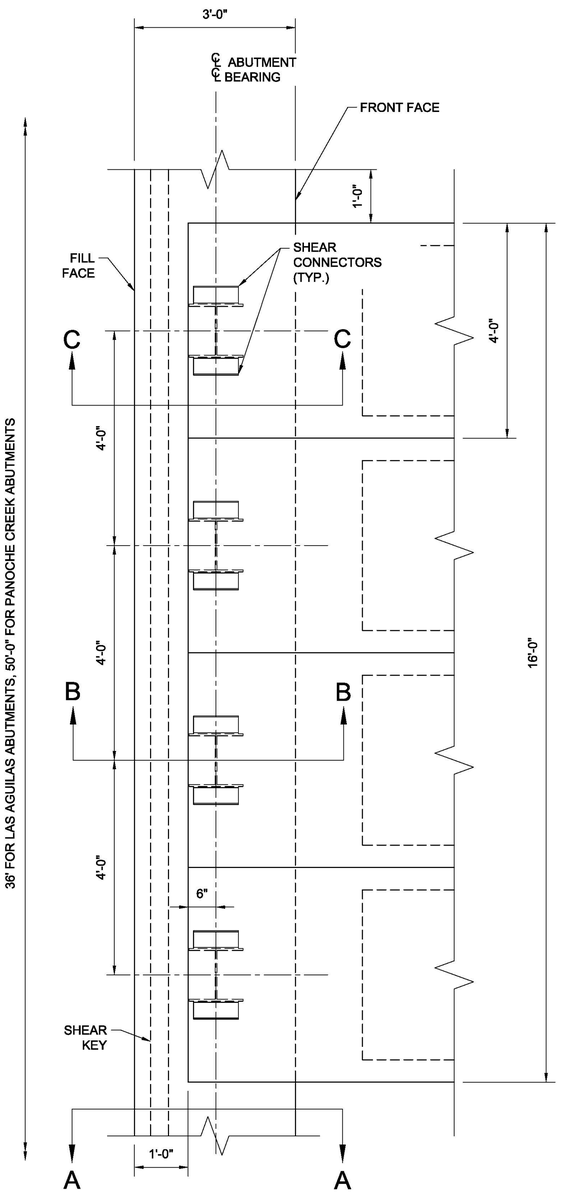
(SYMMETRICAL ABOUT CENTERLINE)
(LOOKING AT FILL FACE)

The Panoche Creek bridge is no longer proposed.
REV.1 8-17-2015



HALF SECTION PANOCHE CREEK ABUTMENTS

(SYMMETRICAL ABOUT CENTERLINE)
(LOOKING AT FILL FACE)



TYPICAL PARTIAL ABUTMENT PLAN

NOTES
1. NOT TO SCALE

KEYPLAN

WORK SAFELY

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

TMB	HRM
CLIENT PROJECT MGR.	DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
NTS	

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT: CIVIL
BRIDGE CROSSINGS
ABUTMENT DETAILS 1

AREA

CLIENT DWG. NO.

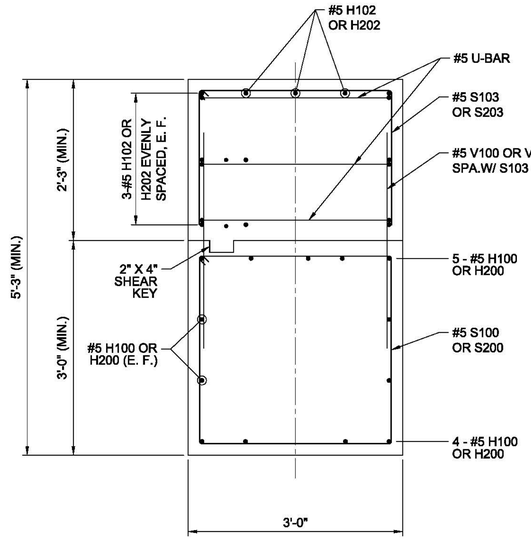
DRAWING NO. D-000-C-0309

REV. A

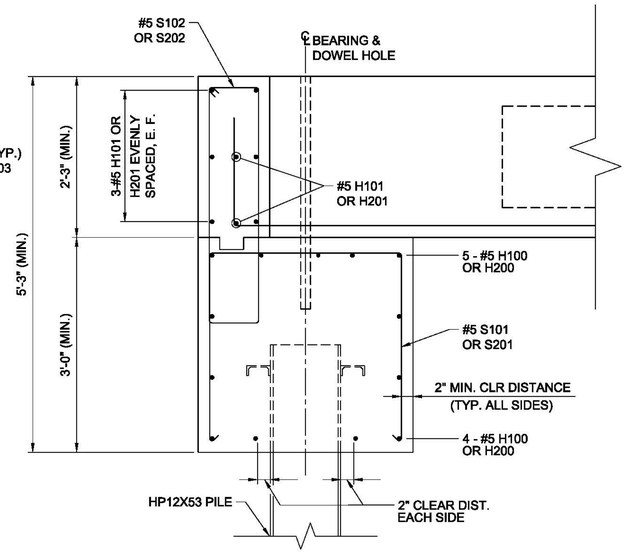
ARCH D-24x36

SAVED: 23-Feb-15 3:54 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

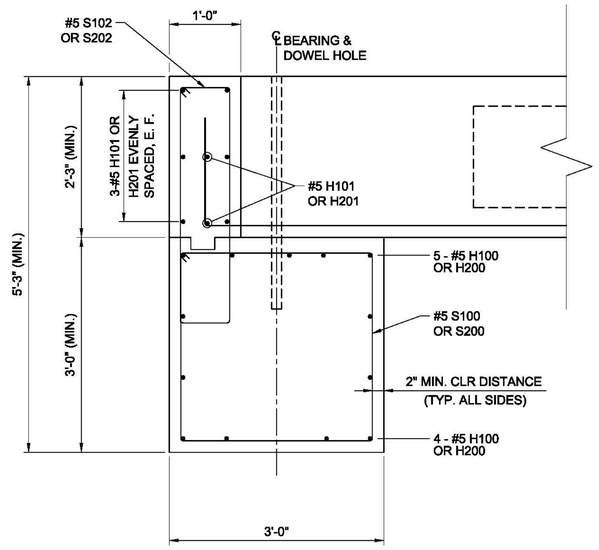
CAD FILE PATH:S:\CLOUDS\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\ABUTMENTS.DWG



SECTION A-A



SECTION B-B

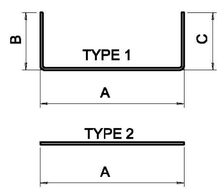


SECTION C-C

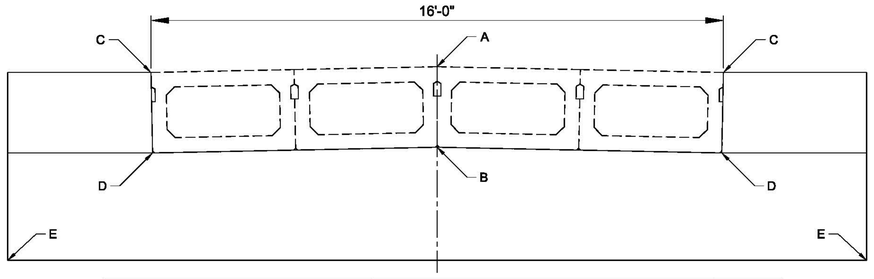
NOTES
1. NOT TO SCALE

SUMMARY OF QUANTITIES

REINFORCING BARS											
NUM.	SIZE	MARK	TYPE	A	B	C	D	E	LGTH	WHT.	BENDING DIAGRAMS



ABUTMENT ELEVATIONS



FILL FACE

LOCATION	A	B	C	D	E	STA
LOS AGULAS (DS)	1420.3	1418.03	1420.14	1417.89	1414.79	167+19
LOST AGULAS (US)	1418.13	1415.88	1417.97	1415.72	1412.72	167+75
PANOCHE	1353.5	1351.25	1353.34	1351.09	1348.09	1+73 & 2+27
NOTE: ELEVATIONS AT FILL FACE ARE FIXED						

FRONT FACE

LOCATION	A	B	C	D	E	STA
LOS AGULAS (DS)		1417.95		1417.79	1414.77	167+22
LOST AGULAS (US)		1416.02		1415.86	1412.72	167+72
PANOCHE		1351.27		1351.11	1348.09	1+76 & 2+24
NOTE: ELEVATIONS AT FRONT FACE MAY HAVE TO BE ADJUSTED FOR CAMBER SLOPE						

WORK SAFELY

KEYPLAN

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
NTS	

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
ABUTMENT DETAILS 2

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0310

REV. A

CAD FILE: P:\STUDIES\2015\335115001 - AMEC POWER - PANOCHE VALLEY BRIDGES\10-CAD\ABUTMENTS.DWG

SAVED: 23-Feb-15 3:54 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L

ARCH D-24x36

NOTES FOR GUARDRAIL SYSTEM

APPLICATION:
THIS RAILING SYSTEM HAS BEEN ACCEPTED TO THE TL-4 CRITERIA OF NCHRP REPORT 350.
A BRIDGE TERMINAL ASSEMBLY IS NOT PROVIDED AND FLARED ENDS ARE NOT CRASHWORTHHY.

DESIGN DATA:
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60,000 PSI
STEEL TUBING - MINIMUM YIELD STRENGTH = 46,000 PSI
ALL OTHER STEEL - MINIMUM YIELD STRENGTH = 50,000 PSI

MATERIALS:
FURNISH SHAPED STRUCTURAL TUBING ACCORDING ASTM A500, GRADE B.
FURNISH STRUCTURAL STEEL SHAPES, PLATES AND PLATE WASHERS ACCORDING TO ASTM GRADE 36 (A36)

GALVANIZING:
GALVANIZE ALL SHAPED STRUCTURAL TUBES, POSTS, PLATES, HARDWARE AND ACCESSORIES IN ACCORDANCE WITH ASTM A123. PRIOR TO GALVANIZING, ROUND ALL STRUCTURAL TUBING ENDS AND REMOVE BURRS FROM ALL STEEL TUBING, SHAPES AND PLATES.

TUBE SPLICES:
LOCATE SPLICES SO THAT EACH TUBE SEGMENT IS CONNECTED TO NOT LESS THAN TWO POSTS. STAGGER SPLICES IN THE TOP AND BOTTOM TUBES TO AVOID OCCURRENCES IN THE SAME PANEL.

FASTENERS:
FURNISH MATERIAL CONFORMING TO THE FOLLOWING:

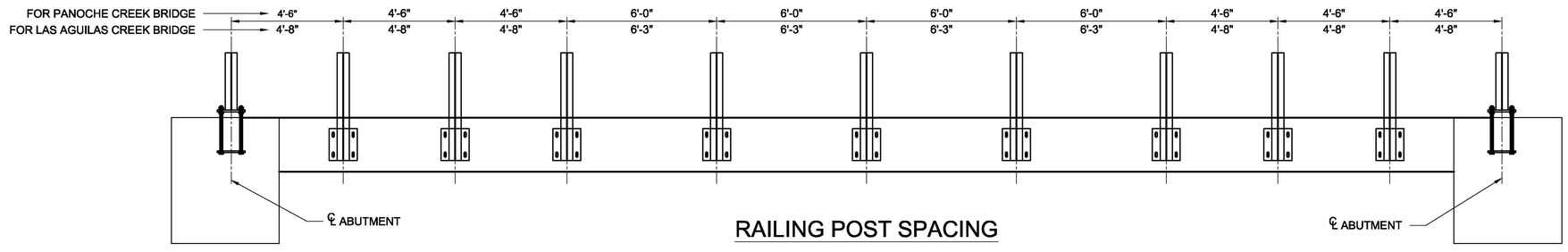
ALL ANCHOR BOLTS, SLEEVE NUTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A 449.

END WELDED STUDS SHALL CONFORM TO ASTM A108.

THE TUBE RAIL TO POST CONNECTION BOLTS AND HEX NUTS SHALL CONFORM TO ASTM A307.

THE HEX CAP SCREWS (BOLTS), HEX NUTS AND WASHERS SHALL CONFORM TO ASTM A 449.

NOTES
1. NOT TO SCALE



RAILING POST SPACING

WORK SAFELY

KEYPLAN

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

TMB	HRM
CLIENT PROJECT MGR.	DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO. 176055
ACTIVITY NO.
SCALE NTS
PACKAGE CODE

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
GUARDRAIL SYSTEM GENERAL NOTES

AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0311
REV. A

CAD FILE: P:\STLOUIS\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\GUARDRAIL DETAIL 1.DWG

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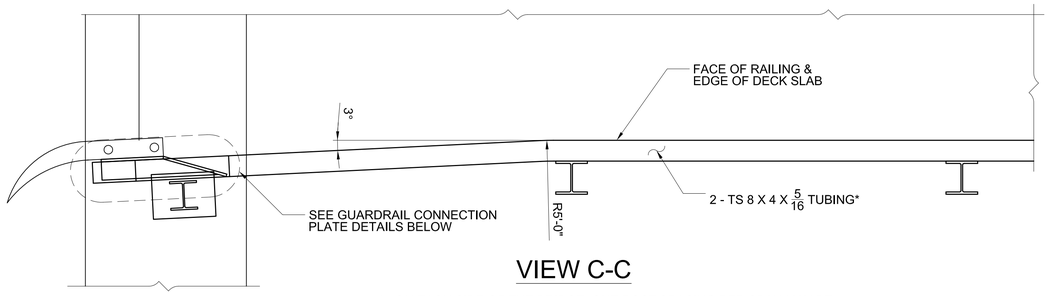
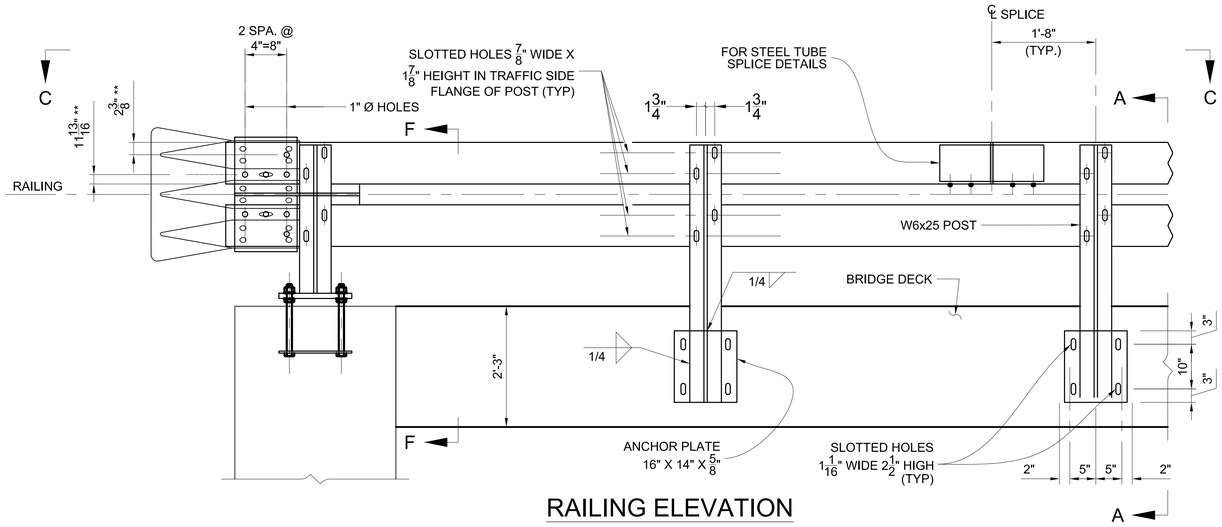
ARCH D-24x36



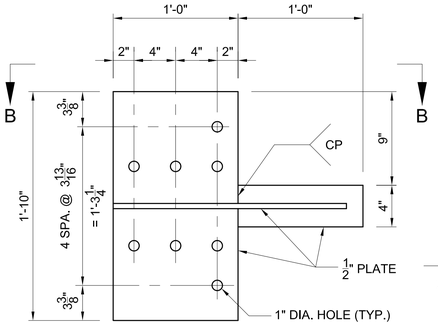
VIEW C-C

* - ON EACH SIDE OF THE BRIDGE, ONE POST SPACING PER SPAN MAY BE DECREASED TO ACCOUNT FOR ANY REQUIRED CONSTRUCTION CLEARANCES. NO POST SPACING SHALL EXCEED 6'-3".

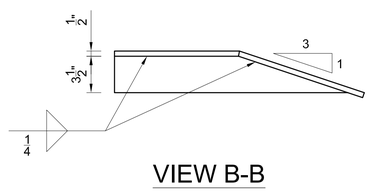
** - SYMMETRICAL ABOUT RAILING



RAILING ELEVATION

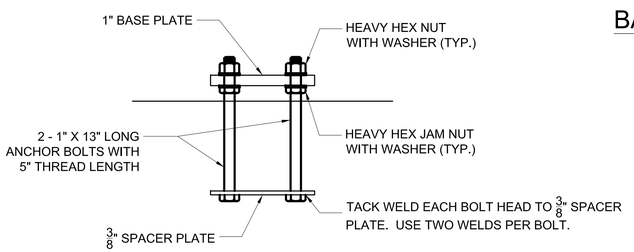


GUARDRAIL CONNECTION PLATE DETAILS



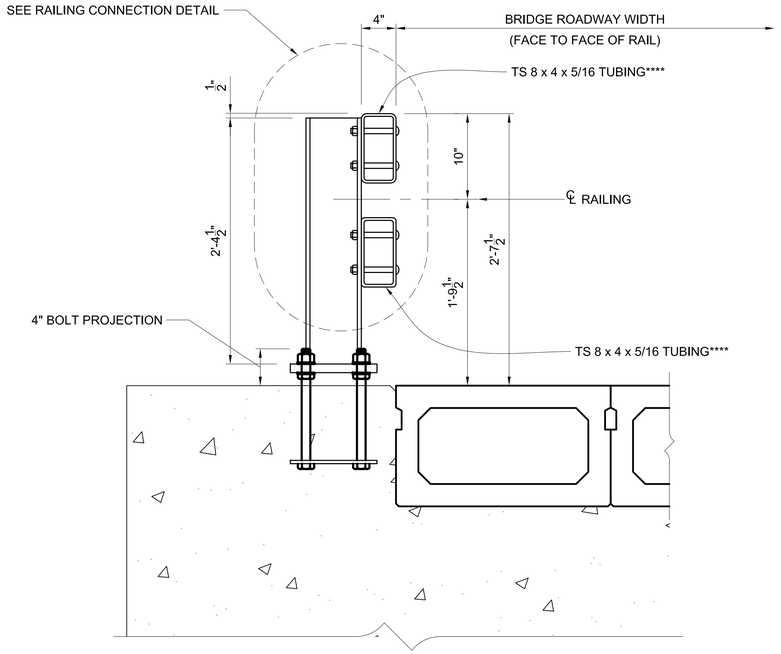
VIEW B-B

RAILING ELEVATION ON CONCRETE SLAB

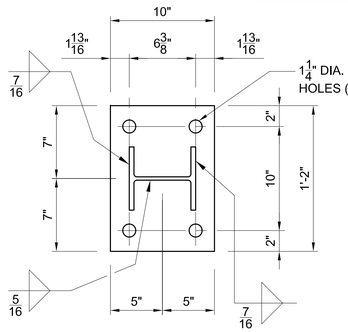


FLUSH MOUNTED POST ANCHOR DETAIL

(POST NOT SHOWN)

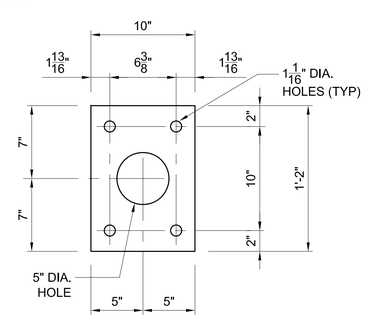


SECTION F-F



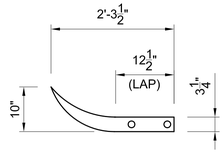
BASE PLATE

(1" PLATE)

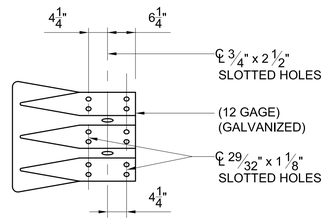


SPACER PLATE

(3/8" PLATE)



PLAN



ELEVATION

DETAIL OF FLARED END

WORK SAFELY

NOTES
NOT TO SCALE

KEYPLAN

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	

SCALE: NTS

PACKAGE CODE:

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT: CIVIL
BRIDGE CROSSINGS
GUARDRAIL SYSTEM DETAILS 1

AREA:
CLIENT DWG. NO.:
DRAWING NO.: C-000-D-0312
REV.: A

ARCH D-24x36

SAVED: 23-Feb-15 4:01 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L

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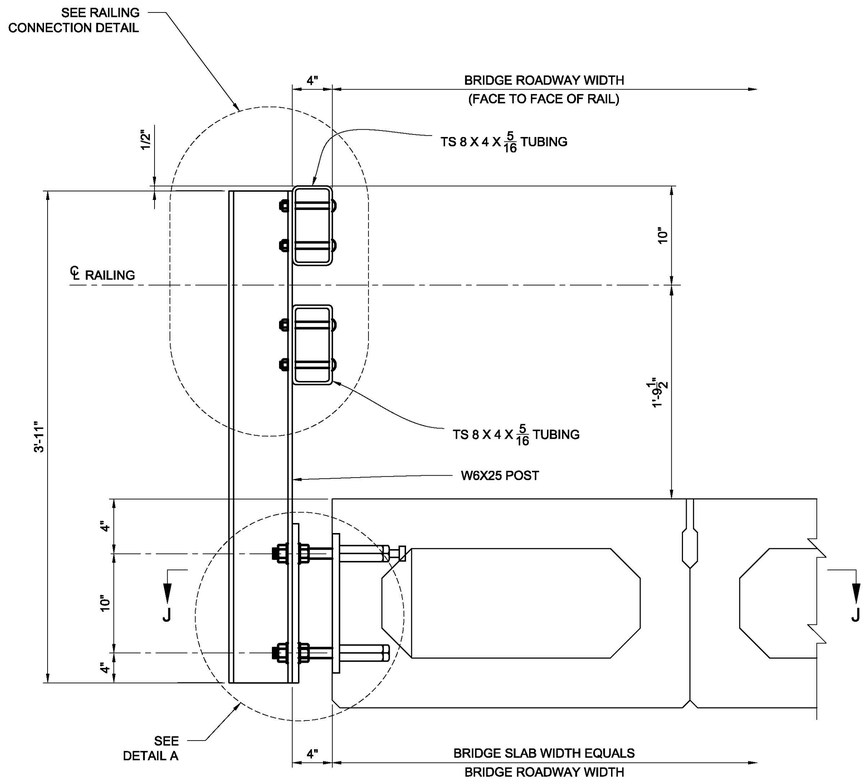
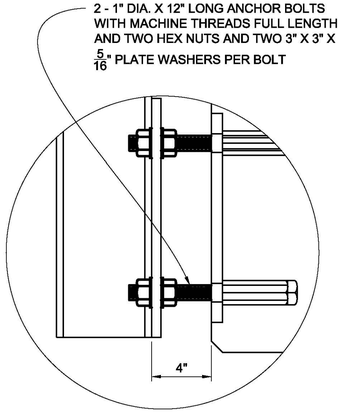
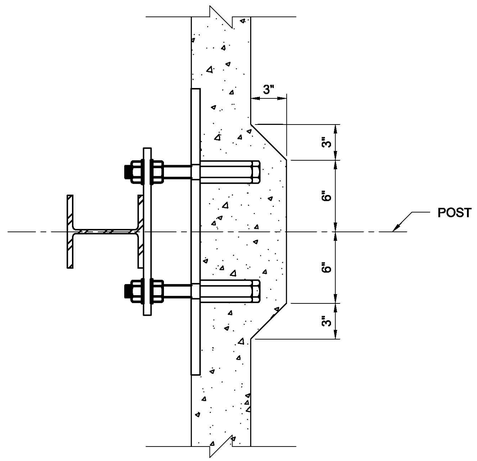
NOTES
NOT TO SCALE



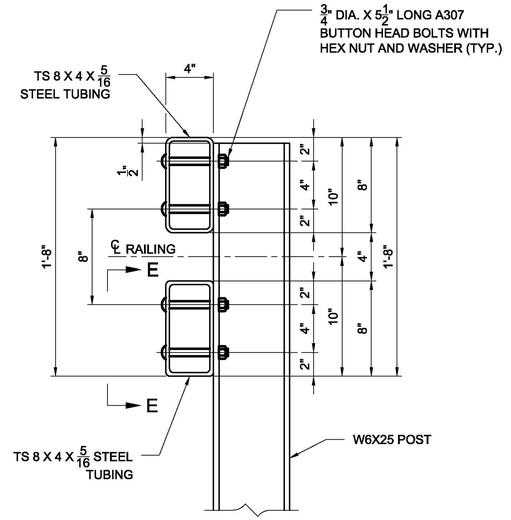
SECTION A-A



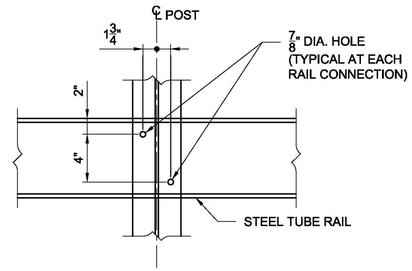
DETAIL A



SECTION J-J



RAILING CONNECTION DETAIL



VIEW E-E

KEYPLAN

WORK SAFELY

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
NTS	

	BY	DDMMMYY
DES	RMK	02/2015
DRN	JLJ	02/2015
CHK	JS	02/2015
APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
GUARDRAIL SYSTEM DETAILS 2

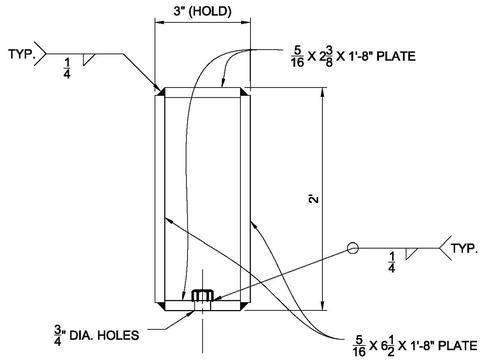
AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0313
REV. A

CAD FILE: P:\STUDIES\2015\125115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\GUARDRAIL DETAIL 1.DWG

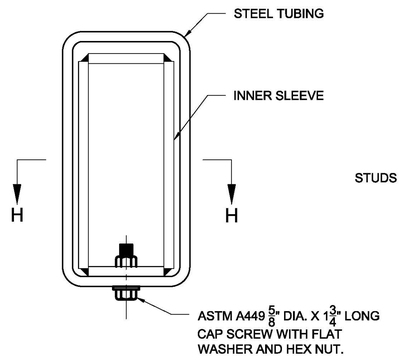
SAVED: 23-Feb-15 3:59 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

ARCH D-24x36

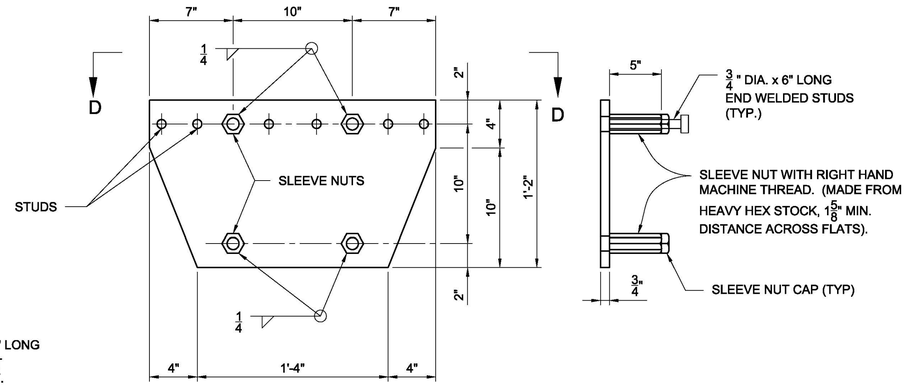
NOTES
NOT TO SCALE



FINISHED DIMENSIONS OF INNER SLEEVE



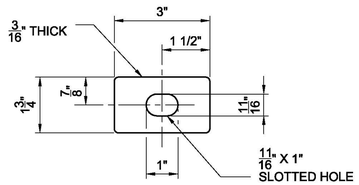
SECTION THRU SPLICE



ELEVATION

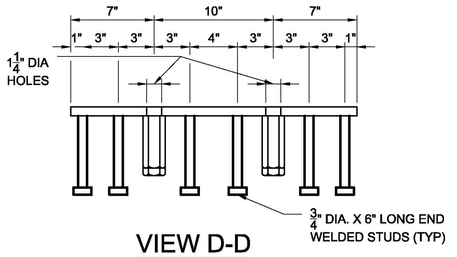
END VIEW

POST ANCHOR DEVICE

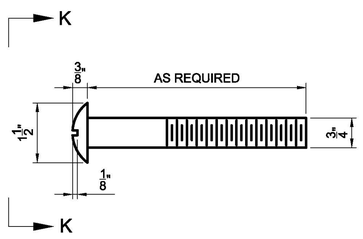


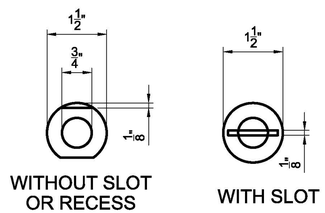
SPECIAL WASHER

PLACE WASHER BETWEEN BOLT HEAD AND FACE OF THRIE BEAM RAIL.



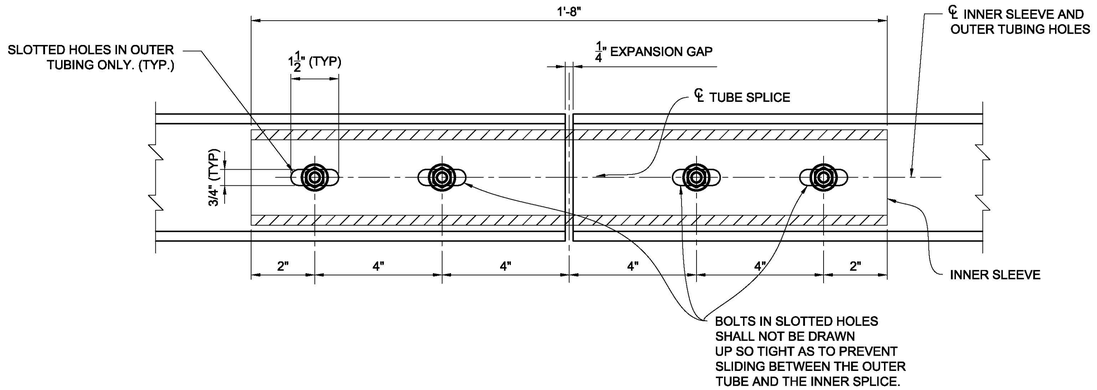
VIEW D-D





VIEW K-K

DETAIL OF 3/4" DIA. BUTTON HEAD BOLT



SECTION H-H

STEEL TUBE SPLICE DETAILS

WORK SAFELY

KEYPLAN

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM			

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	TMB	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	RMK	02/2015
SCALE	PACKAGE CODE	DRN	JLJ	02/2015
NTS		CHK	JS	02/2015
		APP	HRM	02/2015

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
BRIDGE CROSSINGS
GUARDRAIL SYSTEM DETAILS 3

AREA

CLIENT DWG. NO.

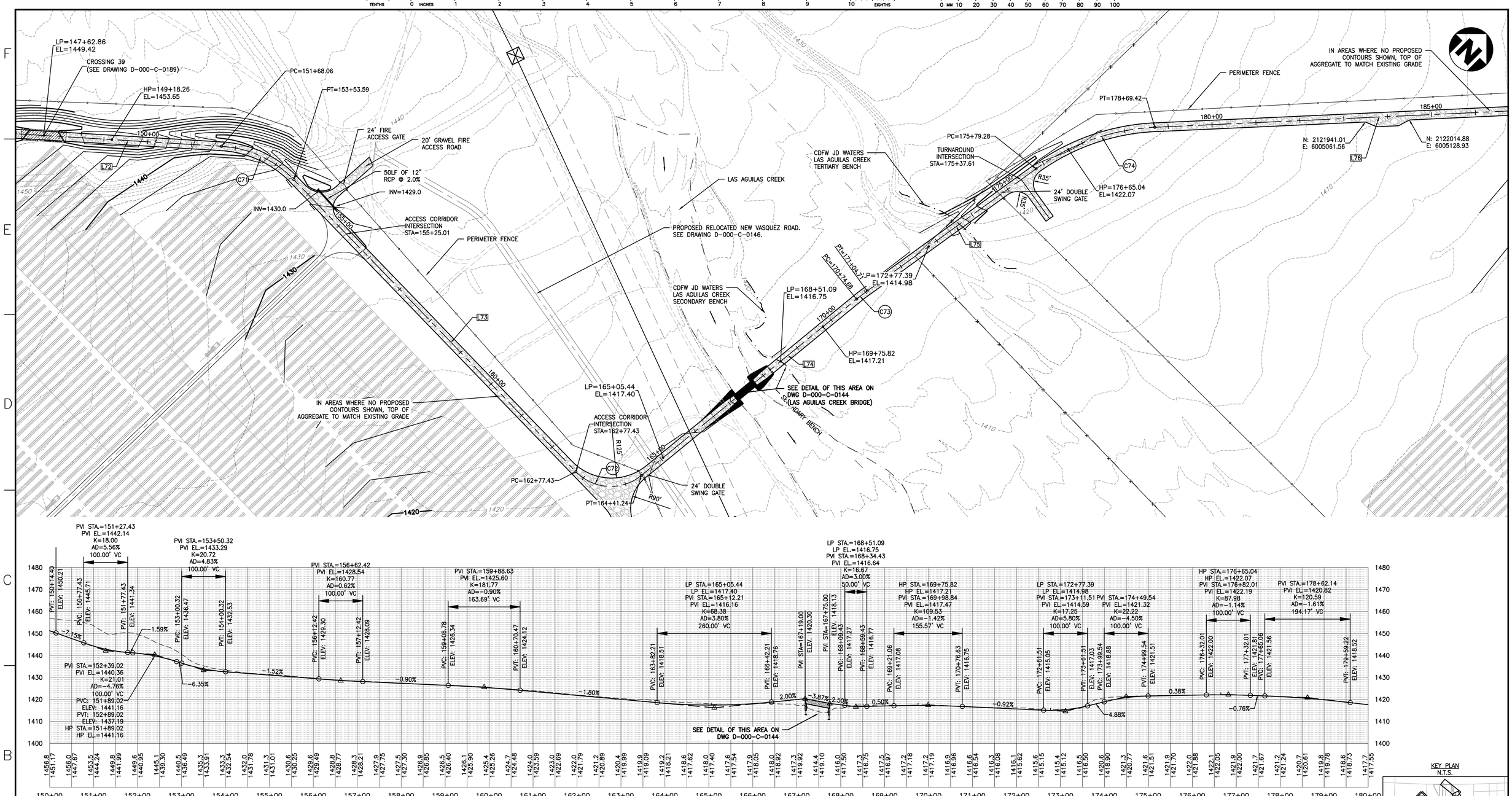
DRAWING NO. D-000-C-0314

REV. A

SAVED: 23-Feb-15 3:59 PM PLOTTED: 23-Feb-15 4:04 PM USER: JOHNSON, JEFFERY L.

DWG FILE P:\STDWGS\2015\3931159001 - AMEC POWER - PANOCHE VALLEY BRIDGES\10-CAD\GUARDRAIL DETAIL 1.DWG

ARCH D-24x36



IMPROVEMENT PLANS APPROVED:
SAN BENITO COUNTY DEPT OF PUBLIC WORKS

COUNTY ENGINEER DATE
(ARMAN NAZEMI C.E. 55927)

NOTES:
1. FOR TYPICAL ROAD SECTION AND DETAILS, SEE DRAWING D-000-C-0084.
2. FOR LINE AND CURVE GEOMETRY TABLES, SEE DRAWING D-000-C-0133.
3. FOR LOW WATER CROSSING TYPICAL DETAILS, SEE DRAWING D-000-C-0171.
4. FOR OPEN CHANNEL TYPICAL DETAILS, SEE DRAWING D-000-C-0152.
5. FOR SEDIMENT AND EROSION CONTROL NOTES AND DETAILS, SEE DRAWING D-000-C-0071 TO 0074.
6. FOR GENERAL DETAILS, SEE DRAWINGS D-000-C-0084 TO 0089.

0 20' 50' 100' 200'
1"=100'-0"

WORK SAFELY

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
D	26AUG15	ISSUED FOR INFORMATION	AFK	MTG	DRE	HRM	JCG	
C	03MAR15	ISSUED FOR PERMIT REVIEW; ADDED CDFW JURISDICTIONAL WATERS	JTW	LEC	DRE	HRM	JCG	
B	24FEB15	ISSUED FOR PERMIT REVIEW	JCS	LEC	DRE	HRM	JCG	
A	12JAN15	ISSUED FOR BID	JCS	MTG	LEC	HRM	JCG	

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

APPROVED FOR INFORMATION

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	DRE	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PANOCHE VALLEY SOLAR LLC

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	JCS	03JUN14
SCALE	PACKAGE CODE	DRN	JCS	03JUN14
AS SHOWN		CHK	MTG	12JAN15
		APP	LEC	12JAN15

SUBJECT
CIVIL
PERIMETER ROAD
PLAN AND PROFILE
WEST SIDE

AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0139
REV. D

SAVED: 21-Aug-15 4:44 PM PLOTTED: 26-Aug-15 10:43 AM USER: DELL_MATTHEW

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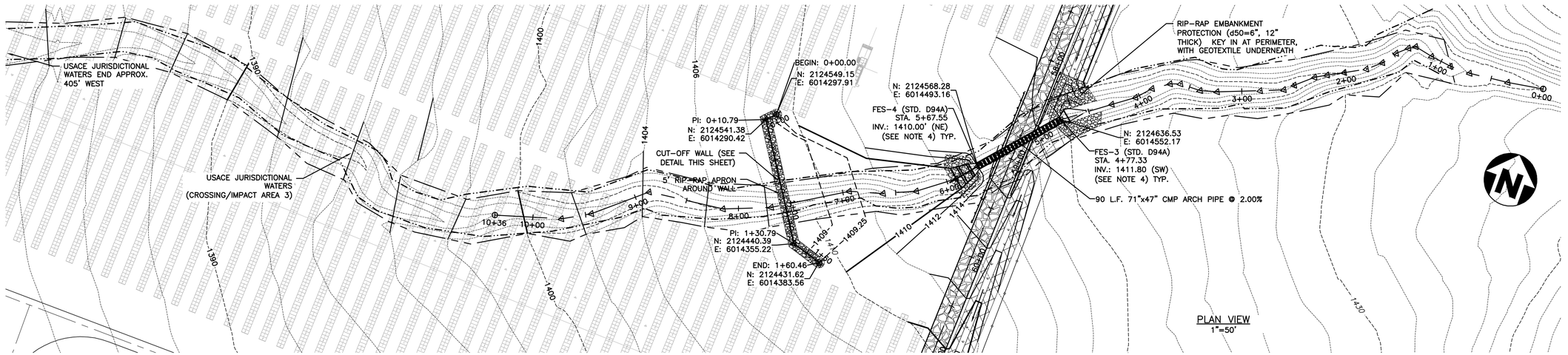
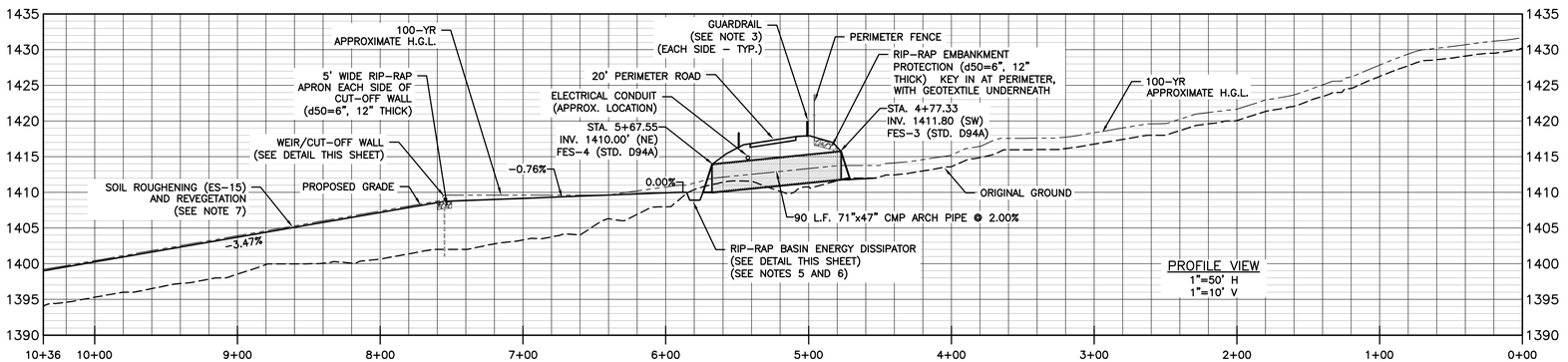
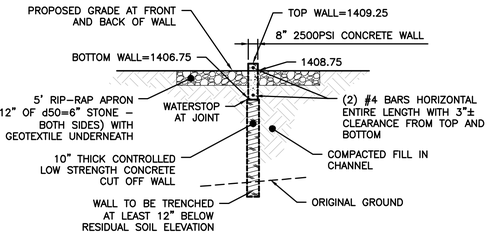
ARCH D-24x36



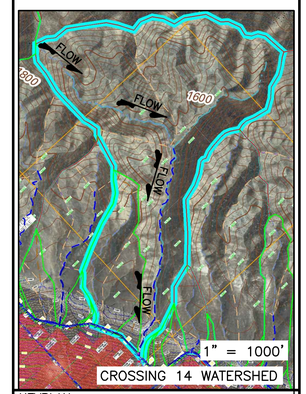




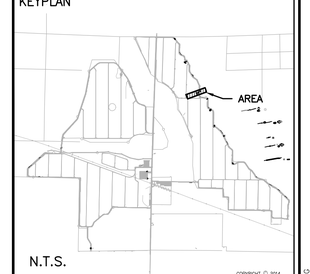
SECTION B–B
1"=5' H AND V

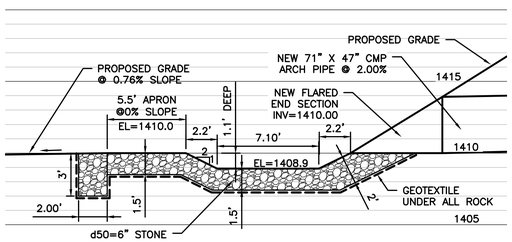
NOTES:
1. TOP OF WALL TO BE WITHIN 1/8" OF ELEVATION 1049.25
2. ALL VERTICAL SURFACES TO BE FORMED
3. VERTICAL SURFACES DOWN FROM 2" BELOW UNDISTURBED SOIL MAY BE PLACED AGAINST NEAT CUT IF APPROVED BY ENGINEER AND CONCRETE WILL NOT MORE THAN 1" BEYOND THEORETICAL FACE.
4. ALL EXPOSED SURFACES TO BE STRIPPED GREEN AND TROWEL FINISHED.
5. COMPACT GRADES ADJACENT TO WEIR TO BE 95% MODIFIED PROCTOR.

NOTES
1. FOR GENERAL NOTES SEE DRAWING D-000-C-0002.
2. ALL CONTRACTORS SHALL ADEHERE TO AND FOLLOW RULES AND GUIDELINES SET FORTH WITHIN THE LAKE AND STREAMBED ALTERATION AGREEMENT NOTIFICATION NO. XXXX-XXXX-XXXX-XX, ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE.
3. GUARDRAIL SHALL BE MIDWEST GUARDRAIL SYSTEM STANDARD RAILING SECTION (STEEL POST WITH NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCK) IN ACCORDANCE WITH STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARDS. SEE DWG. D-000-C-0087.
4. THE FLARED END SECTION, FES, OF THE CMP PIPE ARCH SHALL BE TYPE III IN ACCORDANCE WITH CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD, D94A. SEE DWG. D-000-C-0086.
5. HYDRAULIC ANALYSIS OF THE CMP PIPE ARCH AND RIP RAP BASIN ENERGY DISSIPATOR COMPLETED WITH THE USE OF THE FEDERAL HIGHWAY ADMINISTRATION PROVIDED SOFTWARE, HY-8 VERSION 7.30.
6. THE RIP RAP BASIN ENERGY DISSIPATOR IS DESIGNED IN ACCORDANCE WITH HYDROLOGIC ENGINEERING CIRCULAR, HEC 14, CHAPTER 10, SECTION 10.1 RIP RAP BASIN.
7. RE-VEGETATION OF THE BACKFILLED EXISTING CHANNEL IS PARAMOUNT. CONTRACTOR SHALL ENSURE THAT AREA OF BACKFILL HAS A GOOD STAND OF VEGETATION.
   RE-VEGETATION OF THE OPEN SPACE JUST DOWN STREAM OF THE PROPOSED WEIR SHALL ALSO BE OF A GOOD VEGETATED STAND. CONTRACTOR AND OPERATIONS AND MAINTENANCE SHALL NOT MOW THE OPEN AREA DOWNSTREAM OF THE WEIR UNLESS OTHERWISE DIRECTED BY CALFIRE OR THE LOCAL AUTHORITIES.
8. FOR AREAS AND VOLUMES OF CIVIL SITE DEVELOPMENT WORK WITHIN THE FULL EXTENTS OF THE USACE OHWM AND WITHIN THE TOP OF BANK PLEASE REFER TO THE 404(b)(1) DECEMBER 2014.
9. CROSSING 14 HYDROLOGY CONSISTS OF THE FOLLOWING TO THE CMP PIPE ARCH
   - DRAINAGE AREA = 208.1 ACRES
   - CONSISTS OF THREE SUB-BASINS AT 32.5, 2.8, AND 172.8 ACRES
   - COMPOSITE CN = 69
     i.SOILS CONSISTS OF HYDRAULIC SOIL GROUPS A&B
   - TIME OF CONCENTRATION = 18.4 min.
     i.TIME OF REACH = 2.5 min.
   - PEAK FLOW RATE DETERMINED BY SCS METHOD, TIME INTERVAL 2 min. STORM DISTRIBUTION, TYPE 1
   - 100-YR PEAK FLOW RATE = 62.71 CFS
10. BROAD CRESTED WEIR HYDRAULIC INFORMATION CONSISTS OF THE FOLLOWING, VALUES, IN ACCORDANCE WITH THE 100 YR FLOW RATE + 2.29 CFS TO ACCOUNT FOR ADDITIONAL RUNOFF DOWNSTREAM FROM CMP PIPE ARCH;
    - FLOW RATE FOR WEIR CALCULATIONS = 65 CFS
    - BROAD CRESTED WEIR COEFFICENT, C = 2.78
    - FLOW DEPTH JUST UPSTREAM AND ABOVE TOP OF WEIR, H = 0.33'
    - CRITICAL FLOW DEPTH ALONG BROAD CRESTED WEIR, dC = 0.20'
    - BRINK FLOW DEPTH ALONG BROAD CRESTED WEIR JUST PRIOR TO NAPPE, dB = 0.14'
    - HORIZONTAL LENGTH OF NAPPE FROM BROAD CRESTED WEIR = 0.28'
11. FLOW DEPTHS DOWNSTREAM OF BROAD CRESTED WEIR ≤ 0.2' AT Q = 65 CFS, V ≤ 2.0 FT/S

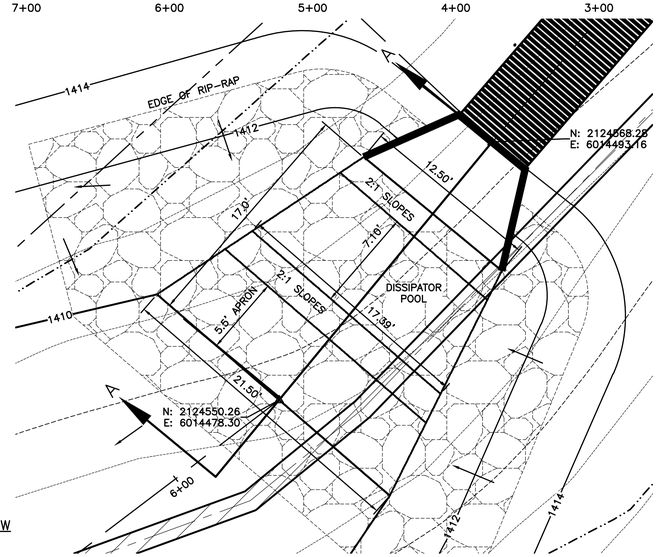


KEYPLAN

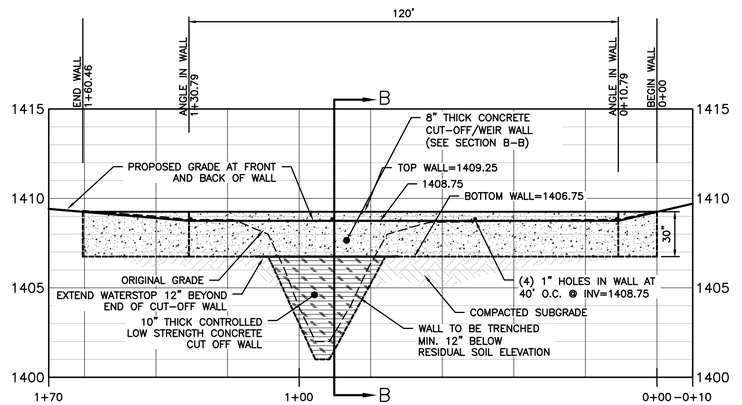




SECTION A–A
1"=5' H AND V



PLAN VIEW
1"=5'



WEIR/CUT OFF WALL PROFILE
1"=20' H
1"=4' V

WORK SAFELY

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
C	24FEB15	ISSUED FOR PERMIT REVIEW	JCS	LEC	DRE	HRM	JCG	
B	12JAN14	ISSUED FOR BID	JCS	MTG	LEC	HRM	JCG	
A	11DEC14	ISSUED FOR INFORMATION	JCS	MBE				

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	DRE	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
AS SHOWN	

	BY	DDMMMYY
DES	MTG	01JUL14
DRN	JCS	01JUL14
CHK	MTG	12JAN15
APP	LEC	12JAN15

PANOCHE VALLEY SOLAR LLC

amec

SUBJECT
CIVIL
PERIMETER ROAD DETAILS
CROSSING 14

AREA

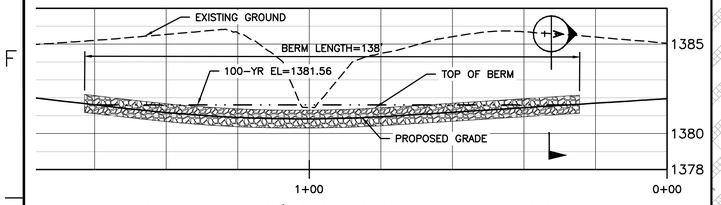
CLIENT DWG. NO.

DRAWING NO. D-000-C-0155 REV. C

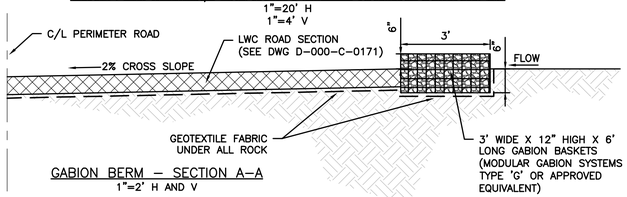
SAVED: 24-Feb-15 8:47 AM PLOTTED: 24-Feb-15 3:34 PM USER: STEADHAM, CHARLES

CAD FILE: P:\CAD\CIVIL\D-000-C-0154 - 0160.DWG

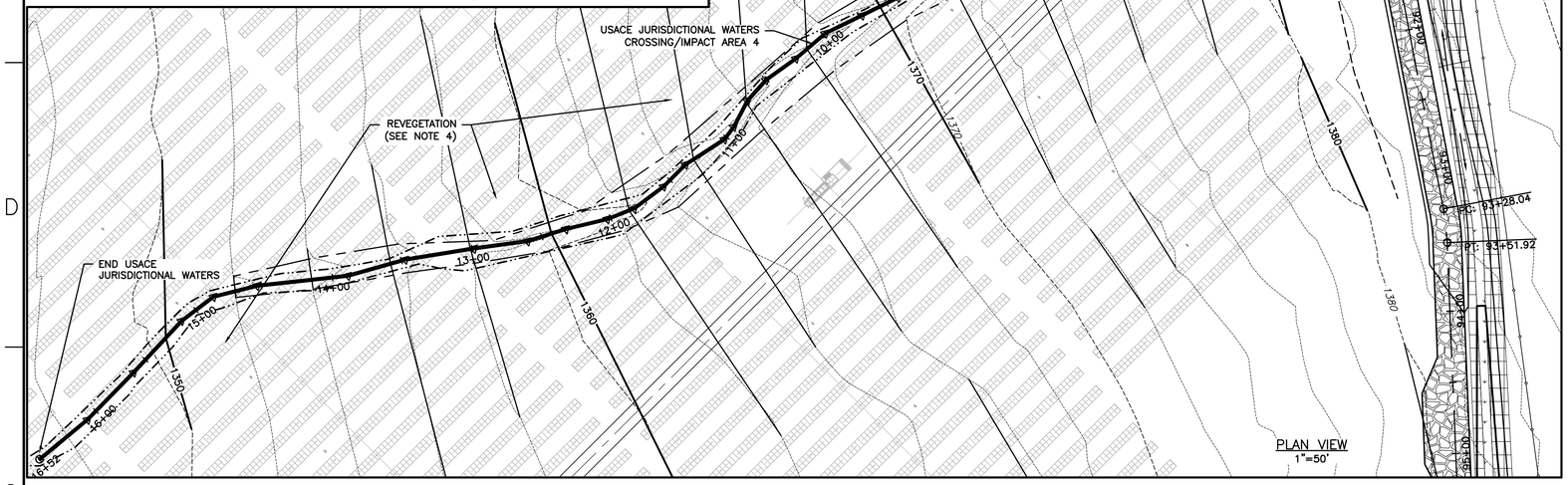
ARCH D - 24x36



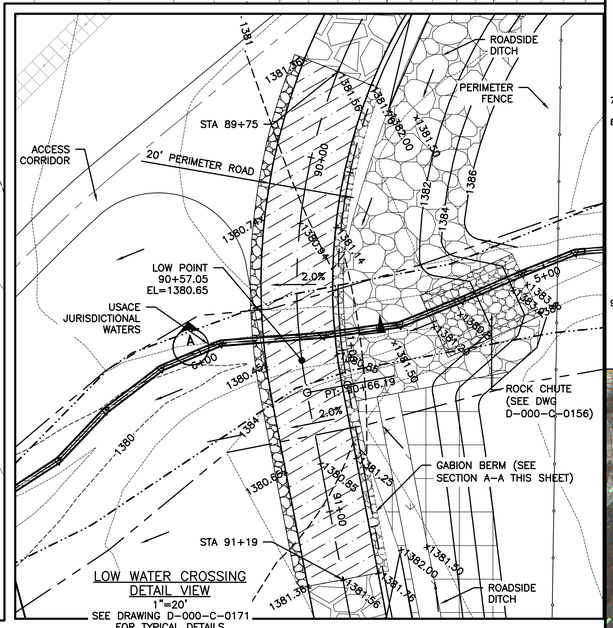
PROFILE VIEW AT C/L GABION BERM – LOOKING DOWNSTREAM
1"=20' H
1"=4' V



GABION BERM – SECTION A–A
1"=2' H AND V



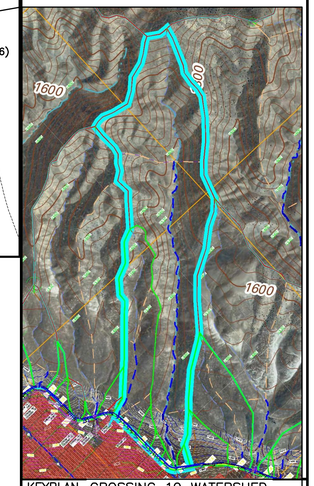
PLAN VIEW
1"=50'



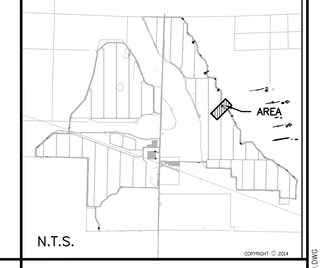
LOW WATER CROSSING
DETAIL VIEW
1"=20'
SEE DRAWING D-000-C-0171
FOR TYPICAL DETAILS

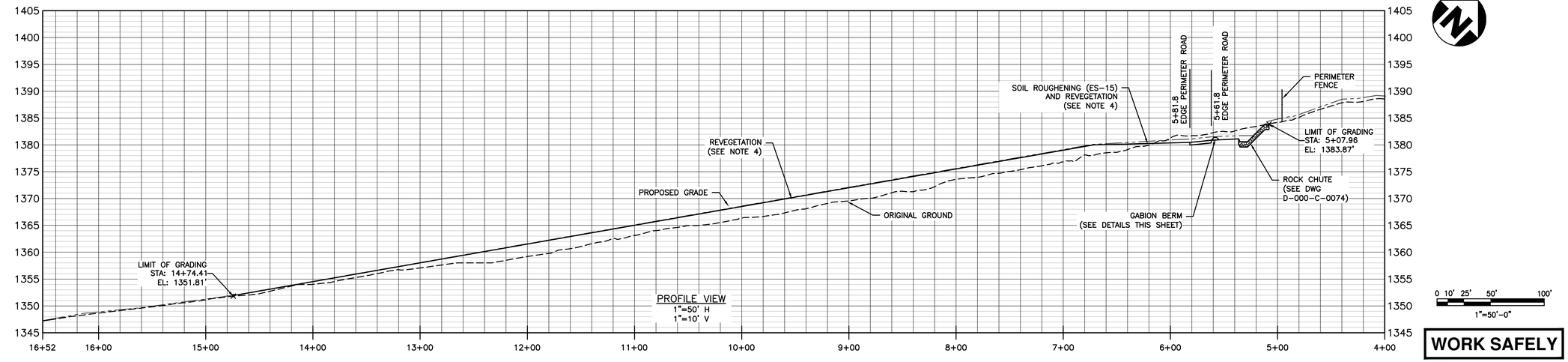
NOTES

1. FOR GENERAL NOTES SEE DRAWING D-000-C-0002.
2. ALL CONTRACTORS SHALL ADEHERE TO AND FOLLOW RULES AND GUIDELINES SET FORTH WITHIN THE LAKE AND STREAMBED ALTERATION AGREEMENT NOTIFICATION NO. XXXX-XXXX-XXXX-XX, ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE.
3. HYDRAULIC ANALYSIS OF THE ROCK LINED LOW WATER CROSSING IS DESIGNED IN ACCORDANCE WITH THE HYDROLOGIC ENGINEERING CIRCULAR, HEC 15, CHAPTER 6, RIP RAP, COBBLE, AND GRAVEL LINING DESIGN AND USDA FOREST SERVICE TECHNICAL MANUAL.
4. RE-VEGETATION OF THE BACKFILLED EXISTING CHANNEL IS PARAMOUNT. CONTRACTOR SHALL ENSURE THAT AREA OF BACKFILL HAS A GOOD STAND OF VEGETATION. RE-VEGETATION OF THE OPEN SPACE JUST DOWN STREAM OF THE LOW WATER CROSSING SHALL ALSO BE OF A GOOD VEGETATED STAND. CONTRACTOR AND OPERATIONS AND MAINTENANCE SHALL NOT MOW THE OPEN AREA DOWNSTREAM OF THE LOW WATER CROSSING UNLESS OTHERWISE DIRECTED BY CALFIRE OR THE LOCAL AUTHORITIES.
5. FOR AREAS AND VOLUMES OF CIVIL SITE DEVELOPMENT WORK WITHIN THE FULL EXTENTS OF THE USACE OHWM AND WITHIN THE TOP OF BANK PLEASE REFER TO THE 404(b)(1) DECEMBER 2014.
6. CROSSING 19 HYDROLOGY CONSISTS OF THE FOLLOWING TO THE CMP PIPE ARCH
   - DRAINAGE AREA = 114.5 ACRES
   - CONSISTS OF THREE SUB-BASINS AT 25.4, 0.8, AND 88.3 ACRES
   - COMPOSITE CN = 71, SOILS CONSISTS OF HYDRAULIC SOIL GROUPS A&B
   - TIME OF CONCENTRATION = 14.6 min.
   - PEAK FLOW RATE DETERMINED BY SCS METHOD, TIME INTERVAL 1 min. STORM DISTRIBUTION, TYPE 1
7. FLOW DEPTHS AT OUTLET OF ROCK CHUTE ≤ 0.18' AT Q =35.58 CFS, V ≤ 1.53 FT/S
8. BROAD CRESTED WEIR HYDRAULIC CALCULATIONS FOR THE SMALL ROCK BERM CONSISTS OF THE FOLLOWING, VALUES, IN ACCORDANCE WITH THE 100 YR FLOW RATE ;
   - FLOW RATE FOR WEIR CALCULATIONS = 35.58 CFS
   - BROAD CRESTED WEIR COEFFICENT, C = 2.72
   - FLOW DEPTH JUST UPSTREAM AND ABOVE TOP OF WEIR, H = 0.21'
   - CRITICAL FLOW D. AT BROADCRESTED WEIR, dC = 0.15'
   - BRINK FLOW DEPTH ALONG BROAD CRESTED WEIR JUST PRIOR TO NAPPE, dB = 0.11'
   - HORIZONTAL LENGTH OF NAPPE FROM BROAD CRESTED WEIR = 0.24'
   - VELOCITY ACROSS THE WEIR IS AT 1.35 FT/S
9. FLOW DEPTHS ACROSS THE ROCK LOW WATER CROSSING ≤ 0.63' AT Q = 35.58 CFS, V ≤ 1.39 FT/S



KEYPLAN CROSSING 19 WATERSHED





PROFILE VIEW
1"=50' H
1"=10' V

0 10' 25' 50' 100'
1"=50'-0"

WORK SAFELY

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
D	24FEB15	ISSUED FOR PERMIT REVIEW	JCS	LEC	DRE	HRM	JCG	
C	30JAN15	REVISED FOR BID	JCS	MTG	LEC	HRM	JCG	
B	12JAN14	ISSUED FOR BID	JCS	MTG	LEC	HRM	JCG	
A	11DEC14	ISSUED FOR INFORMATION	JCS	MBE				

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP

REF	NUMBER	TITLE

REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	DRE	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
AS SHOWN	

	BY	DDMMMYY
DES	MTG	01JUL14
DRN	JCS	01JUL14
CHK	MTG	12JAN15
APP	LEC	12JAN15

PANOCHE VALLEY SOLAR LLC

amec

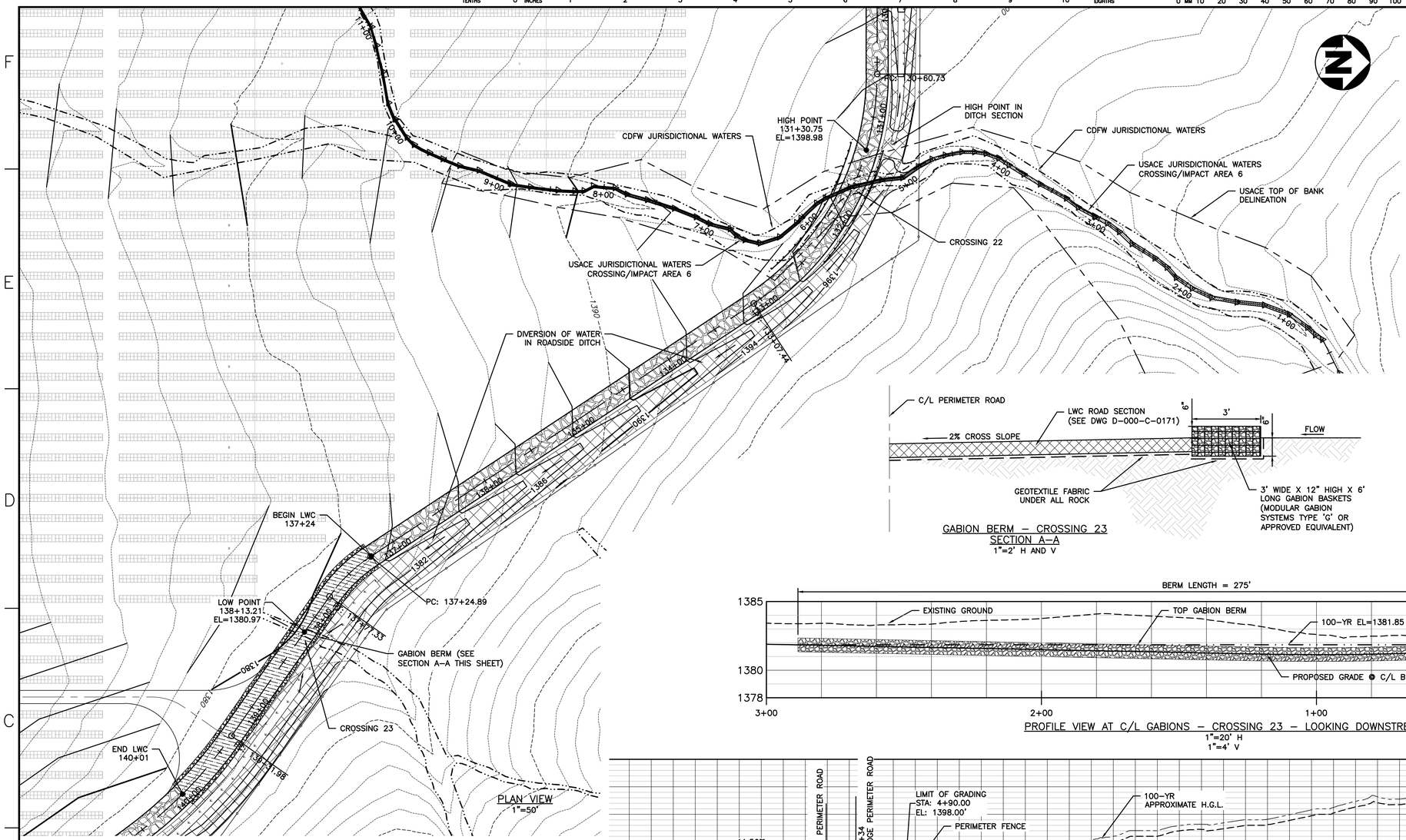
SUBJECT
CIVIL
PERIMETER ROAD DETAILS
CROSSING 19

AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0158
REV. D

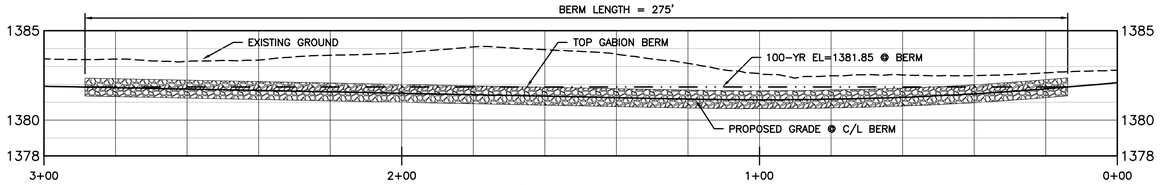
ARCH D-24x36

CAD FILE: P:\CAD\CIVIL\D-000-C-0158 - 01160.DWG

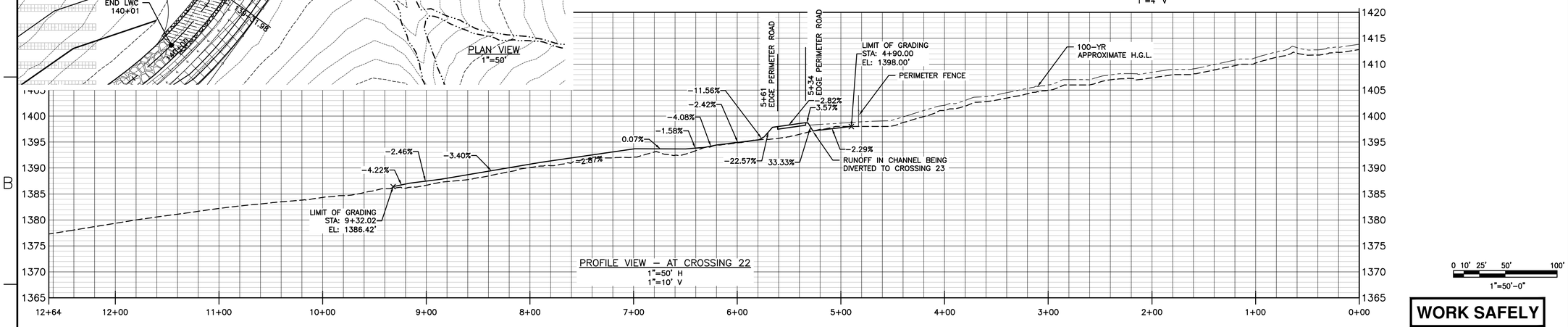
SAVED: 23-Feb-15 8:56 PM PLOTTED: 24-Feb-15 8:26 AM USER: STEADHAM, CHARLES



GABION BERM – CROSSING 23
SECTION A–A
1"=2' H AND V



PROFILE VIEW AT C/L GABIONS – CROSSING 23 – LOOKING DOWNSTREAM
1"=20' H
1"=4' V

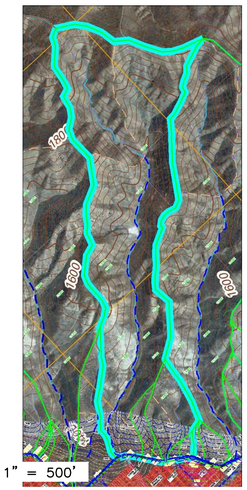


PROFILE VIEW – AT CROSSING 22
1"=50' H
1"=10' V

0 10' 25' 50' 100'
1"=50'-0"

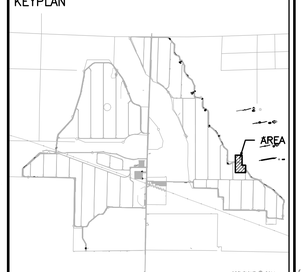
WORK SAFELY

NOTES
1. FOR GENERAL NOTES SEE DRAWING D-000-C-0002.
2. ALL CONTRACTORS SHALL ADEHERE TO AND FOLLOW RULES AND GUIDELINES SET FORTH WITHIN THE LAKE AND STREAMBED ALTERATION AGREEMENT NOTIFICATION NO. XXXX-XXXX-XXXX-XX, ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE.
3. HYDRAULIC ANALYSIS OF THE ROCK LINED LOW WATER CROSSING IS DESIGNED IN ACCORDANCE WITH THE HYDROLOGIC ENGINEERING CIRCULAR, HEC 15, CHAPTER 6, RIP RAP, COBBLE, AND GRAVEL LINING DESIGN AND USDA FOREST SERVICE TECHNICAL MANUAL.
4. RE-VEGETATION OF THE BACKFILLED EXISTING CHANNEL IS PARAMOUNT. CONTRACTOR SHALL ENSURE THAT AREA OF BACKFILL HAS A GOOD STAND OF VEGETATION. RE-VEGETATION OF THE OPEN SPACE JUST DOWN STREAM OF THE LOW WATER CROSSING SHALL ALSO BE OF A GOOD VEGETATED STAND. CONTRACTOR AND OPERATIONS AND MAINTENANCE SHALL NOT MOW THE OPEN AREA DOWNSTREAM OF THE LOW WATER CROSSING UNLESS OTHERWISE DIRECTED BY CALFIRE OR THE LOCAL AUTHORITIES.
5. FOR AREAS AND VOLUMES OF CIVIL SITE DEVELOPMENT WORK WITHIN THE FULL EXTENTS OF THE USACE OHWM AND WITHIN THE TOP OF BANK PLEASE REFER TO THE 404(b)(1) DECEMBER 2014.
6. CROSSING 22&23 HYDROLOGY CONSISTS OF THE FOLLOWING TO THE LOW WATER CROSSING
   - DRAINAGE AREA = 164.29 ACRES
   - CONSISTS OF THREE SUB-BASINS AT 149.05, 2.06, AND 13.18 ACRES
   - COMPOSITE CN = 72, SOILS CONSISTS OF HYDRAULIC SOIL GROUPS A&B&D
   - TIME OF CONCENTRATION = 19.6 min.
   - PEAK FLOW RATE DETERMINED BY SCS METHOD, TIME INTERVAL 1 min. STORM DISTRIBUTION, TYPE 1
   - 100-YR PEAK FLOW RATE = 49.62 CFS
7. BROAD CRESTED WEIR HYDRAULIC CALCULATIONS FOR THE SMALL ROCK BERM CONSISTS OF THE FOLLOWING, VALUES, IN ACCORDANCE WITH THE 100 YR FLOW RATE ;
   - FLOW RATE FOR WEIR CALCULATIONS = 49.62 CFS
   - BROAD CRESTED WEIR COEFFICENT, C = 2.72
   - FLOW DEPTH JUST UPSTREAM AND ABOVE TOP OF WEIR, H = 0.18'
   - CRITICAL FLOW D. AT BROADCRESTED WEIR, dC = 0.11'
   - BRINK FLOW DEPTH ALONG BROAD CRESTED WEIR JUST PRIOR TO NAPPE, dB = 0.08'
   - HORIZONTAL LENGTH OF NAPPE FROM BROAD CRESTED WEIR = 0.20'
   - VELOCITY ACROSS THE WEIR IS AT 1.11 FT/S
8. FLOW DEPTHS ACROSS THE ROCK LOW WATER CROSSING ≤ 0.38' AT Q = 49.62 CFS, V ≤ 1.3 FT/S



CROSSING 22 & 23 WATERSHED

KEYPLAN



REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
D	24FEB15	ISSUED FOR PERMIT REVIEW	JCS	LEC	DRE	HRM	JCG	
C	30JAN15	REVISED FOR BID	JCS	MTG	LEC	HRM	JCG	
B	12JAN14	ISSUED FOR BID	JCS	MTG	LEC	HRM	JCG	
A	11DEC14	ISSUED FOR INFORMATION	JCS	MBE				

REF	NUMBER	TITLE
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CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	DRE	HRM

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	MTG	01JUL14
SCALE	PACKAGE CODE	DRN	JCS	01JUL14
AS SHOWN		CHK	MTG	12JAN15
		APP	LEC	12JAN15

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
PERIMETER ROAD DETAILS
CROSSING 22 AND 23

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0160 | REV. D

Appendix C
Applicant-Proposed Measures, Mitigation Measures, and PG&E Avoidance and Minimization Measures

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
	Aesthetics
APM AES-1	"Dulled" metal finish structures, and facility buildings painted in earth tones, will be used to reduce visual impacts where feasible. The solar module cells will be blue or green toned and non-reflective. Certain electrical equipment, such as transformers and capacitors, cannot be dulled. Equipment that cannot be dulled will have an ANSI gray or factory standard manufacturer finish. The perimeter fence will also be galvanized steel.
APM AES-2	**Construction Lighting**: During construction, localized and portable lighting will be used where the work is occurring. Lighting will be powered by generators and have switches to cut power when lighting is not required during construction.
APM AES-3	**Operation Lighting**: During operation of the project, motion-sensor lighting will be used at the main entrance, substation, and switching station. The lighting will consist of energy-efficient lamps that will only be lit when human activity is detected. Motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring. This will be done to prevent startling animals and creating false alarms for security personnel. In addition to lighting, security cameras will be installed onsite. Constant lighting, at a low-level, may be required at the O&M building for security and safety. This will be a single lamp source near the entrance of the O&M building, which will be activated by a timer. All lighting will have a power switch to conserve energy when the lighting is not required.
	Agriculture
APM AG-1	**Grazing sheep on the project site.** If necessary for vegetation control, sheep would be grazed throughout the project site, except on the 50-65 acres where new roads, buildings, switching station/substation are constructed or where safety concerns would prevent grazing. The grazing operation would be a rotational system using short-duration intensive grazing alternating with periods of rest. The project site would be divided into pastures, which could provide forage for between 750 and 3,600 adult sheep depending on annual rainfall and temperatures. The project site would be grazed between January and May. The Applicant would construct new sheep fencing as necessary. Each pasture would have access to water from existing livestock watering facilities.
APM AG-2	**Allow grazing on lands covered by conservation easement created for biological resource mitigation.** Cattle grazing would be used as appropriate to increase biodiversity and maintain the suitability of mitigation lands for protected species habitat. The grazing program would be developed in accordance with grazing BMPs outlined by the Bureau of Land Management and protected species habitat requirements as determined by the California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS). The grazing management plan would be developed, implemented, and monitored by the land trust or public conservation agency that holds the habitat conservation easement in consultation with CDFW and USFWS.
	Air Quality
APM AQ-1	All requirements of those entities having jurisdiction over air quality matters would be adhered to and any necessary permits for construction activities would be obtained. Open burning of construction trash would not be allowed.

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM AQ-2	The Applicant shall implement the following BMPs to further reduce construction vehicle emissions (NOx, VOC, and Diesel Particulate Matter) during project construction: • Maintain all construction equipment in proper tune according to manufacturer's specifications; • Use diesel construction equipment, including portable equipment, rated more than 50 horsepower meeting the California Air Resources Board's (CARB's) Tier 2 standards for certified engines or cleaner off-road heavy-duty diesel engines (e.g., Tier 3 and Tier 4, where feasible), and comply with the State In-Use Off-Road Diesel Vehicle Regulation (California Code of Regulations [CCR] Title 13, Article 4.8, Chapter 9, Section 2449); • Prohibit on and off-road diesel equipment idling for more than 5 minutes, or within time necessary to comply with Title 13, CCR, Section 2485 (c) (1) regarding idling of commercial vehicles. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of all idling limits; • Prohibit diesel idling within 1,000 feet of sensitive receptors; • Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors; • Electrify off-road construction equipment when feasible; • Provide incentives for workers to use carpooling, where feasible; and • Use alternatively fuel construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, biodiesel, or electric. For purpose of this mitigation, "sensitive receptors" shall be defined as occupied residences, senior living centers, parks and recreation areas, medical facilities and schools.
APM AQ-3	The Applicant shall reduce fugitive dust emissions during construction through implementation of the following best management practices to be shown on grading and building plans: • Water graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply chemical soil stabilizers per manufacturer recommendations. Frequency should be based on the type of operations, soil and wind exposure • Apply chemical soil stabilizers or water on inactive construction areas (disturbed lands, including dirt stockpiles; • All disturbed soil areas not subject to revegetation shall be stabilized using approved chemical soil binders, jute netting, or gravel for temporary roads; • Gravel shall be placed on all perimeter roadways and driveways as soon as possible after grading for said roadways; • All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114; • Install gravel track systems where vehicles enter and exit unpaved roads onto streets and inspect equipment tires to ensure free of soil prior to carry-out to paved roadways.
	Biological Resources
APM BIO-1	All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
APM BIO-2	The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
APM BIO-3	In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM BIO-4	Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources. To assist in this effort, the construction contract would address: • Federal and state laws regarding antiquities and plants and wildlife, including collection and removal. • The importance of these resources and the purpose and necessity of protecting them.
APM BIO-5	Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
APM BIO-6	Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
APM BIO-7	In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
APM BIO-9	Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
APM BIO-11	The BNLL Protection Plan will be implemented at the site for construction activities.
APM BIO-12	**Preserve Undisturbed Onsite Lands.** Of the total project site area, the applicant will limit the total permanent disturbance area to ~~2,506~~2,154 acres (~~1,888~~ 1,688.2 acres of which will be permanently disturbed). Prior to the issuance of building or grading permits, the applicant will submit for the County's review and approval a site plan, building plan, or grading plan that delineates and calculates the total disturbance area for facilities proposed for that area of construction and will include a note on those plans that describes how these areas will be demarcated on the ground through the placement of appropriate staking, signage, or equally effective technique to ensure that construction is confined to the disturbance area. The applicant will implement on the ground demarcation of the disturbance area in accordance with the approved plan(s).
APM BIO-13	**On-site Conservation Measures for Blunt-Nosed Leopard Lizard** • Project is avoiding impacts by staying out of the floodplain and by buffering any BNLL sighting with a 52.4-acre area. • Provide for connectivity of these avoided areas, through the Valley Floor Conservation Land. • Project is also integrating a series of other avoidance measures by APM and MM to allow the applicant to construct and operate in a manner that will not result in take of individuals. • Restoration measures (soil stockpiling and revegetation efforts) will restore temporarily disturbed areas so they provide suitable areas for the species • The site will implement the BNLL Protection Plan that was included in the Biological Assessment and reviewed by the US Fish and Wildlife Service

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM BIO-14	**Off-site Conservation Measures for Blunt-Nosed Leopard Lizard** • BNLL have been detected on the Mitigation Lands (Valley Floor Conservation Land and Silver Creek Ranch Conservation Land). These Mitigation Lands are included in the Project's Conservation Management Plan.
APM BIO-15	**On-site Conservation Measures for Giant Kangaroo Rat** • Project is also integrating a series of avoidance and minimization measures by APM and MM to allow the applicant to construct and operate in a manner that will minimize to the extent practicable impacts to individuals (e.g., preconstruction surveys, translocation efforts, education program of workers, site restrictions on access and operations, etc.). • Project will utilize the Giant Kangaroo Rat Relocation Plan to relocate Giant Kangaroo Rat present on the site prior to the start of construction. • Restoration measures (soil stockpiling and revegetation efforts) will restore temporarily disturbed areas so they provide suitable areas for the species. • Occupancy sampling was used to determine changes in layout of the site. This monitoring informed an adaptive management approach to site management.
APM BIO-16	**Off-site Conservation Measures for Giant Kangaroo Rat** • Mitigate at a 3:1 ratio • Mitigate an additional 1:1 if after 5 years of monitoring the temporarily restored areas are found to no longer support the species. • Mitigation Lands, including Valley Floor Conservation Lands, Silver Creek Ranch Conservation Lands, and Valadeao Ranch Conservation Lands provide greater than the 3:1 ratio required assuming the project maintains residual value in the temporarily disturbed areas that are restored on the Project Site. • Monitoring of the site will permit an adaptive management program such as modifications of the grazing regime. • Off-site lands will be managed by a third-party selected in consultation with CDFW and USFWS.
APM BIO-17	**On-site Conservation Measures for San Joaquin Kit Fox** • Project is also integrating a series of avoidance and minimization measures by APM and MM to allow the applicant to construct and operate in a manner that will minimize to the extent practicable impacts to individuals (e.g., preconstruction surveys, translocation efforts, education program of workers, site restrictions on access and operations, etc.). • Restoration measures (soil stockpiling and revegetation efforts) will restore temporarily disturbed areas so they provide suitable areas for the species • On-going monitoring based on the occupancy sampling will be used to determine changes in use of the site. • This monitoring will inform an adaptive management approach to site management such as modifications of the grazing regime
APM BIO-19	**Off-site Conservation Measures for San Joaquin Kit Fox** • Mitigate 3:1 for loss of habitat, with an additional 1:1 if after 5 years of monitoring the temporarily restored areas are found to no longer support the species. • Based on the Haight et al. (2002) spatial model, there are 1,010 acres of high suitability and 9,026 acres are of moderate suitability on the portions of Mitigation Lands. Therefore, the mitigation lands provide 10,036 acres of suitable habitat for the kit fox. The 10,036 acres that provide suitable habitat for kit fox on the Mitigation Lands results in a minimum of a 4.1:1 replacement ratio. In addition, a SJKF corridor has been created through the center of the Project Footprint to allow for movement of the species.

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
	• Monitoring of the site will permit an adaptive management program such as modifications of the grazing regime. • Off-site lands will be managed by a third-party selected in consultation with CDFW and USFWS.
APM BIO-20	**Employee Education Program** • The Employee Education Program familiarizes Applicant employees and contractors with BMPs and other measures associated with protected species potentially on the project footprint and in the vicinity. This program is designed to ensure all personnel who work at the PVSF are aware of and can identify the species and the measures implemented to avoid individuals of this species. In addition, contact names and numbers are given to which personnel can report incidents regarding protected species. • An employee environmental program (awareness) will be administered to all new employees and to all other employees every 2 years. Upon completion of the program, the employees are given a badge or hardhat sticker that is required for admittance onto the PVSF. • Prior to beginning work at the PVSF, all new employees, contractors, and other personnel that work at the PVSF will complete an employee education program that includes a section on protected species awareness. Personnel must take the Employee Education Program administered test. Training included in the Employee Education Program pertains to protected species identification, species basic natural history, components of avoidance program, familiarity with pre-construction surveys and what they are and how they are administered, BMPs, and how to report incidents involving protected species. • The employee or contractor for the Applicant will be shown examples (i.e., pictures) of protected species and their burrows, or other sign. Basic natural history facts for the protected species will be included in information given to employees. All BMPs will be provided in easy to carry pamphlets for reference while working at the PVSF and mitigation lands. A review of the BMPs will be conducted for each employee and a test will be administered to verify that employees have a familiarity with the provisions in the BMPs.
APM BIO-21	**List of Best Management Practices.** Refer to updated Supplemental EIR for a list of Best Management Practices. All employees and contractors will be made aware of the BMPs, and those BMPs that are pertinent to employee work conduct will be implemented. Applicable measures are listed below.
APM BIO-22	a) Prior to initiation of construction of a project area (i.e., any activity that results in surface disturbance), a qualified biologist shall conduct a BNLL education program (e.g., tailgate briefing) for all project personnel. Topics to be discussed during the briefing shall include: occurrence and distribution of BNLL in adjacent areas, take avoidance measures being implemented during the project, reporting requirements if an incident occurs, and applicable definitions and prohibitions under the Fish and Wildlife Code for fully protected species, and relevant provisions of the federal and state Endangered Species Act.
APM BIO-24	b) A biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and implementing project mitigation measures.
APM BIO-25	c) Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated and will notify the Applicant's environmental representative.
APM BIO-27	d) The Applicant shall appoint a representative who will be the contact source for any employee or contractor who inadvertently kills or injures a BNLL or who finds a dead, injured, or entrapped individual BNLL. The representative will be identified during the pre-performance educational briefing.

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM BIO-28	e) Any contractor, employee(s), or other personnel who inadvertently kills or injures a BNLL shall immediately report the incident to their representative. The representative shall contact the Applicant's environmental representative and, if feasible, a qualified biologist. The Applicant will contact CDFW immediately in the case of a dead, injured, or entrapped BNLL. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. State Dispatch will contact the local warden or biologist. The qualified biologist will also document all circumstances of death, injury or entrapment of BNLL. The biologist will 1) take all reasonable steps to enable the individual animal to escape should it be entrapped, 2) contact CDFW or other appropriate authorities to identify an approved rehabilitation center and appropriate capture and transport techniques should the covered animal be injured, and 3) document circumstances of death in writing and if possible photographing dead animal in situ prior to moving. Notification shall include the date, time, and location of the incident or of the finding of a dead or injured BNLL, and any other pertinent information. The USFWS contact for this information is the Endangered Species, Program Field Office, 2493 Portola Rd., Suite B, Ventura, CA 93003. The dead covered animal can be transported to California State University at Bakersfield or the Endangered Species Recovery Team in Bakersfield for storage and research if CDFW approves.
APM BIO-29	f) To prevent inadvertent entrapment of protected species, all open holes, 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 (wooden planks should be no less than 10 inches in width and should reach to bottom of trench). Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.
APM BIO-30	g) All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan.
APM BIO-31	j) Pets are prohibited at the PVSF.
APM BIO-32	k) Firearms are prohibited at the PVSF.
APM BIO-33	l) All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF.
APM BIO-34	m) Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other State and Federal legislation.
APM BIO-35	n) All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads.
APM BIO-36	m) Motorized vehicles are prohibited within occupied BNLL habitat. If not avoidable, that area will be considered temporarily disturbed and size will be limited in width to 25 feet (12.5 feet on either side of the centerline) and a biological monitor will be present. Due to the potential presence of BNLL on portions of Yturiarte Road, all vehicles and equipment would make a single trip down to the crossing location and a single trip back. During each trip a Biological Monitor or Designated Biologist will lead the vehicles and/or equipment by walking and surveying for BNLL (within the known buffered area only) to clear the roadway of BNLL.
APM BIO-37	p) Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use.

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM BIO-38	q) Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
APM BIO-39	p) Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
	Cultural Resources
APM CR-1	Prior to construction, all supervisory construction personnel would be instructed on the protection of any known or unknown cultural and paleontological resources. To assist in this effort, the construction contract would address: • Federal and state laws that protect such resources and required procedures that must be follow for the collection and removal, including notification of the appropriate public agencies. • The importance of these resources and the purpose and necessity of protecting them.
	Geology
APM GEO-2	In order to avoid expansive clay and mitigate possibly disturbed surface soil, overexcavation of building and equipment pads will be considered as required by the geotechnical report.
	Noise
APM N-1	To comply with the County's noise standards, the Applicant shall prohibit the use of fuel operated generators running at 100 percent load within 350 feet of the property boundary between 7:00 p.m. and 7:00 a.m. Battery- operated generators, generators that tie into a temporary or permanent electrical power source, or fuel-operated generators dampened to a noise level measured at less than 40 dBA Ldn at the property line shall be permitted within 350 feet of the property boundary. No fuel-operated generators, dampened or otherwise, shall be permitted within 200 feet of the property boundary. The Applicant shall also prohibit pile driving and grading of the site during these hours. The Applicant will incorporate these restrictions into construction contracts and/or construction specifications.
	Hazards and Hazardous Materials
APM HAZ-1	Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash, as well as recyclable materials. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, shall be removed to a disposal facility authorized to accept such materials.
APM HAZ-2	Prior to construction and mounting of the PV panels, each panel will be checked for cracks or other defects to avoid the possible exposure of toxic metals on the surface. The panels will be properly cleaned, if necessary, to prevent any potential contaminated water from contacting the ground or native vegetation.
APM HAZ-3	Sheep grazing under the panels will help to keep pasture growth controlled, as necessary.
APM HAZ-4	The applicant shall ensure that any animals grazing on the site during construction activity pursuant to a lease or other agreement shall be properly vaccinated in accordance with local custom and practice for San Benito County and Panoche Valley.
APM HAZ-6	Prior to energizing the project, the Applicant will install electrical safety signage on all solar arrays in the immediate vicinity of wiring and electrical equipment using weather-resistant and fade-proof materials as required by applicable electrical code. Warning signs will be designed to be evident to any person tampering with, working on, or dismantling project electrical system. Sign language shall comply with the requirements in applicable electrical codes.

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM HAZ-7	As documented in Section B.9 of the Project Description [EIR 2010], the Applicant proposes to decommission the site at the end of the useful life of the project. To address the situation where the applicant becomes insolvent or is otherwise unable to perform the decommissioning and to ensure that the County has sufficient resources to undertake or contract to undertake the decommissioning, the applicant will enter into an agreement with County prior to issuance of the first building or grading permit that provides sufficient financial security to ensure that funds will be available to cover the anticipated cost of recycling and disposal of panels and other infrastructure at the end of the project's useful life.
	Population and Housing
APM PH-1	At least thirty days prior to commencing construction, the Applicant will provide construction contractors with information, including general information on the facility, telephone numbers, addresses and contact information, on temporary housing opportunities in coordination with San Benito County and the San Benito County Chamber of Commerce. The information will be provided on a website, pamphlet, or other written material.
	Public Services and Facilities
APM PSU-1	If damaged or destroyed by construction activities, fences and gates would be repaired or replaced to their original pre-disturbed condition as required by the applicable landowner or the land management agency.
APM PSU-2	During operation of the solar farm, the project site would be maintained free of trash.
APM PSU-3	During construction and operation of the solar farm, all disposable materials that are considered recyclable shall be separated and properly recycled or reused in compliance with federal, State, and local law or disposed of as required by a facility authorized to accept such materials.
APM PSU-4	Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash, as well as recyclable materials containers. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, shall be removed to a disposal facility authorized to accept such materials.
	Water Resources
APM WR-1	If they are damaged or destroyed by construction activities, water facilities (i.e., physical damage to equipment or infrastructure) would be repaired or replaced to their pre-disturbed condition as required by the landowner or land management agency.
APM WR-2	In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of project decommissioning. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.
APM WR-3	Roads would be built as near as possible to right angles to the streams and washes or as required by project permits. Culverts would be installed where necessary. All construction and maintenance activities shall be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks. In addition, road construction would include dust-control measures during construction in sensitive areas. All existing roads would be left in a condition equal to or better than their condition prior to the construction of the solar farm.

Table C-1
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM WR-4	The Applicant would limit the panel washing to two washings per year during project operation. Should this estimate need to be revised once the project is fully operational depending on soil/dust conditions, the Applicant would consult with the County and obtain the requisite approvals prior to any modifications to this schedule.

Table C-2
Mitigation Monitoring and Reporting Plan

Mitigation No.	Measure by Issue Area
	General
EM-1	**Provide funding for environmental monitoring.** Prior to issuance of building or grading permits, whichever occurs first, the Applicant shall provide funding for the County of San Benito to ensure monitoring for all measures requiring environmental mitigation. The goal of the mitigation monitoring program is to ensure compliance with County Conditions of Approval and EIR mitigation measures. Monitoring will be carried out during all applicable construction, operational, and decommissioning stages of the project. A mitigation monitoring plan shall be developed that includes the County-approved environmental mitigation measures and any other conditions of approval. This plan shall include (1) goals, responsibilities, authorities, and procedures for verifying compliance with environmental mitigations; (2) lines of communication and reporting methods; (3) daily and weekly reporting of compliance; (4) construction crew training regarding environmental sensitivities; (5) authority to stop work; and (6) action to be taken in the event of noncompliance. The mitigation monitoring plan shall also include a post-construction program to monitor construction measures that extend beyond the construction period and mitigation measures required during the operational phase. The plan shall also include the decommissioning phase of the project. The Applicant shall also be responsible for funding work necessitated by mitigation measures that requires use of individuals with special expertise (e.g., botanist, wildlife biologist).
EM-2	**Provide documentation for monitoring.** To guarantee the success of the overall environmental monitoring program defined in Mitigation Measure EM-1, the Applicant shall retain a qualified individual to verify that all adopted measures have been successfully implemented. The Applicant shall prepare monitoring reports, on an annual basis, for each calendar year in which construction occurs. The first report shall be submitted to the County one year after the initiation of construction, and thereafter on an annual basis until the monitor, in consultation with the County, has determined that all measures have been successfully established. The Applicant, and successors-in-interest, shall agree to complete any necessary remedial measures identified in the report(s) to maintain compliance with all adopted mitigation measures.
	Aesthetics
AE-1.1	**Reduce night lighting impacts.** The Applicant shall design and install all temporary construction and decommissioning lighting and permanent exterior lighting according to the following conditions: • Lamps and reflectors are not visible from beyond the proposed project site, including any off-site security buffer areas. • Lighting does not cause excessive reflected glare. • Direct lighting does not illuminate the nighttime sky. • Illumination of the proposed project and its immediate vicinity is minimized. • The proposed project lighting mitigation plan complies with local policies and ordinances (for Class 2 in Zone 3 see County Ordinance 19.31.006 and 19.31.009). The Applicant shall submit to San Benito County for review and approval a lighting mitigation plan that includes the following requirements: • Location and direction of light fixtures that take the lighting mitigation requirements into account. • Lighting design that considers setbacks of proposed project features from the proposed project site boundary to aid in satisfying the lighting mitigation requirements.

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Mitigation Monitoring and Reporting Plan

Mitigation No.	Measure by Issue Area
	• Lighting that incorporates fixture hoods/shielding, with light directed downward or toward the area to be illuminated. • Light fixtures that have cutoff angles sufficient to prevent lamps and reflectors from being visible beyond the proposed project boundary, except where necessary for security. • Lights not occupied on a continuous basis that have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied. At least 60 days prior to installation of any permanent exterior lighting or temporary construction/decommissioning lighting, the Applicant shall contact San Benito County to discuss the documentation required in the lighting mitigation plan. At least 30 days prior to installation of any permanent exterior lighting, the Applicant shall submit to San Benito County for review and approval the lighting mitigation plan. If the County determines that the plan requires revision, the proposed project owner shall provide to San Benito County a revised plan for review and approval. The proposed project owner shall not order any exterior lighting until receiving County approval of the lighting mitigation plan. Prior to commercial operation, the Applicant shall notify San Benito County when the operational lighting installation has been completed and is ready for inspection. If, after inspection, the County notifies the Applicant that modifications to the lighting are needed, within 30 days of receiving that notification the Applicant shall implement the modifications and notify the County that they have been completed and are ready for inspection. Within 48 hours of receiving a lighting complaint, the Applicant shall provide San Benito County with either (1) a complaint resolution proposal to resolve the complaint and a schedule for its implementation, or (2) written confirmation that lighting is in compliance with the lighting plan and the building permit. The proposed project owner shall notify the County within 48 hours of implementing a resolution. A complaint resolution report shall be submitted to County within 30 days thereafter.
BR-G.3	**Develop and implement a Habitat Restoration and Revegetation Plan.** Full text of the mitigation measure may be found under Biological Resources.
AE-3.1	**Treat surfaces of project structures and buildings.** The Applicant shall treat the surfaces of all project structures and buildings visible to the public such that (1) their colors minimize visual intrusion and contrast by blending with the existing colors of the surrounding landscape, (2) their colors and finishes do not create excessive glare, and (3) their colors and finishes are consistent with local policies and ordinances. Following in-field consultation with San Benito County Planning & Building staff and other representatives as deemed necessary, the proposed project owner shall submit for County review and approval, a specific Surface Treatment Plan that will satisfy these requirements. The treatment plan shall include the following: • A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finish(es). • A list of each major project structure, building, tank, pipe, wall, and fencing, specifying the color(s) and finish(es) proposed for each. Colors must be identified by vendor, name, and number, or according to a universal designation system. • One set of color brochures or color chips showing each proposed color and finish. • A specific schedule for completion of the treatment. • A procedure to ensure proper treatment maintenance for the life of the project. **Develop Treatment Plan.** At least 60 days prior to physical construction specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated

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Mitigation Monitoring and Reporting Plan

Mitigation No.	Measure by Issue Area
	during manufacture, the Applicant shall submit the proposed treatment plan to the County for review and approval. If the County determines that the plan requires revision, the proposed project owner shall provide to the County a plan with the specified revision(s) for review and approval before any treatment is applied. Any modifications to the treatment plan must be submitted the County for review and approval. The Applicant shall not specify to the vendors the treatment of any buildings or structures to be treated during manufacturing and shall not perform the final treatment on any buildings or structures in the field until the Applicant receives notification of approval of the treatment plan by the County. Subsequent modifications to the approved treatment plan shall be prohibited without the County's approval. **Report to the County.** Prior to the start of commercial operation, the Applicant shall notify the County that surface treatment of all listed structures and buildings has been completed, and that they are ready for inspection. The Applicant shall submit to the County one set of electronic color photographs from the same KVPs used for project analysis. The Applicant shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify (1) the condition of the surfaces of all structures and buildings at the end of the reporting year, (2) maintenance activities that occurred during the reporting year, and (3) the schedule of maintenance activities for the next year.
	Agriculture
BR-G.3	**Development and implementation of a Habitat Restoration and Revegetation Plan.** Full text of the mitigation measure may be found under Biological Resources.
BR-1.2	**Develop and implement a Grazing Plan for the project site.** Full text of the mitigation measure may be found under Biological Resources.
BR-G.5	**Create permanent conservation easements as compensation for impacts to biological resources.** Full text of the mitigation measure may be found under Biological Resources.
BR-G.6	**Develop and implement Habitat Mitigation and Monitoring Plan for mitigation lands.** Full text of the mitigation measure may be found under Biological Resources.
AG-2.1	**Create agricultural conservation easement(s).** Prior to the issuance of building permits, the Applicant shall pay for the creation of either (a) 4,563-acre conservation easement(s) on grazing land, or (b) 285-acre conservation easement(s) on high quality cropland in the San Juan Valley. The 285 acres in (b) shall be classified as Prime Farmland by the Department of Conservation's Farmland Mapping and Monitoring Program. Conservation easement(s) or adequate funds to create them shall be given to a qualified agricultural land trust, as determined by the Department of Planning and Building. The qualified agricultural land trust must: (1) Have adopted the Land Trust Alliance's Standards and Practices; (2) Have substantial experience creating and stewarding agricultural conservation easements; (3) Have a stewardship endowment to help pay for its perpetual stewardship obligations. Preference shall be given to a local agricultural land trust if it meets these standards. Fees shall also be provided to cover (1) administrative costs incurred in the creation of the conservation easement(s) and (2) a contribution to the land trust's stewardship endowment to pay for the long-term cost of monitoring and enforcing the terms of the conservation easement(s) in perpetuity. The total amount of these fees shall be determined by the qualified land trust in consultation with the County. Either notice that conservation easement(s) have been recorded or proof that funds to

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	acquire them have been received by the agricultural land trust shall be filed with the Department of Planning Building prior to the issuance of building permits. When conservation easement(s) are recorded, a "notice of conservation easement" shall also be filed with the County Recorder. Annual monitoring reports for the conservation easement(s) created shall also be provided to the County by the land trust.
LU-1.1	**Establish construction liaison.** Full text of the mitigation measure may be found under Land Use and Recreation.
LU-1.2	**Provide advance notification of construction.** Full text of the mitigation measure may be found under Land Use and Recreation.
LU-1.3	**Provide quarterly construction updates.** Full text of the mitigation measure may be found under Land Use and Recreation.
AQ-1.1	**Reduce fugitive dust.** Full text of the mitigation measure may be found under Air Quality.
BR-1.1	**Prepare and implement a Weed Control Plan.** Full text of the mitigation measure may be found under Biological Resources.
BR-1.2	**Develop and implement a Grazing Plan for the project site.** Full text of the mitigation measure may be found under Biological Resources.
BR-G.5	**Create permanent conservation easements as compensation for impacts to biological resources.** Full text of the mitigation measure may be found under Biological Resources.
WR-1.1	**Groundwater Monitoring and Reporting Plan.** Full text of the mitigation measure may be found under Water Resources.
WR-1.2	**Aquifer Testing and Well Interference Analysis.** Full text of the mitigation measure may be found under Water Resources.
WR-6.1	**Accidental spill control and environmental training.** Full text of the mitigation measure may be found under Water Resources.
WR-6.2	**Store fuels and hazardous materials away from sensitive water resources.** Full text of the mitigation measure may be found under Water Resources.
WR-6.3	**Maintain vehicles and equipment.** Full text of the mitigation measure may be found under Water Resources.
	Air Quality
AQ-1.1	Reduce fugitive dust. The Applicant shall implement the following measures to minimize nuisance impacts and to significantly reduce fugitive dust emissions, and the Applicant shall require all of the following measures to be shown on grading and building plans: • Limit grading to 50 acres per day, and grading and excavation to 2.2 acres per day; • Water graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas at least three times daily or apply non-toxic chemical soil stabilization materials per manufacturer's recommendations. Frequency should be based on the type of operations, soil and wind exposure; • Prohibit all grading activities during periods of high wind (sustained over 15 mph); • Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days); • Apply non-toxic binders (e.g., latex acrylic copolymer) or water to exposed areas

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Mitigation No.	Measure by Issue Area
	after cut and fill operations, and hydro-seed area; • Plant vegetative ground cover compliant with County-approved Landscape Plan in disturbed areas as soon as possible; • Cover, enclose, or apply soil stabilizers to inactive storage piles or water three times daily; • Install wheel washers at the entrance to construction sites for all exiting trucks; Track outs will be a minimum of 100 feet long or twice the length of the longest vehicle entering the site. Track out pads will be a combination of corrugated steel "rumble plates" at exits of track out pads and 6 inches thick of class 150 (4" minimum diameter) stone preceding rumble pads. Rumble pads and track out stone will be maintained and cleaned as necessary to remove any deposited materials. Vehicles entering and exiting the site will be free of excessive dirt and debris and will be cleaned as necessary to satisfy fugitive dust control requirements. All on site construction equipment will be required to be washed prior to delivery to the site and washed (utilizing high pressure washers) prior to demobilizing. Construction traffic on site and between sections of the site will utilize track out devices prior to crossing paved roads. Delivery vehicles (over road tractor trailers, concrete and aggregate trucks, and all other delivery vehicles) will be required to travel on established roadways and utilize established lay down areas at the Project site. Vehicle traffic for employees will travel to established parking areas and enter and exit over the track out devices as previously described. Trackout devices will be regularly maintained and all construction equipment entering the site will be inspected and any equipment observed not to have been washed will not be permitted to enter the Project site. • Use street sweepers, water trucks, or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Reclaimed (non-potable) water should be used whenever possible; • All dirt stock pile areas shall be sprayed daily as needed; • Permanent dust control measures identified in the approved project revegetation and landscape plans shall be implemented as soon as possible following completion of any soil disturbing activities; • Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading shall be sown with a fast germinating, non-invasive grass seed and watered until vegetation is established. Unless restricted in the biological resources mitigation measures, alternative methods for soil stabilization may be implemented, including but not limited to use of water to establish a crust, chemical stabilizers, and straw mulching; • All disturbed soil areas not subject to revegetation shall be stabilized using approved chemical soil binders, jute netting, or gravel for temporary roads and any other methods approved in advance by the Monterey Bay Unified APCD; • Gravel shall be placed on all roadways and driveways as soon as possible after grading for said roadways. In addition, building pads shall be laid as soon as possible after grading unless seeding, soil binders, or frequent water application are used; • Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site; • All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114; • Unpaved road travel shall be limited to the extent possible, for example, by limiting the travel to and from unpaved areas, by coordinating movement between work

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	areas rather than to central staging areas, and by busing workers where feasible; • Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site, and inspect vehicle tires to ensure free of soil prior to carry-out to paved roadways. Alternatively, use track outs as defined above; and • Sweep streets at the end of each day, or as needed, if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water shall be used where feasible.
AQ-1.2	Designate a dust complaint monitor. The Applicant shall require the contractor(s) or builder(s) to designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints, reduce visible emissions below 20 percent opacity, and to prevent transport of dust off-site. Their duties shall include monitoring during holidays and weekend periods only when work is in progress. The name and telephone number of such persons shall be provided to the Monterey Bay Unified APCD Compliance Division prior to the start of any grading, earthwork, or demolition. The Applicant shall provide and post a publicly visible sign that specifies the telephone number and name to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified APCD shall also be visible to ensure compliance with Rule 402 (Nuisance).
	Biological Resources
BR-G.1	**Implement a Worker Environmental Education Program.** Prior to any project activities on the site (i.e., surveying, mobilization, fencing, grading, or construction), a Worker Environmental Education Program (WEEP) shall be implemented by a qualified biologist or qualified biologists. Both the biologist(s) and the WEEP shall be subject to County approval. The WEEP shall be put into action prior to the beginning of any project activities and implemented throughout the duration of project construction. The WEEP shall include, at a minimum, the following items: • Training materials and briefings shall include but not be limited to: a discussion of the Federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; a contact person and phone number in the event of the discovery of dead or injured wildlife; and a review of mitigation requirements. • A discussion of hazardous substance spill prevention and containment measures. • A discussion of measures to be implemented for avoidance of the sensitive resources discussed above and the identification of an on-site contact on in the event of the discovery of sensitive species on the site. This will include a discussion on microtrash and its potential harmful effects on California condors. • Protocols to be followed when road kill is encountered in the work area or along access roads to minimize potential for additional mortality of scavengers and the identification of an on-site representative to whom the road kill will be reported. Road kill shall be reported to the appropriate local animal control agency within 24 hours. • Maps showing the known locations of special-status wildlife, populations of rare plants and sensitive vegetative communities, seasonal depressions and known waterbodies, wetland habitat, exclusion areas, and other construction limitations (e.g., limited operating periods). These features shall be included on the projects plans and specifications drawings.

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	• Literature and photographs or illustrations of potentially occurring special-status plant and/or wildlife species will be provided to all project contractors and heavy equipment operators. • The Applicant shall provide to the County of San Benito evidence that all on-site construction and security personnel have completed the WEEP prior to the start of site mobilization. A special hardhat sticker or wallet size card shall be issued to all personnel completing the training which shall be carried with the trained personnel at all times while on the project site. All new personnel shall receive this training and may work in the field for no more than five days without participating in the WEEP. A log of all personnel who have completed the WEEP training shall be kept on site. • A weather protected bulletin board or binder shall be centrally placed or kept on site (e.g., in the break room, construction foreman's vehicle, construction trailer) for the duration of the construction. This board or binder will provide key provisions of regulations or project conditions as they relate to biological resources or as they apply to grading activities. This information shall be easily accessible for personnel in all active work areas. • Develop a stand-alone version of the WEEP, that covers all previously discussed items above, and that can be used as a reference for maintenance personnel during project operations. **Milestones:** WEEP will be prepared prior to the issuance of a building permit or site mobilization whichever occurs first. The WEEP will be approved by the County and implemented for the duration of construction activities. **Monitoring:** An environmental monitor will be retained during construction of the project and will be directly involved with the implementation and enforcement of the WEEP. A log of all personnel who have completed the WEEP training shall be kept on site.
BR-G.2	**Implement Best Management Practices (BMPs).** BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources. These BMPs shall include but are not limited to the following: • Compliance with BMPs will be documented and provided to the County in a written report on an annual basis. The report shall include a summary of the construction activities completed, a review of the sensitive plants and wildlife encountered, a list of compliance actions and any remedial actions taken to correct the actions, and the status of ongoing mitigation efforts. • Prior to ground disturbance of any kind the project work areas shall be clearly delineated by stakes, flags, or other clearly identifiable system. • Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable. • Speed limit signs, imposing a daytime speed limit of 15 miles per hour, will be installed throughout the project site prior to initiation of site disturbance and/or construction. A night-time speed limit of 10 mph will be adhered to on the Project site, and will not exceed 25 mph on public roads in the vicinity of the Project site. If a SJKF den is located near a project road, speed will be reduced to 10 mph and the den will not be blocked or excavated. To minimize disturbance of areas outside of the construction zone, all project-related vehicle traffic shall be restricted to defined access routes that will be staked and/or flagged, construction areas, and other designated areas. These areas will be included in preconstruction surveys and to the extent possible, should be established in locations disturbed by previous

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	activities to prevent further impacts. Off-road traffic outside of designated project areas will be prohibited. All Project-related flagging shall be collected and removed after completion of the Project. • No vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is constructed. Spill kits shall be maintained on site in sufficient quantity to accommodate at least three complete vehicle tank failures of 50 gallons each. Any vehicles driven and/or operated within or adjacent to drainages or wetlands shall be checked and maintained daily to prevent leaks of materials. • All general trash, food-related trash items (e.g., wrappers, cans, bottles, food scraps, cigarettes), microtrash (i.e., broken glass, paper and plastic waste, small pieces of metal), and other human-generated debris will be stored in animal proof containers and/or removed from the site each day. No deliberate feeding of wildlife will be allowed. • Development on the main project site will maintain existing hydrologic patterns with respect to runoff supporting seasonal wetlands, vernal pools and ephemeral drainages. • All pipes and culverts with a diameter of greater than one inch shall be capped or taped closed. Prior to capping or taping the pipe/culvert shall be inspected for the presence of wildlife. In the event a pipe is inadvertently left open, the pipe will be inspected prior to moving. If encountered the wildlife shall be allowed to escape unimpeded. • No firearms will be allowed on the project site, unless otherwise approved for security personnel. • To prevent harassment or mortality of listed, special-status species and common wildlife, or destruction of their habitats, no domesticated animals of any kind shall be permitted in any project area with the exception of grazing animals such as cattle, goats, or sheep that are being used for vegetation management on the site, trained working animals used specifically for livestock management or species surveys (e.g., horses, livestock working dogs, and scent detection dogs). Livestock and scent detection dogs shall be immunized against rabies, parvovirus, and distemper. • Use of chemicals, fuels, lubricants, or biocides will be in compliance with all local, state and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted the use shall be restricted to interiors of building and zinc phosphide shall be used because of lower risk of poisoning San Joaquin kit fox and American badgers. • Any contractor or employee that inadvertently kills or injures a threatened or endangered, or other legally protected, animal, or finds one either dead, injured, or entrapped, will immediately report the incident to the on-site biological monitor or to the representative identified in the WEEP. The biological monitor or representative will contact the USFWS, CDFW, and County by telephone or email by the end of the day, or at the beginning of the next working day if the agency office is closed. In addition, formal notification shall be provided in writing within five working days of the incident or finding. Notification will include the date, time, location and circumstances of the incident. Any threatened or endangered species found dead or injured will be handled consistent with any direction provided by

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	USFWS or CDFW. • During the site disturbance and/or construction phase, ground disturbing activities (including, but not limited to grading, pile driving, trenching) before dawn and after dusk, are prohibited. Other construction work and standard operations and maintenance activities would be limited to daytime hours of generally between 5 am to 9 pm based on sunrise and sunset times. • Minimize vegetation removal within active construction areas. This will include flagging of sensitive vegetative communities or plants. • Only project features that impact state and federal jurisdictional waters, as measured from the top-of-bank on both sides of these features, will be permitted through approval of a USACE 404 permit and/or Lake and Streambed Alteration Agreement (LSAA) from CDFW Project access roads shall be designed to reach all portions of the project without direct effect on washes, except as described and allowed by the USACE 404 permit and approved LSAA and/or where this provision conflicts with the San Benito County Fire Code. No bridges shall be installed over washes unless required by the San Benito County Fire Code or the agency responsible for providing fire protection services to the and/or as allowed by the USACE 404 permit and approved LSAA. Driving across washes shall be prohibited except for emergency ingress and egress and as required by the agency responsible for providing fire protection services to the and/or as allowed by the USACE 404 permit and approved LSAA. • All excavation, steep-walled holes or trenches in excess of 2 feet in depth 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 dirt fill or wooden planks (wooden planks should be no less than 10 inches in width and should reach the bottom of the trench, and placed at an appropriate angle to allow SJKF to exit). Trenches shall also be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to covering with plywood at the end of each working day. Before such holes or trenches are filled, they shall be thoroughly inspected for entrapped wildlife. Any wildlife discovered will be allowed to escape before construction activities are allowed to resume, or removed from the trench or hole by a qualified biologist holding the appropriate permits (if required). • Project personnel shall monitor all areas within 0.25 miles around the solar arrays (in accessible areas) on a regular basis (i.e., several times per week) for any dead animals, including wild animals or grazing animals such as cattle, goats, or sheep that are being used for vegetation management on the site. Any animals found dead will be removed immediately. • New light sources will be minimized, and lighting will be designed (e.g., using downcast lights) to limit the lighted area to the minimum necessary. • Construction materials will not be stacked in a manner that allows encourages SJKF to establish den sites within the material. • Use of rodenticides and herbicides in areas affected by the Project will be restricted to use within the Noxious Weed and Invasive Plant Control Plan. Herbicides used for noxious weed control would be applied in accordance with BLM-approved procedures and other federal and state regulations. Applications will be applied by licensed applicators in accordance with label directions and other restrictions mandated by the U.S. Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and Agriculture, and other state and federal legislation.

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	• Prior to herbicide application on public lands, operators will obtain a pesticide use permit from the BLM. **Milestones:** The Applicant shall submit a written report to the County and BLM on an annual basis for review. **Monitoring:** Environmental monitor shall monitor for compliance with proposed BMPs.
BR-G.3	**Develop and implement a Habitat Restoration and Revegetation Plan.** The Applicant shall restore disturbed areas to pre-construction conditions or better. Prior to the issuance of a building permit and removal of any soil or vegetation, the Applicant shall retain a County-approved, qualified biologist, knowledgeable in the area of annual grassland habitat restoration, to prepare a Habitat Restoration and Revegetation Plan (HRRP). The biologist would also be responsible for monitoring the initial implementation of the plan as the Applicant's attainment of the established success criteria. The purpose of the HRRP will be to explicitly identify the process by which all disturbed areas shall be restored to at least pre-construction conditions. The plan will address restoration and revegetation related to disturbance from construction. It will also address restoration and revegetation required after decommissioning of the project. The plan shall include, at a minimum, the following items: • Figures depicting areas proposed for disturbance – The HRRP shall include detailed figures indicating the locations of areas proposed for temporary and long-term disturbance. These figures shall be updated, as necessary, to reflect current site conditions should they change. **Soil Restoration Plan** • A soil baseline study shall be conducted before ground-disturbing activities at the proposed project site. The County may determine that the geotechnical survey conducted for the EIR may satisfy this requirement. • Locations and details for topsoil salvage and storage – The HRRP shall identify areas within the construction footprint where topsoil is present and can be salvaged and stockpiled for replacement during revegetation activities. Where topsoil is present, but is wholly dominated by invasive non-native species or other noxious plant species it will not be used in revegetation because the non-native seed bank would outweigh any benefit for revegetation the soil may have. Areas characterized as California Annual Grassland will require topsoil salvage, as follows: • Between three and twelve inches of topsoil shall be salvaged from where it must be temporarily removed. • Topsoil shall not be mixed or stored with spoil material. The length of time topsoil is stored shall not exceed two years. • For disturbed areas where topsoil was removed, redistribution shall begin immediately after re-grading, weather permitting, and depths shall vary between three and 12 inches depending on the depth of topsoil stripped. • Replaced topsoil shall be left in a roughened condition to discourage erosion. Additional erosion control and soil stabilization may be required on steeper slopes, on topsoil susceptible to wind erosion, etc. • If compaction, rutting, or crushing occurs prior to seeding, the replaced topsoil shall be worked with a harrow, disc, spring, tooth, chisel plow, or similar implement. Fertilization shall not be utilized. • Where electrical cables are buried, trenching shall occur in the proposed aisles between panel rows, and trenched areas shall be refilled as cables are buried and topsoil shall be replaced.

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	• After closure and decommissioning: (1) Structures and facilities shall be removed to a depth of 3 feet; (2) Graded areas shall be returned to original contours; and (3) As appropriate, highly-disturbed soils shall be supplemented with certified weed-free mulch. **Plant Restoration and Revegetation Plan** • Proposed species for restoration/revegetation – The species palate proposed for restoration/revegetation shall include a combination of native and non-native (based on current species composition in the restoration/revegetation areas) annual grasses and annual herbaceous species known to occur in the area. Due to the large nonnative annual grass component currently present within most project area the intent of the HRRP is to introduce as many native species as possible recognizing that the colonization of the site by non-native annual grasses is likely. • Seed source and collection guidelines – If possible, seeds from stock within the Panoche Valley or from within a 25-mile radius will be collected to maintain local genetic integrity. If seed collection from these areas is not possible then a seed source must be obtained from a local seed supplier familiar with native species. Seed will be limited to the species and quantity specified in the seed mix palette prepared for the project. All seed will originate from the project region, within +/- 1000 feet elevation of the Project site. The seed supplier chosen will provide a list of three references with the bid proposal. The references will include year, contact names, and telephone numbers. Seeds will be tested for percent purity, percent germination, number of pure live seeds per pound, and weed seed content. Seed testing will be the responsibility of the seed supplier. • Planting methodology – A description of the preferred methods proposed for seeding shall be provided (e.g., hydroseeding, drill seeding, broadcast seeding). Additionally, a discussion on timing of seeding, type of irrigation system proposed, potential need of irrigation, type and duration of irrigation, and erosion controls proposed for revegetation activities shall be included. • Invasive, non-native vegetation control – A comprehensive Weed Control Plan will be developed for the project and is detailed below under Impact BR-2. The Weed Control Plan will serve to prevent the type conversion of natural habitats to those dominated by invasive species. **Monitoring Plan** • **Monitoring program** – Areas subject to restoration/revegetation shall be monitored to assess conditions and to make recommendations for successful habitat establishment. Monitoring will be performed by County-approved, qualified biologist(s) knowledgeable in the area of annual grassland habitat restoration. Monitoring should include, at the minimum, following: • **Qualitative Monitoring** – Qualitative monitoring surveys will be performed monthly in all restored/revegetated areas for the first year following planting in any phase of the project. Qualitative monitoring will be on a quarterly schedule thereafter, until final completion approval of each restoration/revegetation area. Qualitative surveys will assess native plant species performance, including growth and survival, germination success, reproduction, plant fitness and health as well as pest or invasive plant problems. A County-approved, qualified wildlife biologist will assist in monitoring surveys and will actively search for mammal and other wildlife use. Monitoring at this stage will indicate need for remediation or maintenance work well in advance of final success/failure determination. The monitoring reports will describe site progress and conditions and list all observations pertinent to eventual

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	success, and make recommendations as appropriate reg. remedial work, maintenance, etc. • **Quantitative Monitoring** – Quantitative monitoring will occur annually for years one to five or until the success criteria are met. Within each revegetation area, as shown figures referenced above, the biologist will collect data in a series of one-square-meter quadrants to estimate cover and density of each plant species within the revegetated areas. Data will be used to measure native species growth performance, to estimate native and non-native species coverage, seed mix germination, native species recruitment and reproduction, and species diversity. Based on these results, the biologist will make recommendations for maintenance or remedial work on the site and for adjustments to the approved seed mix. Where topsoil is replaced, a County-approved, qualified soil expert shall assess soil conditions after restoration is complete to ensure that Grade One agricultural soils are returned to their pre-construction condition. • Success criteria – Criteria for successful restoration/revegetation of temporarily disturbed areas shall be percent cover equal to that of preconstruction levels or better. This percentage shall include no more than a 10 percent non-native component, with the exception of intentionally/or naturally seeded non-native grasses that occurred in the area prior to site disturbance. • Reporting – Reporting will include progress reports summarizing site status and recommended remedial measures that will be submitted by the biologist to the County quarterly, with the exception of the site visits immediately preceding the development of each annual status report (see below). Each progress report will list estimated species coverage and diversity, species health and overall vigor, the establishment of volunteer native species, topographical/soils conditions, problem weed species, the use of the site by wildlife species, significant drought stress, and any recommended remedial measures deemed necessary to ensure compliance with specified performance criteria. One annual site status report that summarizes site conditions will be forwarded by the biologist to the County at the end of each year following implementation of this plan. Each annual report will list species coverage and diversity measured during yearly quantitative surveys, compliance/non-compliance with required performance standards, species health and overall vigor, the establishment of volunteer native species, hydrological and topographical conditions, the use of the site by wildlife species, and the presence of invasive weed species. In the event of substantial noncompliance with the required performance criteria, the reports will include remedial measures deemed necessary to ensure future compliance with specified performance criteria. Each annual report will include, at the minimum: 1. The name, title, and company of all persons involved in restoration monitoring and report preparation 2. Maps or aerials showing restoration areas, transect locations, and photo documentation locations 3. An explanation of the methods used to perform the work, including the number of acres treated for removal of non-native plants 4. An assessment of the treatment success. • **Final Closure Plan** - The HRRP shall also include a Final Closure Plan, which shall address the final infrastructure removal, restoration, and revegetation activities upon closure and decommissioning of the project. The Final Closure Plan shall

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	include a cost estimate, adjusted for inflation, reflecting the costs of restoration, revegetation, and monitoring for the duration of time expected to fully restore impacted soil and vegetation communities impacted by the project. At least one year prior to planned closure and decommissioning the Applicant shall submit to the County an updated Final Closure Plan for review to determine if revisions are needed. The Applicant shall incorporate all required revisions and re-submit the Final Closure Plan to the County 90 days prior to the start of ground-disturbing activities associated with closure and decommissioning activities. **Milestones:** County approval of Habitat Restoration and Revegetation Plan prior to the issuance of a building permit and a review of plan compliance prior to the final project inspection. County approval of Final Closure Plan shall be required prior to the start of ground-disturbing activities associated with closure and decommissioning activities. **Monitoring:** An on-site environmental monitor shall be retained to ensure the compliance with measures set forth in the Habitat Restoration and Revegetation Plan.
BR-G.4	**Implement biological monitoring of construction activities.** Prior to the commencement of ground disturbance or site mobilization activities, the Applicant shall retain County-approved, qualified biologist(s) with demonstrated expertise with listed and/or special-status plants, terrestrial mammals and reptiles to monitor all construction activities on a daily basis. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified in Section C.6 of this EIR. Any listed or special-status plants shall be flagged for avoidance. Any special-status terrestrial species found within a project impact area shall be relocated by the authorized biologist and relocated to suitable habitat outside the impact area. If the installation of exclusion fencing is deemed necessary by the authorized biologist, the authorized biologist shall direct the installation of the fence. Fencing shall be long-lasting and UV-stable and shall be maintained and repaired as directed by biological monitor(s). Clearance surveys for special-status species shall be conducted by the authorized biologist prior to the initiation of construction each day. If, during construction, the biological monitor observes a dead or injured threatened or endangered wildlife species on the construction site, the monitor shall contact the USFWS, CDFW and County by the end of the day, or at the beginning of the next working day if the agency office is closed and, a written report shall be sent to the County of San Benito, CDFW and/or USFWS within five calendar days. The report will include the date, time of the finding or incident (if known), and location of the carcass and circumstances of its death (if known). The biological monitor shall, immediately upon finding the remains, coordinate with the on-site construction foreman to discuss the events that caused the mortality, if known, and implement measures to prevent future incidents. Details of these measures shall be included with the report. Species remains shall be collected and frozen as soon as possible, and CDFW and/or USFWS shall be contacted regarding ultimate disposal of the remains. **Milestones:** Monitoring shall occur from the first day of work through the duration of construction activities. **Monitoring:** Environmental monitor will assist on-site biological monitor(s).
BR-G.5	Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP. To compensate for permanent impacts to plants and

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	wildlife on the project site, habitat shall be preserved through the use of permanent conservation easements, purchase of credits from a CDFW-approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. This may include preservation areas within portions of the project site that are not impacted by the construction (or that are only temporarily disturbed and then restored) and operation of the project and/or mitigation lands outside the project boundary. Specific species and habitats that require compensatory habitat preservation are defined below. The Applicant shall also be responsible for donating fees to the CDFW-approved conservation lands holder sufficient to cover: (1) Administrative costs incurred in the creation of permanent conservation easement(s), or the transfer of land in fee with a deed restriction and (2) provide funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the device in perpetuity, and (3) provide funds in the form of a non-wasting endowment to cover the management of the lands pursuant to the approved HMMP. The amount of these administrative fees and endowments shall be determined by the completion of a Property Analysis Record approved by the CDFW-approved conservation holder and the County. Conservation easement(s) or restricted lands shall also be subject to the following conditions: • The locations of acceptable conservation easement(s) or restricted lands shall be approved by the County, CDFW, and USFWS. • The primary purpose of the conservation easement(s) or restricted lands shall be conservation of impacted species and vegetative communities Conservation easement(s), deed restriction, or other appropriate agreement shall: • Be perpetual. • Be subject to a legally binding agreement that shall: (1) Be recorded with the County Recorder(s) along with a recorded "notice of conservation easement"; (2) Include "conservation easement," "deed restriction" or other appropriate name for the agreement in the title of the recorded agreement(s); (3) Name CDFW or another organization to which the conservation easement(s) or restricted land will be conveyed if the original holder is dissolved. • Be subject to the management requirements outlined in Mitigation Measure BR-G.6 (Develop and implement a Habitat Mitigation and Monitoring Plan for mitigation lands). Habitat preserved as mitigation for impacts to biological resources must be of equal or greater habitat value, based on the parameters defined in Tables C.6-6 and C.6-7 at the end of this section. **Vegetative communities.** For impacts to on-site vegetative communities, the Applicant shall create conservation easement(s), purchase credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. The Applicant shall preserve land at mitigation ratio of 1:1 (one acre preserved for each acre permanently impacted) and shall contain the same type and quality of vegetative communities as those that are impacted by the project. This mitigation may occur on lands used simultaneously as mitigation for other impacts. **Special-status plants.** The Applicant shall compensate for temporary and permanent impacts to special-status plant species with the creation of permanent conservation easement(s), purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate

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	agreement for the management of the land pursuant to the approved HMMP. For impacts to State and Federally Threatened, Endangered, Proposed, Petitioned and Candidate plants, mitigation shall occur at a ratio of 1:1 (one individual preserved for each individual impacted). Compensation for temporary impacts shall occur at a 0.5:1 ratio. The preserved habitat for a significantly impacted plant species shall be of equal or greater habitat quality after any restoration activities (as defined in Table C.6-6) to the impacted areas in terms of soil features, extent of disturbance, vegetation structure, and will contain verified extant populations, of the same number of individuals or greater, of the State or Federally listed (Endangered, Threatened, Proposed, Petitioned, and Candidate) plants that are impacted. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **California Species of Special Concern.** The Applicant shall compensate for temporary and permanent impacts to California Species of Special Concern with the creation of permanent conservation easement(s), purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. The Applicant shall compensate for permanent impacts to the California Species of Special Concern (CSSC) addressed in Impact BR-7 at a ratio of 1:1 (one individual preserved for each individual impacted). Compensation for temporary impacts shall be required at a ratio of 0.5:1. Preserved habitat shall be of equal quality or greater quality than impacted habitat after any restoration activities (as defined in Table C.6-6) compared to the impacted habitat. **California tiger salamander.** The Applicant shall compensate for temporary and permanent loss of known and potential breeding habitat, and upland habitat within a radius of 1.2 miles of known or potential breeding habitat, for California tiger salamanders with the creation of permanent conservation easement(s), purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. California tiger salamanders may wander up to 1.2 miles from their breeding habitat in search of aestivation habitat; however, the migrations of most individuals appear to be more limited. Trenham and Shaffer (2005) found that 95 percent of all salamanders appear to aestivate within 2100 feet of their breeding habitat. However, in a 5-year study conducted by Orloff (2007), the majority of salamanders in her study area appeared to be moving at least 0.5 miles to the nearest probable breeding ponds, and approximately 7 to 11 percent of those salamanders appeared to travel at least 0.75 miles to get to breeding ponds. Impacts shall be mitigated by providing habitat preservation, enhancement, and management in perpetuity at graduated ratios for upland aestivation habitat. Breeding habitats and suitable upland habitat impacted within 2,100 feet of a known or potential breeding pond will be mitigated at a ratio of 3:1, suitable upland habitat located between 2,100 feet and 2,640 feet (0.5 miles) of a breeding pond will be mitigated at a ratio of 2:1, and suitable upland habitat located between 2,640 feet and 6,636 feet (1.2 mile) of a breeding pond will be mitigated at a ratio of 1:1. Temporary impacts to suitable upland and potential breeding habitat shall be mitigated at a ratio of 0.5:1. A suitable breeding pond is a depression with the potential to contain water for 12 weeks of the year; the depression need not pond for this duration every year to meet the definition of a potential breeding pond. Preserved habitat shall be the same quality or better quality after any restoration activity such as new pond creation (as defined in [2010 Final EIR] Table C.6-6) compared to the impacted habitat, shall consist of no more than three non-contiguous areas of land, and shall include high-quality breeding habitat at a ratio equal to or greater than the potential breeding habitat present within the fence line

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	of the project site (measured by acreage, not by number of breeding ponds). This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **Blunt-nosed leopard lizard.** The Applicant shall compensate for permanent impacts to blunt-nosed leopard lizards and their habitat with the creation of permanent conservation easement(s), purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. The Applicant shall compensate for impacts to suitable blunt-nosed leopard lizard habitat (as defined in [2010 Final EIR] Table C.6-7) at a 3:1 ratio for acreage permanently altered by construction, solar arrays, roads, buildings, switchyard, and other infrastructure. In addition, the Applicant shall compensate for functional degradation of suitable blunt-nosed leopard lizard habitat at a 2:1 ratio for areas surrounded by or bordered by solar arrays, or adjacent to the switchyard, building(s), perimeter fence, and other infrastructure. The mitigation areas must include occupied habitat that is of equal or greater habitat quality after any restoration activity compared to the impacted habitat. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **Mountain plover habitat.** The Applicant shall compensate for permanent impacts to habitat for wintering mountain plovers with the creation of permanent conservation easement(s) , purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP.. Conservation easement(s) shall provide habitat preservation, in perpetuity at a ratio of 1:1 for all impacted acreage. Preserved habitat shall be occupied and be of equal or greater quality after any restoration activity (as defined in [2010 Final EIR] Table C.6-6) compared to the impacted habitat. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **Golden eagle foraging habitat.** The Applicant shall compensate for permanent impacts to habitat for foraging golden eagles with the creation of permanent conservation easement(s) , purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. Conservation easement(s) shall provide habitat preservation, in perpetuity at a ratio of 2:1 for all impacted acreage. Preserved habitat shall be of equal or greater quality after any restoration activity (as defined in [2010 Final EIR] Table C.6-6) compared to the impacted habitat. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **California condor foraging habitat.** The Applicant shall compensate for permanent impacts to habitat for foraging California condors with the creation of permanent conservation easement(s) , purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. Conservation easement(s) shall provide habitat preservation, in perpetuity at a ratio of 2:1 for all impacted acreage. Preserved habitat shall be of equal or greater quality after any restoration activity (as defined in [2010 Final EIR] Table C.6-6) compared to the impacted habitat. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **Burrowing owl.** The Applicant shall compensate for permanent impacts to burrowing owls or their habitat with the creation of permanent conservation easement(s), purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. The mitigation lands will comply

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	with the mitigation guidelines set forth in the Staff Report on Burrowing Owl Mitigation guidelines (CDFG, 2012), which include among other requirements, a requirement that the lands be of equal or greater habitat quality after any restoration activity (as defined in [2010 Final EIR] Table C.6-6) compared to the impacted habitat, and will be preserved and managed for this species in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012). This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **Giant kangaroo rat.** The Applicant shall compensate for permanent impacts to giant kangaroo rats and their habitat with the creation of permanent conservation easement(s), purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. The Applicant shall compensate for impacts to suitable giant kangaroo rat habitat at a 3:1 ratio for acreage permanently altered by construction, solar arrays, roads, buildings, switchyard, and other infrastructure. In addition, the Applicant shall compensate for functional degradation of suitable giant kangaroo rat habitat at a 2:1 ratio for areas surrounded by or bordered by solar arrays, or adjacent to the switchyard, building(s), perimeter fence, and other infrastructure. The mitigation areas must include occupied habitat that is of equal or greater habitat quality and support an equal or greater population of giant kangaroo rat after any restoration activity (as defined in [2010 Final EIR] Table C.6-7) compared to the impacted habitat. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **San Joaquin kit fox.** The Applicant shall compensate for permanent impacts to San Joaquin kit fox and their habitat with the creation of permanent conservation easement(s), purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW, approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. The Applicant shall compensate for impacts to suitable San Joaquin kit fox habitat at a 4:1 ratio for acreage permanently altered by construction, solar arrays, roads, buildings, switchyard, and other infrastructure. Of this 4:1, 2:1 shall be highly suitable habitat (Panoche Valley, slopes of 5 percent or less) and 2:1 shall be moderately suitable habitat (Panoche Valley, slopes of 15 percent or less). In addition, the Applicant shall compensate for functional degradation of suitable San Joaquin kit fox habitat at a 2:1 ratio for areas surrounded by or bordered by solar arrays, or adjacent to the switchyard, building(s), perimeter fence, and other infrastructure. This 2:1 shall be moderately suitable habitat (Panoche Valley, slopes of 15 percent or less). The mitigation areas must include occupied habitat that is of equal or greater habitat quality and support an equal or greater population of San Joaquin kit fox after any restoration activity (as defined in [2010 Final EIR] Table C.6-7) compared to the impacted habitat. In addition, mitigation areas must have slopes less than or equal to 11 percent (USFWS, 2010d). This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **San Joaquin antelope squirrel.** The Applicant shall compensate for permanent impacts to San Joaquin antelope squirrel and their habitat with the creation of permanent conservation easement(s), purchase of credits from an approved mitigation bank, or transfer land in fee to a CDFW approved conservation holder with a deed restriction or other appropriate agreement for the management of the land pursuant to the approved HMMP. The Applicant shall compensate for impacts to suitable San Joaquin antelope squirrel habitat at a 1:1 ratio for acreage permanently altered by construction, solar arrays, roads, buildings, switchyard, and other infrastructure. In addition, the Applicant shall compensate for functional degradation of suitable San Joaquin antelope squirrel habitat at a 1:1 ratio for areas surrounded by or bordered by solar arrays, or adjacent to the switchyard, building(s),

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	perimeter fence, and other infrastructure. The mitigation areas must include occupied habitat that is of equal or greater habitat quality and support an equal or greater population of San Joaquin antelope squirrel after any restoration activities (as defined in [2010 Final EIR] Table C.6-6) compared to the impacted habitat. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species. **Milestones:** Prior to the start of construction (defined as ground or vegetation disturbance) the Applicant shall obtain County approval of the location of mitigation lands, the holder of conservation easements, and the restrictions contained in the conservation easement(s) created for the permanent protection of these lands. Documentation of recorded conservation easement(s) shall be submitted to and approved by the County prior to the start of construction. Verification of having met habitat mitigation requirements (per [2010 Final EIR] Tables C.6-6 and C.6-7 and supporting documentation) shall be reviewed and approved prior to construction of each project phase by the County. This documentation will be posted on the County's website for public review. If this milestone is not met, construction shall not commence. **Monitoring:** Mitigation lands will be monitored and maintained per the requirements set forth the Habitat Mitigation and Monitoring Plan prepared for the project, discussed below under MM BR-1.8. An annual report shall be submitted to the County.
BR-G.6	**Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands.** To ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities, wetlands, and listed or Special-Status plants and wildlife, the Applicant shall retain a County-approved, qualified biologist to prepare a Wetland Mitigation and Monitoring Plan (WMMP) and a Habitat Management Plan (HMP). The WMMP will focus on impacts and mitigation for jurisdictional waters and wetlands while the HMP will focus on the habitat and species management measures. The WMMP and HMP will be submitted to the County of San Benito for approval, prior to the issuance of a construction permit. The WMMP will be subject to approval and conditions set forth by regulatory agencies (USACE, Regional Water Quality Control Board [RWQCB], and CDFW). The HMMP will include, at a minimum, the following information: 1. Summary of anticipated habitat impacts and the proposed mitigation. 2. Detailed description of the location and boundaries of undisturbed project areas proposed for preservation, off-site mitigation lands and a description of existing site-wide conditions. The HMP shall include detailed analysis showing that the mitigation lands meet the performance criteria outlined in Mitigation Measure BR-G.5 (Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP). 3. Discussion of measures to be undertaken to enhance (e.g., through focused management and/or restoration) the on-site preserved habitat and off-site mitigation lands for listed and special-status species. 4. Description of management and maintenance measures (e.g., managed grazing, fencing maintenance) 5. Discussion of habitat and species monitoring measures for on-site preservation areas and off-site mitigation lands, including specific, objectives, performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. Monitoring shall document compliance with Mitigation Measure BR-

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	G.5 (Purchase credits from a CDFW-approved mitigation bank, create a permanent conservation easement(s), in favor of CDFW or a CDFW-approved conservation holder for the management of the land pursuant to the approved HMMP, or transfer land in fee to a CDFW approved conservation holder with a deed restriction for the management of the land pursuant to the approved HMMP) and Mitigation Measures EM-1 and EM-2 (provide funding for and document environmental monitoring). 6. Development of a monitoring strategy for the monitoring of indirect impacts to vegetation and wildlife from alteration to the solar and hydric regimes as a result of solar panels. 7. Development of a monitoring strategy, which shall serve to document the persistence of blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin kit fox, and San Joaquin antelope squirrel populations within the project site. This monitoring will be conducted for a minimum of 5 years after the completion of construction activities. The strategy shall include, at the minimum, the following: a) Documentation of pre-project population or use levels for the species noted above, based on results of focused pre-construction surveys and previously supplied applicant data. b) On-going monitoring of species populations upon completion of construction activities, while the project is in operation, for a minimum of three years. c) Monitoring of reference populations for each of these species on the mitigation lands will enable comparisons with changes in populations not impacted by the project. These results would allow for further refinement of project related affects and environmentally caused responses. 8. A contingency plan for mitigation elements that do not meet performance or final success criteria within 5 years; this plan will include specific triggers for remediation if performance criteria are not being met and a description of the process by which remediation of problems with the mitigation site (e.g., presence of noxious weeds) will occur. The WMMP shall include, at a minimum, the following information: 1. Wetlands and waters impacts summary and habitat mitigation actions; 2. Goals of the restoration to achieve no net loss; 3. A map depicting the location of the mitigation site(s) and a detailed descriptions of existing conditions; and 4. A detailed description of the mitigation design, including: a. Location of new wetlands; b. Description of existing and proposed soils, hydrology, geomorphology, and geotechnical stability, as well as results of applicable soils testing conducted at the mitigation site; c. A detailed description of the steps required for site preparation and a conceptual grading plan—a formal package for plan sets, specs, and estimates for the grading and mitigation construction work shall be prepared based on the concepts set forth in the WMMP no fewer than fifteen days prior to starting work at the mitigation site; d. A description of recommended soil amendments and other site preparation; e. Development of a planting plan, including details on plan procurement, if necessary, propagation, allowable species for seeding and relative pounds/acre and applications; f. Maintenance plan for created wetlands; g. A description of specific monitoring metrics, and objective performance and success criteria, such as delineation of created area as jurisdictional wetland per USACE methods

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	within five years of construction, and others; h. Monitoring methods for vegetation and soils, and measures stipulating quantitative monitoring to occur once per year for at least five years following construction of the wetlands or until success criteria are met; i. A list of reporting requirements and reporting schedule; and j. A contingency plan for mitigation elements that do not meet performance or final success criteria within five years for created wetlands; this plan shall include specific triggers for remediation if performance criteria are not being met and a description of the process by which remediation of problems with the mitigation site (e.g., presence of noxious weeds) shall occur. **Milestones:** The WMMP and HMP must be submitted to the county prior to the start of construction. Prior to final County inspection, initial and estimated final impact acreages must be presented to the County and acquisition of off-site lands must be verified. **Monitoring:** Applicant must implement monitoring as prescribed in the WMMP and HMP.
BR-1.1	**Prepare and implement a Weed Control Plan.** Prior to the issuance of a building permit or any ground disturbance the Applicant shall retain a County-approved, qualified restoration ecologist or biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be administered during the construction and operation of the project for the purpose of invasive weed abatement. The WCP shall be submitted to the County of San Benito for review and approval and shall be updated and utilized for weed eradication and monitoring post-construction. The WCP shall include, but not be limited to, the following: • **Pre-construction weed survey.** Conduct a pre-construction survey for weeds in all areas of proposed ground-disturbing activity, including, but not limited to, solar panel footing preparation and construction areas, assembly yards, access roads, and areas subject to grading for new or improved access roads. Weed populations that are (1) rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006); and/or (2) known to aid and promote the spread of wildfires shall be mapped and described according to density and area covered. Areas with identified weed infestations shall be treated for target species, as described in the approved Weed Control Plan, prior to ground disturbance according to control methods detailed below and best management practices for invasive weed populations. • **Weed control measures**. Weed control treatments may include permitted manual, mechanical, and herbicide methods. Any application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA), and implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 72 hours of a scheduled rain event. Where manual and/or mechanical methods are used, disposal of the plant debris will take place at an appropriate offsite location. Herbicides shall not be used within Ephemeral Drainages, Stock Ponds, or Ephemeral Pools without approval of the County of San Benito and if necessary, the USFWS, and only water-safe herbicides shall be used in these locations. Herbicides shall not be applied when wind velocities exceed 6 mph. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated. Where manual and/or mechanical methods are used, disposal of the plant debris shall follow the regulations set by the County of San Benito. The timing of weed control treatments shall be determined for each plant species with the goal of controlling populations before they start producing seeds.

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	Consultation with a County-approved, qualified biologist shall be required prior to weed control treatments with the intent of avoiding any adverse impacts to plants and wildlife in the area. Before and during construction of the project, measures to control the introduction and spread of noxious weeds in the project work area shall be taken as follows: • **Monitor and treat weed infestations.** From the time ground disturbance through operation of the project, surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required at all sites impacted by construction (array structures, staging areas, etc.), including access roads disturbed during the project. Surveying and monitoring for weed infestations shall occur annually. Treatment of all identified target species, as described in the approved Weed Control Plan, shall occur at a minimum of once annually. When no new seedlings or re-sprouts are observed at treated sites for three consecutive, normal rainfall years, the weed population can be considered eradicated and weed control efforts may cease for that impact site. Weed control efforts shall be timed annually to reduce noxious weed seed production, by conducting activities when flowering has just started, but before seeds have been produced. All plant debris shall be disposed of at an approved location. Weed control efforts shall commence in early spring (February), as indicated annually by a qualified restoration ecologist or biologist. • **Use certified weed-free construction materials.** During project pre-construction and construction, all seeds and straw materials shall be weed-free rice straw, and all gravel and fill material shall be certified weed free by the County Agriculture Commissioners' Office. Any deviation from this will be approved by the County of San Benito. All plant materials used during restoration shall be native, certified weed-free, and approved by the County. • **Wash vehicles and equipment.** During project pre-construction and construction, all construction vehicles will be visually inspected before arrival onsite. Vehicles and equipment will be free of excess dirt or mud prior to access to the site. If vehicles or equipment contain dirt or mud, proper washing will take place in designated areas prior to access onsite. A log shall be kept describing vehicle or equipment washed, methods, and name of washer. This log will be kept onsite and made available upon the request of the County. PVS will follow the developed Weed Control Plan to effectively prevent infestation, eradicate specific populations of invasive plant species in certain project areas, and suppression of existing populations of invasive plant species. Vehicles and equipment will be washed before exiting the site on an "as needed" basis, determined by the accumulation of dirt and mud after inspection by a Biological Monitor. a • In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed before and after entering all Project work areas. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill, unless otherwise approved by the County of San Benito. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the County for inspection at any time and shall be submitted to the County on a monthly basis. • **Weed clearing and disposal.** During project operation and maintenance activities, weeds in assembly yards, array footprints, access roads, staging areas, and any other disturbance areas shall be cleared and disposed of in an approved

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	method. The above measures shall be implemented by the Applicant as specified in the County Approved WCP. **Milestones**: Prior to the issuance of a grading permit the County must approve the WCP which will be developed in consultation with the CDFW. **Monitoring**: An environmental monitor shall be retained to ensure the compliance with measures set forth in the WCP.
BR-1.2	**Develop and implement a Grazing Plan for the project site.** Managed livestock grazing has been proposed for the project site. Prior to the issuance of a construction permit the Applicant shall retain a County-approved qualified restoration ecologist or biologist to prepare a Grazing Plan to be administered during the construction and operation of the project. The Grazing Plan shall be submitted to the County of San Benito for review and approval. The Grazing Plan shall include, but not be limited to, the following: 1. Timing and duration of grazing. 2. Discussion of the ecological impacts of replacing cattle grazing with sheep grazing. 3. Detailed measures to ensure the persistence and prevent the extirpation of annual grassland species, including listed and rare plant species. 4. The requirement that interior fencing for grazing management be constructed of three strand wire and posts and shall include detailed maps of fencing locations. 5. Analysis of the potential for sheep grazing to contribute to the spread of invasive weed seed. 6. Development of a detailed monitoring component to examine the effects of sheep grazing on wildlife on the project site and the effects of changes in vegetation related to shading from solar panels on grazing. The Grazing Plan will be an adaptive management tool. Grazing management strategies will be evaluated over time. Modifications to the strategies used or to the techniques used to accomplish each strategy will be implemented based on results, experience, and the latest research. Proposed alterations to the plan would require the review and approval of the County. **Milestones**: Prior to the issuance of a construction permit the County must approve the Grazing Plan. **Monitoring**: An environmental monitor shall be retained to ensure the compliance with measures set forth in the Grazing Plan.
AQ-1.1	**Reduce fugitive dust.** Full text of the mitigation measure may be found under Air Quality.
BR-3.1	**Conduct pre-construction surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and implement avoidance measures.** Prior to initial ground disturbance and for undisturbed areas in subsequent construction years, the Applicant shall conduct pre-construction surveys for State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate plants in all areas subject to ground-disturbing activity, including, but not limited to, solar panel footing preparation and construction areas, assembly yards, and areas subject to grading for new access roads. The surveys shall be conducted during the appropriate blooming period(s) (February 1 – May 31) by a qualified plant ecologist/biologist according to protocols established by the USFWS, CDFW, and California Native Plant Society (CNPS). All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys will be fully described, mapped, and a CNPS Field Survey Form or written equivalent shall be prepared.

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	Surveys of reference populations shall be conducted along with surveys on the project site to document that precipitation conditions would not have adversely affected the ability to detect the species. If a listed plant species cannot be avoided, consultation with USFWS and CDFW will occur. Prior to site grading, any populations of listed plant species identified during the surveys shall be protected by a buffer zone. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands, and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, physical and chemical characteristics of soils) that are identified by a qualified plant ecologist and/or botanist. The buffer for herbaceous and shrub species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the USFWS, CDFW, and County of San Benito. If impacts to listed plants are determined to be unavoidable, the USFWS shall be consulted for authorization. Additional mitigation measures to protect or restore listed plant species or their habitat may be required by the USFWS before impacts are authorized, whichever is appropriate. **Milestones**: Surveys will be conducted prior to initial ground disturbance and for undisturbed areas during each subsequent construction year. **Monitoring**: The environmental monitor will document when yearly survey events occur, review the resulting data and update the WEEP (MM BR-1.1) if impacts to species not previously addressed are anticipated.
BR-6.1	**Conduct pre-construction surveys for nesting and breeding birds and implementation of avoidance measures.** Prior to any on-site site disturbance (i.e., mobilization, staging, grading or construction) during the breeding season (February 1 through August 15) for any birds that could occur on the site, the Applicant shall retain a County-approved qualified biologist to conduct pre-construction surveys for nesting birds. The qualified biologist must be trained and able to hear grasshopper sparrows. Surveys for nesting birds shall be conducted within the recognized breeding season in all areas within 500 feet of solar arrays, staging areas, substation sites, and access road locations. Surveys for raptors shall be conducted for all areas between February 1 and August 15. The required survey dates may be modified based on local conditions, as determined by the County-approved, qualified biologist, with the approval of the County of San Benito. If breeding birds with active nests are found prior to or during construction, a biological monitor shall establish a 300-foot buffer around the nest for ground-based construction activities and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. If nesting golden eagles are identified, a 0.5-mile no activity buffer will be implemented in accordance with the Eagle Conservation Plan (subject to approval by the USFWS and CDFW). Should condors be found roosting within 0.5 miles of the construction area, no construction activity shall occur between 1 hour before sunset to 1 hour after sunrise, or until the condors leave the area. Should condors be found nesting within 1.5 miles of the construction area, no construction activity will occur until further authorization from the USFWS. All California condor sightings in the project area will be reported directly to the USFWS by the County qualified biologist in accordance with Avian Conservation Strategy (subject to approval by the USFWS and CDFW). The prescribed buffers may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the County as appropriate. The biological

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	monitor(s) shall conduct regular monitoring of the nest to determine success/failure and to ensure that project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitor(s) shall be responsible for documenting the results of the surveys and ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies. If for any reason an active bird nest must be removed during the nesting season, the Applicant shall provide written documentation providing concurrence from the USFWS and CDFW authorizing the nest relocation. Additionally the Applicant shall provide a written report documenting the relocation efforts. The report shall include what actions were taken to avoid moving the nest, the location of the nest, what species is being relocated, the number and condition of the eggs taken from the nest, the location of where the eggs are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent. Surveys shall be conducted to include all structural components of the solar arrays and related structures as well as all construction equipment. If birds are found to be nesting in facility structures, buffers as described above shall be implemented. If birds are found to be nesting in construction equipment, that equipment shall not be used until the young have fledged the nest or, if no young are present, until after the breeding season has passed. If trees or existing poles/towers are to be removed as part of project related construction activities they will be done so outside of the nesting season to avoid additional impacts to nesting raptors. If removal during the nesting season can't be avoided then trees and existing poles/towers the biological monitor must confirm that the nest is vacant prior to its removal. If nests are found within these structures and contain eggs or young the biological monitor shall allow no activities within a 300-foot buffer for nesting birds and/or a 500-foot buffer for raptors until the young have fledged the nest. **Milestones:** Prior to the commencement of construction activities pre-construction nesting surveys will be conducted; during the recognized breeding season for most birds biological monitors will routinely inspect for active nests. **Monitoring:** The environmental monitor will need to conduct routine checks of nests during the known breeding season and, if young are present, monitor until young have fledged.
BR-7a.1	**Impacts to all potential breeding habitat for western spadefoot toad shall be avoided to the extent feasible.** If work within this habitat cannot be avoided, work shall be conducted outside the breeding season of adult western spadefoot toads and the subsequent developmental period of larvae. Therefore, when possible, no work within this habitat will be conducted between January 31 and April 1 or until the habitat is completely dry. If vehicles are required to drive over these areas mats or pads that prevent compaction shall be used. If avoidance is not feasible and work must occur during the wet season, the Applicant shall implement pre-construction surveys for western spadefoot toad. If adult toads or larvae/tadpoles are found a 200-foot buffer shall be placed around these areas and shall remain in place until the larva/tadpoles complete metamorphosis and retreat to upland areas. The biologist shall document all suitable occupied and unoccupied western spadefoot toad habitat. Prior to final County inspection or occupancy, whichever comes first, the biologist shall prepare a written report detailing the survey results, when necessary, and compliance with avoidance measures for County review and approval. Copies of this report shall also be provided to the CDFW. **Milestones:** Prior to the commencement of construction activities implement avoidance

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	and minimization measures. **Monitoring:** Environmental monitor shall ensure implementation of avoidance measures and, when necessary, that buffer delineations are kept in good working order.
BR-7a.2	**Conduct pre-construction surveys for San Joaquin coachwhip and coast horned lizard and implement avoidance measures.** The Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys immediately prior to (i.e., the morning of the commencement of) ground disturbance. If San Joaquin coachwhips or coast horned lizards are found within the area of disturbance and can be captured, the biologist will relocate the animals to a pre-approved location outside the project area. The candidate locations for species relocation will be identified prior to construction and based on the size and type of habitat present, the potential for negative interactions with resident species, and species range. A final report identifying the number of animals moved, any mortality identified during the relocation event, and the general health of the species shall be completed and submitted to the County on a monthly basis. Habitat suitability and occupancy data will be used to determine whether proposed mitigation lands for biological resources meet the requirements for CSSC species mitigation as outlined in Mitigation Measure BR-G.5. **Milestones:** Prior to the disturbance of habitat conduct pre-construction surveys for San Joaquin coachwhip and coast horned lizards. Re-locate when identified. **Monitoring:** Environmental monitor shall monitor for occurrences of these species when construction activities occur in suitable habitat.
BR-7b.1	**Conduct pre-construction surveys for non-breeding birds designated as California Species of Special Concern.** The Applicant shall retain a qualified, County-approved biologist to conduct pre-construction surveys for birds designated as California Species of Special Concern (CSSC) in areas proposed for ground disturbance prior to ground-disturbing activities. The timing of surveys shall be determined in consultation with California Department of Fish and Game. Habitat suitability and occupancy data will be used to determine whether proposed mitigation lands for biological resources meet the requirements for CSSC species mitigation as outlined in Mitigation Measure BR-G.5.
BR-7c.1	**Conduct pre-construction surveys for short-nosed kangaroo rat, San Joaquin pocket mouse, and Tulare grasshopper mouse and implementation of avoidance measures.** No more than 30 days prior to commencement of ground disturbing activities the Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys for each phase of the project. If occupied habitat for Short-nosed kangaroo rat, San Joaquin pocket mouse, and/or Tulare grasshopper mouse is found it shall be flagged. Impacts to occupied habitat shall be avoided to the extent feasible. If individuals are found within an area proposed for disturbance and can be captured, the biologist will relocate them to a pre-approved area outside the project area. The candidate locations for species relocation will be identified prior to construction and based on the size and type of habitat present, the potential for negative interactions with resident species, and species range. A final report identifying the number of animals moved, any mortality identified during the relocation event, and the general health of the species shall be completed and submitted to the County on a monthly basis. Habitat suitability and occupancy data will be used to determine whether proposed mitigation lands for biological resources meet the requirements for CSSC species mitigation as outlined in Mitigation Measure BR-G.5.

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	Milestones: Prior to the disturbance of habitat conduct pre-construction surveys for Shortnosed kangaroo rat, San Joaquin pocket mouse, Tulare grasshopper mouse. Flag occupied areas and re-locate when identified. **Monitoring:** Environmental monitor shall monitor for occurrences of these species when construction activities occur in suitable habitat.
BR-8.2	**Avoid disturbance to ephemeral pools occupied by vernal pool fairy shrimp to the maximum extent practicable, and mitigate for any unavoidable impacts.** For ephemeral pools occupied by vernal pool fairy shrimp as determined by the protocol surveys described above, the Applicant shall avoid filling or disturbing such pools to the maximum extent practicable. This includes avoiding any ground disturbance within 100 feet of the edges of such pools. To the extent that the fill or disturbance of ephemeral pools occupied by vernal pool fairy shrimp cannot be avoided, each acre, or fraction thereof, of occupied vernal pool habitat which is filled or disturbed shall be compensated by the preservation and management of 2 acres of occupied vernal pool fairy shrimp habitat (2:1 preservation ratio) and the creation, management, and preservation of 1 acre of vernal pool habitat (1:1 creation ratio) at a location approved and pursuant to authorization received from the USFWS. The Applicant may also satisfy this mitigation requirement through the purchase of credits at a USFWS-approved mitigation bank.
BR-8.3	**Avoid seasonal depressions and known waterbodies.** All known seasonal depressions and water bodies that have been verified to be occupied by listed fairy shrimp shall be shown on all applicable construction plans and submitted with the construction permit application. The Applicant shall avoid seasonal depressions known to support listed fairy shrimp (see Impact BR-20). A 100-foot buffer shall be placed around these seasonal depressions and known waterbodies to prevent equipment from entering these areas. This buffer shall be shown on all applicable construction plans (with a highly visible method easily identifiable by construction workers in the field). On-site delineation of this buffer shall be in place prior to the commencement of construction activities. The method used for delineating the buffer shall be kept in good working order for the duration of the construction period, and removed prior to final County inspection. If avoidance of known populations of listed fairy shrimp is not possible, consultation with the USFWS regarding the potential impacts to the species will be necessary. **Milestone:** Seasonal depressions and known waterbodies to be shown on construction plans. An on-site delineation of the buffer will be installed prior to commencement of construction activities and maintained throughout the construction period **Monitoring**: The environmental monitor will periodically check to ensure that the onsite delineation method is in good working order and that construction activities have remained outside of these areas.
BR-9.1	**Conduct pre-construction surveys for California tiger salamander and implement avoidance measures.** The Applicant shall perform pre-construction California tiger salamander surveys (see Interim Guidance on Site Assessment and Field Surveys for Determining Presence of a Negative Finding of the California Tiger Salamander (CDFW October 2003) for guidelines on survey techniques, limitations, and inference limits) prior to the construction of all project phases in areas within the project boundary fence line of suitable aestivation or breeding habitat within 1.2 miles of known or potential breeding ponds. Avoidance measures for California tiger salamander shall include those outlined in MM BR-G.2 (Implement Best Management Practices). The following measures shall also be required:

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	Work shall be restricted to daylight hours or non-rain nighttime hours. During the site construction phases, grading and subsurface disturbing activities, including pile driving on the project site, after dusk shall be prohibited unless coordinated through the County. If such activity is necessary, it should be conducted during nights without precipitation. If activity after dusk on a day with precipitation is still necessary, then one or more on-site qualified, County-approved biologists shall monitor these activities to ensure California tiger salamanders that may be active above ground are avoided. **Inspect pipes and similar structures.** All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for California tiger salamanders before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California tiger salamander is discovered inside or underneath a pipe, the salamander shall be removed by a qualified, County-approved biologist and placed in a mammal burrow in a designated safe area away from construction activities. **Avoid disturbance to all ponds and in-stream pools.** All ponds and in-stream pools on the project site may provide potential breeding habitat for California tiger salamanders. All ponds and in-stream pools on the project site shall be avoided unless they are completely dry. They should be avoided to the maximum extent possible to allow resident California tiger salamanders to continue using them after construction has ended. **Translocate individual California tiger salamanders**. Should individual California tiger salamanders be observed within the construction zone either during pre-construction surveys or during construction, a qualified biologist, as identified by the USFWS, shall move the animal out of harm's way and place the animal at the mouth of the closest protected burrow. **Creation of new breeding habitat.** The Applicant shall create new ponds on appropriate mitigation lands to offset any potential impacts to known or potential breeding habitat located on the project site (e.g., two ponds in Section 4 that historically supported CTS breeding plus any other ponds within the approved project fence line that are shown, after survey efforts, to support breeding) which will be subject to approval from the USFWS and CDFW. The size of the mitigation ponds shall be equal to those ponds impacted either directly or indirectly by the project.
BR-10.1	**Conduct pre-construction surveys for blunt-nosed leopard lizard and implement avoidance measures.** The Applicant shall perform preconstruction surveys prior to all construction activities that will result in permanent or temporary ground disturbance within 30 days prior to of construction for the entire construction footprint of the project. A County-approved, qualified biologist shall record the geographic coordinates of each blunt-nosed leopard lizard individual detected on the construction footprint of the project site. Implementation of avoidance measures will be described in detail in an approved BNLL Avoidance Plan. The final measures will be approved by USFWS and CDFW and will include the following: **Buffers**. The point location data shall be used to delineate buffers designed to encompass a 52.4 acre home range of each individual leopard lizard. A buffer would minimize the risk of direct or indirect take of blunt-nosed leopard lizard individuals in conjunction with avoidance and exclusion criteria as described below. A buffer of any size does not guarantee that take will not occur but provides a high degree of certainty that each individual leopard lizard will be adequately protected. All observed BNLL shall be avoided by a flagged 52.4-acre buffer as described in the BNLL Avoidance Plan. **Avoidance**. No construction activities or construction-related vehicular traffic shall be allowed within the identified buffers, and all movement corridors shall be delineated with

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	fencing and signage identifying the buffers as off-limits to construction personnel. The fencing around the buffers shall be elevated 5-6 inches off the ground surface to allow the passage of San Joaquin kit fox and other small mammals through the area. The Designated Biologist or Biological Monitor may also recommend additional protection measures around work areas (see Exclusion, below). All fencing will be actively maintained and repaired as directed by biological monitors and removed upon completion of that portion of project construction. **Exclusion.** All construction work and equipment use shall occur within areas that a Designated Biologist or Biological Monitor(s) has completed a preconstruction survey within 30 days of the activity. Construction work and equipment use will be limited to areas in which a Biological Monitor is able to actively monitor for changes to site conditions and the presence of protected species. Based on the discretion of the Designated Biologist or Biological Monitor, additional protection measures such as exclusion fencing may be used around work areas. If exclusion fencing is recommended, exclusion fencing for blunt-nosed leopard lizard shall be installed under the supervision of a qualified biologist in accordance with Mitigation Measure BR-G.4 (Implement Biological Construction Monitoring). If a blunt-nosed leopard lizard is found within a work area, all work in the portion of the work area as deemed necessary by the Designated Biologist shall cease, until the implementation measures below are implemented. Exclusion fencing shall be uninstalled upon conclusion of construction in each work area adjacent to the blunt-nosed leopard lizard exclusion zone. **Implement protective procedures if a blunt-nosed leopard lizard is detected on the project site.** If a blunt-nosed leopard lizard (live or dead) is discovered on the site by a biological monitor or anyone else, the following protocol shall be implemented: • The project supervisors and biological monitor shall be immediately notified. • In the case of a live blunt-nosed leopard lizard, the Designated Biologist shall order the cessation of all work activities within t a buffer that will be determined at their discretion such that "take" of blunt-nosed leopard lizard is avoided. The following measures shall be implemented: 1. At the direction of the Designated Biologist, an exclusion zone shall be marked by stakes and flagging 52.4 acres around the location in which the blunt-nosed leopard lizard was observed to protect the blunt-nosed leopard lizard from construction activities. To further protect the blunt-nosed leopard lizard, temporary exclusion fencing may be installed per "Exclusion", above. 2. The Designated Biologist shall immediately notify the USFWS and CDFW via telephone or electronic mail when a blunt-nosed leopard lizard is encountered that may be in harm's way. 3. Subject to the approval of USFWS and CDFW, the Designated Biologist shall identify the appropriate ongoing avoidance measures that will result in avoiding "take" of the observed blunt-nosed leopard lizard. In the case that a blunt-nosed leopard lizard is killed or injured as a result of project related activities, all work activities within the project site shall immediately cease in order to ensure that no additional lizards are impacted by construction activities, and the biological monitor shall immediately notify the USFWS and CDFW via telephone or electronic mail. Work shall not resume until approved by both agencies and any other mitigation measures recommended by the agencies have been fully implemented. Areas known to be occupied by blunt-nosed leopard lizards and all areas where protocol level surveys have not been completed shall be completely avoided. All areas known to be occupied by blunt-nosed leopard lizards (i.e., the buffers and corridors established during the implementation of MM BR-10.3 and 10.4) and areas in which protocol-level surveys for the species have not been conducted shall be completely avoided during construction.

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	Establish movement corridors to allow movement of isolated blunt-nosed leopard lizards to and from areas of greater population density. Buffer areas established for isolated individuals discovered in the uplands of the project site, shall be connected with suitable movement corridors that link isolated buffers either to occupied or suitable habitat located off the project site. This connection may include ephemeral washes/ drainages or to other movement corridors providing such linkage. Movement corridors must be at least 100 feet wide, and construction activities or vehicular traffic shall be prohibited in these areas. All movement corridors shall be delineated with fencing and signage identifying each corridor as off limits to construction personnel. The fencing shall be elevated to allow the passage of San Joaquin kit fox and small mammals. All fencing shall be actively maintained and repaired as directed by biological monitors and removed upon completion of the project. **Avoid use of plastic monofilament netting.** Tightly woven fiber netting or similar material shall not be used for erosion control or other purposes at the project site to ensure that blunt-nosed leopard lizards do not become entangled or trapped. This limitation shall be communicated to all contractors through use of Special Provisions included in the bid solicitation package.
BR-12.2	**Avoid and report California condors.** Should a condor land within the project area all work shall be stopped within 500 feet of the condor until the bird has left the area on its own. If the bird fails to leave the area because of injury or other factors the Applicant shall contact the USFWS /CDFW and County for direction. All California condor sightings in the project area shall be reported directly to the USFWS/CDFW and County within 24 hours.
BR-13.1	**Focused pre-construction burrowing owl surveys and implementation of avoidance measures.** No more than 30 days and no less than 14 days prior to the commencement of initial ground disturbing activities, the Applicant shall implement focused pre-construction reconnaissance level surveys for burrowing owls. Surveys shall be conducted prior to the initiation of ground disturbance and be conducted by County-approved, qualified biologist(s) with experience surveying for burrowing owls. Surveys for burrowing owls shall be conducted in conformance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012) protocols. Surveys shall be completed within all areas proposed for ground disturbance and shall include the following avoidance measures: 1. Occupied burrows shall not be disturbed during the nesting season (1 February through 31 August) unless a qualified County-approved biologist verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Owls present on site after 1 February will be assumed to be nesting unless evidence indicates otherwise. If western burrowing owls are present at the site, a qualified biologist will determine whether an exclusion zone can be established in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG, 2012) protocols. This protected buffer area will remain in effect until 31 August, or based upon monitoring evidence, until the young owls are foraging independently or the nest is no longer active. If a buffer consistent with the staff report (CDFG, 2012) cannot be established, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls. If a biologist experienced with burrowing owl determines the relocation of owls is necessary, a passive relocation effort may be conducted in

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	coordination with CDFW as appropriate. During the nonbreeding season (generally 1 September–31 January), a qualified biologist may passively relocate burrowing owls found within construction areas in accordance with Staff Report on Burrowing Owl Mitigation (CDFG, 2012). Prior to passively relocating burrowing owls, a Burrowing Owl Exclusion Plan shall be prepared by a qualified biologist in accordance with Appendix E of the *Staff Report on Burrowing Owl Mitigation* (CDFW, 2012). The Burrowing Owl Exclusion Plan shall be submitted to the CDFW for review prior to implementation, or as otherwise required by the CDFW during the permitting process. 2. For burrowing owls present during the non-breeding season (generally 1 September to 31 January), a 150-ft buffer zone will be maintained around the occupied burrow(s). 3. If there is any danger that owls will be injured or killed as a result of construction activity, during the non-breeding season, the birds may be Katz & Associates-evicted during the non-breeding season. Relocation of owls during the non-breeding season will be performed by a qualified biologist using one-way doors, which should be installed in all burrows within the impact area and left in place for at least two nights. These one-way doors will then be removed and the burrows excavated to ensure no burrowing owl is within the burrow and then backfilled immediately prior to the initiation of grading. To avoid the potential for owls evicted from a burrow to occupy other burrows within the impact area, one-way doors will be placed in all potentially suitable burrows within the impact area when eviction occurs. **Milestones:** Prior to the commencement of construction activities the required surveys shall be conducted and any required buffers shall be established. **Monitoring:** Biological monitor shall ensure implementation of avoidance measures and that buffer delineations are kept in good working order.
BR-14.1	**Implement Avian Power Line Interaction Committee guidelines (APLIC).** The Applicant will be required to construct all transmission facilities, towers, poles and lines in accordance with and comply with all policies set forth in the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC) and *Reducing Avian Collisions with Power Lines: State of the Art in 2012* (APLIC, 2012), to minimize avian electrocutions as a result of the construction of the project. Details of design components shall be indicated on all construction plans and measures to comply with APLIC policies and guidelines shall be detailed in a separate attachment, all of which will be submitted with the construction permit application. The Applicant shall be required to monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during project construction provided these actions do not require the purchase of previously ordered transmission line structures. **Milestones:** Designs and documentation of compliance with the APLIC guidelines to be submitted with the construction permit application. A review of compliance with submitted materials will be conducted prior to the final County inspection. **Monitoring:** None required.
BR-14.2	**Prepare and Implement an Avian Conservation Strategy and Eagle Conservation Plan.** Prior to the issuance of a construction permit, the Avian Conservation Strategy and Eagle Conservation Plans (which have been prepared by the Applicant in draft format) shall be reviewed and approved by the County. The final plans will be developed in consultation with California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS). These plans have been prepared in general accordance with the USFWS Land-based Wind Energy Guidelines (USFWS 2012), Eagle Conservation Plan Guidance Module 1

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	– Land-based Wind Energy Version 2 Guidance (USFWS 2013) and with information provided in the Avian Protection Plan guidelines outlined by APLIC (2005). The details of the final plans are subject to the approval and conditions required by the wildlife agencies. The plan will require monitoring of (1) the death and injury of birds from collisions with facility features such feeder/distribution lines, solar panels, and (2) impacts to aquatic insects from polarized light from solar panels that may affect insectivorous (insect-eating) birds. The study design shall be approved by the County of San Benito in consultation with the CDFW and/or the USFWS. **Bird mortality study.** The bird mortality component of the Avian Conservation Strategy shall include at a minimum: detailed specifications on data, a carcass collection protocol, and a rationale justifying the proposed schedule of carcass searches. The study shall also include seasonal trials to assess bias from carcass removal by scavengers as well as searcher bias. **Polarized light and insectivorous birds study.** The study of polarized light impacts on insectivorous birds shall include at a minimum: detailed specifications regarding data requirements, including protocols for collection and identification of insect eggs found on solar panels, and a rationale for a data collection schedule. During construction and for one year following the beginning of the solar farm operation the biologist shall submit annual reports to the County describing the dates, durations, and results of monitoring and data collection. The annual reports shall provide a detailed description of any project-related bird or wildlife deaths or injuries detected during the monitoring study or at any other time and data collected for the study of polarized light impacts on insectivorous birds. The report shall analyze any project-related bird fatalities or injuries detected, and provides recommendations (in consultation with the County) for future monitoring and any adaptive management actions needed. **Thresholds.** Thresholds will be determined by the County in consultation with CDFW and/or USFWS. If the County determines that either (1) bird mortality caused by solar facilities is substantial and is having potentially adverse impacts on special-status bird populations, or that (2) the attraction of polarized light from solar panels is causing reproductive failure of aquatic insect populations at high enough levels to adversely affect insectivorous special-status birds, the Applicant shall be required to implement some or all of the mitigation measures below. **Implementation Measures.** To minimize bird mortality caused by solar facilities, the Applicant may be required to install additional bird flight diverters alterations to project components that have been identified as key mortality features, or implement other appropriate actions approved by the County and regulatory agencies based on the findings of the Avian Conservation Strategy and Eagle Conservation Plan. If mitigation actions are required, the annual reporting shall continue until the County, in consultation with CDFW and USFWS, determines whether more years of monitoring are needed, and whether additional mitigation and adaptive management measures are necessary. After the Avian Conservation Strategy and Eagle Conservation Plan is determined by the County to be complete, the Applicant shall prepare papers that describe the design and monitoring results of the two studies to be submitted to peer-reviewed scientific journals. Proof of submittal shall be provided to the County, CDFW and USFWS within one year of concluding the monitoring studies. **Milestones:** Avian Conservation Strategy and Eagle Conservation Plan shall be submitted to the County prior to the start of construction. The County will consult with CDFW and/or USFWS on the proposed program prior to approval. **Monitoring:** Qualified biologist to monitor impacts to birds during construction and for

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	one year after completion of construction.
BR-15.1	**Survey pre-construction maternity colony or hibernaculum for sensitive bats**. The Applicant shall retain a County-qualified biologist, holding a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle bats, to conduct pre-construction surveys for sensitive bats. Surveys shall be conducted at least 30 days prior to construction and preferably during the maternity season (1 March to 31 August) within 500 feet of project activities (where project personnel can secure right of entry and there is potential habitat for bat roosts) in order to document potential use of the site by special-status bat species and document the location of active and potential non-active maternity roost sites. If active maternity roosts or hibernacula are found, the structure, tree or tower feature occupied by the roost shall be avoided (i.e., not removed), if feasible. If avoidance of the maternity roost is not feasible, the biologist shall survey (through the use of radio telemetry or other CDFW approved methods) for nearby alternative maternity colony sites. If the biologist determines in consultation with and with the approval of the CDFW and the County that there are alternative roost sites used by the maternity colony and young are not present then no further action is required, and it will not be necessary to provide alternate roosting habitat. If no active roosts are found, then no further action is required. If active maternity roosts are absent, but a hibernaculum (i.e., a winter roost) is present, then MM BR-15.2 is not necessary, but MM BR-15.3 is required. **Milestones:** Prior to the commencement of construction activities, surveys will be conducted and the County will enforce compliance with the above avoidance measures. **Monitoring:** If a potential non-active maternity roost site is identified during preconstruction surveys performed outside of the maternity season (31 March to 31 August), a bat biologist, as defined as an individual holding a Memorandum of Understanding to handle bats in California, will conduct follow-up surveys during active construction during the next maternity season to determine if the roost is a maternity colony. The surveys will include a minimum of two counts per summer: one count in early summer during the prevolant period, or before the young of the year are able to fly, and a second count in late summer, during the postvolant period, after the young of the year are able to fly, but before the maternity colonies disperse.
BR-15.2	**Provide substitute roosting habitat.** If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the Project site no less than one year prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats requirements in coordination with the County. By making the roosting habitat available a year prior to eviction (MM BR-15.3), the colony will have a better chance of finding and using the roost. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW shall also be notified of any hibernacula or active nurseries within the construction zone. If construction of alternative roost sites is required, the biologist shall provide a written report, documenting the required coordination with CDFW as well as the location of roost sites. This report shall be provided to the County. **Milestones:** Construction of alternative roost sites as required for the duration of construction activities and submission of a written report detailing activities and submitted to the County prior to final County inspection. **Monitoring:** None required.
BR-15.3	**Exclude bats prior to eviction from roosts.** If non-breeding bats are found in

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	structures, towers or trees scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal). If an active maternity roost is located in an area to be impacted by the Project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 August) using the exclusion techniques described above. **Milestones:** Exclusion of non-breeding bats found in structures, towers or trees scheduled to be removed as needed for the duration of construction activities. **Monitoring:** None required.
BR-15.4	**Implement management recommendations at known roosts**. If maternity roosts are identified during pre-construction conducted under MM BR-15.1 or during routine inspections of the conservation lands as identified in the HMP (e.g. road surveys for invasive species, antelope squirrel and BNLL), protective measures would be implemented to protect those roosts. Management actions to be considered shall include measures that protect and/or provide suitable roosting opportunities, such as mine gate closures or protection of existing structures/riparian habitat that would support bat roosts within the Conservation Lands. These measures shall be incorporated into the HMP developed for the Conservation Lands per MM BR-G.6. **Milestones:** Prior to the commencement of construction activities, the Applicant must submit the HMP per MM BR-G.6 to the County for approval.
BR-16.1	**Conduct focused pre-construction giant kangaroo rat burrow/precinct surveys and avoid.** No more than 30 days prior to commencement of ground disturbing activities the Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys for each phase of the project. If active giant kangaroo rat burrows/precincts are present, they shall be flagged, and ground-disturbing activities shall not occur within 50 feet of each active burrow/precinct. The setback shall be marked in the field to be easily visible by all construction personnel. The biological monitor shall periodically field check the mapped burrows/precincts to ensure that buffer delineation and flagging are all in good working order. All active burrows/precincts shall be mapped and incorporated into a GIS based figure for use by the on-site monitors and construction crews. Figures shall include each mapped burrow/precinct and buffer utilizing a highly visible method easily identifiable by construction workers and monitors in the field. If avoidance is not possible, the Applicant and qualified biologist will take the following sequential steps when working in such areas: 1. Giant kangaroo rats present in impact areas shall be live trapped and relocated to suitable habitat as described in an approved Giant Kangaroo Rat Relocation Plan (described below). The Final Giant Kangaroo Rat Relocation Plan will be developed

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	in coordination with wildlife agencies (USFWS and CDFW). If the disturbance is temporary (< 1 day) trapped individuals may be held under suitable conditions, during the period of disturbance, and then released at the same location at which they were trapped. Other suitable locations include unoccupied burrow precincts within the habitat corridors (see MM BR-16.3) or on the mitigation lands. At least 30 days before the start of construction, a Giant Kangaroo Rat Relocation Plan shall be submitted to the County for approval. The plan shall include but not be limited to the following: the methods for capturing animals; the procedures for evaluating health of the animals; the location and methods for storing live animals; the methods for soft release (i.e., fencing); radio tagging; monitoring for survivorship; and remedial actions for injured or lost animals. The Giant Kangaroo Rat Relocation Plan would generally include these components; however the details of the final plan will be subject to the approval and conditions set forth by wildlife agencies. 2. Methods shall be taken to prevent entry to the burrow (e.g., one way doors) by giant kangaroo rat and other small mammal species until construction is complete in these areas. 3. Once construction activities are complete access to the burrows shall be restored where possible. If construction-related impacts would result in the crushing or destruction of a burrow then the burrow shall be excavated (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time or as described in the wildlife agency-approved Giant Kangaroo Rat Relocation Plan). If giant kangaroo rat burrows/precincts must be trapped from January through June (recognized breeding/mating season), the Giant Kangaroo Rat Relocation Plan includes protocol to be followed if a lactating female giant kangaroo rat or young are encountered. If exclusion fencing for giant kangaroo rat is deemed necessary by the County's biological monitor, fencing shall be installed in accordance with Mitigation Measure BR-G.4 (Implement Biological Construction Monitoring). The Applicant shall document all giant kangaroo rat burrows/precincts abandoned or destroyed and provide a written report to the County of San Benito, prior to final County inspection that allows operation of each project phase. **Milestones:** Prior to the commencement of construction activities, pre-construction surveys shall be completed. Prior to the final County inspection that allows operation, the final report (as detailed above) shall be submitted to the County. **Monitoring**: On-site biological monitor will periodically survey for potential burrows and implementation of the above avoidance measures.
BR-16.2	**Minimize impacts of foundation support installations.** The Applicant shall evaluate and implement feasible foundation installation systems to minimize noise and vibration that would affect ground-dwelling wildlife.
BR-16.3	**Preserve, manage, and maintain giant kangaroo rat habitat corridors across the project footprint.** In order to preserve, manage, and maintain the ongoing functionality of the proposed giant kangaroo rat corridors (habitat corridors) on the Valley Floor Conservation Lands, the Applicant shall implement the following measures: 1. To ensure the ongoing functionality of the habitat corridors, the habitat corridors shall satisfy the following requirements: a. The habitat corridors need not be of uniform width but at no point shall a corridor width be less than 100 feet on either side of the incised channel, or more than 100 feet from the ordinary high water mark where no incised channel is evident.

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	b. A minimum of 50 active precincts shall occur within the habitat corridor at the time of corridor designation, and they shall be distributed throughout the length of the corridor to ensure connectivity. c. Habitat corridors shall conform to contours of natural ecological features in the landscape in which the ecological requirements of the species are the foremost consideration. d. Habitat corridors shall be fenced with 3-strand barbed wire. Fence locations shall be revised from those defined in the Final EIR for the proposed project and alternatives to be a maximum of 25 feet from edges of all panel installations. e. Project design shall incorporate road designation that avoids roads adjacent to the corridors (i.e., there shall be no driving on the side of any panel block adjacent to a designated habitat corridor). 2. New construction of buildings, ornamental tree plantings, or other features not already identified in the Final EIR that would reduce available habitat and may provide perching opportunities for predatory birds shall not be permitted within or directly adjacent to the habitat corridors. 3. Prior to commencement of construction, habitat corridors shall be placed under a biological conservation easement to be preserved in perpetuity pursuant to Mitigation Measure BR-G.5, subject to the following restriction: driving or road building shall be prohibited across habitat corridors except where this provision conflict with the emergency access requirements of the CAL FIRE/San Benito County Fire Department. **Milestones**: Conservation easement on habitat corridors shall be recorded prior to commencement of construction. **Monitoring**: Construction monitoring shall occur for the duration of construction and if the biologist determines that the corridors are not functional, adaptive management measures shall be implemented in consultation with USFWS and CDFW.
BR-17.1	**Conduct pre-construction San Joaquin antelope squirrel surveys and implement avoidance measures.** No more than 30 days prior to the commencement of ground disturbance activities the Applicant shall retain a County-approved, qualified biologist to conduct pre-construction surveys for each phase of the project. If present, active San Joaquin antelope squirrel burrows shall be flagged and ground-disturbing activities shall be avoided within a minimum of 50 feet surrounding each active burrow. If avoidance is not possible, the Applicant shall take the following sequential steps when working in such areas: 1. Allow for one night without disturbance to the burrow and surrounding area to allow the antelope squirrels to vacate the burrow 2. Antelope squirrels shall be live trapped and relocated out of impacted areas as described in a the San Joaquin Antelope Squirrel Relocation Plan. The Final San Joaquin Antelope Squirrel Relocation Plan shall be developed in coordination with wildlife agencies (USFWS and CDFW) and details of the plan will be subject to final agency authorization and conditions of approval 3. Methods shall be taken to prevent reentry to the burrow by antelope squirrels (and other small mammal species) until construction is complete in these areas. 4. Once construction activities are complete access to the burrows shall be restored. If construction-related impacts would result in the crushing or destruction of a burrow then the burrow shall be excavated (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time) or as specified in the agency-approved San Joaquin Antelope Squirrel Relocation Plan.

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	5. Antelope squirrel burrows shall not be disturbed from January to May (recognized breeding/mating season) unless a qualified biologist, utilizing video technology, verifies that no young are present in the burrow, or except following methods detailed in the agency-approved Antelope Squirrel Relocation Plan. The Applicant shall document all San Joaquin antelope squirrel burrows abandoned or destroyed and, prior to final County inspection, provide a written report to the County of San Benito, CDFW and USFWS. **Milestones:** Prior to the commencement of construction activities, pre-construction shall be completed. Prior to the final County inspection the final report, detailed above, shall be submitted to the County, CDFW and USFWS. **Monitoring**: On-site biological monitor will periodically survey for potential burrows requiring the above avoidance measures.
BR-18.1	**Conduct focused pre-construction surveys for American badger surveys and implementation of avoidance measures.** No more than 30 days prior to the commencement of construction activities, the Applicant shall retain a County-qualified biologist to conduct pre-construction surveys for American badger within suitable habitat on the project site. If present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Maternity dens shall be avoided during puprearing season (15 February through 1 July) and a minimum 200-foot buffer established. The extent of buffers shall be flagged in the field utilizing a method highly visible by construction crews. Buffers may be modified with the concurrence of the CDFW. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction to monitor for adequate protection of all identified dens and to ensure that all flagging is kept in good working order. If avoidance of a non-maternity den (impacts to maternity dens is not allowed) is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 1 July). Any passive relocation of badgers shall occur only after consultation with the CDFW and the biological monitor. Prior to the final County inspection or occupancy, whichever comes first, a written report documenting all badger related activities (e.g., den flagging, monitoring, badger removal) shall be provided to the County of San Benito. A copy of the report will also be provided to the CDFW. **Milestones:** Prior to the commencement of construction activities pre-construction surveys will be conducted and prior to final County inspection, the County will conduct a review of compliance with the above avoidance measures. **Monitoring:** Biological monitor shall routinely inspect protected dens and ensure that delineation methods are in good working order.
BR-19.1	**Conduct focused pre-construction San Joaquin kit fox surveys and implementation of avoidance measures,** as detailed in the San Joaquin kit fox Conservation Measures document for the project. The San Joaquin kit fox Conservations Measures document shall be developed and implemented in coordination with the wildlife agencies (USFWS and CDFW). Though final details of the Conservation Measures will be subject to the approval authority of the wildlife agencies, typical measures include the following: Preconstruction surveys conducted by a County-qualified and USFWS approved biologist (no more than 30 days prior to construction), avoidance of ground disturbing activities around active dens (with a buffer to be determined by the qualified biologist, typically 100-feet), flagging to identify den locations and buffer areas, and regular monitoring

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	by the qualified biological monitor during construction. No more than 30 days prior to commencement of construction activities the Applicant shall retain a County-qualified and USFWS approved biologist to conduct pre-construction surveys for each phase (construction of each solar array) of the project. If determined to be active, San Joaquin kit fox dens will be fenced and ground-disturbing activities shall be avoided within a minimum of 100 feet surrounding each active den. Fencing shall encircle each den at the appropriate buffer distance and should not prevent access to the den by San Joaquin kit fox. Construction activities may occur in the area once it has been determined the fox has moved out of the construction area. Atypical dens will require a 100-foot buffer demarcated by flagging. The flagging shall consist of 4 to 5 flagged stakes 100 feet from the den entrance(s) to sufficiently identify the den location. All on-site flagging and buffer delineations shall be kept in good working order for the duration of each construction phase. The biologist shall routinely monitor all dens flagged for protection to ensure they are not disturbed during the construction phase. If occupied natal dens are found within 1000 feet of project activities the USFWS shall be contacted immediately, all project related activities within a 200-foot radius shall stop until the pups have left the den, and/or all measures detailed in the agency-approved SJKF Conservation Measures will be implemented. Avoidance of natal dens is mandatory. Details of the SJFK Conservation Measures will be subject to the approval authority of the wildlife agencies. Typical measures are included below. The SJKF will implement equivalent measures in a similar manner, at the discretion of the wildlife agencies. If avoidance of potential or known dens is not possible, the Applicant shall take the following sequential steps (or as specified by the SJKF Conservation Measures approved by the wildlife agencies) when working in such areas: 1. Allow for three consecutive days of monitoring to determine the occupancy status of each den. Activity at the den shall be monitored by using tracking medium at the entrance to the den or stationary infrared beam cameras and by spotlighting. If no activity is observed actions described below under step 3 may be implemented. If kit fox activity is observed the den shall be monitored for an additional 5 days from the date of observance. Use of the den during this time can be discouraged by partially plugging its entrance(s) with soil in such a manner that any resident animal can escape easily. If kit fox are still present after 5 days, den excavation, discussed below under step 3 may proceed when, in the judgment of the qualified/approved biologist it is temporarily vacant. 2. Once the kit fox has vacated the den methods (e.g., one way doors) shall be taken to prevent reentry to the burrow by kit fox (and other mammal species) until construction is complete in these areas. Once construction activities are complete access to the burrows shall be restored 3. Once it has been confirmed that the dens have been vacated, if construction-related impacts would result in the crushing or destruction of a den then the den shall be excavated. Excavation shall be done only hand and under the direct supervision of the biologist, removing no more than 4 inches at a time or as specified in the agency-approved San Joaquin kit fox conservation measures. If at any time during excavation a San Joaquin kit fox is discovered inside the den all activity will cease immediately and monitoring described above under step 1 shall be resumed. As indicated above, natal dens shall not be disturbed at any time. Collaring of individual SJKF, for location monitoring, may be used as an impact avoidance measure. The biologist shall document all kit fox dens abandoned, destroyed or avoided/protected. Prior to final County inspection or occupancy, whichever comes first, the biologist shall

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	prepare a written compliance report for County review and approval. Prior to the completion of construction in each phase of the project the Applicant shall replace all excavated kit fox dens with artificial dens on a 2:1 basis. The location and design of the artificial dens will be approved by the County prior to installation. Additionally, upon completion of each phase of construction activities, escape dens shall be installed in areas between the arrays to facilitate movement of individuals through the project area as specified in the SJKV Conservation Measures. These dens will measure 8 inches across, be constructed of PVC pipe and be installed with rebar to restrict the opening to 6 inches to prevent use by badgers or coyotes. The 8-inch-diameter PVC pipe should be at least 25 feet long, placed flat on the ground surface and covered with soil for thermal protection. A minimum of one escape den per quarter mile shall be required. Locations of all escape dens shall be indicated on all constructions plans submitted with the construction permit package and be approved by the County prior to installation. As required by the FEIR, lands permanently affected by the proposed Project will be mitigated at a 4:1 acreage ratio by conservation lands. This 4:1 ratio will be broken down into high and moderate suitability habitat. A 2:1 acreage ratio will consist of high suitability habitat, and another 2:1 acreage ratio will consist of moderately suitable habitat, as described in detail in the SJKF Conservation Measures. **Milestones:** Prior to commencement of construction activities conduct pre-construction surveys. Prior to the final County inspection a review of compliance with measures and documentation of mitigation will be required. **Monitoring:** Dens present on the current construction phase shall be monitored by the biological monitor during construction.
BR-22.1	**Fence temporary pond to exclude wildlife.** The perimeter of the pond shall be surrounded by a barrier fence (or combination of fencing) designed to keep wildlife species out. The temporary chain link fence shall be tall enough (6 feet) to keep out large mammals, and additional fine material exclusionary fencing shall be buried at least 2 feet, to keep out amphibians, reptiles, and small and medium sized mammals. This mitigation measure will be effective because the barrier methods employed will reduce wildlife exposure. The monitoring shall at a minimum include the following: A designated biologist shall regularly survey the ponds at least once per month starting with the first month of construction of the ponds. If special species are observed dead, entangled or attempting to breach the exclusion fence, the designated biologist will take immediate steps to remedy these problems in coordination with CDFW and USFWS. The designated biologist shall report the death of any special status species within 24 hours of discovering the carcass to the CDFW and USFWS; non-special status birds or other wildlife deaths shall be reported within two days of discovering the carcass. **Prepare reports for the County, CDFW, and USFWS**. No less than 30 days prior to operation of the evaporation ponds, the project owner shall provide to the County engineered drawings of the ponds. The designated biologist shall submit annual monitoring reports to the County, CDFW, and USFWS describing the dates, durations, and results of monitoring conducted at the ponds. The annual reports shall fully describe any wildlife death, entanglements, or observed attempts by wildlife to breach the exclusion fence and shall describe actions taken to remedy these problems. The report shall be submitted to the County, CDFW, and USFWS no later than January 30th of every year for construction of the project.

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BR-23.1	**Create conservation easement on all project areas retired from the development footprint.** Prior to the start of construction, the Applicant shall record a permanent biological conservation easement on the entire footprint of the approved project that requires preservation in perpetuity of project areas retired from the development footprint at the time they are retired. The Applicant shall provide funds for a "qualified land trust" (defined below) to acquire appropriate conservation easement(s), or shall donate appropriate conservation easement(s) to a qualified land trust or to an appropriate mitigation bank. The Applicant could also purchase a conservation easement, rather than fee title, from a landowner. A qualified land trust is defined as one that: • Has substantial experience managing conservation easements that are created to meet mitigation requirements for impacts to special-status species • Has substantial experience managing conservation easements on rangeland • Has adopted the Land Trust Alliance's *Standards and Practices* • Has a stewardship endowment fund to pay for its perpetual stewardship obligations. The County shall determine whether a proposed conservation easement holder meets these requirements. The Applicant shall also be responsible for donating to the land trust fees sufficient to cover: (1) Administrative costs incurred by the land trust in the creation of the conservation easement (appraisal, documenting baseline conditions, etc.) and (2) provide funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the conservation easement in perpetuity. The amount of these administrative and stewardship fees shall be determined by the land trust in consultation with the County. Conservation easement(s) shall also be subject to the following conditions: • The locations of acceptable conservation easement(s) shall be developed with approval of CDFW and USFWS. • The primary purpose of the conservation easement(s) shall be conservation of impacted species and vegetative communities, but the conservation easement(s) shall also allow livestock grazing when and where it is compatible with or deemed beneficial for the habitat needs of impacted species. Conservation easement(s) shall: • Be held in perpetuity by a qualified land trust (defined above). • Be subject to a legally binding agreement that shall: (1) Be recorded with the County Recorder(s) along with a recorded "notice of conservation easement"; (2) Include "conservation easement" in the title of the recorded agreement(s); (3) Name CDFW or another organization to which the conservation easement(s) will be conveyed if the original holder is dissolved. • Be subject to the management requirements outlined in Mitigation Measure BR-G.6 (Develop and implement a Habitat Mitigation and Monitoring Plan for mitigation lands). In addition to recordation of a conservation easement, the following requirement related to project repowering shall be met: if the approved project is repowered at a future time, the repowered project footprint shall be no greater than that of the approved project. **Milestones**: Conservation easement on approved project footprint shall be recorded prior to commencement of construction. **Monitoring**: Documentation of recorded conservation easement shall be submitted to the San Benito County Department of Planning and Building.

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	Cultural and Paleontological Resources
CR-2.1	**Conduct cultural resource monitoring during construction.** A professional archaeologist shall monitor subsurface construction disturbance as required by the County (with the exception of direct-driven support pipes beneath PV panels). The number of monitors present per day will be at the discretion of the County Department of Planning and Building, but shall be proportional to the amount of equipment actively excavating and shall reflect knowledge gained over the course of the project. Archaeological monitoring shall be directed by a Registered Professional Archaeologist familiar with the types of archaeological resources that could be encountered within the project area. At locations sensitive for Native American remains (i.e., within 200 meters of Panoche Creek and Las Aguilas Creek), a Native American monitor shall be present. The County Department of Planning and Building shall ensure compliance with and effectiveness of the cultural resources monitoring program. Any unanticipated discovery shall be documented by the archaeologist on a Department of Parks and Recreation Primary Record and Archaeological Site Record (DPR 523) and further treated in accordance with MM CR-2.2 below. The Applicant shall fully fund all monitoring and documentation activities.
CR-2.2	**Treat previously unidentified archaeological resources discovered during construction.** If archaeological remains are discovered during construction, the Applicant shall immediately cease all work activities within 100 feet of the discovery and notify the County within 24 hours. Work shall not resume in the affected area until a Registered Professional Archaeologist familiar with the resources of the region inspects the discovery and determines whether further investigation is required to evaluate the significance and CRHR eligibility of the site, including performing additional test excavation or other studies, as necessary, to fully evaluate the significance of the discovered resource. If the site meets California Register of Historic Resources significance criteria and further damage cannot be avoided, then a data recovery plan shall be developed and implemented prior to resuming ground disturbance in the affected area. The data recovery plan shall make provisions for data collection, laboratory processing and technical analyses, final reporting, and curation of archaeological remains, and shall be reviewed and approved by the County Department of Planning and Building prior to implementation. All such work shall be fully funded by the Applicant.
CR-2.3	**Inadvertent discovery of human remains.** If human remains are uncovered, or in any other case when human remains are discovered during construction, the San Benito County Coroner is to be notified immediately to arrange their proper treatment and disposition and the Applicant shall immediately cease all work activities within 300 feet of the discovery. 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.
CR-2.4	**Implement workers environmental awareness program.** All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials within or outside the project area by the Applicant, their representatives, their contractors, or their

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	employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws, and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources. • Upon discovery of potential buried cultural materials by archaeologists or construction personnel, work in the immediate area of the find shall be diverted and the Applicant's archaeologist notified. Once the find has been inspected and a preliminary assessment made, the applicant's archaeologist shall consult with the County, as appropriate, to make the necessary plans for evaluation and treatment of the find(s). The Applicant shall provide to the County a list of construction personnel who have completed the cultural resources identification training prior to start of construction, and this list shall be updated as required when new personnel start work. No construction worker may work in the field without first participating in the training program.
PA-1.1	**Implement site-specific paleontological recovery.** The Applicant shall identify and implement procedures to recover and preserve unknown and accidentally discovered significant fossils within the paleontologically sensitive areas on site. Recovery shall include: salvage of significant fossils; washing of representative samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates; preparation of recovered specimens to a point of identification and permanent preservation; identification, curation, and accession of specimens into a museum repository with permanent retrievable storage; preparation of a report of findings with an appended itemized inventory of specimens. The report, inventory, and record of accession shall be submitted to the County and the curation facility. This mitigation shall be implemented pursuant to a Paleontologic Monitoring and Recovery Plan prepared prior to construction by a qualified Principal Paleontologist, following the guidelines of the Society for Vertebrate Paleontology (1995) and submitted to the County for review and approval prior to ground disturbance.
PA-1.2	**Monitor grading and excavation for unknown and accidentally discovered paleontological resources.** A qualified paleontological monitor under the supervision of a Registered Professional Geologist shall monitor grading, trenching, and other earth disturbance that may affect the Pleistocene Older Alluvium (Qoa), mapped in a small segment within the western portion of the project area. If fossils are encountered, then paleontological recovery shall be carried out. All work shall be consistent with the Paleontologic Monitoring and Recovery Plan prepared pursuant to MM PA-1.1 and shall be fully funded by the Applicant. Recovery shall include: salvage of significant fossils; washing of representative samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates; preparation of recovered specimens to a point of identification and permanent preservation; identification, curation, and accession of specimens into a museum repository with permanent retrievable storage; preparation of a report of findings with an appended itemized inventory of specimens. The report, inventory, and record of accession shall be submitted to the County and the curation facility, and its submission shall signify completion of the program to mitigate impacts to paleontological resources.

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Mitigation No.	Measure by Issue Area
	Geology, Mineral Resources, and Soils
GE-4.1	**Implement Geotechnical Report recommendations.** All earthwork operations, including site preparation, and the selection, placement, and compaction of fill materials shall been performed in accordance with the recommendations and the project specifications set forth in the Geotechnical Report (ENGEO, 2010) to ensure the safety of people and structures. Earthwork recommendations relative to adverse soil conditions are summarized below, and shall be implemented: • Further corrosion testing shall be performed by a Professional Geologist to better characterize the site and properly design piles to withstand corrosion prior to approval of final foundation plans. • A Professional Geologist shall review the final grading and foundation plans and specifications prior to construction to determine whether ENGEO's recommendations have been implemented, and to provide additional or modified recommendations, if necessary, to verify whether changes have occurred in the nature, design, or location of the proposed improvements. • Construction monitoring should occur to check the validity of the assumptions in preparing the geotechnical report. All earthwork operations should be performed under the observation of a Professional Geologist to ensure that the site is properly prepared, the selected fill materials are satisfactory, and placement and compaction of the fills has been performed in accordance with the report recommendations and project specifications. Sufficient notification prior to earthwork shall be given. • Clean and backfill excavations extending below the planned finished site grades with suitable material compacted to the recommendations presented in the geotechnical report.
	Hazards and Hazardous Materials
HZ-5.1	**Cease work during Red Flag Warning.** During a Red Flag Warning issued for the zone encompassing the proposed project, all grading, welding, soldering, and smoking shall cease at the project site. In addition, vehicles shall remain on designated access roads or laydown areas cleared of vegetation.
PS-1.1	**Develop and implement service agreement with San Benito County Fire Department.** Full text of the mitigation measure may be found under Public Services, Utilities, and Service Systems.
HZ-7.1	**Prohibit standing water**. In order to eliminate the risk of generating disease vectors at the site, during project construction and operations the Applicant shall ensure that open containers be inverted and construction ditches not be allowed to accumulate water. Construction and maintenance operations shall not generate standing water, except for stormwater management ponds and temporary water storage ponds. Naturally occurring depressions, drainages, and pools at the site shall not be drained or filled without consulting with the appropriate resource agency (San Benito County, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game) and obtaining the appropriate permits.
HZ-7.2	**Protect Workers and Public from Valley Fever.** The Applicant shall implement the following measures to reduce the likelihood that construction workers and the public are infected with Valley Fever: • The Applicant shall prepare a detailed informational brochure explaining Valley Fever, its cause, and its symptoms, and the populations most at risk for the disease. The brochure shall incorporate information provided the California Department of

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	Public Health (DPH) (http://www.cdph.ca.gov/healthinfo/discond/Pages/Coccidioidomycosis.aspx) and shall be reviewed by a DPH for adequacy at least 30 days before the start of construction. The brochure will identify methods for controlling the spread of the illness, such as changing clothing daily, using respiratory protection, applying water the soil, and cleaning equipment and materials. The approved brochure shall be provided to all residents of the Panoche Valley and all families of students at the Panoche Valley School. • The Applicant shall make breathing protection gear available to all workers, at their request and at no cost to workers. • As part of the Safe Worker Environmental Awareness Program, the Applicant shall educate workers to recognize the symptoms of Valley Fever, and to promptly report suspected symptoms of work-related Valley Fever to a supervisor. • Sign will be posted onsite alerting visitors to the threat of this illness.
	Land Use and Recreation
LU-1.1	**Establish construction liaison.** The Applicant shall provide a toll-free general phone number and the name and contact information for a local public liaison to all property owners within a one-mile radius of the project's boundaries. The toll-free access number and the identified local public liaison shall act as points of contact between property owners and construction crews. The local public liaison shall be available both in person and by phone, as necessary, for at least 30 days prior to the start of any construction-related activities and for up to one year following construction. During construction, the local public liaison shall respond to all construction-related questions and concerns within 72-hours. Post-construction responses shall be made within 1 week. The Applicant shall provide summary documentation of all comments and concerns communicated to the liaison monthly for the duration of construction and for one year following the completion of construction. The compliance documentation shall include the name and address of the person (if known) contacting the local public liaison, the date of contact, and what actions were taken to rectify and/or address the comments or concerns expressed. The compliance documentation shall be submitted to the County of San Benito Planning and Building Department on a quarterly basis throughout the duration of construction and for one year following construction.
LU-1.2	**Provide advance notice of construction.** Prior to and during construction, the Applicant shall give at least 30 days advance notice of the start of any construction-related activities for each phase (Phases 1 through 5) to all residences located within 5 miles of the project phase boundary, the Principal of the Panoche Elementary School, and the Bureau of Land Management Hollister Field Office. The notification shall include the toll-free general phone number and contact information for the local public liaison (Mitigation Measure LU-1.1, Establish construction liaison). Notification shall be provided by: (1) mailing notices to all property within a five-mile radius of the project site's boundaries; (2) placing notices in local newspapers; (3) mailing to the Principal of the Panoche Elementary School; (4) website posting with a link from the County website, and (4) signs shall be posted at the project site in areas accessible to the public. The announcement shall state where and when construction would occur; provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction); and provide a point of contact for any noise complaints. The Applicant shall provide to the Department of Planning and Building within 72 hours of any complaints received a report that documents the complaints and the strategy for resolution of any noise complaints.

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LU-1.3	**Provide quarterly construction updates.** Following publication/transmittal of the advance notification of construction (Mitigation Measure LU-1.2, Provide advance notification of construction), the Applicant shall provide all property owners within a one-mile radius of the project site's boundaries with updates and changes to all of the information provided in the pre-construction notification. The updates shall be provided every quarter for the duration of all construction-related activities. The updates shall continue to provide the toll-free number and the name and phone number of the local public liaison to respond to all construction-related questions and concerns. The local public liaison shall continue to respond to all questions and complaints within a 72-hour period during construction and within one week for post-construction activities (Mitigation Measure LU-1.1, Establish construction liaison).
	Noise
NS-1.1	**Shield construction staging areas.** Prior to using noisy equipment during construction and decommissioning activities, the Applicant shall install adequate temporary noise barriers around the construction staging areas to reduce noise levels associated with deliveries to these areas and construction equipment staging to meet County noise level standards (45 dBA hourly Leq daytime; 35 dBA hourly Leq nighttime at the project's property line). Temporary noise barriers include noise-attenuating shields, shrouds, or portable barriers or enclosures that block the line of sight between the activity and the sensitive use, which would include schools, churches, hospitals, nursing homes, parks, and campgrounds. Temporary noise barriers may include wood fencing, hay bales, or noise curtains. Noise control shields shall be made of a durable, flexible composite material featuring a noise barrier layer bonded to a weather-protected, sound-absorptive material on the construction-activity side of the noise shield. Noise levels shall be monitored during construction at the project's property line closest to the construction staging areas. Should hourly noise level standards be exceeded as a result of work occurring at a staging area, all noise-related work at that staging area shall stop until adequate noise attenuation measures are installed to meet these standards. Any measure installed shall remain in good working order during the duration of the noisemaking activity.
NS-1.2	**Implement noise-reducing features and practices for construction noise.** Prior to work commencing, the Applicant shall employ and clearly specify in its contractors' specifications the following noise-suppression techniques to minimize the impact of temporary noise associated with construction and decommissioning activities: • Trucks and other engine-powered equipment shall be equipped with noise reduction features, such as intake and exhaust mufflers and engine shrouds, which are no less effective than those originally installed by the manufacturer. Engine shrouds shall be closed during equipment operations. • Trucks and other engine-powered equipment shall be operated in accordance with posted speed limits (see Air Quality Mitigation Measure AQ-1.1) and limited engine idling requirements (see Air Quality APM AQ-2). • Truck engine exhaust ("jake") brake use shall be limited to emergencies. • Back-up beepers for all construction equipment and vehicles shall be adjusted to the lowest noise levels possible, provided that OSHA and Cal OSHA's safety requirements are not violated. These settings shall be retained for the life of the project. • Vehicle horns shall be used only when absolutely necessary, as specified in the contractors' specifications. • Radios and other "personal equipment" shall be kept at low volume.

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Mitigation No.	Measure by Issue Area
NS-1.3	**Provide advance notice of construction.** The Applicant shall provide advance notice of construction and decommissioning between two and four weeks prior to the start of construction or decommissioning activities to all residences located within 5 miles of the project phase boundary, and the Principal of the Panoche Elementary School. The notices shall be mailed directly to residences and the Principal of the Panoche Elementary School, as well as posting signs at the project site in areas accessible to the public. The announcement shall state where and when construction would occur; provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction); and provide a point of contact for any noise complaints. The Applicant shall provide to the Department of Planning and Building (Environmental Monitor) within 48 hours of any complaints received a report that documents the complaints and the strategy for resolution of any noise complaints, which may include limiting the hours of construction in the particular location of concern, putting up additional noise barriers, or otherwise implementing means to reduce and resolve to the extent feasible the issue brought forth. The County's Environmental Monitor shall verify implementation of agreed upon strategy.
NS-1.4	**Limit pile driving activities.** The Applicant shall employ the following limitations on pile driving activities to reduce noise levels: • Complete pile driving activities in as short a period as feasible. • Use and operate sonic or vibratory pile drivers at reduced driving force where feasible soil conditions occur instead of impact pile drivers. • If several pile drivers are to be used, the pile driving activities shall be arranged so that no two pile driving are driving simultaneously within 160 feet of each other.
BR-16.2	**Minimize impacts of foundation support installations.** Full text of the mitigation measure may be found under Biological Resources.
NS-2.1	**Limit decommissioning activities to daytime.** During decommissioning, construction-related activities shall be limited to the hours of 7:00 a.m. and 7:00 p.m. such that these activities are exempted from Section 25.37.035(E)(2) of the San Benito County Code.
NS-4.1	**Locate PV inverters and transformers away from the project's property line.** Locate PV inverters and transformers at least 180 feet from the project's property line and at least 300 feet apart from each other or as needed to meet the County's daytime hourly noise level standard of 45 dBA Leq at the project's property line. Should hourly daytime noise level standards (45 dBA Leq) be exceeded or ambient noise levels increase by more than 5 dBA Ldn, enclosures or other noise attenuation measures will be installed to meet these requirements. Any measure installed shall remain in good working order throughout project operations.
NS-5.1	**Limit panel washing activities.** Panel washing activities shall be restricted to Monday through Saturday 7:00 a.m. to 7:00 p.m. excluding federal holidays, when occurring within 1,900 feet of the project's property line, such that these activities would be exempt from the County's noise level standards when the potential exists to exceed the standards. At greater distances from the project's property line, the County's noise level standards would be met and panel washing activities may occur any time during daylight hours. If noise complaints are received during panel washing activities occurring outside of the exempted times, the County shall monitor noise levels at the project's property line. Should the hourly daytime noise level standard of 45 dBA Leq be exceeded, all noise-related work shall stop in that area and be resumed during the exempted time period.

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Mitigation No.	Measure by Issue Area
	Public Services, Utilities, and Service Systems
PS-1.1	**Develop and implement service agreement with firefighting entities (Supersedes APM PUS-5).** The Applicant shall enter into an agreement with a qualified firefighting entity (the Hollister Fire Department, CAL FIRE, or private providers). A fully executed agreement shall be submitted to the Department of Planning and Building, which documents the Applicant's agreement to pay the firefighting providers an agreed upon fee based on actual costs to fund additional personnel needed to serve the project site during construction. To address operational impacts, the Applicant shall ensure that either (a) a sufficient number of permanent employees are trained as volunteer fire fighters or (b) the Applicant will provide fire protection training to its permanent employees. This will allow the project's on-site work force to combat and be first responders to any potential fires occurring on-site or within the vicinity of the project site prior to back up by the appropriate fire department or entity.
	Transportation and Circulation
TR-1.1	**Prepare and implement Traffic Control Plan.** Prior to the start of construction and decommissioning, the Applicant shall submit a Traffic Control Plan (TCP) to San Benito County for its review and approval and to Caltrans. The TCP shall include the following components and requirements that the Applicant shall implement: • Define the locations of project access points and location and timing of any temporary lane closures; • Identify and make provision for circumstances requiring the use of flag persons, warning signs, lights, barricades, cones, and etcetera to provide safe work areas in the vicinity of the project site and to warn, control, protect, and expedite vehicular and pedestrian traffic; • Implement traffic control (flag persons, signage, barricades, cones, etc.) along all roadway segments that have substandard width (less than 18 feet); • Include signage placed along all proposed construction haul routes and alternate haul routes at appropriate intervals notifying drivers of the presence of construction traffic on those roadways; • Restrict use of Panoche Road from SR-25 to private automobiles and trucks with no more than two axles, only; • Address the potential for construction related traffic to impede emergency response vehicles (in conjunction with Mitigation Measure PS-1.1 [Develop and implement service agreement with San Benito County Fire Department]) and present a specific training and information program for construction workers to ensure awareness of emergency procedures from project-related accidents or wildfires; • Preclude all construction traffic (personal vehicles and all trucks) from using the unpaved portion of Panoche Road from Interstate 5 to the project site. The TCP shall include a Truck and Bus Safety Plan that ensures: • Construction deliveries (including heavy/combination trucks with more than two axles and single-unit trucks with two axles) would be restricted to traveling to and from the project site via Interstate 5 and Little Panoche Road only and would be precluded from using Panoche Road or SR-25; • That construction material and equipment deliveries requiring pilot cars are limited to traveling along Little Panoche Road during daylight hours; • All construction truck and bus drivers are informed of and required to adhere to the designated traffic haul routes.

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	The measures included in the TCP shall be consistent with any applicable guidelines outlined in the Standard Specifications for Public Works Construction, the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices, and the Work Area Traffic Control Handbook.
TR-1.2	**Rehabilitate, protect and monitor roadway pavement, bridges and culverts.** Prior to the start of construction and decommissioning, the Applicant shall: • Implement pavement repairs required to achieve a traffic index of 7.0 on Little Panoche Road between Interstate 5 and Panoche Road, and along Panoche Road between Highway 25 and Little Panoche Road if required; • Rehabilitate roadway striping along Little Panoche Road between Interstate 5 and Panoche Road, and along Panoche Road between Highway 25 and Little Panoche Road if required. • Repair sections of deteriorated pavement along Little Panoche Road between Interstate 5 and Panoche Road, including the 4.1 through 5.5 mile segment of Little Panoche Road, in accordance with applicable loading standards and to the satisfaction of the County of San Benito Department of Public Works; During construction the project shall require its contractor to: • Coordinate with the affected jurisdictions (Caltrans, San Benito and Fresno), and implement appropriate wheel load weight distribution to ensure bridge and culvert crossing are adequately protected. • Monitor the two culverts along Little Panoche Road that are not located at sufficient depths weekly throughout construction activities for damage to the culverts themselves or dips in the pavement. In the event of any damage that impairs culvert function or presents safety hazards to vehicle travel, project deliveries shall be postponed until the damage is repaired. Any repairs shall be the responsibility of the Applicant. • In addition to any other local and State requirements relating to oversized loads, the hauling contractor shall place a ¾-inch-thick section of steel plate over the pavement above the culverts prior to hauling the transformers to the project site. • Conduct ongoing monitoring and evaluation of pavement conditions on Panoche Road between Highway 25 and Little Panoche Road, and on Little Panoche Road between Interstate 5 and Panoche Road at appropriate intervals (as determined by the County of San Benito Department of Public Works) throughout the five-year construction period and undertake roadway repairs as necessary to ensure it safely accommodates the projected construction traffic load.
TR-1.3	**Repair roadway damage**. The Applicant shall restore all public roads, easements, rights-of- way and infrastructure (such as signs, utility poles, and cattle guards) within the public road rights-of-way (including Interstate 5 access ramps on Little Panoche Road, Little Panoche Road between Interstate 5 and Panoche Road, Panoche Road between State Route 25 and Little Panoche Road, and State Route 25 between Hollister and Panoche Road) that have been damaged due to project-related construction or decommissioning activities or traffic. Restoration shall be to roadway conditions that existed prior to commencement of construction or decommissioning and shall be undertaken in a timely manner, in consultation with the County of San Benito and Caltrans and Fresno (if applicable), as appropriate. At least 30 days prior to construction or decommissioning, the Applicant shall photograph or video record all construction route public roads, easements, and right-of-way segment(s), intersections, and shall provide the County of San Benito, the County of Fresno if applicable), and Caltrans (if applicable) with a copy of these images.

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	Within 60 days of completion of construction or decommissioning, the project owner shall meet with the County of San Benito, the County of Fresno (if applicable), and Caltrans (if applicable) to identify sections of public right-of-way to be repaired. At that time, the project owner shall establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide a letter signed by the County of San Benito, the County of Fresno, and Caltrans stating their satisfaction with the repairs.
TR-1.4	**Ensure Traffic Safety.** The Applicant shall ensure traffic safety through a two pronged approach: first, the development of a mandatory Traffic Safety Plan (TSP) including the components defined below, and second, a flexible response program throughout construction implemented by the Applicant in coordination with County, the California Highway Patrol (CHP), and the San Benito County Sheriff. These two sets of actions will ensure: (a) the ability of emergency service providers to access the Panoche Valley region during project construction, and (b) the safety of the public and project traffic using regional roads during peak construction traffic conditions. The TSP shall include all the following requirements: • The Applicant shall consult with the CHP and develop Project Speed Limits that apply to delivery trucks, and install signage along Little Panoche Road for information of project drivers. • The Applicant shall establish a contact list of heavy tow responders to facilitate fast response to accidents and minimize road closure time. • As part of orientation, the Applicant shall require each construction worker and driver to attend a project-specific Safe Driving Program developed by the Applicant, prior to starting work on the project. The program shall specifically define work hours, existing speed limits and project speed limits, road conditions presenting safety concerns, communication protocols, and approach to allowing emergency vehicles to access the project area. • The Applicant shall provide a written copy of "PVSP Safe Travel Rules" to all project drivers entering the Panoche Valley more than once, and each driver shall acknowledge that he/she has attended the Safe Driving Program, and has read and understood the rules and project speed limits. Written records of attendance shall be maintained by the Applicant at the project site. • The Applicant shall implement a reimbursement agreement with the County Sheriff allowing stationing of additional emergency personnel at the project site during construction. The number, location, and timing of additional personnel shall be determined by the Sheriff, considering changing levels of construction activity and local resident needs. • The Applicant shall provide funding for additional CHP units to patrol Panoche Road, Little Panoche Road, and Highway 25 during project construction duration. The precise number, location, and timing of additional patrols shall be determined by the Commanders of CHP's Los Banos and Hollister/Gilroy Area Offices • The Applicant shall implement an escort and caravan program along Little Panoche Road for delivery trucks during the 12-month period with greatest delivery traffic. The program shall be submitted to the County and CHP for review and approval at least 30 days before the start of construction. The program shall include maps with definition of gathering areas, a process for allowing private vehicles priority passage where safe, and a detailed description of the proposed escort process.

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	• The Applicant shall implement staggered work hours for construction employees when the total number of workers onsite exceeds 100 people. The construction workforce traffic shall start and finish each workday in at least 2 separate groups with start times separated by at least 30 minutes. • The Applicant shall prohibit project construction delivery truck traffic from using Little Panoche Road, Panoche Road, and Highway 25 during normal commuting timeframes. Truck travel will commence a half hour after the morning commute and cease a half hour before the evening commute commences. • No truck deliveries may be made to the project site on weekends except if scheduled 7 days in advance with the County. Occasional Saturday deliveries may be permitted without 7-days advance notice to the County in the event of an unforeseeable event. Notice will be made to the County as soon as practicable for these unscheduled weekend deliveries. • The Applicant and contractors shall endeavor to ensure that traffic delays related to project construction shall not exceed 30 minutes. If road closures and traffic delays more than 30 minutes are anticipated, the Applicant shall ensure that signs are posted at work sites and public locations at least one week in advance warning workers and the public to anticipate delays. This information shall also be available on a Project website and on signs visible from SR 25 and on Little Panoche Road at the intersection of I-5. • The Applicant shall coordinate with the County to properly sign and control traffic at each end of the one-way segment of Panoche Road to reduce the risk of collision in this segment. • The Applicant shall encourage worker carpooling by providing each worker a map of public parking and waiting areas along the major commuting routes for informal carpooling. These defined parking and waiting areas shall not block or delay other traffic or obstruct parking established for other purposes. • The Applicant shall provide quarterly documentation to the County, in compliance with its APM AQ-2, summarizing incentives provided by the Applicant for workers to carpool. Such documentation shall be provided within 30 days of the end of each calendar quarter. **Monthly Traffic Safety Meetings.** In order to be resolve additional traffic safety issues that may arise during construction, the Applicant shall host a monthly meeting with County staff, CHP, and County Sheriff staff, to discuss the following issues that may arise, and any others that occur, and to define potential additional requirements that the County determines are necessary to impose on the Applicant. • **Traffic Incidents.** The Applicant shall inform the County about each reported traffic incident involving project vehicles within 24 hours of its occurrence or as soon as possible, and include a recommendation for how each accident could have been avoided within 5-7 days once all facts surrounding the event have been gathered. This information shall be used to develop Adaptive Strategies to improve safety during the construction process. The Applicant shall recommend strategies for consideration by the County, the CHP, and the Sheriff. • **Additional Carpooling.** If either traffic conditions or traffic incidents show impacts of concern to the County, CHP, or Sheriff's Office, the Applicant shall endeavor to increase the level of worker carpooling to reduce vehicles on the public roads. The Applicant shall develop and offer incentives to encourage carpooling (e.g., onsite meals).

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	• **Assess Traffic Delays.** Each known traffic delay of more than 30 minutes shall be reported to the County and the CHP, and all events shall be discussed in the next monthly meeting. Solutions to unforeseen repeated delays shall be developed and the County may require implementation of these solutions based on evaluation of data provided during construction.
	Water Resources
WR-1.1	**Groundwater Monitoring and Reporting Plan.** The applicant shall prepare and submit a Groundwater Monitoring and Reporting Plan to San Benito County for review and approval 60 days prior to commencing project-related pumping activities. The Groundwater Monitoring and Reporting Plan shall document the location of project well(s) and well construction details (diameter, total depth, depth of screen interval, depth of sanitary seal, pumping equipment). The Groundwater Monitoring and Reporting Plan shall identify the procedures to install and monitor a water meter on a daily basis. The meter shall be equipped with a flow totalizer at each project well, and shall include requirements to document the gradient and directional flow of groundwater. The Groundwater Monitoring and Reporting Plan shall also provide detailed methodology for monitoring groundwater levels in the valley based on readings taken on at least a monthly basis. The primary objective for the monitoring is to establish pre- and post-construction groundwater level trends that can be quantitatively compared against observed and calculated trends near the project pumping wells and near potentially impacted existing private wells. The monitoring wells shall include a minimum of three new or existing on site or off-site down-gradient wells near the southern project boundary. Monthly reports summarizing daily pumping and monthly (minimum) water level monitoring data shall be submitted to San Benito County throughout construction. Annual reports shall be submitted for the following three years. Each report shall include, at a minimum: • Daily water usage, monthly range of usage, and monthly average of daily water usage in gallons per day; • Total water used on a monthly and annual basis in acre-feet; summary of all water level data; and • Identification of trends that indicate potential for off-site wells to experience deterioration of water level. If results of the monthly trend analyses indicate that the project pumping has resulted in water level decline of 5 feet or more below the baseline trend at nearby private wells, the applicant shall be prohibited from using the well(s) as a water source for the project, or shall reduce groundwater pumping until water levels stabilize or recover. At the conclusion of project construction (the time of highest groundwater demand) the project owner and San Benito County shall jointly evaluate the effectiveness of the Groundwater Monitoring and Reporting Plan and determine if monitoring frequencies or procedures should be revised, extended into the operation period, or eliminated.
WR-1.2	**Aquifer Testing and Well Interference Analysis.** Prior to pumping or making operational any existing wells or construction of any new wells south of Well #19 (as depicted on Figure C.15-2), the applicant shall prepare and submit an Aquifer Testing and Well Interference Analysis Plan to San Benito County for review and approval 14 days prior to commencing the aquifer testing. The Aquifer Testing and Well Interference Analysis Plan shall discuss the methodology for conducting a 72-hour aquifer test, analysis of aquifer parameters, and the analysis of well interference at nearby private wells. The primary

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	objective of the aquifer test and well interference analysis is to evaluate potential adverse well interference effects prior to the onset of sustained pumping for the project. The aquifer test duration shall be a minimum of 72-hours and will include measurement of water level drawdown and recovery in the pumping well and a minimum of two downgradient observation wells. Additional observation wells, including cross-gradient locations may be included. The use of existing wells for pumping or water level observation shall include research of well construction records to identify well depth, screen interval, and aquifer depth and thickness. Video surveys shall be performed on all existing wells lacking available well construction records (well depth and screen intervals). The aquifer test shall be performed at a pumping rate that will "stress" the aquifer and result in measurable drawdown at the nearest observation well after two to four hours. Drawdown and recovery water level data collected from the pumping and observation wells shall be analyzed to determine the local aquifer parameters that will in turn be used to calculate water level drawdown at nearby off-site wells. The calculation shall use the Theis equation or other acceptable approach to estimate water level lowering due to project pumping. The results of the aquifer test and well interference analysis shall be submitted to San Benito County for review and approval of the proposed well for project water supply 15 days prior to the onset of sustained pumping for the project. If a new or existing well located south of existing Well #19 is approved for project use, the Groundwater Monitoring and Reporting Plan (Mitigation Measure WR-1.1) shall be amended to identify monitoring wells near the new project supply well.
WR-6.1	**Accidental spill control and environmental training.** The Construction Stormwater Pollution Prevention Plan (SWPPP) to be prepared for the proposed project shall include procedures for quick and safe cleanup of accidental spills. The Construction SWPPP shall prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and shall include an emergency response program to ensure quick and safe cleanup of accidental spills. Additionally, an environmental training program shall be established to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. A monitoring program shall be implemented to ensure that the plans are followed during all construction, operations, and maintenance activities.
WR-6.2	**Store fuels and hazardous materials away from sensitive water resources.** Storage of fuels and hazardous materials will be prohibited within 200 feet of groundwater supply wells. If community or municipal wells are present on the project site or immediate vicinity, storage of fuels and hazardous materials will be prohibited within 400 feet.
WR-6.3	**Maintain vehicles and equipment.** All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground. A vehicle and equipment maintenance log shall be updated and provided by the Applicant to the County of San Benito on a monthly basis for the duration of project construction.

Table C-3
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
Aesthetics	
AMM AES-1	**Treat structure surfaces.** "Dulled" metal finish structures will be used to reduce visual impacts on new microwave towers and steel transmission structures.
Air Quality	
AMM AQ-1	**Minimize fugitive dust.** Consistent with the applicable Air Quality Management District's CEQA Guidelines, PG&E will minimize dust emissions during construction by implementing the following measures: • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard. • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. • Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person will respond and take corrective action within 48 hours. The applicable Air Quality Management Districts' phone numbers will also be visible to ensure compliance with applicable regulations. Note that implementation of the first measure listed above would not apply to paved areas with no exposed soil or when rains are occurring.
AMM AQ-2	Limit equipment idling. Limit idling times on trucks and equipment used during construction.
Biological Resources	
AMM BR-PGE-1	**Worker Environmental Training.** Personnel will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during work activities.
AMM BR-PGE-2	**Park vehicles and equipment in disturbed areas.** Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
AMM BR-PGE-3	**Work during daylight hours.** Work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
AMM BR-PGE-4	**Minimize disturbance from vehicle access.** The development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
AMM BR-PGE-5	**Speed limit.** Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
AMM BR-PGE-6	Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
AMM BR-PGE-7	**Fire prevention.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.

Table C-3
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
AMM BR-PGE-8	**Fire prevention during "red flag" conditions.** In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
AMM BR-PGE-9	**Restoration and erosion control.** Upon completion of any Project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re- vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
AMM BR-PGE-10	**Special-status amphibians and reptiles.** If suitable habitat for listed amphibians and reptiles is present, and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to activities involving excavation. If necessary, barrier fencing will be constructed around the worksite to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an appropriate exclusion zone around the potentially occupied habitat. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt nosed leopard lizard and limestone salamander-which will not be handled) are moved to nearby suitable habitat.
AMM BR-PGE-11	**Avoid giant kangaroo rat and San Joaquin antelope squirrel.** Personnel shall avoid occupied or potentially occupied burrows identified by a qualified biologist within two core-areas for San Joaquin antelope squirrel and giant kangaroo rat identified by CDFW. If occupied or potentially occupied burrows in the core areas cannot be avoided, a qualified biologist shall stake and flag an appropriate work-exclusion zone and remain on-sight as a biological monitor, or the biologist shall stake and flag an appropriate work exclusion zone around active burrows prior to covered activities at the job site. If work must proceed in the exclusion zone, crews will pursue techniques to minimize direct mortality including using approved biologists to trap and hold the species in captivity, and excavating and closing burrows. The approved biologist will hold an ESA Section 10(a)(1)(A) permit for the species. The approved biologist will release the mammals as soon as possible when the work is complete. If active (occupied or potentially occupied) burrows for San Joaquin antelope squirrel or giant or Tipton kangaroo rat are present outside the two core areas identified by CDFW, a qualified biologist will stake and flag an appropriate exclusion zone and remain on-site as a biological monitor, or the biologist shall stake and flag an appropriate work exclusion zone around the burrows prior to work activities on the job site.
AMM BR-PGE-12	**Avoid San Joaquin kit fox and American badger dens if possible.** If San Joaquin kit fox or American badger dens are present, their disturbance and destruction will be avoided where possible. However, if dens are located within the proposed work area and cannot be avoided during construction, qualified biologists will determine if the dens are occupied. If unoccupied, the qualified biologist will remove these dens by hand excavating them in accordance with USFWS procedures for kit fox (USFWS, 1999), which can also be applied to badger dens. Exclusion zones for kit fox will be implemented following USFWS procedures (USFWS, 1999) or the latest USFWS procedures. The radius of these zones will follow current standards or will be determined on a case-by-case basis in coordination with USFWS and CDFW. If badger dens are present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Maternity dens shall be avoided during pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established.

Table C-3
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
AMM BR-PGE-13	**Exclusion zones for blunt-nosed leopard lizard.** If activities take place within the range of the species and outside the road shoulder, a qualified biologist will identify if burrows are present and if work can avoid burrows. If work cannot avoid the burrows, a qualified biologist will evaluate the site for occupancy and stake and flag an appropriate exclusion zone around the burrows prior to activities at the job site.
AMM BR-PGE-14	**Report dead or injured listed species.** Personnel will be required to report any accidental death or injury of a listed species or the finding of any dead or injured listed species to a qualified Biologist. Notification of CDFW and/or USFWS of any accidental death or injury of a listed species shall be done in accordance with standard reporting procedures.
AMM BR-PGE-15	**Exclusion zones for special-status plants.** If a covered plant species is present following special-status plant surveys , a qualified biologist will stake and flag exclusion zones of 100 feet around plant occupied habitat (both the standing individuals and the seed bank individuals) of the covered species prior to performing the activities. If an exclusion zone cannot extend the specified distance from the habitat, the biologist will stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels).
AMM BR-PGE-16	**Conduct preconstruction surveys for active Swainson's hawk nests and implement avoidance measures if necessary.** If construction activities are anticipated to occur during the nesting season for Swainson's hawks (generally March through July), PG&E will retain a qualified wildlife biologist to conduct preconstruction surveys within 0.50 miles of construction activities that occur within or near suitable breeding habitat for nesting Swainson's hawks. The biologist will also consult with CDFW and species experts to determine if there are any known active Swainson's hawk nests or traditional territories within 0.50 miles of the work areas. If no active Swainson's hawk nests are detected, a report documenting survey methods and findings will be submitted to CDFW, and no further mitigation is required. If an active Swainson's hawk nest occurs within 0.50 miles of a planned work area, a 0.50-mile restricted activity buffer will be established around the nest. Biologists will monitor the nest and coordinate with local CDFW representatives to designate nest-specific areas of avoidance and restricted activities based upon the location of the nest relative to project activities and the type and duration of construction activities planned during the nesting season.
AMM BR-PGE-17	**Conduct preconstruction surveys and avoidance of active western burrowing owl burrows.** PG&E will retain a qualified biologist to conduct preconstruction surveys for active burrows no more than 30 and no less than 14 days prior to the start of construction in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012). If western burrowing owls are present at the site, a qualified biologist will work with staff to determine whether an exclusion zone can be established in accordance with the *Staff Report on Burrowing Owl* Mitigation (CDFG, 2012). If it cannot, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls. If a biologist experienced with burrowing owl determines the relocation of owls is necessary, a passive relocation effort may be conducted as described below, in coordination with CDFW as appropriate. During the nonbreeding season (generally 1 September–31 January),

Table C-3
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
	a qualified biologist may passively relocate burrowing owls found within construction areas. Prior to passively relocating burrowing owls, a Burrowing Owl Exclusion Plan shall be prepared by a qualified biologist in accordance with Appendix E of the *Staff Report on Burrowing Owl Mitigation* (CDFW, 2012). The Burrowing Owl Exclusion Plan shall be submitted to the CDFW for review as required. The biologist shall accomplish such relocations using one-way burrow doors installed and left in place for at least two nights; owls exiting their burrows will not be able to re-enter. Then, immediately before the start of construction activities, the biologists shall remove all doors and excavate the burrows to ensure that no animals are present the burrow. The excavated burrows shall then be backfilled. To prevent evicted owls from occupying other burrows in the impact area, the biologist shall, before eviction occurs, (1) install one- way doors and backfill all potentially suitable burrows within the impact area, and (2) install one-way doors in all suitable burrows located within approximately 50 feet of the active burrow, then remove them once the displaced owls have settled elsewhere. When temporary or permanent burrow-exclusion methods are implemented, the following steps shall be taken: Prior to excavation, a qualified biologist shall verify that evicted owls have access to multiple, unoccupied, alternative burrows, located nearby (within 250 feet) and outside of the projected disturbance zone. If no suitable alternative natural burrows are available for the owls, then, for each owl that is evicted, at least two artificial burrows shall be installed in suitable nearby habitat areas. Installation of any required artificial burrows preferably shall occur at least two to three weeks before the relevant evictions occur, to give the owls time to become familiar with the new burrow locations before being evicted. The artificial burrow design and installation shall be described in the Burrowing Owl Exclusion Plan per Appendix E of the *Staff Report on Burrowing Owl Mitigation* (CDFW, 2012). Passive relocation of burrowing owls shall be limited in areas adjacent to Project activities that have a sustained or low-level disturbance regime; this approach shall allow burrowing owls that are tolerant of Project activities to occupy quality, suitable nesting and refuge burrows. The use of passive relocation techniques in a given area shall be determined by a qualified biologist who may consult with CDFW, and shall depend on existing and future conditions (e.g., time of year, vegetation/topographic screening, and disturbance regimes).
AMM BR-PGE-18	**Wetland and Other Waters Avoidance and Minimization.** Impacts to wetlands and other waters shall be avoided to the extent feasible. The Project shall be designed, constructed and operated to avoid and minimize impacts to wetlands and other waters to the extent feasible. General Project staging and laydown activities shall not occur within wetlands during construction. To avoid unnecessary egress into waterways and wetlands, all wetlands and waters in the Project impact area shall be clearly marked with highly visible flagging, rope, or similar materials in the field. Access allowed within these features for the purposes of construction in and near such features (e.g., road crossings) shall be clearly delimited, and be staked in the field, to prevent construction personnel from causing impacts to areas outside of work limits. Where necessary, silt fencing or other measures may be used to protect adjacent wetlands and waterways from sediment transport or other indirect impacts that could result from adjacent construction. Wetlands and other waters within construction areas that are to be avoided shall be fenced or flagged for avoidance prior to construction, and a biological monitor shall be present to ensure compliance with off-limits areas. Additionally, the following measures are proposed to further minimize project impacts on wetland and other waters during construction activities: • Grading and construction activities should be done during dry conditions. However, if grading and construction must be conducted during wet conditions, then the site

Table C-3
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
	specific best management practices (BMPs) for erosion will be implemented. • All work within waters that have only low or intermittent flow shall be performed when the channel is dry or at its lowest flow. Work within channels with perennial flow shall be performed during times when there is no flow to the extent practical. • Activities near wetland and waters that have the potential to degrade water quality will be conducted during the dry season. If work activities are necessary during the rainy season, they shall be conducted during dry spells between rain events. • All drainage patterns and grades will be returned to preconstruction conditions • Unanticipated temporary impacts to wetlands and other waters shall be mitigated through onsite restoration, if impacts are restored within a single year, with most restoration expected to occur at the onset of the rainy season to enhance germination success (i.e., areas impacted in a given year must be restored prior to 1 March of the following year to be considered temporary and require no additional mitigation). Areas of construction access-related temporary impacts that cannot be restored prior to 1 March the following year and would remain exposed during the dry season shall be restored the following fall. Compensatory mitigation for temporarily impacted areas that are not restored within a year shall be provided at a ratio acceptable to the agency(ies) with jurisdiction over that wetland or water feature.
Cultural Resources	
AMM CR-1	**Pre-construction worker cultural resources training.** Prior to construction, PG&E will design and implement a Worker Cultural Resources Training Program for all project personnel who may encounter and/or alter historical resources or unique archaeological properties. Construction supervisors, workers, and other field personnel will be required to attend the training program prior to their involvement in field operations. The program will be conducted in conjunction with other environmental awareness training and education for the project. The cultural resources training session will be led by a qualified instructor meeting the Secretary of Interior's Professional Qualification Standards as listed beginning on page 44716 of Volume 48 of the Federal Register and as may be updated by the National Park Service. This Program will minimally include: • A review of the environmental setting (prehistory, ethnography, history) associated with the project; • A review of Native American cultural concerns and recommendations during project implementation; • A review of applicable federal, state, and local laws and ordinances governing cultural resources and historic preservation , including notification of the appropriate public agencies; • A review of what constitutes prehistoric or historical archaeological deposits and what the workers should look out for; • A discussion of site avoidance requirements and procedures to be followed in the event unanticipated cultural resources are discovered during construction; including notification of the appropriate public agencies where applicable; • A discussion of procedures to follow in the event human remains are discovered during construction , including notification of the appropriate public agencies where applicable; • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies; and

Table C-3
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
	• A statement by the construction company or applicable employer agreeing to abide by the program conditions, PG&E policies, and applicable laws and regulations.
AMM CR-2	**Pre-construction worker cultural resources training.** There are no known archaeological or historical resources within the direct impact areas defined for the PG&E Upgrades. In keeping with the intent of the NHPA and CEQA, PG&E's preferred approach for archaeological resources and historical resources is avoidance of impacts to significant (or unevaluated) resources. Where avoidance is not feasible, potential impacts to significant cultural resources must be treated in a way that is acceptable to PG&E, the State Historic Preservation Officer (SHPO), and if applicable, the local Native American community and the BLM. Treatment might include data recovery excavations, public interpretation/education, or other measures. If there is an unanticipated discovery of a buried archaeological deposit or human remains, PG&E will implement AMM CR-4, and -5.
AMM CR-3	**Cultural construction monitoring.** A qualified archaeologist field technician working with and reporting to an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards will monitor all project-related excavation that is within an area of moderate to high sensitivity for prehistoric or historical buried resources. This shall include monitoring areas within 167 feet (50 meters) of recorded or previously identified prehistoric and historical-era sites or features, AMM CR-3 will be guided by an Archaeological Monitoring and Inadvertent Discovery Plan, which will include the framework for evaluation and treatment of any unanticipated discoveries described in AMM CR-4.
AMM CR-4	**Unanticipated discoveries of cultural resources.** In the event that previously unidentified archaeological, cultural, or historical sites, artifacts, or features are uncovered during implementation of the project, work will be suspended within 100 feet (30 meters) of the find and redirected to another location. PG&E's cultural resources specialist or designated representative will be contacted immediately to examine the discovery and determine if additional work is needed. If the unanticipated discovery is on public lands, work must be suspended immediately and a BLM cultural resources specialist, or designated representative, must be contacted to examine the discovery and determine the appropriate course of action. If the discovery can be avoided or protected and no further impacts will occur, the resource will be documented on California Department of Parks and Recreation 523 forms and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, PG&E or their representative will evaluate the significance of the discovery following federal and state laws and implement data recovery or other appropriate treatment measures if warranted. Evaluation of historical-period resources will be done by a qualified historical archaeologist while evaluation of prehistoric resources will be done by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.
AMM CR-5	**Unanticipated discovery of human remains.** If human remains or suspected human remains are discovered during construction, work within 100 feet of the find will stop immediately and the construction foreman shall contact the PG&E cultural resources specialist, who will then call the San Benito or Fresno County Coroner, as appropriate. There shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains, until coroner has determined that the remains are not subject to provisions of Section 27491 of the Government Code. If the coroner determines the remains to be Native American, he/she shall contact the NAHC within 24 hours. The NAHC will appoint a Most Likely Descendent for recommendations on the treatment and disposition of the remains (Health and Safety Code Sect. 7050.5,

Table C-3
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
	Public Resources Code Sect. 5097.24). If the unanticipated discovery is on public lands, a BLM cultural resources specialist, or designated representative, must also be contacted to report the discovery and determine the appropriate course of action
Hazards	
AMM HAZ-1	**Proper storage and disposal of waste and hazardous materials.** Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash, as well as recyclable materials. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, shall be removed to a disposal facility authorized to accept such materials.
AMM HAZ-2	**Curtail work during red flag conditions.** During fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
AMM HAZ-3	**Fire season preparedness.** During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding.
AMM HAZ-4	**Reduce Risk for Valley Fever.** Implement the following measures to reduce the likelihood that construction workers and the public are infected with Valley Fever: • Provide to all workers a detailed informational brochure explaining Valley Fever, its cause, and its symptoms, and the populations most at risk for the disease. The brochure shall incorporate information provided the California Department of Public Health (http://www.cdph.ca.gov/healthinfo/discond/Pages/Coccidioidomycosis.aspx) and shall be reviewed by a DPH for adequacy before the start of construction. • If working in dusty environments, make breathing protection gear available to all workers, at their request and at no cost to workers. • As part of a Safe Worker Environmental Awareness Program, educate workers to recognize the symptoms of Valley Fever, and to promptly report suspected symptoms of work-related Valley Fever to a supervisor.
Transportation and Circulation	
AMM TR-1	**Develop and Implement Traffic Control Plan.** The PG&E Traffic Control Plan shall include the following: • Demonstration of compliance with the California Joint Utility Traffic Control Manual; • The dates of any planned road closures (full or partial); • A plan for providing public notice of anticipated road closures and traffic delays; and • Measures to ensure that no traffic delays exceed 30 minutes (e.g., using flaggers and signage, timing road closures to minimize impacts on traffic).
Water Resources	
AMM WR-1	**Hazardous material spill prevention and response plan.** PG&E will implement construction controls, training and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction. These construction practices include construction worker training appropriate to the site worker's role, containment and spill control practices in accordance with the SWPPP, and emergency response to ensure appropriate cleanup of accidental spills. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. Material

Table C-3
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
	safety data sheets will be maintained and kept available on site, as applicable. The project SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted. All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground. A monitoring program shall be implemented to ensure that the plans are followed during all construction, operations, and maintenance activities.

Table C-4
USFWS Biological Opinion Measures[1]

	Measure[2]
San Joaquin Kit Fox	
	San Joaquin Kit Fox Den Avoidance. After pre-ground disturbance surveys, the designated biologists would identify and clearly mark the areas where San Joaquin kit foxes were identified, along with their dens and burrows. All known or occupied San Joaquin kit fox dens would be identified by flagging a 100-foot buffer. All known San Joaquin kit fox natal dens would be identified by flagging and a 150-foot buffer; all occupied San Joaquin kit fox natal dens would be identified by flagging and a 200-foot buffer. No work activities that would result in effects to the den or occupants would occur within the buffers until it is determined to be unoccupied by the designated biologist. If a road is to be constructed adjacent to a den buffer, a speed limit of 10 mph would be implemented and the den would be monitored for disturbance by a designated biologist. Any potential kit fox dens that cannot be avoided may be excavated and backfilled in accordance with Service (2011a) guidelines without prior notification, provided that excavation is approved and supervised by a biological monitor or other designated biologist. If avoidance of known dens is not possible, the project proponent would take the following sequential steps when working in such areas • Allow for 3 consecutive days of monitoring to determine the occupancy status of each den. Activity at the den will be monitored by using tracking medium at the entrance or stationary infrared beam cameras and by spotlighting. If no activity is observed, actions described below under Step 3 may be implemented. If San Joaquin kit fox activity is observed, the den will be monitored for an additional 5 days from the date of observance. Repeated use of the den during this time will be discouraged by partially plugging its entrances with soil so that any resident animal can escape easily. If San Joaquin kit fox are still using the den after 5 days, den excavation, discussed below under Step 3, may proceed when, in the judgment of the biologist, it is determined to be vacant (San Joaquin kit fox not present at the time). • Once the San Joaquin kit fox has vacated the den, methods such as one-way doors will be taken to prevent reentry until construction is complete in these areas. At that point, access to the burrows will be restored. • Once it has been confirmed that the dens have been vacated, if construction related impacts will crush or destroy a den, it will be excavated by hand under the supervision of a biologist; no more than 4 inches will be removed at a time. If at any time during excavation a San Joaquin kit fox is discovered inside the den, all activity will cease immediately, and monitoring described above under Step 1 will resume. As indicated above, natal dens will not be disturbed at any time. *Measures during Construction*. Construction materials would not be stacked in a manner that allows San Joaquin kit fox to establish den sites. Construction items such as solar panels and equipment transported to the project site on pallets would be placed directly on the ground, and the pallets would be removed from the site. High visibility signs would be posted at the boundary of the project site along Little Panoche Road to alert drivers both to construction traffic and to the presence of special status species. The signs would include a posted speed limit. The designated biologist or biological monitors would trap and radio collar San Joaquin kit foxes for location monitoring during construction. The daily telemetry location of the collared San Joaquin kit fox would inform construction personnel of San Joaquin kit foxes in the area and locations to avoid and minimize effects to the species.

Table C-4
USFWS Biological Opinion Measures[1]

	Measure[2]
	Project Design. San Joaquin kit fox permeable perimeter fencing would be constructed to allow movement through the proposed project footprint. A 5- to 6-inch gap along the bottom of the chain-link fence would allow San Joaquin kit foxes to travel through the site to existing travel corridors, including the creek washes and the Valley Floor Conservation Lands. It would also allow a link to prey base areas, such as the giant kangaroo rat precinct/colony avoidance areas. A fencing option to the chain-link fence would be an inverted "deer fence" that would have larger rectangular openings on the bottom to allow kit foxes to pass through. Fences surrounding the substation and O&M building would be constructed to restrict San Joaquin kit fox access. Movement corridors through the site would be protected with little disturbance to the existing habitat. The exceptions would be the existing road, emergency access crossing, and the planned project perimeter road, during project construction and operations and maintenance. Measures added to the project description to provide the San Joaquin kit fox with additional movement corridors through the project include: • An approximately 1,640-foot-wide by 8,000-foot-long corridor associated with the Las Aguilas Creek/Valley Floor Conservation Lands corridor will be protected and is expected to be beneficial in providing additional undisturbed connectivity. The corridor would promote movement through the site and north to the Panoche Hills and BLM landholdings. The undisturbed Valley Floor Conservation Lands along Las Aguilas Creek will be widened to accommodate this San Joaquin kit fox enhancement. • The Panoche Creek Corridor intersects the southern portion of the Valley Floor Conservation Lands in a west to southeast direction. This corridor provides connectivity to the large block and high quality habitats to the west of the project, including the Gabilan Range and eventually through to the Silver Creek Ranch Conservation Lands and the BLM lands beyond. The southern portion of the Valley Floor Conservation Lands also provides unimpeded west to east travel ways from the Panoche Creek wash (and adjacent flats) to the Valadeao Ranch Conservation Lands and adjacent Tumey Hills/Panoche Hills BLM landholdings, including the Las Aguilas Creek drainage. • The Moss-Panoche 230kV Transmission Line Corridor bisects the southwestern portion of the proposed project footprint and associated Valley Floor Conservation Lands in a northwest to southeast direction. This 75-foot corridor provides connectivity to the habitats (e.g., grassland flats and Panoche Creek wash) to the west of the project, including the Gabilan Range, and eventually through to Silver Creek Ranch Conservation Lands and adjacent BLM landholdings.
Giant Kangaroo Rat Measures	
	Project Design. Surveys were conducted to document areas of high giant kangaroo rat occupancy. A total of 212 acres of giant kangaroo rat avoidance areas within the project footprint have been incorporated into the Valley Floor Conservation Lands. These areas were selected due to the large concentrations of active and inactive giant kangaroo rat precincts, presence of high quality habitat, and direct connectivity to protected lands including a 20-foot setback from Little Panoche Road, based on the number of giant kangaroo rat active and inactive precincts identified along the adjacent fence line. Habitat corridors would conform to contours of natural ecological features and most suitable habitat in the landscape to maintain functionality of the project site for giant kangaroo rats.

Table C-4
USFWS Biological Opinion Measures[1]

	Measure[2]
	Giant Kangaroo Rat Relocation Plan Summary. All activities that would result in permanent or temporary ground disturbance would be preceded by a preconstruction survey for giant kangaroo rats conducted by the designated biologist no more than 30 days prior to commencement of ground disturbing activities. If giant kangaroo rat sign is observed in the work area, the area would be saturated with traps. All giant kangaroo rats would be relocated off-site within 15 miles of the proposed project footprint. Exclusion fencing would be installed to prevent giant kangaroo rats from re-entering the target burrow. The exclusion fencing would be buried deep enough to prevent giant kangaroo rats from digging under, and high enough to prevent them from jumping over. After trapping for 6 consecutive nights or successfully trapping an individual giant kangaroo rat, all burrows would be excavated to ensure no individuals remain. Giant kangaroo rat burrows/precincts would not be disturbed from January through June, which is the recognized breeding/mating season, unless a qualified biologist verifies by video that no young are present in the burrow. Construction would not begin in an area until trapping efforts have ceased, burrow excavation is complete, and no more giant kangaroo rats are expected to use the area, as determined by the designated biologists.
Blunt Nosed Leopard Lizard Measures	
	Blunt-nosed Leopard Lizard Surveys. In the areas closer to previous observations, such as in the vicinity of Las Aguilas Creek, enhanced preconstruction surveys for adult blunt-nosed leopard lizards would be conducted. These enhanced surveys would consist of focused protocol-level blunt-nosed leopard lizard surveys during the adult breeding season preceding the ground disturbance. The survey method would be based on the CDFW Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW 2004). All observed blunt-nosed leopard lizards would be avoided by a flagged 52.4-acre buffer to alert project personnel to their presence. Motorized vehicles would be prohibited within the 52.4-acre buffer surrounding all blunt-nosed leopard lizard observations, except where those buffers intersect an existing road. If a blunt nosed leopard lizard is observed on the proposed project footprint, the Service would be contacted. *Blunt-nosed Leopard Lizard Avoidance during Construction*. Biological monitors would company vehicles and crews throughout the project area if the designated biologist considers it necessary in order to avoid individual blunt-nosed leopard lizards. Biological monitors would be given the authority and obligation to order cessation of activities as follows: if an immediate threat of take is identified, if take avoidance or minimization measures are violated, or if a blunt nosed leopard lizard is located in the construction area. The biological monitor would notify the project environmental representative of a stop work order.
California Tiger Salamander Measures	
	California Tiger Salamander Surveys. The designated biologists or their representatives would survey the work site before the project proponent begins any ground-disturbing activities. If the designated biologists find any adults, eggs, or larvae of California tiger salamander they would relocate them to suitable habitat that is being preserved. The designated biologists would hold the appropriate Federal and State permits, including State scientific collecting permits (SCPs), for amphibians so they could capture and handle the salamanders. The designated biologists may be assisted by approved biologists who do not have SCP; these biologists would be identified as designated monitors. *California Tiger Salamander Exclusion Fencing.* At the discretion of the designated biologist California tiger salamander exclusion fencing will be installed in construction areas within 1.2 miles of potential or known California tiger salamander breeding sites. These areas would be fenced before the rainy season and before construction begins. Before the

Table C-4
USFWS Biological Opinion Measures[1]

	Measure[2]
	exclusion fencing is installed, a preconstruction survey would conducted by a designated biologist or representative. The project proponent would maintain the California tiger salamander exclusion fencing throughout the rainy season during all construction activities. The project proponent would use wildlife fencing equipped with one-way exits every 250 to 500 feet to avoid entrapping amphibians inside the fence. The project proponent would bury fencing to a depth of 6 inches, and fencing would be a minimum of 30 inches above grade. California tiger salamander exclusion fencing would be designed to exclude other species as well. Entrances to construction areas would be minimized and would be equipped with a gate that could be closed after each working day. This would prevent California tiger salamanders from entering the site. The project proponent would avoid damaging or destroying small mammal burrows to the during installation of the exclusion fencing. The exclusion fencing would be removed after construction or at the end of the rainy season for construction within 1.2 miles of a known or potential breeding pond. *California Tiger Salamander Relocation Plan.* If a California tiger salamander is observed, the designated biologist(s) would capture it and place it in a suitable bucket or insulated cooler in the shade with a wetted sponge and an ice pack wrapped in a clean cloth (if required) to mimic subterranean conditions. The biologist would record his or her name and the date, time, and California tiger salamander location using a handheld GPS and digital camera. The sex, age, condition, diagnostic markings, and general condition and health would also be recorded and the salamander would be photographed. The salamander would be released into a suitable burrow as close to a suitable pond as possible, most likely on the Valadeao Ranch or Valley Floor Conservation Lands, as quickly as possible. The salamander's time out of the ground would not exceed 1 hour. If a dead or injured California tiger salamander is located during the burrow excavations or construction, the Service would be contacted immediately. The project proponent and designated biologists would follow direction from the Service for the next steps to take. Finally, the actions undertaken and the habitat description and location of the California tiger salamander would also be recorded and photographed. All of the above information and any field notes would be submitted to the Service. In addition, this information would be recorded in a California Natural Diversity Database (CNDDB) report and the report would be submitted to the CDFW. *California Tiger Salamander in Project Footprint.* If a California tiger salamander is found by any person in areas that would be impacted by the proposed project, the project proponent would immediately stop all work that could harm the salamander until the permitted designated biologists can capture and relocate it to an appropriate burrow, in accordance with the approved relocation plan. Before surface disturbance or other covered activity, a designated wildlife biologist would conduct a tailgate briefing for all project personnel. This would include an explanation of how to identify California tiger salamander and applicable reporting procedures. *Open Trenches.* All open holes, sumps, and trenches within the project area would be inspected at the beginning and end of each day during the rainy season for trapped animals. The project proponent would provide earthen or wood escape ramps at least 10-inch-wide of no more than 3:1 slope every 250 to 500 feet. *Rain Forecast.* The designated biologists or their representative would monitor the National Weather Service 72-hour forecast for the project area. Additionally, a rain gauge installed at the project site would be monitored and refreshed every morning. If rain exceeds 0.25 inch during a 24-hour period, the project proponent would cease work within 1.2 miles of potential of known breeding ponds until no further rain is forecast. This

Table C-4
USFWS Biological Opinion Measures[1]

	Measure[2]
	includes stopping construction-related traffic moving though areas, except on public roads. In areas within 1.2 miles of potential or known breeding ponds that have been encircled with California tiger salamander exclusion fencing or if existing burrows have been excavated in compliance with the Project's California tiger salamander Pre-construction Avoidance and Minimization Plan, construction would be allowed to continue during rainstorms. This includes structures to permit one-way movement of California tiger salamander off the work site. During periods of rain, no work would be conducted at night, even within the exclusion fencing, unless there is an imminent threat to life, necessary special status species work, or a significant property or construction interest. PVS would restrict night work in areas within 1.2 miles of potential or known California tiger salamander breeding sites when a 70 percent or greater chance of rainfall is predicted within 48 hours. This would apply to project areas that have not been encircled with exclusion fencing or where burrows have not been excavated until the chance of rain decreases below this threshold. However, even after exclusion fencing is installed or burrows excavated, this condition still applies to construction-related traffic moving though areas within 1.2 miles of potential or known salamander breeding sites but outside of the exclusion fencing (e.g., on roads). If work must be completed at night in the rain and within the exclusion fencing, it would be due to such things as an imminent threat to safety or necessary special status species work. *Soil Stockpiles.* The project proponent would ensure that soil stockpiles are placed where soil would not pass into potential California tiger salamander breeding pools or into any other Waters of the State, in accordance with Fish and Game Code 5650. The project proponent would appropriately protect stockpiles to prevent soil erosion. *Barriers to California Tiger Salamander Movement.* Any roadways that the project proponent needs to construct within 1.2 miles of known or potential California tiger salamander breeding sites would be constructed without steep curbs, berms, or dikes, which could prevent California tiger salamander from exiting the roadway. If curbs are necessary for safety or surface runoff, the project proponent would design and construct them to allow California tiger salamanders to walk over them. If steep dikes are required, the project proponent would design and construct them to include over-side drains or curb/dike breaks spaced at intervals of 25 feet to allow California tiger salamander passage. *Fieldwork Code of Practice*. To ensure that disease is not conveyed between work sites, all biologists would follow the Declining Amphibian Populations Task Force Fieldwork Code of Practice. The designated biologists may substitute a bleach solution of 0.5 to 1 cup of bleach to 1 gallon of water for the ethanol solution. Care will be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat. *Breeding Ponds.* Three potential breeding ponds would be created on conservation lands. The purpose of the pond creation is to create new breeding habitat on the conservation lands, which would be preserved and managed in perpetuity. Through coordination with the Service and CDFW, adaptive management would be used to ensure the success of the created ponds.

[1] Biological Opinion issued by USFWS on October 5, 2015. Full Biological Opinion included in Appendix G of this Final EIS.

[2] In the event that any of these conditions are modified through permit amendments in the future, the condition in the resource agency permit would govern, rather than the measure as contained here in the EIS.

Table C-5
CDFW Incidental Take Permit Conditions of Approval[1]

	Condition[2]
General Provisions	
Condition 7.1	• Designated Representative. Before starting Covered Activities, Permittee shall designate a representative responsible for communications with CDFW and overseeing compliance with this ITP. Permittee shall notify CDFW in writing before starting Covered Activities of the Designated Representative's name, business address, and contact information, and shall notify CDFW in writing if a substitute Designated Representative is selected or identified at any time during the term of this ITP.
Condition 7.2	• Designated Biologists. Permittee shall submit to CDFW in writing the name, qualifications, business address, and contact information of Designated Biologists at least 5 business days before starting Covered Activities. Permittee shall ensure that the Designated Biologists are knowledgeable and experienced in the biology, natural history, collecting, and handling of the Covered Species. Permittee shall ensure that the Designated Biologists are experienced in excavating burrows to minimize mortality of CTS, GKR, and SJKF; trapping SJAS and GKR; and monitoring construction activities under an ITP for CTS, and on large-scale (>640 acres), multi-year construction projects for SJAS, GKR, and SJKF. The Designated Biologists shall be responsible for monitoring Covered Activities to help minimize and fully mitigate or avoid the incidental take of individual Covered Species and to minimize disturbance of Covered Species' habitat. Permittee shall obtain CDFW approval of the Designated Biologists in writing before starting Covered Activities, and shall also obtain approval in advance in writing if a Designated Biologist must be changed at any time during the term of this ITP.
Condition 7.3	• Designated Biologist Authority. To ensure compliance with the Conditions of Approval of this ITP, the Designated Biologists shall have authority to immediately stop any activity that does not comply with this ITP, and/or to order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species.
Condition 7.4	• Biological Monitors. The Designated Biologists may authorize Biological Monitors to assist in ITP compliance efforts, under the direct supervision of the Designated Biologists, where specified in the Conditions of Approval of this ITP. Each Designated Biologist is responsible for ensuring that any biological monitor working under his or her supervision is knowledgeable and experienced in the biology and natural history of the Covered Species, the Conditions of Approval of this ITP, the definition of lake" in CESA, and in implementing standard avoidance and minimization measures used on construction projects in Covered Species habitat.
Condition 7.5	• Education Program. Permittee shall conduct an education program for all persons employed or otherwise working in the Project Area before performing any work. The program shall consist of a presentation from the Designated Biologists that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status pursuant to CESA including legal protection, recovery efforts, penalties for violations and Project-specific protective measures described in this ITP. Permittee shall provide interpretation for non-English speaking workers, and the same instruction shall be provided to any new workers before they are authorized to perform work in the Project Area. Permittee shall prepare and distribute wallet-sized cards or a fact

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	Condition[2]
	sheet handout containing this information for workers to carry in the Project Area. Upon completion of the program, employees shall sign a form stating they attended the program and understand all protection measures. This training shall be repeated at least every six months during the construction phase and then annually during O&M for long-term and/or permanent employees that will be conducting work in the Project Area.
Condition 7.6	• Construction Monitoring Notebook_ The Designated Biologists shall maintain a construction-monitoring notebook on-site throughout the construction period, which shall include a copy of this ITP with attachments and a list of signatures of all personnel who have successfully completed the education program. Permittee shall ensure a copy of the construction-monitoring notebook is available for review at the Project site upon request by CDFW.
Condition 7.7	• Trash Abatement. Permittee shall initiate a trash abatement program before starting Covered Activities and shall continue the program for the duration of the Project. Permittee shall ensure that trash and food items are contained in closed (animal proof) containers and removed regularly to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs. The permanent trash receptacle(s) on the site will be enclosed in a wildlife-safe fenced enclosure and Permittee shall ensure the containers are closed and in good working order.
Condition 7.8	• Dust Control. Permittee shall implement dust control measures during Covered Activities to facilitate visibility for monitoring of the Covered Species by the • Designated Biologist. Permittee shall keep the amount of water used to the minimum amount needed, and shall not allow water to form puddles. Permittee shall not apply dust suppressant, surfactant, or soil binders or stabilizer products that may be harmful to Covered Species in upland or aquatic environments. Permittee shall obtain CDFW's written permission before applying any dust suppressant besides water or gravel. Permittee shall provide all available documentation of each product's safety or hazards to wildlife to CDFW with any such request for approval.
Condition 7.9	• Erosion Control Materials. Permittee shall prohibit use of erosion control materials potentially harmful to Covered Species and other species, such as monofilament netting, photodegradable mesh (erosion control matting) or similar material, in potential Covered Species' habitat. Permittee shall only deploy erosion control mats, blankets, or coir rolls that consist of only natural-fiber, biodegradable materials.
Condition 7.10	• Delineation of Property Boundaries. Before starting Covered Activities along each part of the route in active construction phase or ground-disturbing O&M activities, Permittee shall clearly delineate the boundaries of the Project Area with wildlife-permeable fencing, stakes, or flags. Permittee shall restrict all construction phase or ground-disturbing O&M Covered Activities to within the fenced, staked, or flagged areas. Permittee shall maintain all fencing, stakes, and flags until the completion of construction phase or ground-disturbing O&M Covered Activities in that area.
Condition 7.11	• Delineation of Habitat. Permittee shall clearly delineate habitat of the Covered Species to be avoided within the Project Area with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize the disturbance of Covered Species' habitat. This includes all areas within the solar

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	Condition[2]
	array buffer areas and fence construction buffer areas that will not be used for access or staging.
Condition 7.12	• Project Access. Project-related personnel shall access the Project Area using existing routes, and routes identified in the Project Description and shall not cross Covered Species' habitat outside of or en route to the Project Area. Permittee shall restrict Project-related vehicle traffic to established roads, staging, and parking areas. Permittee shall ensure that vehicle speeds do not exceed 20 miles per hour to avoid Covered Species on or traversing the roads. If Permittee determines construction of routes for travel are necessary outside of the Project Area, the Designated Representative shall contact CDFW for written approval before carrying out such an activity. CDFW may require an amendment to this ITP, among other reasons, if additional take of Covered Species will occur as a result of the Project modification.
Condition 7.13	• Staging Areas. Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project Area using, to the extent possible, previously disturbed areas, Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project Area unless provided for as described in Condition of Approval 7.11 of this ITP.
Condition 7.14	• Hazardous Waste, Permittee shall immediately stop and, pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so. Permittee shall exclude the storage and handling of hazardous materials from the Project Area and shall properly contain and dispose of any unused or leftover hazardous products off-site.
Condition 7.15	• CDFW Access. Permittee shall provide CDFW staff with reasonable access to the Project and mitigation lands under Permittee control, and shall otherwise fully cooperate with CDFW efforts to verify compliance with or effectiveness of mitigation measures set forth in this ITP.
Condition 7.16	• Refuse Removal. Upon completion of Covered Activities, Permittee shall remove from the Project Area and properly dispose of all temporary fill and construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.
Monitoring, Notification and Reporting Provisions	
Condition 8.1	• Notification Before Commencement, The Designated Representative shall notify CDFW in writing 5 business days before starting Covered Activities and shall document in the notification compliance with all pre-Project Conditions of Approval before starting Covered Activities. Upon receipt of the notification, if CDFW determines that all pre-Project Conditions of Approval are complete, CDFW may, in its discretion, authorize Covered Activities to start sooner than 5 business days after its receipt of the notification.
Condition 8.2	• Notification of Non-compliance. The Designated Representative shall immediately notify CDFW in writing if it determines that Permittee is not in compliance with

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	any Condition of Approval of this ITP, including but not limited to any actual or anticipated failure to implement measures within the time periods indicated in this ITP and/or the MMRP. The Designated Representative shall report any non-compliance with this ITP to CDFW in writing within 24 hours.
Condition 8.3	• Compliance Monitoring. A Designated Biologist shall be on-site for the duration of the day on which ground disturbing activities are initiated during construction, planned maintenance, or unplanned maintenance activities and on any day when construction, planned maintenance, or unplanned maintenance activities occurs in any footprint with vegetation, small mammal burrows, and/or where potential Covered Species dens or burrows do or may occur. The Designated Biologist on site shall have been approved by CDFW for the Covered Species which could be taken during the Covered Activities which would occur on that day. Due to the urgent emergency nature of forced outages, the Designated Biologist(s) may not be immediately on-site during forced outage activities that result in ground or vegetation disturbance. The Designated Biologist(s) shall be notified of forced outage activities that result in ground or vegetation disturbance, or where small mammal burrows, and/or where potential Covered Species dens or burrows do or may occur, as soon as is practicable and shall be present to monitor ground or vegetation disturbing activities, or where small mammal burrows, and/or where potential Covered Species dens or burrows do or may occur, as soon as is practicable. The Designated Biologist(s) or Biological Monitor(s) shall conduct compliance inspections to (1) minimize incidental take of the Covered Species; (2) prevent unlawful take of species; (3) check for compliance with all measures of this ITP; (4) check all exclusion zones; and (5) ensure that signs, stakes, and fencing are intact, and that Covered Activities are only occurring in the Project Area. The Designated Representative or Designated Biologist(s) shall prepare daily written observation and inspection records summarizing oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, and monitoring activities required by this ITP. During the construction period, The Designated Biologist(s) or Biological Monitors shall conduct daily compliance inspections. During O&M, the Designated Biologist(s) or biological monitors under the supervision of the Designated Biologist(s) shall conduct monthly compliance inspections.
Condition 8.4	• As-Built Development Plans. Permittee shall submit as-built development plans to CDFW within ninety (90) days of completing construction. The as-built plan sheets shall delineate and quantify the extent of all permanent Project features, including roads, buildings, power poles, solar panels, fence lines, and all other facilities and features associated with the Project. The plan scale shall be 1":250' (one inch to 250 feet) or smaller. Plans shall be derived from survey data acquired after construction and shall be verified by the Designated Biologist(s). Permittee shall submit the plans in Portable Document Format (PDF) or a similar electronic format and as shapefiles for use in ArcMap.
Condition 8.5	• Monthly Compliance Reports during Construction. During the construction phase, the Designated Representative or Designated Biologist(s) shall compile the observation and inspection records identified in Condition of Approval 8.3 into a monthly Compliance Report and submit it to CDFW along with a copy of the MMRP table with notes showing the current implementation status of each mitigation measure, Monthly Compliance Reports shall be submitted to the CDFW offices listed in the Notices section of this ITP and via e-mail to CDFW's

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	Condition[2]
	Regional Representative and Headquarters CESA Program. At the time of this ITP's approval, the CDFW Regional Representative is Dave Hacker (david.hacker©wildlife.ca.gov) and Headquarters CESA Program email is CESA@wildlife.ca.gov. CDFW may at any time increase the timing and number of compliance inspections and reports required under this provision depending upon the results of previous compliance inspections. If CDFW determines the reporting schedule must be changed, CDFW will notify Permittee in writing of the new reporting schedule.
Condition 8.6	• Annual Status Report. Permittee shall provide CDFW with an Annual Status Report (ASR) no later than March 31 of every year beginning with issuance of this ITP and continuing until CDFW accepts the Final Mitigation Report identified below. Each ASR shall include, at a minimum; (1) a summary of all Monthly Compliance Reports for that year identified in Condition 7.5; (2) a general description of the status of the Project Area and Covered Activities, including actual or projected completion dates, if known; (3) a copy of the table in the MMRP with notes showing the current implementation status of each mitigation measure; (4) an assessment of the effectiveness of each completed or partially completed mitigation measure in avoiding, minimizing, and mitigating Project impacts; (5) all available information about Project-related incidental take of the Covered Species: (6) a summary of findings from pre-construction surveys (e.g., number of times a Covered Species or a den or burrow was encountered, location, if avoidance was achieved, if not, what other measures were implemented); (7) beginning and ending dates of O&M, emergency related, and other Covered Activities undertaken during the reporting year; (8) all relevant information concerning Permittee's efforts to terminate mineral rights on the HM lands pursuant to Condition 9; (9) information about other Project impacts on the Covered Species; (10) an accounting, description of the nature of disturbance within, and delineation of the areas subject to both temporary and permanent disturbance, both for the prior calendar year, and a total since ITP issuance, provided in both paper map and shapefile formats; and (11) information about other Project impacts on the Covered Species.
Condition 8.7	• CNDDB Observations. The Designated Biologist(s) shall submit all observations of Covered Species in new areas (i.e. where they have not been previously reported to the CNDDB) to CDFW's California Natural Diversity Database (CNDDB) within 60 calendar days of the observation. The Designated Biologist(s) shall include copies of the submitted forms with the next monthly Compliance Report or ASR, whichever is submitted first relative to the observation. For CTS, this measure applies to all upland and aquatic observations. Point observations may be summarized into larger polygons.
Condition 8.8	• Final Mitigation Report. No later than 45 days after completion of all mitigation measures, Permittee shall provide CDFW with a Final Mitigation Report. The Designated Biologist shall prepare the Final Mitigation Report which shall include, at a minimum: (1) a summary of all Monthly Compliance Reports and all ASRs; (2) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; (3) all available information about Project-related incidental take of the Covered Species; (4) information about other Project impacts on the Covered Species; (5) beginning and ending dates of Covered Activities; (6) an assessment of the effectiveness of this ITP's Conditions of Approval in minimizing and fully mitigating Project impacts of the taking on

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	Condition[2]
	Covered Species; (7) recommendations on how mitigation measures might be changed to more effectively minimize take and mitigate the impacts of future projects on the Covered Species; and (8) any other pertinent information.
Condition 8.9	• Notification of Take or Injury. Permittee shall immediately notify the Designated Biologist if a Covered Species is taken or injured by a Project-related activity, or if a Covered Species is otherwise found dead or injured within the vicinity of the Project. The Designated Biologist or Designated Representative shall provide initial notification to CDFW by calling the Regional Office at (559) 243-4005 x151. The initial notification to CDFW shall include information regarding the location, species, and number of animals taken or injured and the ITP Number. Following initial notification, Permittee shall send CDFW a written report within two calendar days. The report shall include the date and time of the finding or incident, location of the animal or carcass, and if possible provide a photograph, explanation as to cause of take or injury, and any other pertinent information.
Condition 8.10.	• SJAS and GKR Translocation Plans. Permittee shall prepare and implement • (after CDFW's written approval of the plans) plans to trap and relocate GKR and SJAS from work areas as described in Conditions of Approval 9.23 and 9.25.
Take Minimization Measures	
	The following requirements are intended to ensure the minimization of incidental take of Covered Species in the Project Area during Covered Activities. Permittee shall implement and adhere to the following conditions to minimize take of Covered Species.
Condition 9.1	• Fences. Permittee shall not install wildlife exclusion fencing except as expressly stated in Conditions of this ITP. Permittee shall ensure that all fences during construction and O&M will generally be permeable for Covered Species. All solar array perimeter fences shall be permeable at all locations to all Covered Species. Impassable fences are permitted only for wildlife exclusion purposes as discussed below or when Permittee has obtained written concurrence from CDFW to install impermeable fencing to avoid a health and safety concern for the Covered Species or a risk to human health; safety, or property.
Condition 9.1.1	• Permittee may install temporary SJKF exclusion fencing around the temporary laydown yards (Figure 2) and up to 50 acres of staging areas as described in Condition of Approval 9.3.
Condition 9.1.2	• Permittee may install permanent SJKF exclusion fencing around the electrical substation and switchyards.
Condition 9.1.3	• Any chain link fence intended to exclude SJKF shall have vinyl slats or other material installed from the bottom of the fence up to at least three feet from the ground to prevent kit foxes from getting their heads stuck in the fence.
Condition 9.1.4	• Permittee shall install and maintain in good working condition a fence to exclude all Covered Species from each construction water pond until the ponds are removed at the end of the construction phase. A Designated Biologist or Biological Monitor shall inspect the ponds and the interior of the fencelines for any trapped or killed Covered Species at the beginning and end of each work day
Condition 9.2	• Permittee shall stockpile all materials and equipment in a manner that discourages Covered Species use. In all locations, bundled or loose materials not on pallets

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	Condition[2]
	shall be placed on skids, as opposed to directly on the ground, to elevate them and discourage use by dispersing CTS Pallets or materials on skids outside of SJKF exclusionary fencing shall be spread out to avoid creating extensive galleries attractive to SJKF, or placed on taller skids to elevate them high enough from the ground to discourage SJKF using the materials as a den.
Condition 9.3	• Use of and Staging in Temporary Impact Areas. This condition does not apply to the temporary laydown yards shown on Figure 2. Permittee shall minimize Covered Species habitat disturbance in the temporary impact areas shown on Figure 4 to the maximum extent practicable. Permittee shall avoid all GKR burrows or precincts in the temporary impact areas by at least 50 feet while conducting Covered Activities in the temporary impact areas. Permittee shall conduct no earthwork in the temporary impact areas except as needed to construct, utilize, and remove the temporary water ponds. Permittee shall not stockpile materials or stage equipment in the temporary impact areas for more than 24 hours. Permittee may elect to utilize up to 50 acres within the temporary impacts area (in addition to the Temporary Laydown Yards already identified) within which to stockpile materials and equipment for greater than 24 hours.
Condition 9.4	• Permittee shall limit temporary disturbance from road construction activities to the width of one full-size pickup truck on either side of the permanent footprint of the road surface, prism, and/or cut slopes that are necessary to route the road. Permittee shall access and construct perimeter fences with only rubber-tired vehicles or on foot, and shall conduct no earthwork for the perimeter fences except for post holing. All vehicles will avoid GKR precincts by at least 50 feet while constructing perimeter fences. No GKR precincts, SJAS burrows, or SJKF burrows shall be excavated for perimeter fence construction.
Condition 9.5	• Project Area Lands Management. Permittee shall manage the solar energy generation facility compatibly with Covered Species to the maximum extent practicable, Permittee shall manage vegetation primarily through grazing to control vegetation height and density to the extent practicable to maximize the potential for any residual habitat value for Covered Species during O&M in the Project Area and adjacent HM lands. If the performance monitoring required in Condition of Approval 10.7 detects significantly less proportional use of "on-site" HM Lands and adjacent off site habitat by SJKF compared to intact habitat areas, or significantly greater SJKF predation in the "on-site" HM Lands and adjacent habitat, then Permittee shall consult with CDFW and the USFVVS to determine additional management actions and monitoring that Permittee shall implement on the Project Area, if necessary, including management of vegetation, SJKF or predator prey bases, and predator subsidies.
Condition 9.6	• Treatment of On-Site Conservation Lands during Construction and O&M. Permittee shall not disturb ground or vegetation on the on-site conservation lands area (Figure 6) beyond the limits of disturbance depicted in Figures 2 and 4. Upon commencement of ground- or vegetation-disturbing activities, Permittee shall implement the grazing to be approved for HM lands until the on-site conservation lands have been protected in perpetuity as required by Condition of Approval 10.
Condition 9.7	• Equipment Fueling. Mobile equipment fueling and maintenance shall occur at least 100 feet from Covered Species dens, burrows, or precincts. Permanent and semi-permanent equipment fueling and maintenance areas shall be initially located at a

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	Condition[2]
	distance of at least 100 feet from Covered Species dens, burrows, or precincts, and shall include permanent containment devices that will preclude fuel or other liquids from exiting the equipment fueling maintenance area in the event of a spill or leak. Sufficient spill containment and cleanup equipment shall be present at all mobile, temporary, and permanent equipment fueling locations.
Condition 9.8	• Permittee shall not park vehicles on top of Covered Species dens, burrows, or precincts except where they have been excavated to translocate Covered Species in the temporary laydown yards shown on Figure 2 and permanent impact areas. Vehicles left overnight shall not be located within 50 feet of GKR precincts to the greatest extent practicable.
Condition 9.9	• Lighting. No permanent or temporary, fixed, exterior lighting, including motion-triggered security lighting, shall cast light on Covered Species habitat beyond the footprint of permanent or temporary Project facilities between sunset and sunrise-Motion-triggered lighting (including visible spectrum and infrared) shall not be used in solar panel arrays or elsewhere in the Project Area except within or at the perimeter of permanent and temporary buildings or covered assembly areas. Exterior, fixed lighting at all Project facilities shall be turned on only when people are present unless required by federal, state, or local law.
Condition 9.10	• Preventing Entrapment in Pipes or other Structures-Permittee shall ensure that all pipe, conduit, culverts, or similar materials stockpiled or installed in the Project Area with a diameter of 1.5-18 inches will be capped or otherwise enclosed at the ends to prevent covered species entry (excepting road culverts after their installation). A Designated Biologist or Biological Monitor shall thoroughly inspect all such materials for Covered Species before they are moved, buried, or capped. If a Covered Species is discovered inside such material, that section of material shall not be moved until the animal has escaped on its own. Permittee shall not leave any permanent pipes, conduit, electrical cabinets, or similar materials or structures open where Covered Species may enter them and become trapped.
Condition 9.11	• Covered Species Inspection. Workers shall inspect for Covered Species under vehicles and equipment every time the vehicles and equipment are moved. If a Covered Species is present, the worker shall wait for the Covered Species to move on its own to a safe location. Alternatively, the Designated Biologist(s) shall be contacted
Condition 9.12	• Firearms and Dogs. Permittee shall prohibit firearms and domestic dogs from the Project Area and site access routes during Covered Activities, except for herding dogs and scent dogs as provided below, and firearms in the possession of authorized security personnel or federal, state, or local law enforcement officials. – Permittee may use herding dogs (e.g., Australian shepherds, Queensland heelers) on the Project Footprint when necessary to control movement of livestock and when herding dogs are under voice, hand signal, or other direct control of a handler/shepherd/livestock operator. – Permittee shall not allow livestock guardian dogs (e.g., Great Pyrenees, Pyrenean mastiff) or any other dogs in the Project Area at any time. Permittee shall not allow any dog to roam freely at any time in the Project Area. – Scent-detection dogs may be used in the Project Area when under the control of a qualified handler in the implementation of conservation and monitoring tasks required by Project approvals and permits or for biological

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	Condition[2]
	research activities. – All dogs shall be immunized against rabies, parvovirus, and distemper, and Permittee shall have the immunization records on site for all dogs that are present in the Project Area
Condition 9.13	• Night Work. Covered Activities shall occur during daylight hours only (sunrise to sunset) except for (1) capacitor bank wiring, connecting, and testing; (2) planned and unplanned maintenance activities that must occur after dark to ensure PV arrays are not energized; (3) interior use of the O&M facility; (4) unanticipated emergencies (defined by an imminent threat to life or a significant property interest), including forced outages and non-routine maintenance or repair requiring immediate attention; (5) security patrols, which are allowed 24 hours a day; or (6) Covered Species tracking, trapping, and/or translocation, Any vehicle traffic necessary during nighttime hours associated with the above activities shall be conducted with extra caution to minimize impacts to Covered Species. CDFW shall be notified as soon as possible and no later than 24 hours after commencement of any emergency night-time O&M activities that are conducted outside of the O&M facility.
Condition 9.14	• Buried Electrical Cables. Permittee shall ensure that the design and installation methods of any buried electrical lines preclude Covered Species electrocution, Permittee shall either install underground lines in conduit or use direct-bury cable of a design that precludes breaching by and electrocution of small mammals. Permittee shall obtain CDFVV's written concurrence on each type of underground cable's specifications prior to its installation at the Project Footprint.
Condition 9.15	• Soil Stockpiles. Permittee shall ensure that soil stockpiles are placed where soil will not pass into known or potential Covered Species breeding ponds at or near the Project Area, or into any other "Waters of the State," in accordance with Fish and Game Code 5650. Permittee shall appropriately protect stockpiles to prevent soil erosion.
Condition 9.16	• Materials Inspection. Workers shall thoroughly inspect all construction pipe, culverts, or other similar structures with a diameter of one inch or greater that are stored for one or more overnight periods for the Covered Species before the object is subsequently moved, buried, or capped. If during inspection, an individual of the Covered Species is discovered inside a pipe, culvert, or similar structure, workers shall notify the Designated Biologist and allow the animal to safely escape that section of the structure before moving and utilizing the structure.
Condition 9.17	• Covered Species Injury. If a Covered Species is injured as a result of Covered Activities, the Designated Biologist shall immediately take it to a CDFW-approved wildlife rehabilitation or veterinary facility that routinely evaluates and treats amphibians, small mammals, or canids as appropriate. Prior to the start of Covered Activities, Permittee shall obtain CDFW's written approval of one or more such facilities that routinely evaluate and treat amphibians, small mammals, and canids. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify CDFW of the injury to the Covered Species immediately unless the incident occurs outside of normal business hours. In that event, CDFW shall be notified no later than the next business day. Notification to CDFW shall be via telephone or e-mail, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was

Table C-5
CDFW Incidental Take Permit Conditions of Approval[1]

	Condition[2]
	taken.
Condition 9.18	• Covering, Ramping. and Inspecting Excavations. Permittee shall minimize the potential for Covered Species to become entrapped in excavations to the maximum extent practicable. To prevent inadvertent entrapment of Covered Species or any other animals during the construction phase of the Project, Permittee shall ensure that all excavated, steep-walled holes or trenches are covered, ramped, and inspected as described below. This measure does not apply to burrows excavated for salvaging Covered Species until such excavation is complete and no Covered Species remain in the burrow.
Condition 9.18.1	• Covers. Permittee shall ensure that all trenches, holes, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope are covered or ramped when workers and/or equipment are not actively working in them and at the end of each work day. Covers shall be made of plywood or similar solid material.
Condition 9.18.1.1	• From when all CTS breeding ponds within 1 mile of the excavation are dry in the spring or summer through October 14, and provided that the National Weather Service forecasts less than a 70% chance of precipitation at the Project Footprint within 72 hours, Permittee may elect to install escape ramps instead of covering excavations that are less than 6 feet deep. Escape ramps shall be of native soil or non-slip planks no less than 10 inches wide.
Condition 9.18.1.2	• From October 15 until all CTS breeding ponds within 1 mile are dry in the following spring or summer, and any additional time when the National Weather Service forecasts a minimum 70% chance of precipitation at the Project Footprint within 72 hours, all excavations shall be covered. If the excavation is less than six feet deep, Permittee shall ensure that the edges of the covers are either covered with dirt to prevent CTS from crawling under them or treated as discussed in the following paragraph for excavations that are greater than 6 feet deep.
Condition 9.18.1.3	• If the excavation is greater than 6 feet deep, then at all times of the year, two feet of hardware cloth (or another material approved by CDFW in writing for this purpose for this Project) shall extend beyond the edge of the cover boards. The hardware cloth shall be secured to the edge of the cover boards and to the ground to discourage Covered Species from digging under the edge and becoming injured in a fall. The hardware cloth shall conform to solid ground so that gaps do not exist between the cloth and the ground. Covering gaps with dirt or laying the hardware cloth over loose soil will not satisfy this requirement. The outer edges of the hardware cloth shall be secured to the ground with re-bar, minimum 10-inch soil staples, or similar means every 12 inches to prevent Covered Species from lifting the edges.
Condition 9.18.1.4	• If a situation is encountered that this measure does not anticipate and alternative methods of preventing entrapment or injury in excavations are warranted, then Permittee shall request and obtain CDFW's written concurrence prior to implementing the alternative methods.
Condition 9.18.2	• Inspection of Excavations. The Designated Biologist(s) or Biological Monitor(s) shall perform all inspections of holes, trenches and other excavations, and covers and ramps required by this Condition. All steep-walled, uncovered holes, trenches and other excavations within the Project construction boundary shall be inspected at the beginning of the day, middle of the day, and end of the day for trapped animals. All covered holes, trenches and other excavations shall be inspected at

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	Condition[2]
	least once daily for entrapped animals and for integrity of the covers. Before any holes, trenches or other excavations are filled, they shall be thoroughly inspected for trapped animals by a Designated Biologist or Biological Monitor.
Condition 9.18.3	• Entrapped Animals. If any person discovers that a Covered Species has become trapped in an excavation, Permittee shall cease all Covered Activities in the vicinity and notify the Designated Biologist(s) immediately. Project workers and the Designated Biologist(s) shall allow Covered Species to escape unimpeded if possible before Covered Activities are allowed to continue, or the Designated Biologist(s) shall capture and relocate the Covered Species. If at any time a trapped or injured Covered Species is discovered, the USFWS and CDFW shall be notified within one working day of the incident.
Condition 9.19	• The Designated Biologist(s) shall perform a pre-construction survey for mammalian Covered Species (e.g. SJKF, GKR, and SJAS) no more than 30 days prior to ground- or vegetation disturbing activities for each construction phase and maintenance activity that results in ground or vegetation disturbance. Surveys shall cover the disturbance area and a 500-foot buffer for Covered Species dens. For planned and unplanned maintenance activities, which result in ground or vegetation disturbance, surveys for Covered Species dens shall cover the disturbance area and (a) a 500-foot buffer during pupping season (February through May) or (b) a 50-foot buffer during all other months. A report documenting the results of the pre-construction surveys shall be submitted to CDFW within 30 days after performing any such survey. Preconstruction surveys may not be possible for forced outages and other unanticipated emergencies (defined by potential for harm to persons, property or the environment) requiring immediate attention. The Designated Biologist(s) shall be notified of forced outage activities that result in ground or vegetation disturbance as soon as is practicable and shall survey for Covered Species dens or burrows, which surveys shall cover the disturbance area and (a) a 500-foot buffer during pupping season (February through May) or (b) a 50-foot buffer during all other months, as soon as is practicable after being notified of forced outages and other unanticipated emergencies. CDFW shall be notified as soon as practicable, and no later than 24-hours, after commencement of any ground- or vegetation-disturbing forced outage activities initiated prior to a preconstruction survey.
San Joaquin Kit Fox Specific Measures	
Condition 9.20	• To track SJKF on the Project Footprint so they can be avoided, Permittee shall trap and collar all SJKF on the Project Footprint and fit them with radio or GPS collars prior to initiating any ground-disturbing activities. The Designated Biologists shall continually monitor collared SJKF for the duration of the Project's construction phase. All adult SJKF using the Project Footprint shall be collared. An individual who has demonstrated trapping experience while holding a memorandum of understanding pursuant to Fish and Game Code Section 2081(a) that permits SJKF trapping shall complete all trapping and coordinate all tracking. Permittee shall submit the trapper's name and qualifications to CDFW for approval a minimum of 5 business days prior to commencing with Covered Activities.
Condition 9.21	• Permittee shall leave SJKF dens intact and accessible to foxes to the maximum extent practicable. Permittee shall avoid destroying SJKF dens unless they are in an area of direct and permanent ground alteration (e.g. grading area, building

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	Condition[2]
	footprint) or their location poses a risk of direct harm to the species. If dens are in a solar array footprint that would not be graded, or in an area of temporary disturbance, the den will remain intact and the Designated Biologist(s) shall install a one-way door to prevent SJKF from utilizing the den during construction activities and remove the one-way door after construction activities. Permittee shall not destroy or modify dens, or exclude foxes from dens that are beyond the direct footprint of ground disturbance to preempt their use and den buffer establishment.
Condition 9.21.1	• If a potential SJKF den (one that shows evidence of current use or was used in the past) is discovered or a SJKF is found in an "atypical" den (e.g., a stockpile of Project materials), a 50-foot buffer shall be established using flagging. If a known SJKF den is discovered, a buffer of at least 100 feet shall be established using fencing. If a natal den (den in which SJKF young are reared) is discovered, a buffer of at least 200 feet shall be established using fencing. Natal dens with pups shall be avoided by at least 500 feet. Buffer zones shall have restricted entry. Limited activities may be allowed within established buffers under the supervision of a Designated Biologist and with CDFW concurrence. Permittee shall notify the USFWS and CDFW's Regional Representative immediately by telephone or e-mail if any SJKF dens, natal dens or atypical dens are discovered.
Condition 9.21.2	• If a potential SJKF den (one that shows evidence of current use or was used in the past) is discovered or a SJKF is found in an "atypical" den (e.g., a pipe or culvert) during ground- or vegetation-disturbing O&M activities, a 30-foot buffer shall be established using permeable and highly visible fencing, rope, flagging, or tape. If a known SJKF den is discovered during ground- or vegetation-disturbing O&M activities and it is inactive, a buffer of at least 30 feet shall be established using permeable and highly visible fencing, rope, flagging, or tape. If a known SJKF den is discovered during ground- or vegetation-disturbing O&M activities and it is active, a buffer of at least 50 feet shall be established using permeable and highly visible fencing, rope, flagging, or tape. If a natal den (den in which SJKF young are reared) is discovered during ground- or vegetation-disturbing O&M activities, a buffer of at least 50 feet shall be established using rope or tape. Natal dens with pups shall be avoided by at least 500 feet during ground- or vegetation disturbing O&M activities. Buffer zones shall have restricted entry during ground or vegetation-disturbing O&M activities. Limited activities may be allowed within established buffers during ground- or vegetation-disturbing O&M activities under the supervision of a Designated Biologist and with CDFW concurrence. Permittee shall notify the USFWS and CDFW's Regional Representative immediately via telephone or email if any SJKF dens, natal dens, or atypical dens are discovered that could be affected by ground- or vegetation-disturbing O&M activities.
Condition 9.22	• For active dens, dens known to be active, and potential dens that exhibit signs of SJKF use or characteristics suggestive of SJKF dens (including dens in natural substrate and in/under man-made structures) within the portion of the Project Footprint to be disturbed and that cannot be avoided either during construction or during planned or unplanned maintenance activities as per Condition of Approval 9.21, if, after four consecutive nights of monitoring with tracking medium and infrared camera the Designated Biologist(s) has determined that SJKF is not currently present, the den may be destroyed. Any hole 4 inches or larger and exhibiting no signs of SJKF use or characteristics suggesting it is a SJKF den may be excavated under the supervision of the Designated Biologist(s) without advance

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	Condition[2]
	tracking and camera monitoring. Natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS and CDFW. If the excavation process reveals evidence of current use by SJKF then den destruction shall cease immediately and tracking or camera monitoring as described above shall be conducted/resumed. Destruction of the den may be completed when, in the judgment of the Designated Biologist(s), the animal has escaped from the partially destroyed den. Destruction of all types of SJKF dens shall be accomplished by careful excavation until it is certain no SJKF are inside. Dens to be destroyed shall be fully excavated, filled with dirt and compacted to ensure that SJKF cannot reenter or use the den during the construction period or during planned or unplanned O&M activities. If a SJKF does not vacate a den within an area to be disturbed and that cannot be avoided as per Condition of Approval 9.21 within a reasonable timeframe, CDFW and the USFWS shall be contacted and Permittee shall obtain written guidance (email will suffice) from both agencies prior to proceeding with den destruction.
Giant Kangaroo Rat Specific Measures	
Condition 9.23	• GKR Avoidance and Translocation GKR precincts shall be avoided to the maximum extent practicable. If earthwork (e.g., clearing, grubbing, blading, scraping, excavating, filling, solar panel array construction) must occur within GKR precincts. Any precincts shall be live trapped and excavated by the Designated Biologist prior to the initiation of ground-disturbing construction activities to minimize direct mortality. GKR shall be trapped and relocated to a CDFW-approved release site identified in a GKR translocation plan.
Condition 9.23.1	• All cross-country routes shall avoid GKR precincts to the maximum extent practicable. Where GKR precincts cannot be avoided by vehicles, Permittee shall temporarily place minimum 4- by 8-foot, 1-inch plywood sheets or stronger material upon which the vehicles' tires shall traverse the precincts to prevent burrow collapse. Seed caches or haystacks shall be avoided by vehicles.
Condition 9.23.2	• Permittee shall submit a GKR translocation plan to CDFW prior to initiating ground-disturbing activities. Translocation activities shall not proceed until the GKR salvage plan has been approved in writing by CDFW's Regional Representative. Once the GKR translocation plan is approved by CDFW, it may be used for all GKR translocation activities for the duration of the ITP. Any proposed changes to the GKR translocation plan shall be submitted in writing to CDFW and approved by CDFW in writing prior to implementation of any proposed GKR translocation plan modifications. The GKR translocation plan will identify the trapping methods, receiver sites for each GKR source area, and receiver site preparation methods, including cage and artificial burrow construction details.
Condition 9.23.3	• GKR Receiver Site Selection. GKR will be translocated to the nearest available receiver site that meets the following criteria. Permittee shall select receiver sites that by all measures would maximize the potential to accelerate recolonization of areas within the Habitat Management Lands conserved per Condition of Approval 10. Receiver sites will have been farmed historically and reverted to grassland. Receiver Sites will be devoid of existing sign of GKR (e.g. no scat or "in active" precincts) but will be demonstrated to have suitable substrate, landscape position (not susceptible to flooding), and vegetation to support GKR.

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	Condition[2]
Condition 9.23.4	• Prior to any ground disturbance in each discrete work area within the Project, the Designated Biologist(s) shall survey the area to be disturbed and a 50-ft buffer and identify all potential GKR burrows within the area and buffer. All burrows with diagnostic GKR characteristics or that are otherwise suspected to be GKR burrows will be flagged. All of the potential precincts within 50 feet of ground-disturbing activities, whether they appear active or inactive, will then be surrounded by exclusionary fence and trapped by the Designated Biologist(s} for six consecutive nights prior to ground-disturbing activities. All captured GKR shall be relocated as per the GKR translocation plan required in ITP Condition of Approval 9.23.2. Following trapping and relocation, the precincts will be immediately excavated under a Designated Biologist's direct supervision and with a Designated Biologist present at all times at the excavation to relocate any Covered Species encountered as per the GKR translocation plan required in ITP Condition of Approval 9.23.2. Haystacks, seed caches, and seed stores found with live-trapped GKR, or in excavated burrows, shall be relocated with the associated individual GKR, and shall be placed within the release cages or artificial burrows.
Condition 9.23.5	• GKR Release Parameters. "Soft-release" methods in cages with artificially constructed burrows shall be used at receiver sites. GKR shall be placed at receiver sites in clusters of at least 30 animals. GKR neighbor relationships (location and distance of individual burrows relative to one another) shall be maintained within groups of translocated GKR. If isolated GKR are translocated, their release sites shall be on the periphery of any neighbor groups that are translocated.
Condition 9.23.6	• Permittee shall ensure that no pregnant or nursing female or dependent juvenile GKR are disturbed during burrow excavation. Permittee shall not excavate precincts containing a pregnant lactating female or dependent juvenile. Permittee shall maintain a 250-foot buffer between precincts containing lactating females and or/dependent young and all ground- or vegetation-disturbing activities until lactation has ceased. The precinct may be monitored by a remote camera to observe activity. Because the occupied precinct would be enclosed with fencing that would potentially inhibit or preclude foraging, a sufficient amount of seed to sustain a nursing female must be placed at the precinct opening. If the designated biologist can determine with certainty which precinct the lactating female is occupying, adjacent precincts may be excavated only if impacts to the precinct(s) occupied by the lactating female(s) are avoided.
Condition 9.23.7	• To reduce the amount of time a lactating/nursing female may be in a trap, all traps set from January 1 through August 31 for the capture and relocation of giant kangaroo rats must be set no more than 1 hour prior to sunset and closed no more than 1 hour after sunrise. All traps set during this period when females may be lactating/nursing must also be checked for occupancy every 2 hours between sunset and sunrise and any captured GKR released immediately at the trap location.
Condition 9.23.8	• GKR Weather Constraints for Trapping. Consistent with established parameters set in protocols for other San Joaquin Valley kangaroo rats, during the threat of inclement weather, such as the National Weather Service prediction of a 40 percent or greater chance of rain, all traps for giant kangaroo rats will be closed. Should the air temperature exceed 105 degrees Fahrenheit, all traps will be closed. If the air temperature is predicted to drop below 50 degrees Fahrenheit, synthetic

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	Condition[2]
	batting or other appropriate insulating material must be placed in each open trap. This material must be changed (replaced) each time a capture is made in a given trap.
Condition 9.23.9	• GKR Mark-recapture trapping sessions at all translocation sites shall occur to determine whether the translocation succeeds in establishing new GKR colonies and whether the translocated individuals persist after translocation. Permittee shall monitor the performance of GK.R translocations for a minimum of five years following translocation of the last individual moved during the construction phase. All translocated individuals shall be fitted with a passive integrated transponder (PIT) tag to enable documenting their survivorship. A minimum of 3 trapping sessions shall occur at each location in April and August in each of the minimum 5 years. Control sites shall be trapped in the same manner within the Panoche Valley. The performance monitoring shall measure abundance, apparent survival, reproduction by translocated individuals, and recruitment Abundance and extent of GKR surface sign shall also be measured. If the results indicate that the translocation failed to establish self-sustaining colonies, then Permittee shall implement another five-year plan to accelerate GKR recolonization and abundance on HM lands. Permittee shall develop the performance monitoring plan with CDFW and shall obtain CDFW's written approval of the plan prior to disturbing ground.
Condition 9.24	• Protection of GKR Food Caches. Where temporary, low-impact Covered Activities would occur and GKR burrow systems can be left in place while ensuring that the Covered Activities would directly take the GKR, any haystacks, seed caches, or other food stockpiled by GKR on the ground surface shall be left undisturbed to the greatest extent practicable. If avoidance of the food caches is not possible, the Designated Biologist shall implement measures to keep the food caches intact, including temporary relocation of the food (only in the daytime; seeds must be returned to original location for the night), cover the seeds with plywood to allow temporary vehicle or foot-traffic access, or implement other measures developed in consultation with CDFW.
San Joaquin Antelope Squirrel Specific Measures	
Condition 9.25	• SJAS Translocation. A Designated Biologist shall trap and relocate SJAS to release sites, and following the methods, identified in a SJAS translocation plan prepared by Permittee and approved in writing by CDFW.
Condition 9.26	• SJAS Burrow Avoidance and Excavation. Any burrows present within each discrete work area within the Project Area to be disturbed by earthwork, that are suspected or known to be occupied by SJAS, and that cannot be avoided by a 50-foot avoidance buffer, shall be live trapped during the day for 5 consecutive days by the Designated Biologist prior to the initiation of ground disturbing activities in each occupied discrete work area. Following live-trapping activities, any known or suspected SJAS burrows present within areas to be disturbed by earthwork (e.g., clearing, grubbing, blading, scraping, excavating, filling) shall be fully excavated by hand by the Designated Biologist during daylight hours to allow any remaining SJAS an opportunity to escape or be captured by hand as necessary (this Condition of Approval does not apply to SJAS burrows that will be disturbed only by foot traffic or single vehicle trips). Any SJAS encountered in excavated burrows during their active period shall be allowed to escape to the adjacent natural habitat or if captured shall be

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	Condition[2]
	relocated as described in the translocation plan required in Conditions of Approval 9.25 and 8.10.
California Tiger Salamander Specific Measures	
Condition 9.27	• Roadways shall be constructed without steep curbs, berms, or dikes which prevent CTS from exiting the roadway. If curbs are necessary for safety and/or surface runoff, Permittee shall design and construct them as rounded or gently sloping structures so as to allow CTS to walk over them. If steep dikes are required. Their design shall include over-side drains or curb/dike breaks spaces at 25-foot intervals to allow CTS passage
Condition 9.28	• The Designated Biologist(s) and Permittee shall monitor the National Weather Service 72-hour forecast for the Project Footprint. If a 70 percent or greater chance of rainfall is predicted within 24 hours, Permittee shall cease all construction phase Covered Activities until a zero percent chance of rain is forecast. Work may resume 24 hours after the rain ceases and there is a zero percent chance of precipitation in the 24-hour forecast. If work must continue when rain is forecast, the Designated Biologist(s) shall survey all work areas and travel routes (including existing and Project roads within 1.2 miles of known or potential CTS breeding habitat) immediately before each ground-disturbing activity to capture and relocate any Covered Species that are discovered during the surveys
Condition 9.29	• Permittee shall cease all construction phase Covered Activities within 1.2 miles of known or potential CTS breeding habitat when any precipitation falls or relative humidity exceeds 75% (high humidity). Covered Activities may resume 24 hours after the rain ceases and/or humidity drops below 75% and there is a zero percent chance of precipitation in the 24-hour forecast. Any vehicles inadvertently trapped by rain or high humidity at the Project Area and that need to be moved during or within 24 hours after rain or high humidity, including workers' commute vehicles on Little Panoche Road and Panache Valley Road within the Panoche Valley or Panache Hills, shall be immediately preceded by a Designated Biologist who will relocate any CTS out of the vehicle's path.
Condition 9.30	• In each area where ground will be excavated, trenched, graded, capped, or bladed; where spoils would be placed for any amount of time; or where other materials will be stockpiled for greater than 24 hours, all small mammal burrows within 0.25-mile of known or potential CTS breeding habitat, and which cannot be fully avoided, shall be fully excavated under the direct supervision of the Designated Biologist. This does not include the portions of solar panel arrays where earthwork would not occur and original ground and vegetation would be left in place. The Designated Biologist(s} shall immediately capture any CTS encountered under relocated materials and immediately transport them in a plastic bucket containing a moistened, non-cellulose sponge or other nontoxic absorbent material to small mammal burrows as nearby as possible. The relocation sites will be beyond the limits of disturbance, and no further from known breeding locations than where the CTS were found.
Condition 9.31	• Dispersing juvenile CTS could take refuge under stockpiled materials or stormwater materials, such as pallets and silt fence, and then become crushed or desiccated when the materials are relocated. Permittee shall ensure that a Designated Biologist is present to capture and relocate any such CTS that may be found when stockpiled materials or stormwater materials are relocated. The

Table C-5
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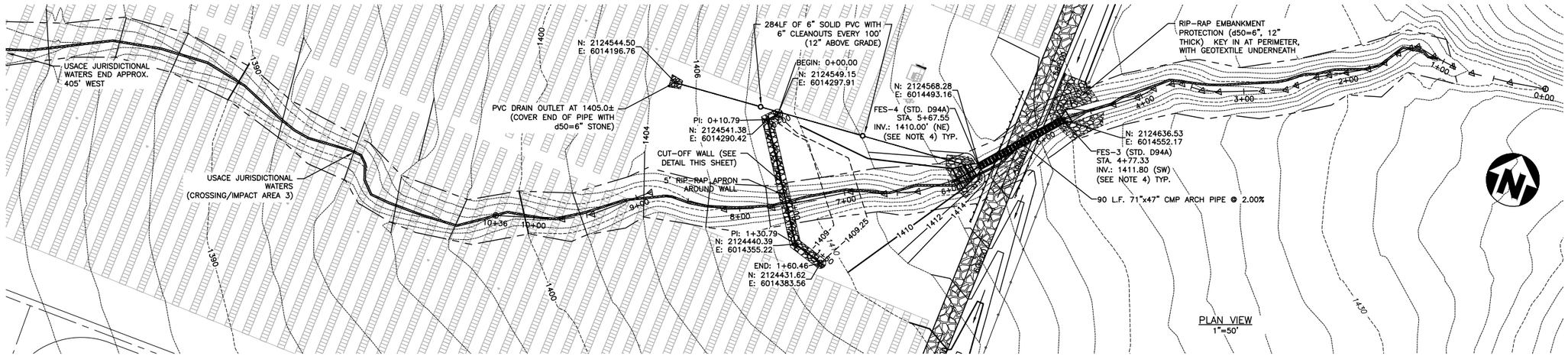
	Condition[2]
	Designated Biologist(s} shall immediately capture any CTS encountered under relocated materials and immediately transport them in a plastic bucket containing a moistened, non-cellulose sponge or other nontoxic absorbent material to small mammal burrows as nearby as possible. The relocation sites will be beyond the limits of disturbance, and no further from known breeding locations than where the CTS were found.
Condition 9.32	• CTS: Handling Guidelines and Cleaning Equipment. The Designated Biologist(s) shall follow the most recent version of the Declining Amphibian Task Force Fieldwork Code of Practice (https://www.fws.gov/ventura/docs/species/protocols/DAFTA.pdf} when handling CTS. The cleaning solution may be substituted with 0 5-1 cup bleach per gallon of water.
Condition 9.33	• CTS Silt Fence Openings. Permittee shall maintain openings in all silt fences at minimum 66-ft intervals to allow CTS passage at all times.

[1] Incidental Take Permit 2081-2014-035-04 issued by CDFW on November 20, 2015. Full permit included in Appendix I of this Final EIS.

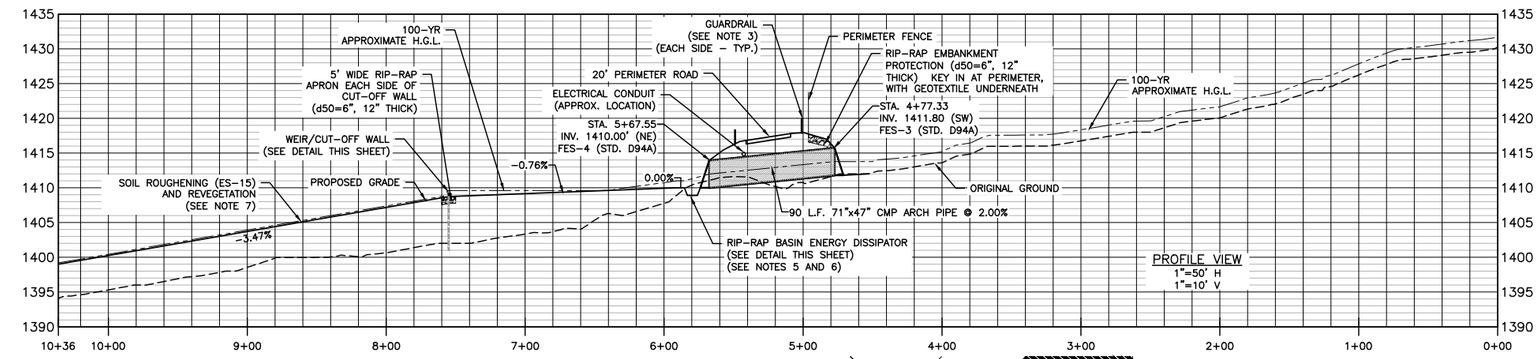
[2] In the event that any of these conditions are modified through permit amendments in the future, the condition in the resource agency permit would govern, rather than the measure as contained here in the EIS.

Appendix D
Drainage Crossing Drawings

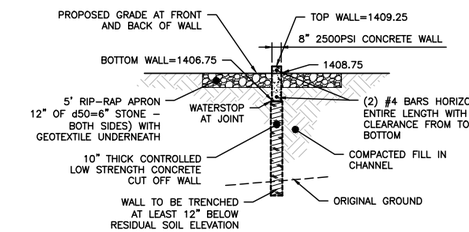
Crossing 3



PLAN VIEW
1"=50'

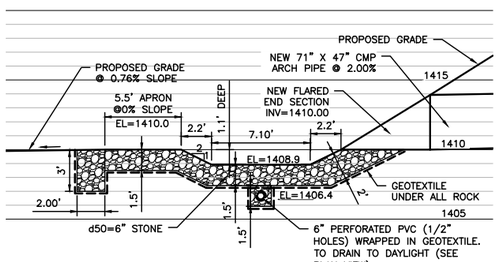


PROFILE VIEW
1"=50' H
1"=10' V

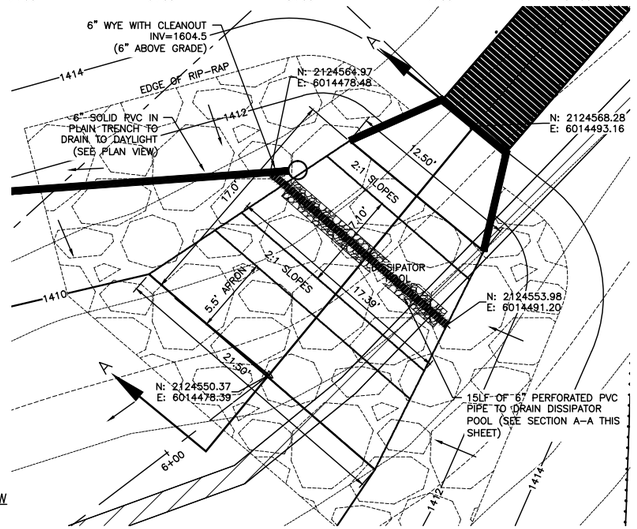


SECTION B-B
1"=5' H AND V

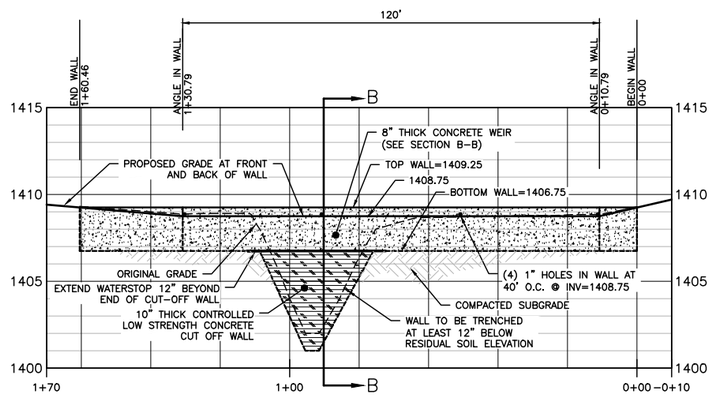
NOTES:
1. TOP OF WALL TO BE WITHIN 1/8" OF ELEVATION 1049.25
2. ALL VERTICAL SURFACES TO BE FORMED
3. VERTICAL SURFACES DOWN FROM 2" BELOW UNDISTURBED SOIL MAY BE PLACED AGAINST NEAT CUT IF APPROVED BY ENGINEER AND CONCRETE WILL NOT MORE THAN 1" BEYOND THEORETICAL FACE.
4. ALL EXPOSED SURFACES TO BE STRIPPED GREEN AND TROWEL FINISHED.
5. COMPACT GRADES ADJACENT TO WEIR TO BE 95% MODIFIED PROCTOR.



SECTION A-A
1"=5' H AND V



PLAN VIEW
1"=5'



WEIR/CUT OFF WALL PROFILE
1"=20' H
1"=4' V

WORK SAFELY

NOTES
1. FOR GENERAL NOTES SEE DRAWING D-000-C-0002.
2. ALL CONTRACTORS SHALL ADEHERE TO AND FOLLOW RULES AND GUIDELINES SET FORTH WITHIN THE LAKE AND STREAMBED ALTERATION AGREEMENT NOTIFICATION NO. XXXX-XXXX-XXXX-XX, ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE.
3. GUARDRAIL SHALL BE MIDWEST GUARDRAIL SYSTEM STANDARD RAILING SECTION (STEEL POST WITH NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCK) IN ACCORDANCE WITH STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARDS. SEE DWG. D-000-C-0086.
4. THE FLARED END SECTION, FES, OF THE CMP PIPE ARCH SHALL BE TYPE III IN ACCORDANCE WITH CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD, D94A. SEE DWG. D-000-C-0085.
5. HYDRAULIC ANALYSIS OF THE CMP PIPE ARCH AND RIP RAP BASIN ENERGY DISSIPATOR COMPLETED WITH THE USE OF THE FEDERAL HIGHWAY ADMINISTRATION PROVIDED SOFTWARE, HY-8 VERSION 7.30.
6. THE RIP RAP BASIN ENERGY DISSIPATOR IS DESIGNED IN ACCORDANCE WITH HYDROLOGIC ENGINEERING CIRCULAR, HEC 14, CHAPTER 10, SECTION 10.1 RIP RAP BASIN.
7. RE-VEGETATION OF THE BACKFILLED EXISTING CHANNEL IS PARAMOUNT. CONTRACTOR SHALL ENSURE THAT AREA OF BACKFILL HAS A GOOD STAND OF VEGETATION. RE-VEGETATION OF THE OPEN SPACE JUST DOWN STREAM OF THE PROPOSED WEIR SHALL ALSO BE OF A GOOD VEGETATED STAND. CONTRACTOR AND OPERATIONS AND MAINTENANCE SHALL NOT MOW THE OPEN AREA DOWNSTREAM OF THE WEIR UNLESS OTHERWISE DIRECTED BY CALFIRE OR THE LOCAL AUTHORITIES.
8. FOR AREAS AND VOLUMES OF CIVIL SITE DEVELOPMENT WORK WITHIN THE FULL EXTENTS OF THE USACE OHWM AND WITHIN THE TOP OF BANK PLEASE REFER TO THE 404(b)(1) DRAFT.
9. CROSSING 14 HYDROLOGY CONSISTS OF THE FOLLOWING TO THE CMP PIPE ARCH
   - DRAINAGE AREA = 208.1 ACRES
   - CONSISTS OF THREE SUB-BASINS AT 32.5, 2.8, AND 172.8 ACRES
   - COMPOSITE CN = 69
     LSOILS CONSISTS OF HYDRAULIC SOIL GROUPS A&B
   - TIME OF CONCENTRATION = 18.4 min.
     LTIME OF REACH = 2.5 min.
   - PEAK FLOW RATE DETERMINED BY SCS METHOD, TIME INTERVAL 2 min. STORM DISTRIBUTION, TYPE 1
   - 100-YR PEAK FLOW RATE = 62.71 CFS
10. BROAD CRESTED WEIR HYDRAULIC INFORMATION CONSISTS OF THE FOLLOWING VALUES, IN ACCORDANCE WITH THE 100 YR FLOW RATE + 2.29 CFS TO ACCOUNT FOR ADDITIONAL RUNOFF DOWNSTREAM FROM CMP PIPE ARCH;
    - FLOW RATE FOR WEIR CALCULATIONS = 65 CFS
    - BROAD CRESTED WEIR COEFFICIENT, C = 2.78
    - FLOW DEPTH JUST UPSTREAM AND ABOVE TOP OF WEIR, H = 0.33'
    - CRITICAL FLOW DEPTH ALONG BROAD CRESTED WEIR, dC = 0.20'
    - BRINK FLOW DEPTH ALONG BROAD CRESTED WEIR JUST PRIOR TO NAPPE, dB = 0.14'
    - HORIZONTAL LENGTH OF NAPPE FROM BROAD CRESTED WEIR = 0.28'
11. FLOW DEPTHS UPSTREAM OF PIPE ARCH IN EXISTING CHANNEL ≤ 1.6' AT Q = 36.10 CFS, V = 5.1 FT/S
12. FLOW DEPTHS DOWNSTREAM OF BROAD CRESTED WEIR ≤ 0.2' AT Q = 65 CFS, V ≤ 2.0 FT/S

CROSSING 14 WATERSHED

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	11DEC14	ISSUED FOR INFORMATION	JCS	MBE				

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL
CONCEPTUAL DESIGN REVIEW
NOT FOR CONSTRUCTION
PRELIMINARY

APPROVED FOR REVIEW

CLIENT PROJECT MGR.	DRE DEPARTMENT MGR.	HRM PROJECT MGR.

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	JCS/MTG	01JUL14
SCALE	PACKAGE CODE	DRN	MTG/JTW	01JUL14
AS SHOWN		CHK		
		APP		

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
PERIMETER ROAD DETAILS
CROSSING 14

AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0155
REV. A

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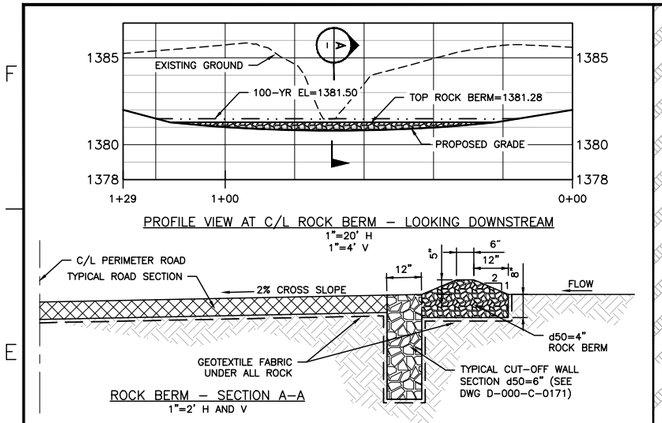

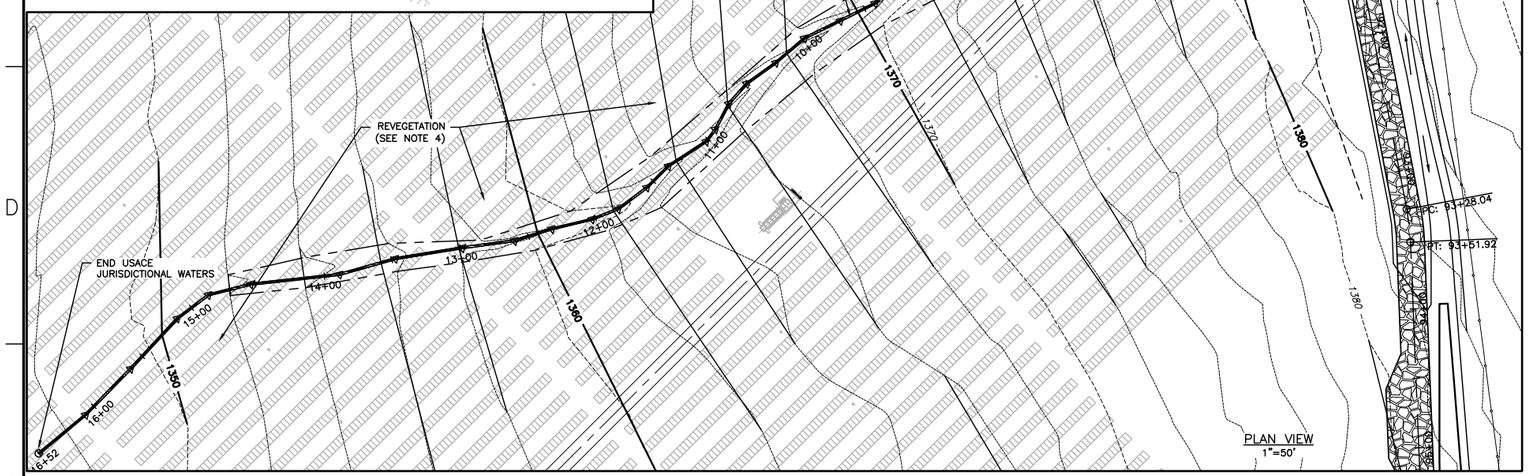

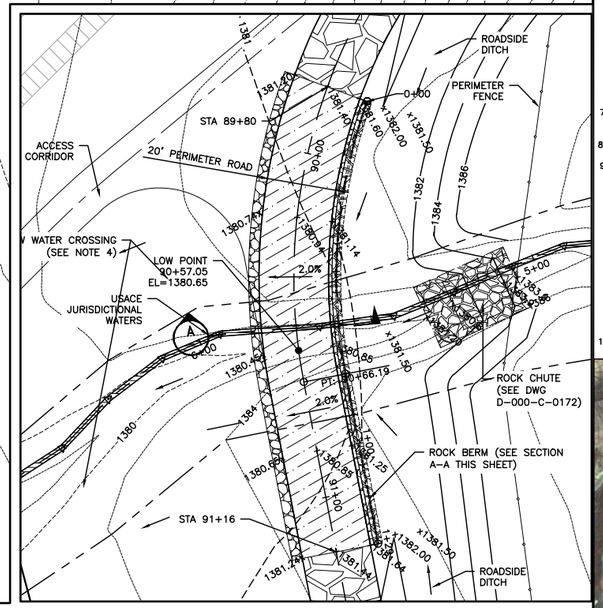

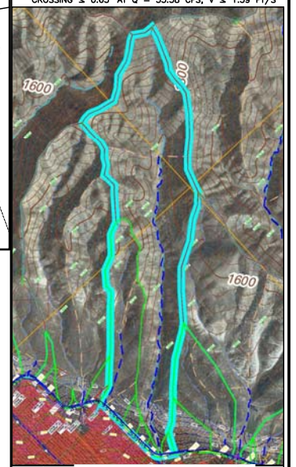

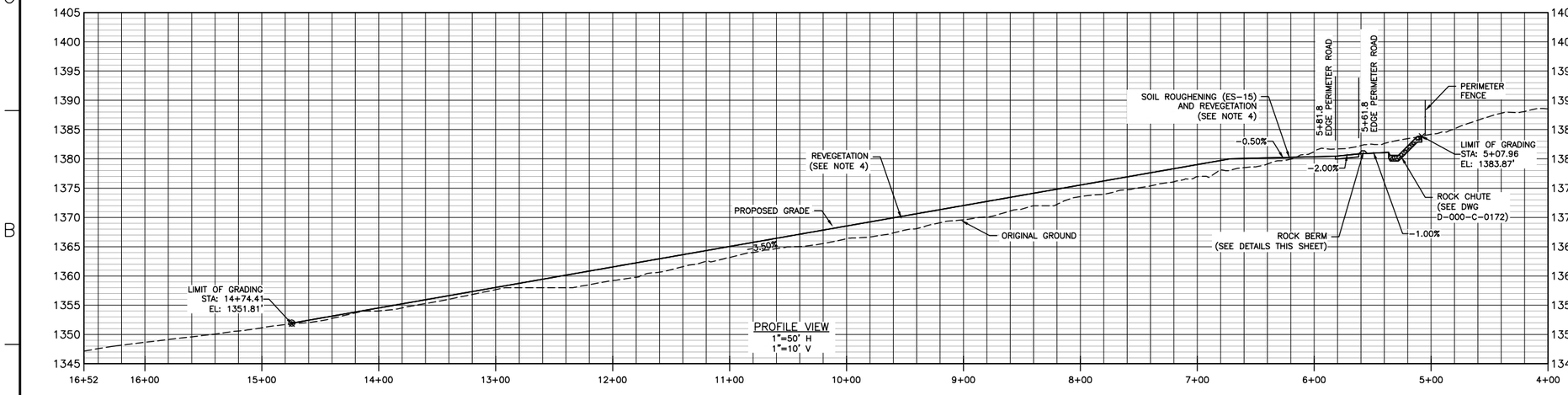

WORK SAFELY

NOTES

1. FOR GENERAL NOTES SEE DRAWING D-000-C-0002.
2. ALL CONTRACTORS SHALL ADHERE TO AND FOLLOW RULES AND GUIDELINES SET FORTH WITHIN THE LAKE AND STREAMBED ALTERATION AGREEMENT NOTIFICATION NO. XXXX-XXXX-XXXX-XX, ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE.
3. HYDRAULIC ANALYSIS OF THE ROCK LINED LOW WATER CROSSING IS DESIGNED IN ACCORDANCE WITH THE HYDROLOGIC ENGINEERING CIRCULAR, HEC 15, CHAPTER 6, RIP RAP, COBBLE, AND GRAVEL LINING DESIGN AND USDA FOREST SERVICE TECHNICAL MANUAL.
4. RE-VEGETATION OF THE BACKFILLED EXISTING CHANNEL IS PARAMOUNT. CONTRACTOR SHALL ENSURE THAT AREA OF BACKFILL HAS A GOOD STAND OF VEGETATION. RE-VEGETATION OF THE OPEN SPACE JUST DOWN STREAM OF THE LOW WATER CROSSING SHALL ALSO BE OF A GOOD VEGETATED STAND. CONTRACTOR AND OPERATIONS AND MAINTENANCE SHALL NOT MOW THE OPEN AREA DOWNSTREAM OF THE LOW WATER CROSSING UNLESS OTHERWISE DIRECTED BY CALFIRE OR THE LOCAL AUTHORITIES.
5. FOR AREAS AND VOLUMES OF CIVIL SITE DEVELOPMENT WORK WITHIN THE FULL EXTENTS OF THE USACE OHWM AND WITHIN THE TOP OF BANK PLEASE REFER TO THE 404(b)(1) DRAFT.
6. CROSSING 19 HYDROLOGY CONSISTS OF THE FOLLOWING TO THE CMP PIPE ARCH
   - DRAINAGE AREA = 114.5 ACRES
   - CONSISTS OF THREE SUB-BASINS AT 25.4, 0.8, AND 88.3 ACRES
   - COMPOSITE CN = 71, SOILS CONSISTS OF HYDRAULIC SOIL GROUPS A&B
   - TIME OF CONCENTRATION = 14.6 min.
   - PEAK FLOW RATE DETERMINED BY SCS METHOD, TIME INTERVAL 1 min. STORM DISTRIBUTION, TYPE 1
   - 100-YR PEAK FLOW RATE = 35.58 CFS
7. FLOW DEPTHS UPSTREAM OF LOW WATER CROSSING IN PROPOSED ROCK CHUTE ≤ 0.26' AT Q = 24.4 CFS, V = 5.9 FT/S
8. FLOW DEPTHS AT OUTLET OF ROCK CHUTE ≤ 0.18' AT Q = 35.58 CFS, V ≤ 1.53 FT/S
9. BROAD CRESTED WEIR HYDRAULIC CALCULATIONS FOR THE SMALL ROCK BERM CONSISTS OF THE FOLLOWING, VALUES, IN ACCORDANCE WITH THE 100 YR FLOW RATE ;
   - FLOW RATE FOR WEIR CALCULATIONS = 35.58 CFS
   - BROAD CRESTED WEIR COEFFICIENT, C = 2.80
   - FLOW DEPTH JUST UPSTREAM AND ABOVE TOP OF WEIR, H = 0.22'
   - CRITICAL FLOW D. AT BROADCRESTED WEIR, dC = 0.14'
   - BRINK FLOW DEPTH ALONG BROAD CRESTED WEIR JUST PRIOR TO NAPPE, dB = 0.10'
   - HORIZONTAL LENGTH OF NAPPE FROM BROAD CRESTED WEIR = 0.28'
   - VELOCITY ACROSS THE WEIR IS AT 1.33 FT/S
10. FLOW DEPTHS ACROSS THE ROCK LOW WATER CROSSING ≤ 0.63' AT Q = 35.58 CFS, V ≤ 1.39 FT/S

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	11DEC14	ISSUED FOR INFORMATION	JCS	MBE				

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

CONCEPTUAL DESIGN REVIEW
NOT FOR CONSTRUCTION

PRELIMINARY

APPROVED FOR REVIEW

CLIENT PROJECT MGR.	DRE DEPARTMENT MGR.	HRM PROJECT MGR.

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	JCS/MTG	24NOV14
SCALE	PACKAGE CODE	DRN	JCS/JTW	24NOV14
AS SHOWN		CHK		
		APP		

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
PERIMETER ROAD DETAILS
CROSSING 19

AREA
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DRAWING NO. D-000-C-0158
REV. A

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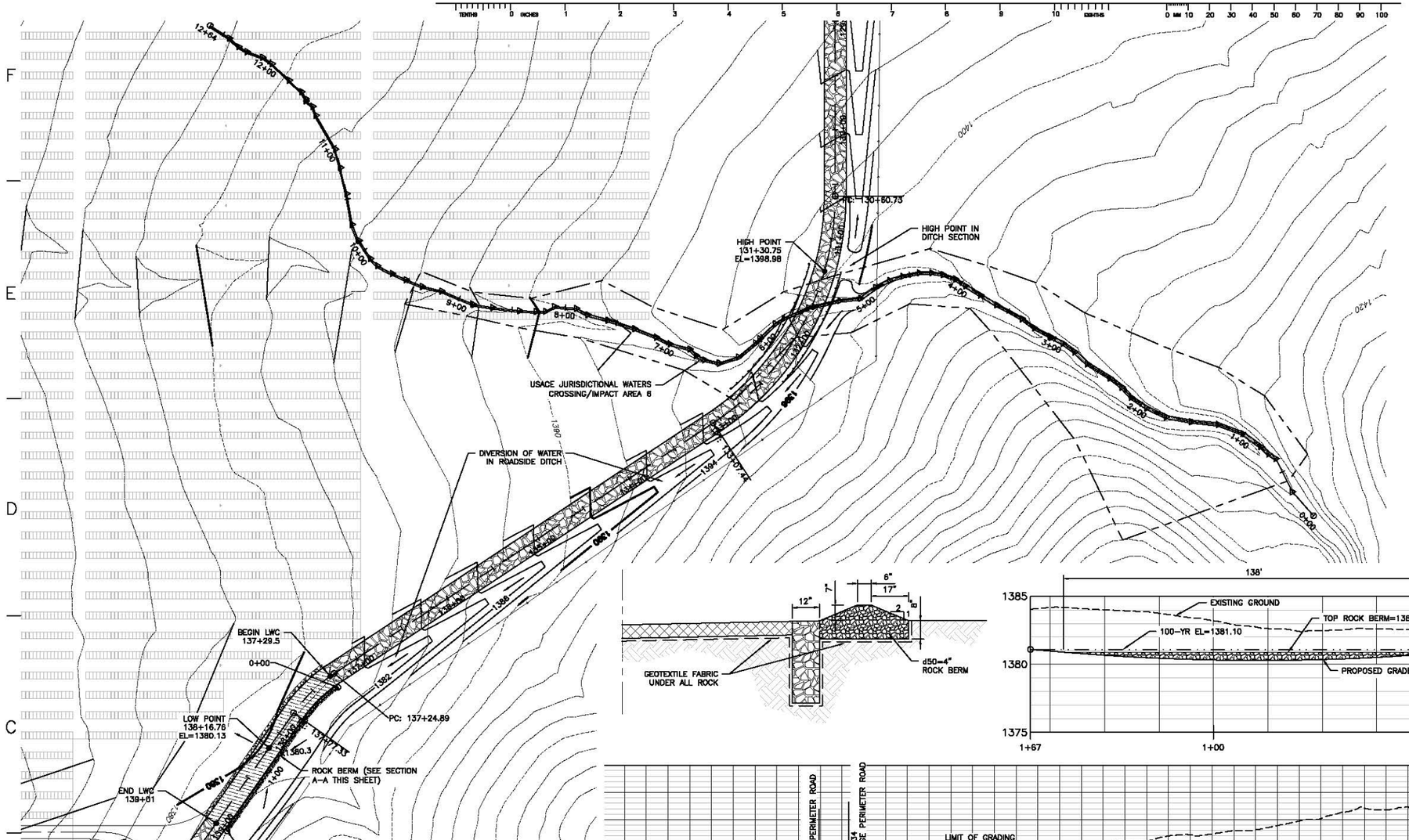

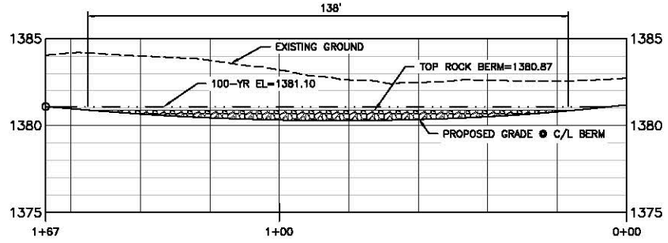

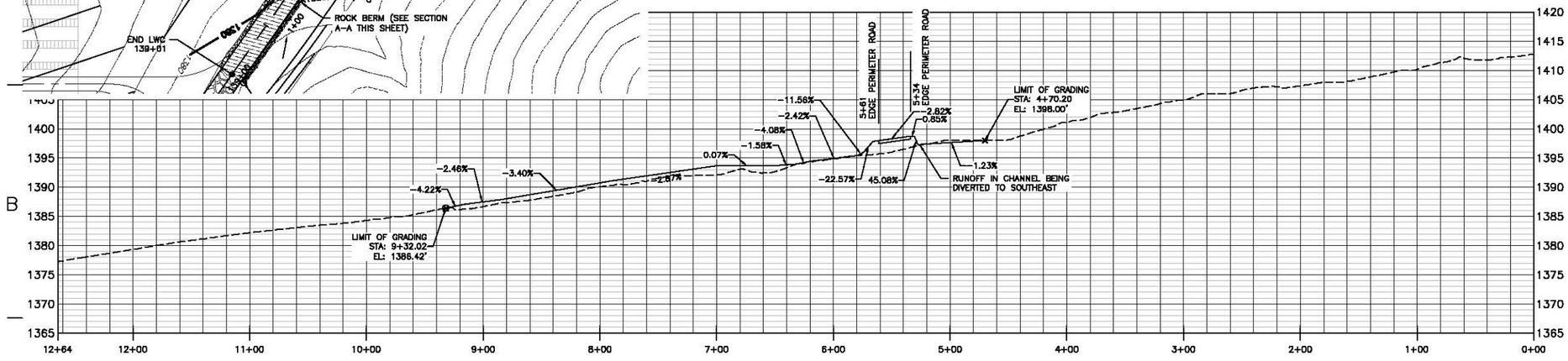

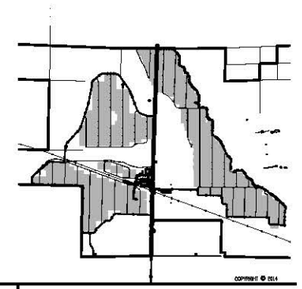

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Appendix E
PG&E Natural Resources–Related Studies

Energy Renewal
PARTNERS, LLC

Transmission Line Natural Resources Assessment Report

Panoche Valley Solar Project
San Benito County, California

October 2014

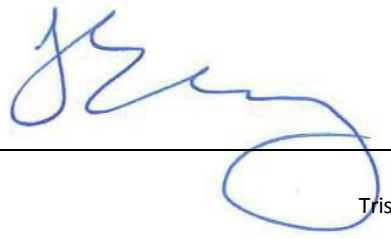
Prepared for:
Panoche Valley Solar, LLC
845 Oak Grove Ave., Suite 202
Menlo Park, California 94025

Prepared by:
Energy Renewal Partners, LLC
305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746

Date:

October 2014

James McRacken Jr.
Senior Biologist



Trisha Elizondo
Principal

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Figures

Appendices

1.0 Introduction

Panoche Valley Solar, LLC (PVS) proposes to construct and operate an approximate 247 megawatts (MW) solar photovoltaic energy generating facility located in San Benito County, California (Figure 1). The project would be called the Panoche Valley Solar Project (Project); the Project Footprint (Project Area) is approximately 2,506 acres in the Panoche Valley of eastern San Benito County, California, and would also include approximately 23,292 acres of Conservation Lands that are contiguous with the Project Area in San Benito and Fresno counties (Figure 1).

Due to the construction of the Project, Pacific Gas and Electric (PG&E) proposes to install optical ground wire (OPGW) on its existing Panoche-Moss Landing 230 kilovolts (kV) transmission line to establish the primary telecommunication service between the substation at the Project Footprint and Panoche Substation located 17 miles to the east of the Project. Locations of temporary study areas and permanent features needed to connect the Project's switchyard into the Panoche-Moss Landing 230 kV transmission line are shown on Figure 2.

This installation process is a routine method of providing telecommunication services between electrical substations and generating facilities or other substations and is considered maintenance to existing electrical infrastructure. The OPGW lines can be installed on existing towers with minimal or no modification to the existing towers. The purpose of the OPGW is for system protection and control of the transmission line. The OPGW line to be installed is designed to replace traditional shield wire, which protects the line by providing a path to ground, by handling electrical faults like shield wire with the added benefit of containing optical fibers which can be used for telecommunications purposes. The work along the transmission line will be of short duration at any one site (two to three weeks) and the entire installation of OPGW is planned to be completed in approximately 12 to 16 weeks.

Based on feedback expressed by the County of San Benito to support preparation of a Supplement Environmental Impact report (EIR), the Project conducted a 100 percent coverage survey of planned areas of ground disturbance associated with proposed PG&E telecommunication upgrades. Areas of planned ground disturbance were surveyed to evaluate for sensitive species known to occur in San Benito and Fresno counties, cultural resources, and state and federal jurisdictional waters. The results of the cultural resources surveys are provided in a separate report.

This survey was conducted based on planned work areas provided by PG&E as of September 15, 2014, and this subsequent report is based upon work areas provided at that time. Based on discussions with PG&E since the time of this report, modifications have been made regarding the locations of certain work areas. These changes have not been addressed in this report, but will be documented in a supplemental memorandum of this report.

2.0 Study Areas

Work activities associated with PG&E telecommunications upgrades are mostly considered temporary and will be completed during daylight hours. It is planned that existing roads and helicopters will be used to provide access to work areas wherever possible. The proposed work areas anticipated to have temporary ground disturbance include 12 temporary wire pull sites, three temporary landing zones, eight temporary guard structures, and nine wood pole temporary work areas.

Included in the survey area is a 500 foot (ft) buffer around each planned area of ground disturbance. For work areas located within proximity to one another, where the 500-ft buffers of the disturbance points overlapped, the buffers were dissolved together rather than each disturbance point having a distinct and separate 500-ft buffer. Due to this method of combining overlapping buffer areas, rather than survey 34 individual work areas along the transmission line ROW, surveys were conducted on 13 larger survey areas along the ROW. These 13 larger areas are referred to as "study areas", each with an assigned number for the purposes of this report (Figure 2). Table 1 outlines the study areas as they were grouped in the survey and as they are discussed throughout the remainder of this report.

Table 1. Study Area Descriptions

Study Area	Study Area Description	Disturbance/Work Area Acreage (approx.)	Study Area Buffer Acreage (approx.)
Work Area 1	AT&T Cable Site	0.02	20
Work Area 2	Landing Zone 1	0.34	24
Work Area 3	Wire Pull Sites 1 and 2	0.26	40
Work Area 4	Wire Pull Sites 3, 4, and 5	0.26	56
Work Area 5	Wire Pull Sites 6 and 7	0.26	39
Work Area 6	Wire Pull Sites 8 and 9, ADSS Wood Pole 1	0.29	30
Work Area 7	ADSS Wood Poles 2-9, Guard Structures 1-3, Wire Pull Site 10 and 11	1.01	116
Work Area 8	Landing Zone 2	0.34	24
Work Area 9	Guard Structures 4 and 5	0.34	26
Work Area 10	Guard Structures 6 and 7	0.34	29
Work Area 11	Guard Structure 8	0.17	22
Work Area 12	Substation OPGW underground work area, Wire Pull Site 12	2.19	49
Work Area 13	Landing Zone 3	0.34	24

The purpose of surveying a 500-ft buffer (the buffer) around each area of planned disturbance is to provide flexibility for field teams to move proposed work areas if the original position is within an area with potential to disturb sensitive resources.

The habitats within the study areas and the vicinity are comprised of annual, non-native grasslands used mainly to graze livestock in the western study areas (Study Areas 1-3), while ephedra and Allscale saltbush scrub habitat dominated the central most study areas (Study Areas 4-6). The eastern portion of the transmission upgrade project area was noted to be disturbed due to the development of agricultural (e.g. almond orchard, vineyard) and transportation (Interstate 5 and public roadways) purposes (Study Areas 7-13). Additional details on the habitat at each study area is described in Section 4.0 below. The study areas experience a Mediterranean climate with dry hot summers and cool wet winters. However, this region does not experience heavy rainfall. Annual precipitation in the general vicinity of the study areas range from eight to ten inches per year. Approximately 85 percent of precipitation falls between October and March. Temperatures average approximately 80 degrees Fahrenheit (˚F) in the summer and 40˚F in the winter, mid-summer temperatures are often over 100˚F, and winter lows can be close to freezing. Nearly all precipitation infiltrates into the site's soils and flows in creeks and drainages when soil capacity has been reached.

2.1. AT&T Cable Site

AT&T will install new cable underground in the shoulder of Little Panoche Road from an existing connection point located 2,000 feet south of the Project Footprint to the site. The temporary work site will include the construction of a two feet wide by three feet deep trench to allow direct burial of the cable in compliance with state and local standards. The total area to be temporarily disturbed due to the AT&T cable installation for the project is approximately 0.02 acres. This acreage does not include the buffer area surveyed for the AT&T cable installation. The installed cables will then connect to a Network Interface Unit (NIU) measuring approximately 36 inches tall by 12 inches wide by 12 inches deep, which will be placed at the end of the cable trench line near the Project Footprint.

2.2. Wire Pull Sites

The 12 temporary wire pull sites established along the 17-mile transmission line corridor will require minor ground disturbance that should not result in permanent impact to sensitive natural and cultural resources within each necessary temporary wire pull site. Each proposed temporary wire pull site will require a work area of approximately 75-ft by 75-ft (0.13 acres) located mid-span of existing tower sites within the transmission right-of-way (ROW). The total area to be temporarily disturbed due to the wire pull sites for the project is approximately 1.42 acres. This acreage does not include the buffer area surveyed for potential wire pull sites for this project. Criteria used in selecting the final wire pull sites will include vehicle accessibility, presence of flat or nearly flat terrain adjacent to the existing transmission line route for equipment set-up, and an area that will avoid or minimize impacts to sensitive species or their habitats and other resources that would restrict work.

2.3. Landing Zones

Helicopters will be used to transport electrical workers to towers, deliver materials, and assist in pulling the OPGW from tower to tower. As presently planned, three 150-ft by 100-ft landing zones (0.34 acres) will be constructed approximately every five miles. The total area to be temporarily disturbed due to the landing sites is approximately 1.02 acres. This acreage does not include the buffer area surveyed for potential landing zones for this project. The criteria used for selecting the helicopter included an area of ground with the right topography to stage materials, pick up and transport electrical personnel and equipment, and refuel the helicopters. Establishment of these landing zones will require minimal ground disturbance and will facilitate the use of helicopters to reduce the overall impacts associated with the proposed work.

2.4. Guard Structures

Eight temporary guard structures will be necessary due to the installation of the telecommunication upgrades. The guard structures are designed to prevent tools or materials from falling into the roadway or utility, are required for overhead crossings of public roadways or existing utilities. Guard structures generally consist of two to four wooden poles and cross beams attached between the poles. They are typically installed in pairs with a net strung between them. The wooden poles will be augured and set by a line truck. Poles are anticipated to be placed in or adjacent to the disturbed road shoulder in an approximately 75-ft by 75-ft area (0.17 acres). The total area to be temporarily disturbed due to the guard structure installation sites is approximately 1.36 acres. This acreage does not include the buffer area surveyed for potential guard structure sites for this project. Installation of guard structures is not anticipated to require grading or vegetation removal, and guard structure poles will be removed following OPGW installation and the holes backfilled.

2.5. Wood Poles

Due to the existing 230 kV transmission line crossing under two existing 500 kV transmission lines, a section of approximately 4,650 feet of the 230kV will require installation of approximately nine new wood poles within the existing ROW. Within this 4,650 foot section, an All-Dielectric Self-Supporting (ADSS) fiber optic cable would be spliced from the 230 kV towers to the east and west sides of the 500 kV transmission line corridor and attached to the nine new wood poles. The poles will be located at a 30-ft to 40-ft offset to the existing 230 kV centerline and within the ROW. Installation of these poles will require a work area of 30-ft by 40-ft each (0.03 acres per pole installation site) to accommodate one crew truck and a trailer truck to transport each pole to the site, and a line truck to auger a hole about eight-feet deep and two-feet wide. The total area to be temporarily disturbed due to the wooden pole installation sites is approximately 0.27 acres. This acreage does not include the buffer area surveyed for potential wood pole sites for this project. Installation of the wooden poles is not anticipated to require grading or vegetation removal. However, the wooden poles themselves will remain in place as permanent structures but have a minimal overall impact footprint.

2.6. Optical Ground Wire Underground Installation

A section of approximately 75-ft by 1,200-ft (2.06 acres) will require for the installation of a section of OPGW underground within the existing ROW paralleling West Panoche Road, entering the eastern existing substation. This acreage does not include the buffer area surveyed for the potential OPGW underground installation site for this project. Installation of this underground section will require the above stated work area to accommodate the necessary equipment to either bore or trench the OPGW to the existing substation connection point. The total area to be temporarily disturbed due to the installation, however, the site will be restored to its original contours and elevations upon completion of the installation.

3.0 Transmission Line Assessment Methods

The following general methods for state and federal protected species surveys were used to inventory the study areas within the transmission line upgrade project area.

3.1. Sampling Location Selection

Locations for the necessary work areas were selected by PG&E based on topography, access and the constraints of splicing and pulling OPGW with a helicopter. Study areas were then created using a 500-ft buffer around each chosen work area.

3.2. Compile Existing Information

Prior to conducting the field assessments, existing information concerning sensitive species with potential to occur in the San Joaquin Valley was reviewed. Special status species with potential to occur are provided in Appendix A. Based on preliminary desktop review of potential sensitive species, surveyors evaluated each study area for indications/signs of the absence or presence of the following federally endangered, federally threatened, and/or California fully protected species or their habitats: longhorn fairy shrimp (*Branchinecta longiantenna*; LHFS), conservancy fairy shrimp (*Branchinecta conservation*; CFS), vernal pool fairy shrimp (*Branchinecta lynchi*; VPFS), vernal pool tadpole shrimp (*Lepidurus packardi*; VPTS), blunt-nosed leopard lizard (*Gambelia sila*; BNLL), California red-legged frog (*Rana draytonii*; CRF), California tiger salamander (*Ambystoma californiense*; CTS), golden eagle (*Aquila chrysaetos*; GOEA), white-tailed kite (*Elanus leucurus*; WTKI), California condor (*Gymnogyps californianus*; CACO), giant kangaroo rat (*Dipodomys ingens*; GKR), San Joaquin kit fox (*Vulpes macrotis mutica,* SJKF), San Benito evening-primrose (*Camissonia benetensis*), California jewel-flower (*Caulanthus californicus*), and San Joaquin woollythreads (*Monolopia congdonii*). In addition to these federally endangered, federally threatened, and/or California fully protected species, surveyors evaluated each study area for indications/signs of the absence or presence of other special status species or their habitats listed in Appendix A.

<u>Longhorn Fairy Shrimp</u>

The LHFS is currently listed as endangered under the Federal Endangered Species Act (ESA). Male LHFS are distinguished from other fairy shrimp by the second antennae, which is about twice as

long, relative to its body size, as the second antennae from other species. Females are distinguished by their cylindrical brood pouch that extends below abdominal segments six and seven. Helm (1998) conducted a survey for fairy shrimp, during which LHFS were identified in alkaline pools and rock outcrop pools. Pools containing LHFS ranged from 4.6 to 2,788 m^2 with an average of 678 m^2. Pool depths ranged from 10 to 40 cm and averaged 23.1cm. Additionally, pools inhabiting LHFS generally had a near neutral pH, and temperatures ranging from 10 to 28°C. All pools with extant populations dry out during the summer and fall, which is required for the inundation cycle of LHFS to trigger hatching. The LHFS is very rare and only known from eight distinct populations in San Luis Opisbo, Merced, Contra Costa, and Alameda Counties (USFWS 2005).

Conservancy Fairy Shrimp

The CFS is currently listed as endangered under the ESA. The CFS is distinguished from other fairy shrimp by variations on the male's second antennae, which has a shorter distal segment than basal segment and is bent approximately 90°, and the female's brood pouch, which is tapered on each end and extends to the eighth abdominal segment (Eng et al. 1990). The CFS is generally off-white to gray with potential for green or yellow on the brood pouch. Suitable habitat for CFS includes vernal pools, alkaline pools, and vernal lakes (Helm 1998). The average pool size for CFS is 27,865 m^2, which is larger than all other endemic California brachiopods. Pools occupied by CFS commonly have low alkalinity, low total dissolved solids, a near neutral pH, and are dominated by native vernal pool plants (USFWS 2005). Similarly to the LHFS, CFS requires a dry period in the summer and fall for inundation to trigger hatching.

Vernal Pool Fairy Shrimp

The VPFS is currently listed as threatened under the ESA. The VPFS are distinguished from other fairy shrimp by the presence and size of several mounds on the male's second antennae and by the female's short, pyriform brood pouch. VPFS are typically a translucent off-white to grey and vary in size from 11 to 25 mm in length (Eng et al. 1990). Helm (1998) found VPFS in 21 different types of habitat, including vernal pools, vernal swales, alkaline pools, and road-side ditches. Optimal pools tend to be a neutral to slightly alkaline pH, have low dissolved salts, and are dominated by native vernal pool plants. Additionally, all pools must have a dry period in the summer and fall to enable the inundation cycle to trigger hatching.

Vernal Pool Tadpole Shrimp

The VPTS is currently listed as an endangered species under the ESA. The VPTS is identified by a large, shield-like carapace that covers the anterior half of the body. They have 30 to 35 pairs of phyllopods, a segmented abdomen, and paired cercopods or tail-like appendages. Mature VPTS range from 15 to 86 mm (USFWS 2005). VPTS are typically green, but coloration may vary from clear to tan, depending on water clarity (Yolo Natural Heritage Preserve 2009). Helm (1998) found VPTS in 17 different types of habitat, including alkaline pools, vernal pools, vernal swales, ditches, road ruts, and stock ponds. Average occupied pool size was 1,828 m^2, and occupied pool depth ranged from two to 151 cm, with an average of 15.2 cm. Optimal pools are neutral to slightly

alkaline, clear, low in dissolved solids, and dominated by native vernal pool plants. Unlike other vernal pool crustaceans, VPTS eggs do not require a dry period before hatching, although they do require inundation.

Blunt-nosed Leopard Lizard

The BNLL are already known to occur in the Project's conservation lands and are currently listed as endangered under the ESA and by the California Endangered Species Act (CESA). BNLL are quite often the largest lizard throughout its range, and coloration can vary greatly. Background colors on the dorsal surface can range from yellowish, light gray or dark brown depending on the surrounding soil and vegetation. The ventral surface is uniformly white. The color pattern on the back consists of longitudinal rows of dark spots interrupted by white, cream, or yellow bands. These cross bands can aid in distinguishing the BNLL from other leopard lizards; the cross bands of the BNLL are much broader, more distinct, and extend from the lateral folds on each side of the body.

One common characteristic of most BNLL habitat is sparse vegetation, though vegetation does not preclude this species. BNLL rely mainly on speed to avoid predators and catch prey. A thick cover of herbaceous vegetation impedes BNLL movement, making them more vulnerable to predators and less likely to capture prey. In areas with thick herbaceous vegetation, BNLL will utilize barren washes and roads (Warrick et al. 1998). Adult BNLL emerge from below ground dormancy in early- to mid-April and remain active into July and August (Germano and Williams 2005, CDFG 2004). The BNLL is generally absent from areas of steep slopes and dense vegetation, and areas subject to seasonal flooding (USFWS 2010).

California Red-legged Frog

The CRF is currently listed as a threatened species under ESA. The CRF is a medium-sized frog with smooth skin, webbing on the hind feet, and ridges on the sides of the frog. The CRF is reddish-brown or brown, gray, or olive with small lack spots on the back and sides and dark banding on the legs. The hind legs and lower belly are red underneath, and the chest and throat are creamy and marbled with dark gray. Tadpoles are brown and marked with small dark spots, creamy white coloring with small specks on the lower body, and often rows of dorsolateral lights spots running back from behind the eyes (Nafis 2014).

The CRF is typically found in or near water in humid forests, woodlands, grasslands, coastal scrub, and streamside habitats, but do move overland at times and can be found in damp places far from water, including cool and moist bushes. Breeding habitat is in ephemeral water sources including lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. The CRF is typically found active all year except in wetlands that dry out in summer, where frogs will estivate in moist refuges until the late fall rains. Breeding occurs from late November to April, depending on the location (Nafis 2014).

California Tiger Salamander

The CTS is currently considered a threatened species under ESA and is a state threatened candidate under CESA. The CTS is characterized by a broad head, small eyes, and tubercles on the side of the feet. Coloration is a black back with yellow, cream, or white oval spots or bars. Some individuals may have a prominent cream band on the undersides. Snout-vent length ranges from 7.6 – 12.7 cm, and total length ranges from 15 – 22 cm (Stebbins 1966; 2003).

Ephemeral vernal pools, which refill with water on a yearly basis, that are 40 – 80 cm in depth and have a surface area of 0.2 hectares or more are optimal for breeding CTS; although small, shallower pools will also house breeding CTS (Stokes et al. 2008). Stokes et al. (2008) found no CTS larvae in pools with an average depth of less than 22 cm. There is a narrow range of pool depths where the pool will not completely dry out before CTS have metamorphosed, but also not contain water year round and house predators. Metamorphosed CTS move out of the vernal pools and into upland habitats. Small mammal burrows are important features of upland habitat. Adult CTS occupy small mammal burrows in grassland, savanna, or open woodland habitats (Trenham and Shaffer 2005). Adults can generally be found at breeding pools from October through May, although breeding is highly dependent on the amount of precipitation (Trenham et al. 2001; Trenham and Shaffer 2005). Adult CTS leave the breeding pools in late spring and return to upland habitats. CTS larvae were observed in two off-site ponds during CTS Protocol Larval Surveys during the 2009-2010 rainy seasons.

Golden Eagle

The GOEA is currently listed as a state fully protected species. The GOEA is one of the largest birds in North America with a wingspan of up to 220 cm. The GOEA has broad wings with a relatively small head and long tail. Adults are dark brown with a golden sheen on the back of the head and neck. For the first several years, juveniles have a defined white patch at the base of the tail and wings. The GOEA are generally found alone or in pairs, soaring with wings slightly lifted and wingtip feathers spread apart (Cornell Lab of Ornithology 2014).

The GOEA are known to inhabit partial or complete open country, particularly near mountains, hills, and cliffs. GOEA are known to use a variety of habitats including tundra, shrublands, grassland, coniferous forests, farmland, and along rivers and streams. The GOEA nest in trees and on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas (Cornell Lab of Ornithology 2014).

White-tailed Kite

The WTKI is currently listed as a state fully protected species. The WTKI is a medium-sized raptor with a wingspan of up to 38 cm. The WTKI has long, narrow, pointed wings and a long white tail. The back and wings of the WTKI is gray, while the face and underside are white. A black spot can be seen on inner portion of wings. WTKI have red eyes as adults and yellow eyes as juveniles. Juveniles look similar otherwise but have buffy streaks on the breast and head, and gray with white-tipped feathers on the back (Cornell Lab of Ornithology 2014).

The WTKI is often found in savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields. Areas with extensive winter freezes are avoided, but rainfall and humidity vary greatly throughout the bird's range. Hunting is done over lightly grazed or ungrazed fields. The WTKI typically nests in the upper third of trees that may be 3-49 m tall. Nesting trees may be open-country trees in isolation or within a forest. Characteristic hunting behavior consists of the WTKI hovering in a stationary position up to 24 m off the ground before dropping straight down onto prey (Cornell Lab of Ornithology 2014).

California Condor

The CACO is currently considered a fully protected species, as well as a state and federally endangered species. With a wingspan of 2.8 meters and a broad, wedge-shaped tail, the CACO is the largest soaring bird in North America and one of the largest flying birds in the world. Adult birds are generally black, with mostly bald heads and necks. The bill is long, hooked at the end, and enveloped with flesh along the majority of its length. A feathered ruff is located at the base of the neck into which the neck and lower head can be withdrawn in order to warm the bird. White feathers of the underwing coverts and white tips on the upperwing coverts produce an elongated triangle on the leading half of the wing undersides and a white bar on the upperwing, respectively (Cornell Lab of Ornithology 2014).

The CACO is a habitat generalist, nesting in areas as diverse as chaparral and snow-covered montane forests. Nesting sites typically occur in cliff cavities, large rock outcrops, and large trees. Roosting sites are usually nearby (Snyder and Schmitt 2002, USFWS 1996). Both types of sites require isolation from human disturbance. The CACO locates its food by sight, not olfactory receptors, so open areas with little brush to conceal carrion are required. Cliffs and tall conifers, including dead snags, are generally utilized as roost sites. The closest known nests are located in the Pinnacles to the southwest of the project.

Giant Kangaroo Rat

GKR are already known to occur in the Project Footprint and Project's conservation lands and are currently listed as endangered under the ESA and by the CESA. The GKR is large relative to other rodents in the area, and has a brownish coloration with a light brown tail tip. The Panoche Region in western Fresno and eastern San Benito Counties is currently identified as one of the six major geographical units for remaining GKR populations (USFWS 1998).

GKR live in burrow systems referred to as precincts; a typical precinct has three burrows that are independent of one another and not interconnected (Williams and Kilburn 1991). The GKR is primarily a seed-eater, but occasionally consumes green plants and insects. Foraging takes place year round in all types of weather from around sunset to near sunrise, and most activity takes place within two hours of sunset. The ability to transport large quantities of seeds in cheek pouches, coupled with the highly developed seed curing and caching behaviors, probably allows GKR to endure prolonged droughts of one or two years without major regional population effects (Williams et al. 1993).

San Joaquin Kit Fox

SJKF are already known to occur in the Project Footprint and Project's conservation lands and are currently listed as endangered under the ESA and threatened by the CESA. The kit fox is the smallest canid species in North America, and the SJKF is the larger of the two subspecies. Kit foxes have a relatively small, slim body, large ears set close together, and a long, bushy tail tapering toward the tip. The tail is usually carried low and straight. The most common colorations are described as buff, tan, or yellowish-gray on the body. Two distinctive coats develop each year: a tan summer coat, and a silver-gray winter coat. The tail is distinctly black tipped.

Preferred habitat is often dependent on the density of kangaroo rats and lagomorphs, the two favored prey items of SJKF. SJKF occupy several dens throughout their home range during the year. Dens are usually modified ground squirrel, badger, or coyote dens and can be up to 2.3 m deep (Tannerfeldt et al. 2003).

San Benito Evening-primrose

The San Benito evening-primrose is currently considered threatened by the ESA and is included in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants on list 1B.1. The San Benito evening-primrose is an annual herb with peeling stems ranging from 3 to 20 cm long and wiry branches. Leaves are narrow and 7 to 20 mm long with small, sharp-toothed edges. Flowers contain four sepals that are approximately 3.3 mm long and four petals that are approximately 3.7 mm long. Petals are yellow and fade to reddish, and have two red dots at the base. Bloom period for the species is April to June. The San Benito evening-primrose is typically located in areas with soils that are slightly saline with a pH of 6 to 8.6 on serpentine alluvial terraces within the Clear Creek and San Carlos Creek drainages. It has been observed at elevations ranging from 630 to 1,410 meters above sea level, in areas with precipitation ranging from 43 to 63.5 cm (BLM 2010, Calflora 2014).

California Jewel-flower

The California jewel-flower is currently considered endangered by the ESA and CESA, and is included in the CNPS Inventory of Rare and Endangered Plants on list 1B.1. The California jewel-flower is an annual herb with basal and non-basal leaves. Basal leaves are wavy with a winged stem and are generally less than 11 cm long. Non-basal leaves are pear-shaped to round, with toothed edges. Flowers have 4 to 8 sepals ranging from 4 to 10 mm in length, and whitish petals with purple veins that are 6 to 11 mm long. Bloom period for the species is February to March. The California jewel-flower is generally located in flat, gently sloping areas in shadscale scrub, valley grassland, and pinyon-juniper woodland communities. It has been observed at elevations ranging from 68 to 975 meters above sea level (BLM 2010, Calflora 2014).

San Joaquin Woollythreads

The San Joaquin woollythreads is currently considered endangered by the ESA, and is included in the CNPS Inventory of Rare and Endangered Plants on list 1B.2. The San Joaquin woollythreads is a

woolly annual herb. The San Joaquin woollythreads are generally 5 to 30 cm long with smooth, narrow leaves approximately 1 to 4.5 cm long with wavy edges. The ray flowers have 3-lobed yellow petals, and the disks of the flowers are 4-lobed, yellow, and bell-shaped. Blooming period for this species is February to May. The San Joaquin woollythreads are generally found in sandy or clayey grasslands. San Joaquin woollythreads have been observed at elevations ranging from 60 to 750 meters above sea level (BLM 2010, Calflora 2014).

3.3. Sensitive Species Assessment Methods

Field assessments used a transect sampling system whereby parallel transects spaced 30-meters (m) apart were evaluated by four biologists for the presence of sensitive species known to occur in the habitats found in the study areas in San Benito and Fresno counties. In addition to sensitive species, potentially jurisdictional state or federal waters were also evaluated within the study areas. Within each Study Area, surveyors visually inspected an area extending 15-m either side of each transect line. A fifth survey crew member surveyed each area for potential cultural resources.

Longhorn Fairy Shrimp, Conservancy Fairy Shrimp, Vernal Pool Fairy Shrimp, and Vernal Pool Tadpole Shrimp

Surveys for these vernal pool brachiopods are typically required to be conducted by surveyors permitted by the USFWS, and must be completed during the full wet season survey and full dry season survey (USFWS 1996). Though the transmission line survey was conducted outside the general vernal pool brachiopod survey protocol, the overall purpose of this survey for LHFS, CFS, VPFS, and VPTS was to assess potential habitat within each study area. Potential vernal pool brachiopod habitat was assessed based on topography, local hydrology, and geology. Transects were spaced 30-m apart and surveyors walked on adjacent transect lines, surveying 15-m on either side of their line and stopping occasionally to scan for activity

Blunt-nosed leopard lizard

In order to survey for BNLL consistent with CDFW guidelines, a minimum of two surveyors are required to slowly walk on parallel transects spaced no further than 30m apart, occasionally stopping to scan for BNLL using binoculars over 17 days between adult and hatchling periods from April to September. All biologists conducting this survey were Level II BNLL surveyors with greater than 100 survey days completed. Though this transmission line survey was conducted outside of the time period set forth in the BNLL survey protocol (CDFG 2004) and, at some points, outside of the weather constraints, the overall goal of this survey for BNLL was to assess potential habitat within each study area. Potential BNLL habitat was assessed based on topography/terrain, vegetation, and presence of suitable burrows. Transects were spaced 30-m apart and surveyors walked on adjacent transects lines, surveying 15-m on either side of their line and stopping occasionally to scan for activity.

California Red-legged Frog

The CRF survey methodology involves surveying for possible breeding pools and other potential habitat. Surveyors are required to be familiar with the vocalizations of the CRF. Protocol surveys must be completed between January and the end of September and generally consists of eight

surveys, two day surveys and four night surveys during breeding season, and one day and one night survey during non-breeding season. The survey is conducted over a minimum period of six weeks (USFWS 2005). Although the transmission line survey was conducted outside the general CRF survey protocol, the overall purpose of this survey for CRF was to assess potential habitat within each study area. Potential CRF habitat was assessed based on local hydrology with particular attention paid to areas with potential to serve as breeding pools. Transects were spaced 30-m apart and surveyors walked on adjacent transect lines, surveying 15-m on either side of their line and stopping occasionally to scan for activity.

California Tiger Salamander

Surveying for CTS consists of inspecting transect lines for evidence of the small mammal burrows that could contain CTS and potential breeding pond habitat. Drift fence studies during the fall and winter are the primary method used to study CTS in upland habitats (USFWS 2003). Although the transmission line survey was conducted outside the general CTS survey protocol, the overall purpose of this survey for CTS was to assess potential habitat within each study area. Potential CTS habitat was assessed based on presence of small mammal burrows and local hydrology, with particular attention paid to areas with potential to serve as breeding pools. Surveying for CTS was conducted concurrently with other sensitive species discussed. Surveyors walked on parallel 30-m spaced transects inspecting the line and 15-m on both sides of the line, stopping occasionally to scan the area with binoculars. CTS are known to travel up to 1.2 miles from their breeding ponds to estivate; however, no survey for potential CTS breeding ponds was completed as part of this study.

Golden Eagle, White-tailed Kite, and California Condor

Surveying for the GOEA, WTKI, and CACO was conducted concurrently with the aforementioned sensitive species. Surveyors walked along 30-m spaced transects, occasionally stopping to scan the sky for the presence of the GOEA, WTKI, CACO, or other avian species. Evidence of nests or previous nesting was noted in study areas with cliffs, trees, or other substrate suitable for nests.

Giant Kangaroo Rat

Surveying methods for GKR consist of surveyors walking on parallel 30-m spaced transects inspecting each transect, including 15-m on either side, for evidence of GKR precincts. Burrow precincts were considered active based on presence of scat, tracks, tail-drags, pit caches, fresh excavations, and cropped vegetation around a series of suitably sized horizontal and vertical burrow openings. Precincts that did not appear to be occupied were also identified and mapped as inactive. Precincts were considered unoccupied when characteristic horizontal and vertical burrow openings and the surrounding area are devoid of all sign (fresh scat, tracks, fresh digging, and cropped vegetation).

San Joaquin Kit Fox

The San Joaquin kit fox survey methodology involves looking for dens and additional sign. The survey methodology used consisted of surveyors walking neighboring transects spaced 30-m apart to detect the dens that could be utilized by the species. Surveyors noted any known, natal, and potential kit fox dens, as well as latrines and tracks on loose earth observed within the work areas.

San Benito Evening-primrose , California Jewel-flower, and San Joaquin Woollythreads

Surveying for the San Benito Evening-primrose, California Jewel-flower, and San Joaquin Woollythreads was conducted concurrently with the aforementioned special status species. The survey methodology used consisted of surveyors walking neighboring parallel transects spaced 30-m apart, inspecting 15-m on either side of each transect for evidence of these plant species.

3.4. State and Federal Jurisdictional Waters Survey Methods

The following general methods for state and federal jurisdictional water surveys were used to inventory the study areas within the transmission line upgrade project area.

Clean Water Act

Potentially federal jurisdictional waters of the U.S., including wetlands, were assessed in the field for the transmission line and associated ground disturbance areas. Surveyors walked transects spaced 30-m apart, noting any topographic low with a defined bed and bank. During the on-site assessment, the sites were evaluated for drainage areas and potentially jurisdictional waters of the U.S. located within the proposed work areas and associated the larger study areas. The determination for jurisdictional waters of the U.S., including wetlands, was performed utilizing the Routine On-Site Determination Method as defined in the USACE Wetlands Delineation Manual (1987). This technique uses a three parameter approach, which requires positive evidence of:

- Hydrophytic vegetation
- Hydric soils
- Wetland hydrology

Areas exhibiting the above three wetland characteristics, as well as surface waters, are considered jurisdictional. Drainage features were also evaluated for the presence of continuous bed and bank and evidence of an ordinary high water mark (OHWM), in accordance with USACE Regulatory Guidance Letter No. 05-05, Ordinary High Water Mark Identification, and the Environmental Protection Agency (EPA) Draft Guidance on Identifying Waters Protected by the Clean Water Act (2011). Drainages with continuous evidence of bed and bank and an OHWM are typically considered jurisdictional.

The Project Area, including the transmission line and associated ground disturbance areas, is located within the Arid West Region. Soil samples were taken and Wetland Determination Data Forms (Arid West Region) were completed at any point with defined bed and bank and hydrophytic vegetation or an OHWM.

Other State Regulated Waters

Additional state regulated drainages were also assessed in the field. Notification is required for any alteration of a river, stream, or lake that flows at least intermittently through a bed or channel. Within each study area, for any drainage feature observed a Lake and Streambed Alteration Agreement (LSAA) Notification Drainage Survey Form was completed, including the

presence of water, a defined bank, flow characteristics (ephemeral, intermittent, river, etc.), the presence of riparian habitat, and any additional notes. All forms were completed in accordance with the State of California Department of Fish and Game Code (Section 1602) requirements for notification. The Notification will be submitted only if alteration of a drainage feature is necessary.

4.0 Study Area Surveys Results

The survey was conducted from September 15 through September 18, 2014. Weather conditions were conducive to the survey and generally ranged from 75-100°F with winds of 5-15 mph. Based on field assessments, the majority of the planned sites for ground disturbance are areas in which there will be little to no disturbance of sensitive species, jurisdictional waters, or cultural resources. Photographs for each work area are presented in Appendix B.

4.1. Survey Results Study Area 1

Study Area 1, is a 2,000 linear foot disturbance planned along the shoulder of Little Panoche Road, consisting of the AT&T Cable Site that will be trenched for the installation of copper (Figure 3 and Table 1). Study Area 1 is located adjacent to the Project Area to the south within the Valley Floor Conservation Lands and is intersected by Little Panoche Road running north-south through the area (Appendix B and Figure 3). Trenching is planned along the Little Panoche Road shoulder; however, the habitat of the greater Study Area 1 (including the buffer) is considered disturbed (e.g. grazing) and is dominated by non-native and native species such as Russian thistle (*Salsola tragus*), red brome, procumbent pigweed (*Amaranthus blitoides*), bindweed (*Convolvulus arvensis*), Lamb's quarters (*Chenopodium album*), doveweed (*Croton setigerus*), Jimson weed (*Datura wrightii*), and redstem filaree. For a complete vegetation list please see Appendix B of this report.

No sensitive resources were observed within the disturbance area planned for trenching and communications wire/fiber installation, although evidence of use by sensitive species was observed within other portions of the associated buffer. An active GKR precinct was observed near the western edge of Study Area 1 and a fresh badger dig was observed near the southern edge of the study area, though no badger scat was noted near the dig (Figure 3). No federal or state regulated waters were observed in Study Area 1. As depicted in Figure 3, Study Area 1 overlaps with an existing proposed Project BNLL buffer zone. Work on the AT&T Cable Site will be conducted strictly along the shoulder of Little Panoche Road to avoid burrows potentially inhabited by BNLL or other sensitive species known to occur in the project area.

Despite no sensitive species being observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.2. Survey Results Study Area 2

Study Area 2 is an approximate 24 acre area within the Valley Floor Conservation Lands that includes Landing Zone 1 (Figure 4 and Table 1). Study Area 2 will be used for staging materials,

picking up and transporting electrical personnel and equipment, and refueling helicopters. The habitat of Study Area 2 is considered disturbed due to heavy livestock grazing and is dominated by non-native grasses with some spares saltbush scrub habitat present (Appendix B). Some of the primary vegetative species observed in this area include soft chess (*Bromus hordeaceus*), Allscale saltbush (*Atriplex polycarpa*), vinegar weed (*Trichostema lanceolatum*), tumbling orach (*Atriplex rosea*), Russian thistle, prostrate spurge (*Chamaesyce ocellata ssp. ocellata*), common fiddleneck (*Amsinckia intermedia*), and shiny peppergrass (*Lepidium nitidum*). A complete list of observed vegetative species is provided in Appendix B.

Sensitive resources were minimal within Study Area 2 (Figure 4). No sensitive resources were observed within the 0.34 acre disturbance area, and only one recent badger dig was observed on the northern edge of the buffered study area. No federal or state regulated waters were observed in Study Area 2.

Based on discussions with PG&E since the completion of this survey, Landing Zone 1 located within Study Area 2 will be relocated due to its overlap with an existing proposed Project BNLL buffer zone (Figure 4). The new location of Landing Zone 1 will be determined later by PG&E.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.3. Survey Results Study Area 3

Study Area 3 (including the associated buffer) is approximately 40 acres and is located partially within the Valley Floor Conservation Lands and includes Wire Pull Sites 1 and 2 (Figure 4 and Table 1). Study Area 3 will be used for two temporary wire pull/splice sites, one staged on either side of the existing transmission tower. The habitat of Study Area 3 is similar to Study Area 2, as the areas are within 0.4 miles of each other. The study area is characterized by livestock grazed, non-native grasses with some sparse saltbush scrub habitat in the outer limits of the study area (Appendix B). Some of the most common species observed include red brome, redstem filaree, vinegar weed, angle-stem wild buckwheat (*Eriogonum angulosum*), tumbling orach, prostrate spurge, shiny peppergrass and Allscale saltbush. A complete list of vegetative species observed is located in Appendix B.

Study Area 3 had evidence of BUOW, GKR, SJKF, and SJAS (Figure 4). BUOW white wash was observed at several fence posts and pellets were noted at one post in the eastern portion of the study area. Inactive and active GKR precincts were observed throughout the southern portion of the study area. A SJKF latrine with old scat was observed in the eastern portion of the work area, and a SJAS was observed in the northern portion of the work area. Though evidence of several species was noted at Study Area 3, none of the observations were within the planned 75-ft by 75-ft area of temporary disturbance (Figure 4). Additionally, a small drainage was noted near the southeastern boundary of Study Area 3 which is potentially Other State Waters and may require permitting if planned locations for disturbance areas are modified.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.4. Survey Results Study Area 4

Study Area 4 is located in the hills 5.5 miles east of the Project Footprint within the Bureau of Land Management (BLM) Lands and consists of approximate 56 acres which includes the associated buffer (Figure 5). Study Area 4 includes Wire Pull Sites 3, 4, and 5 (Table 1), though final design of Wire Pull sites will only utilize two of the three locations. After the initial survey of Study Area 4 found the area to have highly variable topography and potential rare plant species, the survey was extended westward to determine if working around an alternative existing transmission tower would serve as a viable option for a wire pull/splice site. Study Area 4 will be used for two temporary wire pull/splice sites, one staged on either side of an existing transmission tower. Study Area 4 is located in rolling hills, dominated by non-native grasses and a natural scrub community (Appendix B). Some of the most common vegetative species observed in this area include Mediterranean grass (*Schismus arabicus*), vinegar weed, red brome, interior goldenbush (*Ericameria linearifolia*), California ephedra (*Ephedra californicus*), California matchweed (*Guitierrezia californica*), shiny peppergrass, and common fiddleneck. A complete list of vegetation observed is found in Appendix B.

Sensitive resource observations at Study Area 4 included inactive GKR precincts, a badger burrow, an SJKF latrine, and potential rare plant occurrences (Figure 5). All observations were made within the study area buffer but outside the 0.13 acre disturbance areas planned for potential wire pull sites. The sensitive species observations were generally located along the southern portion of the study area (Figure 5). GKR precincts observed were considered inactive due to the presence of bleached scat and hardened backfilled vertical burrows and lack of fresh sign. The badger burrow noted in this study area was in good condition but no recent sign was observed in the vicinity of the burrow. Sensitive vegetative species were particularly difficult to identify to the species level during the survey, due to the time of year and lack of flowers present; however, the potential rare plant observed is from the genus *Navarretia*, which includes 56 different species, 22 of which are considered rare in the State of California. All observations made at Study Area 4 were within the southern portion of the study area buffer, outside of the planned 75-ft by 75-ft ground disturbance areas. While sensitive resources do not inhibit this location as a wire pull site, the topography may serve as a limiting factor. No federal or state regulated waters were observed in Study Area 4.

While sensitive species were not observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.5. Survey Results Study Area 5

Study Area 5 is an approximate 39-acre portion of land (including the buffer) located within BLM lands approximately 10 miles east of the Project Footprint (Figure 6) which includes Wire Pull Sites 6 and 7 (Table 1). Study Area 5 will be used for two temporary wire pull/splice sites, one staged on

either side of the existing transmission tower. Study Area 5 is located within the Allscale scrub alliance and appears to be occasionally used recreationally by all-terrain vehicles (ATV) (Appendix B). Some of the primary vegetative species observed in Study Area 5 include Allscale saltbush, tumbling orach, tocalote (*Centaurea melitensis*), common fiddleneck, prostrate spurge, angle-stem buckwheat, California buckwheat (*Eriogonum fasciculatum*), and redstem filaree. A complete list of observed vegetative species is found in Appendix B.

No evidence of sensitive resources were observed within the 0.13 acre planned disturbance area of Study Area 5, though evidence of use by the SJKF was observed in larger study area (Figure 6). A known SJKF den was observed in the southwestern portion of the study area where bones and prey remains were noted, in addition to somewhat fresh scat observed in the northeastern portion of the study area. Additionally, three drainages were noted along the northern boundary of Study Area 5 which are potential Other State Waters and may require permitting if planned locations for disturbance areas are modified.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.6. Survey Results Study Area 6

Study Area 6 is comprised of Wire Pull Sites 8 and 9 and ADSS Wood Pole Site 1 (Figure _ and Table 1). Study Area 6 is an approximately 30 acre area (including the 500-ft buffer) located approximately 12 miles east of the Project Area (Figure 7). The separation of Study Area 6 from Study Area 7 was a decision made in the field based on access and overall habitat differentiation between the two study areas. Study Area 6 is located within a more diverse habitat that includes steep slopes with loose sediment, Allscale scrub alliance, and a large wash with high ATV use (Appendix B). Some of the primary vegetative species observed at Study Area 6 include alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), California matchweed, Russian thistle, wirelettuce (*Stephanomeria pauciflora*), allscale saltbush, saltcedar (*Tamarix ramosissima*), alkali heliotrope (*Heliotropium curassavicum* var. *osculatum*), and California buckwheat. A complete list of vegetative species observed is located in Appendix B.

Sensitive biological resources were not noted within Study Area 6 during the surveys; however, the northwestern portion of the buffered study area extends into Panoche Creek, a federally jurisdictional water feature (Figure 7). The creek was dry at the time of the site visit, but exhibited evidence of wetland hydrology and hydrophytic vegetation. Wetland hydrology primary indicators observed include drift deposits, surface soil cracks, and salt crust. Hydrophytic vegetation included saltgrass (*Distichlis spicata*), annual beard grass (*Polypogon monspeliensis*), and saltcedar. Wetland Determination Data Forms for this area are found in Appendix C.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.7. Survey Results Study Area 7

Study Area 7 consists of ADSS Wood Pole Sites 2-9, Guard Structures 1-3, and Wire Pull Sites 10 and 11 (Figure 7 and Table 1). Study Area 7, including the buffer, extends southeast-northwest for approximately 1 mile, comprising approximately 116 acres located 1.25 miles west of Interstate 5 (Figure 7). Study Area 7 will be used for several tasks necessary for the transmission line upgrade. Uses within this study area include: two temporary wire pull/splice sites, one staged on either side of the existing transmission tower; three guard structure sites where wood poles will be augered with net strung between them to catch any falling tools or other materials that could fall into the intersected public roadway; and eight ADSS wood pole sites where line trucks will auger holes eight feet deep and two feet wide for the wood poles. This study area is located almost entirely within a mixture of well-maintained pomegranate orchards and vineyards that had no herbaceous layer (Appendix B). Surveying methodology varied due to the high farming activity occurring throughout the week of surveys. Rather than survey 30-m transects within the vineyard and orchard that comprise Study Area 7, surveyors drove the primary roads of the vineyard and orchard at approximately 2 mph and inspected for burrow complexes and plant species between crop rows. When potential evidence of activity was observed surveyors walked the row to inspect the observation. No sensitive resources were noted within this study area (Figure 7). Panoche Creek, a federally jurisdictional water feature, intersects the northwestern boundary of the study area. The presence of Panoche Creek along the study area boundary may limit the movement of these various work areas.

Despite no sensitive species being observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.8. Survey Results Work Area 8

Study Area 8 is an approximate 24 acre area approximately one mile west of Interstate 5 (Figure 8) that includes Landing Zone 2 (Table 1). Study Area 8 will be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters. Study Area 8 is located directly adjacent to Study Area 7 to the north. The southern portion of the study area is located within disturbed land developed with vineyards, while the northern portion is situated partially within the federally jurisdictional Panoche Creek and partially within a disturbed cleared work area used by the farmers to store equipment (Appendix B). Vegetative species at this work area were observed within Panoche Creek, due to the complete clearing of the northeastern portion of the area and the strict maintenance of the vineyards in the south. Some of the species observed within Panoche Creek include tree tobacco (*Nicotiana glauca*), saltcedar, big saltbush (*Atriplex lentiformis*), common sow thistle (*Sonchus oleraceus*), prostrate spurge, Jimson weed, procumbent pigweed, and alkali goldenbush. A full list of vegetation observed is located in Appendix B.

No evidence of sensitive species was observed within the 0.34 acre planned disturbance areas of Study Area 8, though evidence of use by the American badger was observed in the larger study area (Figure 8). American badger burrows were observed in the west-northwestern portion of

Study Area 8 within Panoche Creek. The presence of the federally jurisdictional Panoche Creek directly west/northwest of the planned disturbance area limits movement of this landing zone.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.9. Survey Results Study Area 9

Study Area 9 is an approximate 26-acre area located approximately 0.5 miles west of Interstate 5 (Figure 8) that includes Guard Structures 4 and 5 (Table 1). Study Area 9 will be used for guard structure sites where wood poles will be augered with net strung between them to catch any falling tools or other materials. Study Area 9 is located entirely within an almond orchard, with West Panoche Road intersecting the northern portion of the study area running roughly southwest-northeast (Appendix B). Some of the vegetative species observed at this study area include procumbent pigweed, prostrate spurge, redstem filaree, cheeseweed (*Malva parviflora*), bindweed, common fiddleneck, Lamb's quarter, and red brome.

No sensitive resources were observed within the planned 0.17 acre areas of disturbance for guard structures. The only noteworthy observation made in Study Area 9 is the sighting of a great horned owl (*Bubo virginianus*) which was flushed during the survey of the southeastern portion of the study area (Figure 8). No nest was observed in the area. No federal or state regulated waters were observed in Study Area 9.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.10. Survey Results Study Area 10

Study Area 10 is comprised of Guard Structures 6 and 7 (Table 1), an area comprised of approximately 29 acres that spans Interstate 5 (Figure 9). Study Area 10 will be used for guard structure sites where wood poles will be augered with net strung between them to catch any falling tools or other materials. Study Area 10 is within a disturbed habitat (e.g. plowing), bisected by I-5 running roughly north-south and intersected by West Panoche Road running roughly southwest-northeast (Appendix B). Due to the location of this study area relative to these two roads, Study Area 10 was essentially split into quarters for the survey (SE, NE, SW, NW). Some of the primary ruderal vegetative species observed include red gum (*Eucalyptus camaldulensis*), tree tobacco, puncture vine (*Tribulus terrestris*), procumbent pigweed, alkali goldenbush, Russian thistle, common fiddleneck, redstem filaree, bindweed, and saltgrass. A complete list of vegetation observed is located in Appendix B.

No sensitive resources were observed within the 0.17 acre areas of planned disturbance. The only sensitive species noted within Study Area 10 were two dead juvenile Swainson's hawks, a state-threatened species, that were observed adjacent to the highway in the northwest quarter of the study area (Figure 9). The hawks are assumed to have been killed by traffic along I-5 based on the

proximity of both to the highway and apparent results of impact, which included the detachment of one of the hawk's wings from the remainder of the carcass. The northwest quarter of Study Area 10 has substantial cover of red gum, particularly when compared to the rest of Study Area 10, but no nests were observed in the study area. No federal or state regulated waters were observed in Study Area 10.

In addition to observations of Swainson's Hawks in the study area, habitat for several other potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.11. Survey Results Study Area 11

Study Area 11 is an approximate 22 acre area located approximately 1 mile east of Interstate 5 (Figure 10) that includes Guard Structure 8 (Table 1). Study Area 11 will be used for guard structure sites where wood poles will be augered with net strung between them to catch any falling tools or other materials. Study Area 11 is intersected by West Panoche Road running roughly southwest-northeast and by Brannan Avenue running north-south through the center of the study area. The southern portion of Study Area 11 is situated within a vineyard, while the northern portion is split between an almond orchard in the northwest and a cleared dirt field used for recreational purposes in the northeast (Appendix B). Vegetative species observed at Study Area 11 include procumbent pigweed, Lamb's quarter, prostrate spurge, redstem filaree, alkali weed, Jimson weed, Russian thistle, and unicorn plant (*Proboscideae lutea*). No sensitive resources including protected species and federal and state waters were observed within Study Area 11. No federal or state regulated waters were observed in Study Area 11.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.12. Survey Results Work Area 12

Study Area 12 is approximately 49 acres located approximately two miles east of Interstate 5 (Figure 11) and includes Substation OPGW Underground Work Area and Wire Pull Site 12 (Table 1). Study Area 12, including the buffer, stretches roughly east-west for approximately 0.4 miles and is intersected by West Panoche Road running roughly southwest-northeast through the central portion of the study area. This study area is considered disturbed due to the southern half of this study area being comprised of vineyards in the west and the Panoche Substation in the east, while the northern half of this study area is situated within an almond orchard (Appendix B). Additionally, in the central portion of the northern half of the study area directly adjacent to West Panoche Road, are three historic households and a newer farming structure (see Appendix D for cultural resources details). Primary vegetative species observed at Study Area 12 include prostrate spurge, prickly lettuce (*Lactuca serriola*), redstem filaree, bindweed, nightshade (*Solanum xanti*), doveweed, common fiddleneck, and cheeseweed. A full list of vegetative species observed is found in Appendix B.

No sensitive resources were observed within the 2.19 acre area of planned disturbance within Study Area 12. Potential SJKF tracks were noted within the northeastern portion of the work area buffer. Additionally, a great horned owl was flushed from the almond orchard while conducting the survey on Study Area 12 (Figure 11). No nest was observed. No federal or state regulated waters were observed in Study Area 12.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.13. Survey Results Study Area 13

Study Area 13 is an approximately 24 acre area located directly adjacent to the Panoche Substation approximately 2.5 miles east of Interstate 5 (Figure 11) that includes Landing Zone 3 (Table 1). Study Area 13 will be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters. Study Area 13 is within a disturbed habitat with the northern portion intersected by West Panoche Road, the southwest within the Panoche Substation, and the east within a vineyard (Appendix B). Some of the primary vegetative species observed in Study Area 13 include California brome (*Bromus carinatus*), Russian thistle, procumbent pigweed, bindweed, tumbling orach, prostrate spurge, prickly lettuce, redstem filaree, vinegar weed, and cheeseweed. A full list of vegetation observed is located in Appendix B. No sensitive resources including protected species and federal and state waters were observed within Study Area 13.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

5.0 Summary and Recommendations

The most biologically diverse of the areas surveyed is Study Area 3 (Wire Pull Sites 1 and 2). Within Study Area 3, evidence of BUOW, GKR, SJAS, and SJKF was observed; however, none of these observations were made within the planned areas of disturbance for the wire pull sites. Access issues may restrict use of Study Area 5 (Wire Pull Sites 6 and 7), as the only access road is controlled by the BLM. Coordination with BLM may enable use of the two-track road that leads directly to Study Area 5. Variable topography may restrict use of Study Area 4 (Wire Pull Sites 3, 4, and 5).

Though observations for sensitive resources were relatively low at each study area surveyed, the majority of the study areas (excluding those within vineyards and orchards) contained substantial burrows for other rodents and small mammals, the primary source of food for the SJKF. Additionally, minimal amounts of old SJKF scat were observed at several study areas, specifically those to the west of Interstate 5. Even though no individual BNLL were observed, due to the terrain, evidence of sufficient small mammal burrows, the studies being performed outside the protocol season window, and the overall habitat within certain study areas, BNLL could potentially be found within work areas. With the noted evidence of the small mammal

burrows the study areas could contain other special status small mammal species (e.g. Tulare grasshopper mouse). The study area was not trapped for these burrowing mammal species, therefore, without additional surveys, it has to be assumed that these special status species could utilize the small mammal burrows within the study areas.

Furthermore, with the evidence of the small mammal burrows the study areas could contain CTS. The study area was limited to a 500 foot buffer in which no vernal pools/ponds were located. However, with CTS known to travel up to 1.2 miles from their breeding ponds to estivate, no survey for potential CTS breeding ponds was completed as part of this study. Therefore, without a larger radius breeding pond survey, it has to be assumed that CTS could estivate within the appropriate sized small mammal burrows within the study areas.

No evidence of nesting special status raptor species were located within the study areas with exception of Study Area 3 as noted above. However, during the worked being performed during the upgrade that is within a quarter mile of an active nest during breeding season could cause a disturbance.

There are several special-status plants known to occur in the vicinity of the study areas. However, due to the timing of the surveys within the study areas certain special status species may not be evident. The potential presence of those special status species within the study areas due to habitat is noted in Appendix A. Use of any of the planned disturbance areas should take proper steps to ensure no sensitive species are impacted by the planned activities.

The potential habitats for some special status species were observed within certain study areas during the field assessment as noted in Appendix A. This does not provide evidence of presence or absence of the species but does give an indication of the potential for the species that could occur or be observed within the study areas during the appropriate seasonal survey window. This data will provide crucial information when developing the avoidance and minimization measures for the construction of the telecommunication upgrades.

Potentially federal and state jurisdictional waters were assessed in the field for the study areas and associated ground disturbance areas. The only study areas that were found to have jurisdictional waters issues was Study Area 6 and Study Area 8, both of which have disturbance area buffers extending into Panoche Creek. However, these potential jurisdictional areas are not located within the smaller associated disturbance area planned within the noted study area.

The results from the Panoche Valley Solar Transmission Line Natural Resources Assessment indicate the sites chosen as temporary work areas for transmission line upgrades are situated such that temporary disturbances will have potentially minimal or no impact on special status species and regulated natural resources described in this report with appropriate avoidance and minimization measures. Additionally, surveys of study areas, which included the planned disturbance areas and a 500-ft buffer, revealed the flexibility of moving the disturbance areas if necessary at the time of upgrade construction field work.

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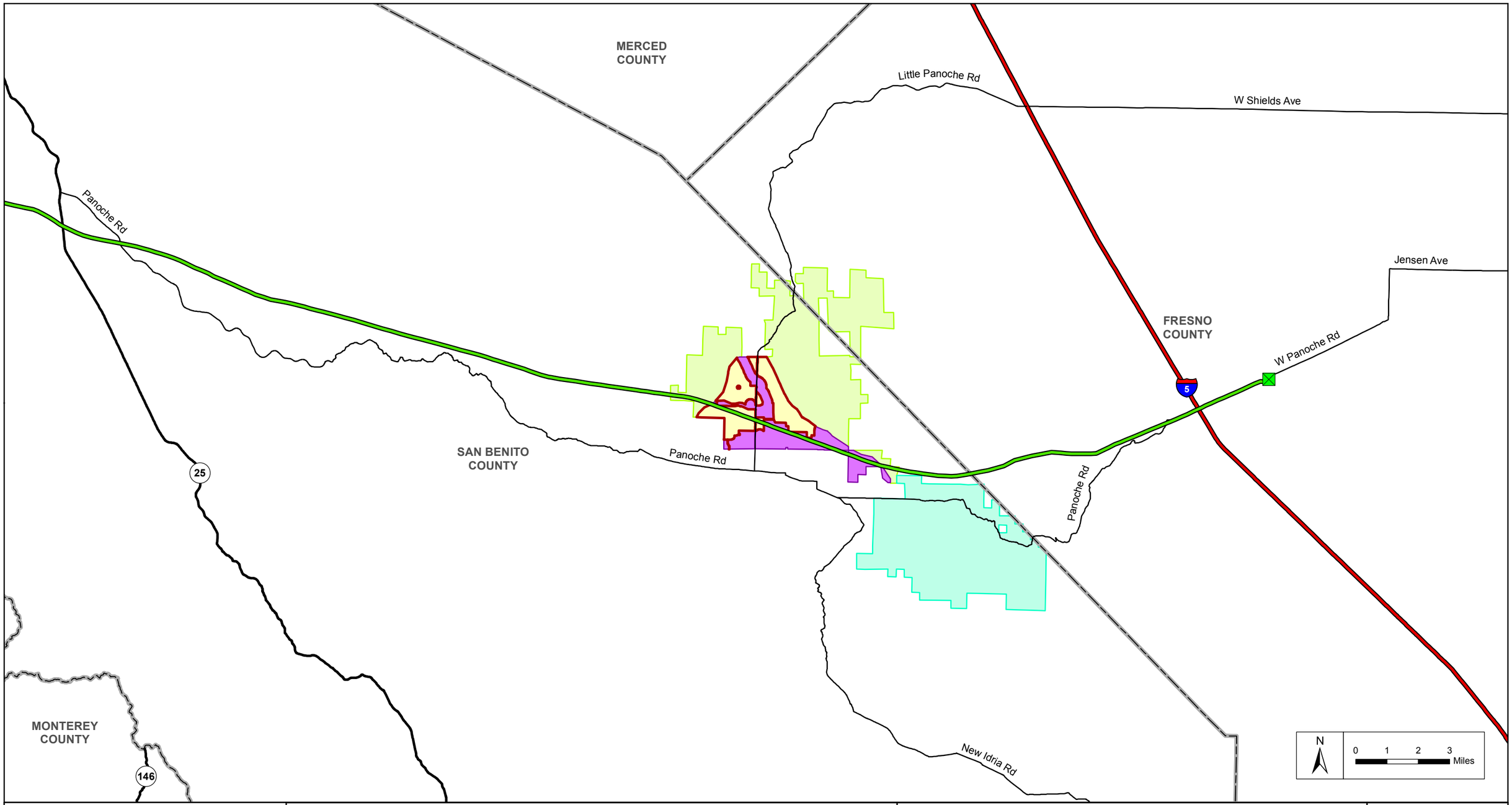
FIGURES



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Legend

- Project Footprint
- Silver Creek Ranch Conservation Lands
- Valadeao Ranch Conservation Lands
- Valley Floor Conservation Lands
- County Boundary
- Panoche Substation
- Electric Transmission

Panoche Valley Solar Project

Telecom Upgrades

Regional Overview

FIGURE

1

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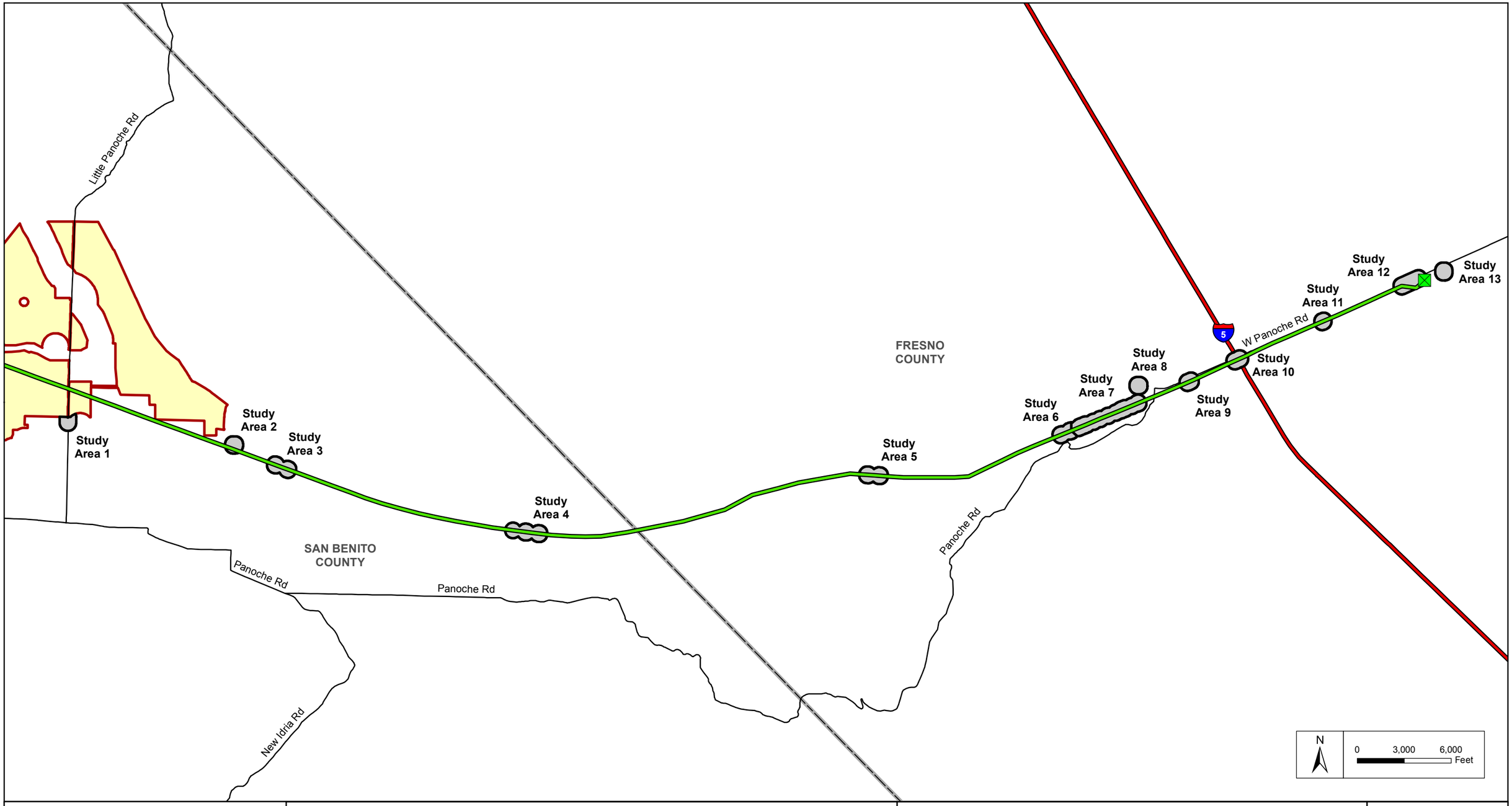

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Legend

- Project Footprint
- County Boundary
- Panoche Substation
- Electric Transmission
- Study Area

Panoche Valley Solar Project

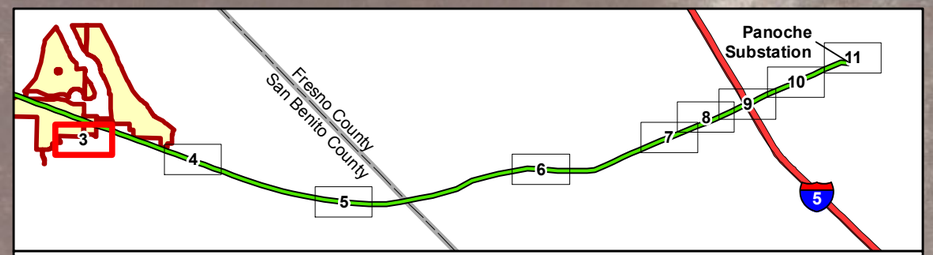
Telecom Upgrades

Project Overview

FIGURE

2

JH 2014-09-29



Map Figure Index

226

227

GKR
precinct

Study
Area 1

Badger
dig

Panoche Creek

Little Panoch Rd

N

0 200 400
Feet

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Legend

- Survey Observation
- Study Area
- Solar Project
- Existing Transmission Structure
- Existing Electric Transmission
- AT&T Cable Below Ground Option
- Blunt-Nose Leopard Lizard Buffer Area

Panoche Valley Solar Project

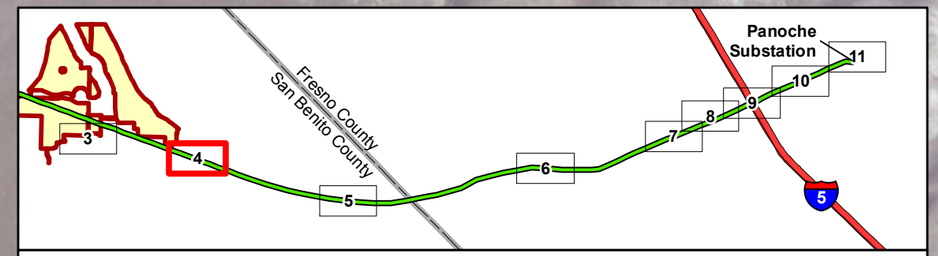
Telecom Upgrades

Study Area 1

FIGURE

3

JH 10/15/2014



Map Figure Index

Badger dig

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Study Area 2

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San Joaquin antelope squirrel

Study Area 3

237

GKR precinct

BUOW pellet, white wash

GKR precinct

SJKF latrine

238

Old GKR precinct

Panoche Creek

N

0 200 400 Feet

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Legend

- Survey Observation
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- Existing Transmission Structure
- Existing Electric Transmission
- Drainage
- Landing Zone Work Area
- Wire Pull Site Work Area
- Blunt-Nose Leopard Lizard Buffer Area

Panoche Valley Solar Project

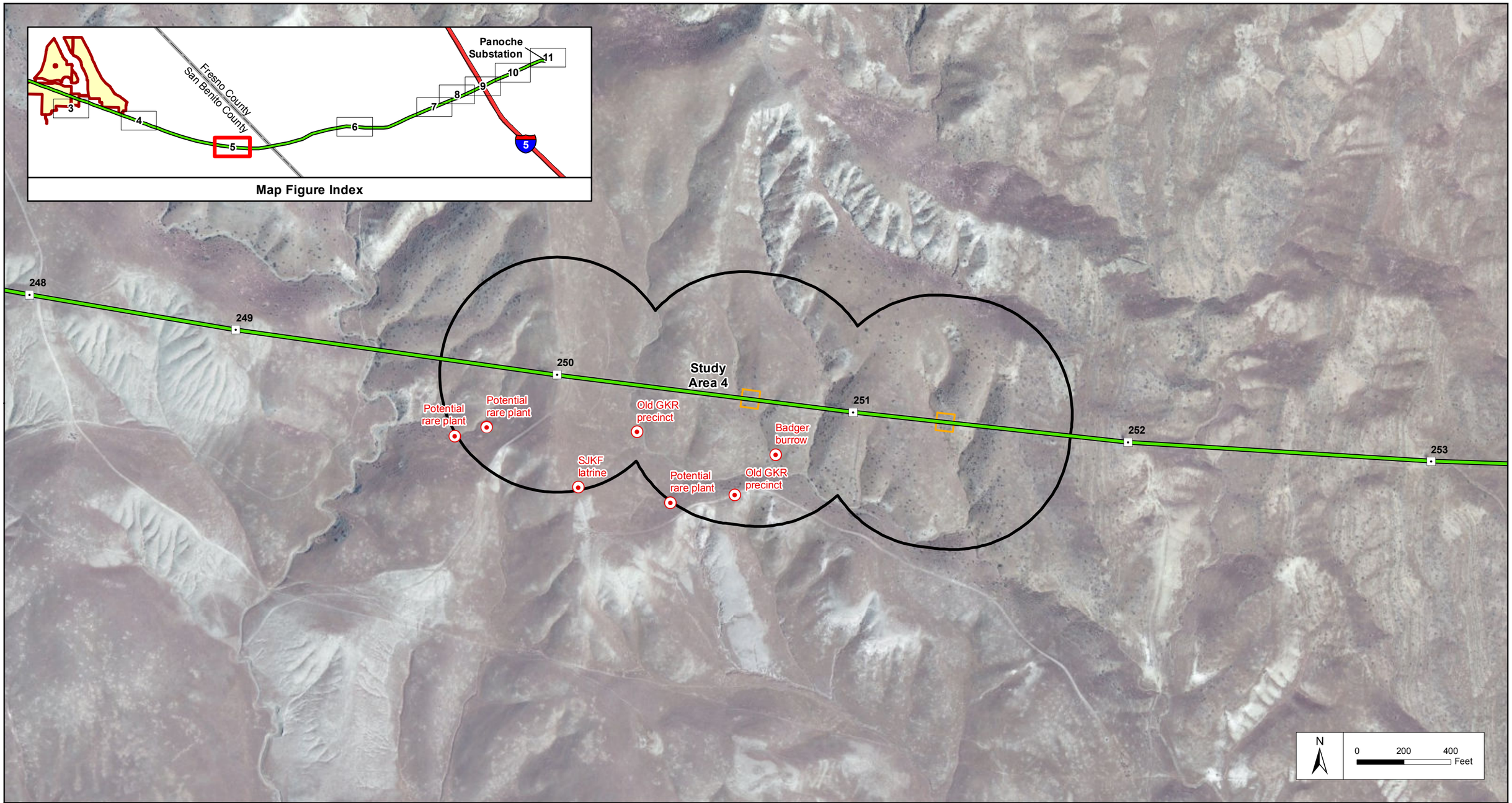
Telecom Upgrades

Study Areas 2 and 3

FIGURE

4

JH 10/15/2014



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Legend

- Survey Observation
- Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Wire Pull Site Work Area

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Telecom Upgrades

Study Area 4

FIGURE

5

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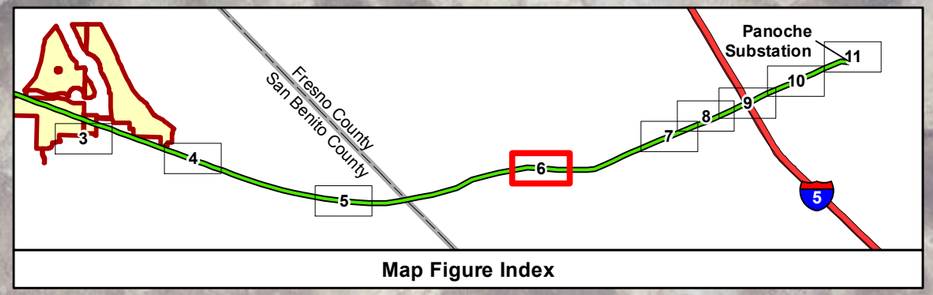

Map Figure Index

Study Area 5

SJKF scat

Known SJKF den

264
265
266
267
268
269

Panoche Creek

N

0 200 400 Feet

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Legend

- Survey Observation
- Study Area
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- Existing Electric Transmission
- Drainage
- Wire Pull Site Work Area

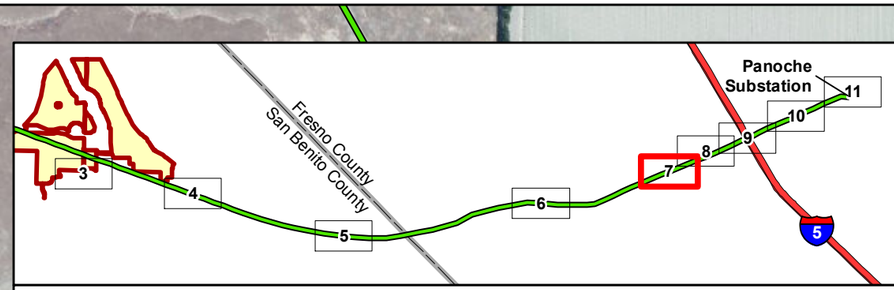
Panoche Valley Solar Project

Telecom Upgrades

Study Area 5

FIGURE 6

JH 10/15/2014



Map Figure Index

Study Area 8

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Study Area 7

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Panoche Creek

Upland Point

Wetland Point

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Study Area 6

Panoche Rd

N

0 200 400 Feet

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Legend

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- Existing Electric Transmission
- ADSS Pole Work Area
- Guard Structure Work Area
- Wire Pull Site Work Area

Panoche Valley Solar Project

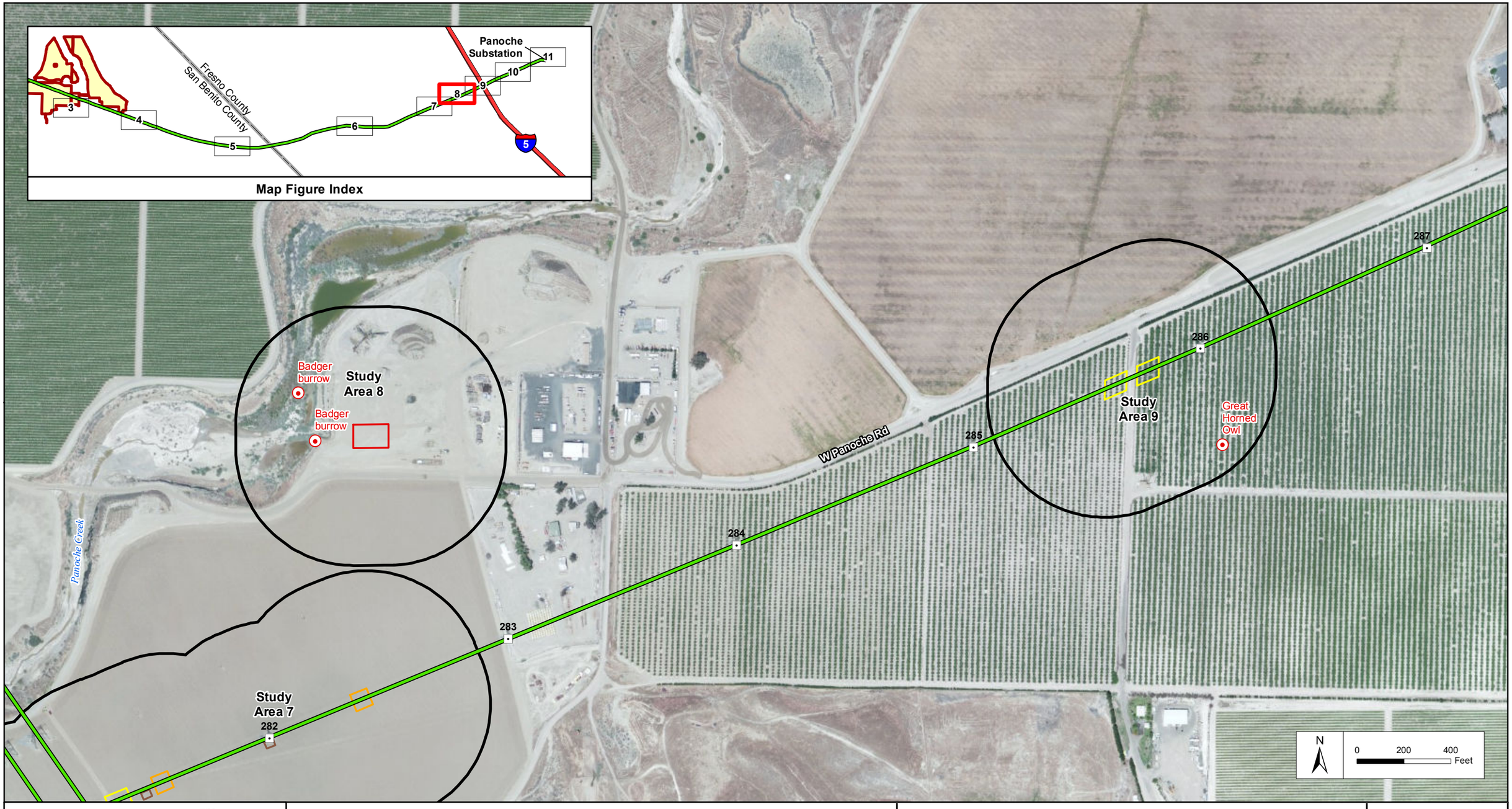
Telecom Upgrades

Study Areas 6 and 7

FIGURE

7

JH 10/15/2014



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Legend

- Survey Observation
- Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- ADSS Pole Work Area
- Guard Structure Work Area
- Landing Zone Work Area
- Wire Pull Site Work Area

Panoche Valley Solar Project

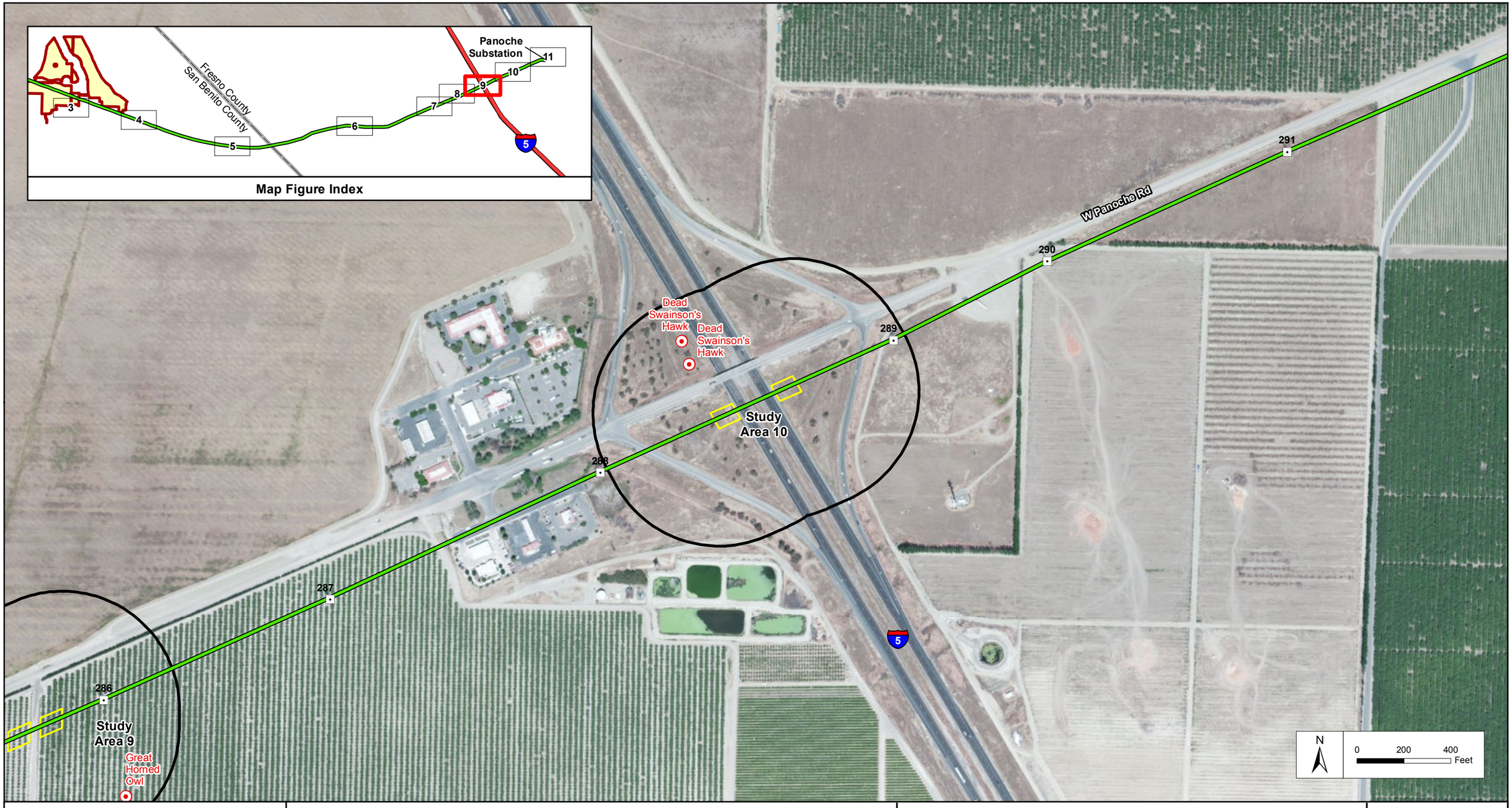
Telecom Upgrades

Study Areas 8 and 9

FIGURE

8

JH 10/15/2014



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Legend

- Survey Observation
- Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Guard Structure Work Area

Panoche Valley Solar Project

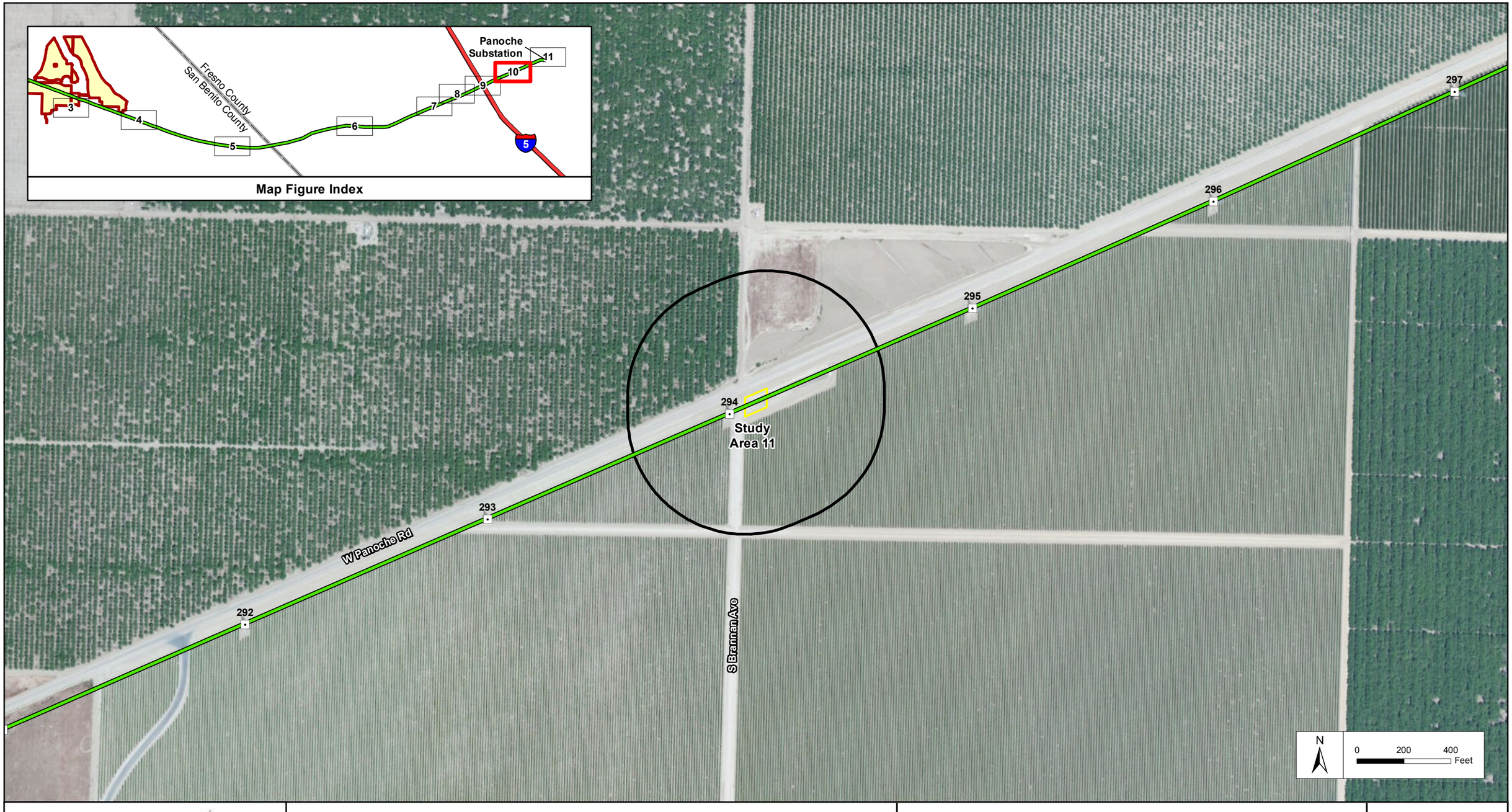
Telecom Upgrades

Study Area 10

FIGURE

9

JH 10/15/2014



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Legend

- Study Area
- Existing Transmission Structure
- Guard Structure Work Area
- Existing Electric Transmission

Panoche Valley Solar Project

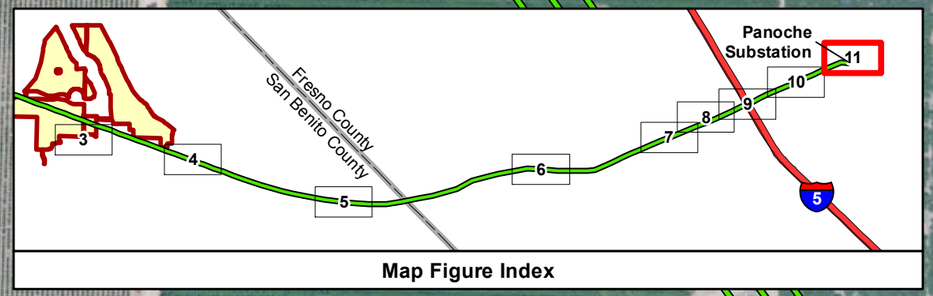
Telecom Upgrades

Study Area 11

FIGURE

10

JH 10/15/2014



Map Figure Index

Potential SJKF tracks

W Panoche Rd

Study Area 13

Great Horned Owl

Study Area 12

299

300

298

N

0 200 400 Feet

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
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www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

- Survey Observation
- Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Landing Zone Work Area
- Panoche Substation OPGW UG Work Area
- Wire Pull Site Work Area

Panoche Valley Solar Project

Telecom Upgrades

Study Areas 12 and 13

FIGURE

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APPENDICES

Appendix A

Special Status Species with Potential to Occur

Special-Status Wildlife with Potential to Occur

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Invertebrates					
Branchinecta longiantenna	longhorn Fairy Shrimp	FE	Not Likely To Occur	Clear to turbid grassland pools within San Joaquin Vernal Pool Region	NA
Branchinecta conservation	conservancy fairy shrimp	FE	Not Likely To Occur	Turbid water in vernal pools	NA
Branchinecta lynchi	vernal Pool Fairy Shrimp	FT	Not Likely to Occur	Vernal pools, vernal swales, alkaline pools, and road-side ditches	NA
Lepidurus packardi	vernal pool tadpole shrimp	FE	Not Likely To Occur	Clear, well vegetated vernal pools to turbid, alkali scald pools; generally in water deeper than 12 cm	NA
Reptiles					
Actinemys marmorata pallida	Southwestern pond turtle	CSC	Low	Slow-moving waterways with upland habitat accessible for basking.	6-8
Anniella pulchra pulchra	silvery legless lizard	CSC	Moderate	Sandy or loose loamy soils with adequate soil moisture	1-8
Gambelia sila	blunt-nosed leopard lizard	FE, SE, SFP	Present (Observed in Valley Floor Conservation Lands 2013)	Arid grasslands, alkali flats, low elevation foothills, large washes; burrows of other species typically used for cover and sparse vegetation preferred	1-7
Masticophis flagellum ruddocki	San Joaquin coachwhip	CSC	High	Desert, prairie, scrublands, juniper-grassland, and other habitats in dry, open terrain	1-13
Phrynosoma blainvillii	coast horned lizard	CSC	High	Open areas with sandy soil and low vegetation, lowlands along sandy washes with scattered shrubs	1-7
Rana draytonii	California red-legged frog	FT	Not Likely To Occur	Standing deep ponds, pools, and streams; tall vegetation	NA

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Thamnophis hammondii	two-striped garter snake	CSC	Not Likely To Occur	In or near permanent fresh water, along streams with rocky beds bordered by riparian vegetation	NA
Amphibians					
Ambystoma californiense	California tiger salamander	FT, STC	High	Burrows of small mammals within grassland or oak savannah with wetland breeding ponds up to one mile away	1-6
Spea hammondii	western spadefoot toad	CSC	Moderate	Open areas with sandy or gravelly soils within woodlands, grasslands, sandy washes, lowlands, and other habitats.	1-8
Birds					
Agelaius tricolor	tricolored blackbird	CSC	High	Nest in marshy areas and settle in areas with access to open water; forage in valley and foothill grassland and agricultural fields	4-7
Ammodramus savannarum	grasshopper sparrow	CSC	High	Open grasslands and prairies with patches of bare ground.	1-7
Aquila chrysaetos	golden eagle	SFP	Present	Partially or completely open country around mountains or hills within habitats ranging from desert to arctic	1-7
Asio flammeus	short-eared owl	CSC	Low (nesting)	Open country including tundra, prairie, grassland, sand dunes and other habitats; sufficient vegetation required for nesting	1-7
Asio otus	long-eared owl	CSC	Moderate	Combination of grassland for foraging and dense tall shrubs for nesting and roosting.	1-7, 9-13
Athene cunicularia	Burrowing owl	CSC	Present	Open grasslands with sparse vegetation and few shrubs, gentle topography and well-drained soils	1-8

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Buteo swainsonii	Swainson's hawk	ST	Present	Grasslands, sage flats, or swaths for nesting; nest within trees, often the only tree in the area	6-13
Charadrius montanus	mountain plover	CSC, FTC	Present (winter only)	Breeds onen plains at moderate elevations; winters in short-grass plains and fields, plowed fields, and sandy deserts.	1-10
Circus cyaneus	northern harrier	CSC	Present	Breeds in wide open habitats from tundra to prairie grasslands; nests on ground in grasses or wetland vegetation	1-7
Elanus leucurus	white-tailed kite	SFP	Moderate	Commonly found in savanna, woodlands, marshes, desert grassland, partially cleared lands and cultivated fields; avoids areas with excessive winter freeze	1-13
Gymnogyps californianus	California condor	FE, SE	Not Likely to Occur	Nest in caves on cliff faces in mountains; scavenge in habitats ranging from Pacific beaches to mountain forests and meadows	NA
Haliaeetus leucocephalus	bald eagle	SE, FP	Not Likely To Occur	Nest in areas adjacent to large bodies of water; in winter can be seen in dry, open uplands near open water	NA
Lanius ludovicianus	Loggerhead shrike	CSC	Present	Open country with scattered shrubs and trees	1-9
Pooecetes gramineus affinis	Oregon vesper sparrow	CSC	High (winter only)	Breeds in Oregon; most often found in hilly margins of Willamette Valley; dry, upland prairies and pastures; winters over much of California	1-6
Xanthocephalus xanthocephalus	yellow-headed Blackbird	CSC	Low	Breed and roost in freshwater wetlands with dense, emergent vegetation; forage in fields	4-7
Mammals					

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Ammospermophilus nelsoni	San Joaquin antelope squirrel	ST	Present	Dry flat or rolling terrain on alluvial and loamy soils; grassy, sparsely shrubby ground	1-7
Antrozous pallidus	pallid bat	CSC	High (foraging)	Desert habitats with rocky outcrops for roosting	1-13
Corynorhinus townsendii	Townsend's big-eared bat	CSC	Low (foraging)	Pine forests and arid desert scrub habitats with caves nearby for roosting; may roost in abandoned buildings	1-13
Dipodomys ingens	giant kangaroo rat	FE, SE	Present	Arid gentle slopes and plains with variable vegetative cover and well-drained soils	1-6
Dipodomys nitratoides brevinasus	short-nosed kangaroo rat	CSC	High	Grasslands with scattered shrubs and desert shrub associations on loose soils	1-6
Dipodomys elephantinus	big-eared kangroo rat	CSC	Not Likely to Occur	Chaparral areas; most often under dense vegetation	5
Eumops perotis	western mastiff bat	CSC	Moderate (foraging)	Broad, open areas within dry desert washes, floodplains, grasslands, agricultural areas, and other habitats. Crevices in cliff faces, high buildings, trees or tunnels required for roosting	1-13
Onychomys torridus tularensis	Tulare grasshopper mouse	CSC	High	Arid shrubland communities in hot, arid grassland and shrubland associations.	1-7
Taxidea taxus	American badger	CSC	Present	Dry, open grasslands and brushlands with little groundcover.	1-10
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST	Present	Loose-textured soils within grasslands; habitat converted for urban uses are still utilized if remnants of native habitat are present.	1-10

FE = Federally Endangered. FT = Federally Threatened SE = State Endangered FTC = Federally Threatened Candidate

SFP = State Fully Protected CSC = California Species of Special Concern STC = State Threatened Candidate ST = State Threatened

Special-Status Plant Species with Potential to Occur

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Amsinckia vernicosa var *furcata*	forked fiddleneck	CNPS 4.2	High	Valley grassland and foothill woodlands	1-6
Androsace elongata ssp. *acuta*	California androsace	CNPS 4.2	Moderate	Slopes of chaparral, foothill woodlands, northern coastal scrub, and coastal sage scrub	4-6
Astragalus macrodon	Salinas milkvetch	CNPS 4.3	Low	Openings in chaparral, valley grasslands, and foothill woodlands; weak affinity to serpentine soil	1-6
Astragalus rattanii var. *jepsonianus*	Jepson's milkvetch	CNPS 1B.2	Low	Valley grasslands and foothill woodlands; strong affinity to serpentine soil	1-6
Atriplex cordulata	Heartscale	CNPS 1B.2	Low	Occurs in wetlands and non wetlands in shadscale scrub, valley grassland, and wetland-riparian communities; saline or alkaline soil	1-8
Atriplex coronata var. *coronata*	Crownscale	CNPS 4.2	Moderate	Vernal pools in shadscale scrub, valley grassland, freshwater wetlands, and wetland-riparian communities; usually occurs in wetlands	1-7
Atriplex depressa	Brittlescale	CNPS 1B.2	Low	Occurs in playas of shadscale scrub, valley grassland, alkali sink, and wetland-riparian communities; equally likely to occur in wetland and non wetlands; alkali soil	1-8
Atriplex joaquiniana	San Joaquin spearscale	CNPS 1B.2	Moderate	Meadows of shadscale scrub and valley grassland communities	1-6
Atriplex minuscula	Lesser saltscale	CNPS 1B.1	Low	Occurs in playas of shadscale scrub, valley grassland, and alkali sink communities; usually occurs in non wetlands	1-6
Atriplex subtilis	Subtle orache	CNPS 1B.2	Low	Valley and foothill grassland; often in vicinity of vernal pools; alkaline soils	1-6
Atriplex coronata var. *vallicola*	Lost Hills crownscale	CNPS 1B.2	High	Vernal pools in shadscale scrub, valley grassland, freshwater wetlands, and wetland-riparian communities; usually occurs in wetlands on alkaline substrates	1-6

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Blepharizonia plumosa	Big tarplant	CNPS 1B.1	Low	Often on slopes of valley grassland, foothill woodland, and chaparral; clay to clay-loam soils	1-6
California macrophylla	round-leaved filaree	CNPS 1B.1	High	Valley and foothill grassland, cismontane woodland; friable clay soils	1-6
Calyptridium parryi var. *hesseae*	Santa Cruz Mountains pussypays	CNPS 1B.1	Low	Sandy or gravelly openings of chaparral and foothill woodlands	1-6
Camissonia benetensis	San Benito evening-primrose	FT, CNPS 1B.1	Low	Serpentine-derived alluvial deposits in the vicinity of the Clear Creek Management Area in San Benito County	NA
Campanula exigua	chaparral harebell	CNPS 1B.2	Low	Talus slopes, occasionally other open places within chaparral communities; serpentine substrates	NA
Caulanthus californicus	California jewel-flower	FE, SE, CNPS 1B.1	Not Likely to Occur	Valley and foothill grassland, pinyon and juniper woodland, and chenopod scrub communities; subalkaline, sandy loam soils	1-6
Caulanthus coulteri var. *lemmonii*	Lemmon's jewel-flower	CNPS 1B.2	Moderate	Valley and foothill grassland, and pinyon and juniper woodland communities	1-6
Chorizanthe ventricosa	Potbellied spineflower	CNPS 4.3	Low	Mixed grassland communities, oak-pine woodlands; serpentine outcrops	1-6
Cordylanthus mollis ssp. *hispidus*	Hispid bird's-beak	CNPS 1B.1	Low	Meadows and playas of alkali sink, valley grassland, and wetland-riparian communities; generally occurs in wetlands; alkaline soils	1-6
Deinandra halliana	Hall's tarplant	CNPS 1B.1	High	Grassland, edges of alkali sinks, open muddy slopes; clayey soils	1-6
Delphinium californicum ssp. *interius*	California larkspur	CNPS 1B.2	Low	Foothill woodlands; usually occurs in non wetlands	1-6
Delphinium gypsophilum ssp. *gypsophilum*	gypsum-loving larkspur	CNPS 4.2	High	Slopes in valley grassland, alkali sink, foothill woodland communities	1-6
Delphinium recurvatum	recurved larkspur	CNPS 1B.2	Low	Annual grasslands or in association with saltbush scrub or valley sink scrub habitats; sandy or clay alkaline soils	1-6
Eriogonum gossypinum	cottony buckwheat	CNPS 4.2	Low	Shadscale scrub and valley grassland commmunities; clay soils	1-6

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Eriogonum temblorense	Temblor buckwheat	CNPS 1B.2	Moderate	Valley and foothills grassland, sandstone outcrops	1-6
Eriogonum vestitum	Idria buckwheat	CNPS 4.3	High	Saltbush scrub communities, steep shale slopes, occasionally on sandstone	1-8
Fritillaria falcata	talus fritillary	CNPS 1B.2	Low	Talus slopes in chaparral communities; endemic to serpentine soils	NA
Fritillaria viridea	San Benito fritillary	CNPS 1B.2	Low	Chaparral communities; endemic to serpentine soils	NA
Lagophylla diabolensis	Diablo Range hare-leaf	CNPS 1B.2	Moderate	Valley grasslands and foothill woodland communities	1-6
Layia discoidea	rayless layia	CNPS 1B.1	Low	Talus slopes and alluvial terraces within chaparral communities; serpentine soils	NA
Layia heterotricha	pale-yellow layia	CNPS 1B.1	High	Cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland communities; alkaline and clay soils	1-6
Layia munzii	Munz's tidytips	CNPS 1B.2	High	Shadscale scrub, valley grassland, and wetland-riparian communities; usually occurs in wetlands; alkaline or clay soils	1-8
Lepidium jaredii ssp. *Album*	Panoche pepper-grass	CNPS 1B.2	Moderate	Washes and alluvial fans of valley grassland communities	1-8
Leptosiphon ambiguus	Serpentine Linanthus	CNPS 4.2	High	Valley grassland, foothill woodland, and northern coast scrub communities; serpentine soils	1-6
Madia radiata	showy golden madia	CNPS 1B.1	High	Slopes of valley and foothill grasslands and foothill woodland communities; friable clay and calcium-rich soils	1-8
Malacothamnus aboriginum	Indian Valley bush malllow	CNPS 1B.2	Low	Open, rocky slopes and dry hills of chaparral and cismontane woodland communities	5-6
Monolopia congdonii	San Joaquin woollythreads	FE, CNPS 1B.2	High	Nonnative grassland, valley saltbush scrub, saltbush scrub, interior coast range saltbush scrub communities; neutral to subalkaline sandy or sandy-loam soils in San Joaquin Vallley.	1-6
Navarretia nigelliformis	adobe navarretia	CNPS 4.2	Moderate	Valley and foothill grasslands and wetland-riparian communities, generally found in wetlands; clay, sometimes serpentine soil	1-8

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Navarretia prostrata	prostrate vernal pool navarretia	CNPS 1B.1	Low	Vernal pools and alkaline floodplains of coastal sage scrub and wetland-riparian communities, occasionally in alkaline vallley and foothill grassland communities; usuallly occur in wetlands	1-8
Phacelia phacelioides	Mt. Diablo phacelia	CNPS 1B.2	Low	Chaparral and foothill woodland communities; strong affinity for serpentine soils	1-6
Senecio aphanactis	Chaparral ragwort	CNPS 2.B2	Low	Foothill woodlands, northern coastal scrub, and coastal sage scrub communities; often in serpentine soils	1-6

FE = Federally Endangered.

SE = State Endangered.

CNPS = California Native Plant Society.

1B = Plants that are rare, threatened, or endangered in California and elsewhere.

4 = A watch list of plants of limited distribution.

0.1: Seriously endangered in California.

0.2: Fairly endangered in California.

0.3: Not very endangered in California.

Appendix B

Photographic Log

Photographic Log

Photo 1: Study Area 1 from the southern study area boundary looking northwest.

Photo 2: Study Area 2 looking west from southeast study area boundary.

Photo 3: View of Study Area 2 facing northwest.

Photo 4: View of Study Area 3 facing northeast.

Photo 5: Small drainage along eastern boundary of Study Area 3.

Photo 6: View of southern portion of Study Area 3 facing west.

Photo 7: View of Study Area 4 facing north.

Photo 8: Study Area 4 facing east/northeast from southern portion of study area.

Photo 9: Study Area 4 facing west from access road.

Photo 10: View of Study Area 4 facing west.

Photo 11: View of Study Area 5 facing west from eastern portion of study area.

Photo 12: Study Area 5 facing west/northwest.

Photo 13: View of Study Area 5 facing east.

Photo 14: Study Area 6 facing southeast.

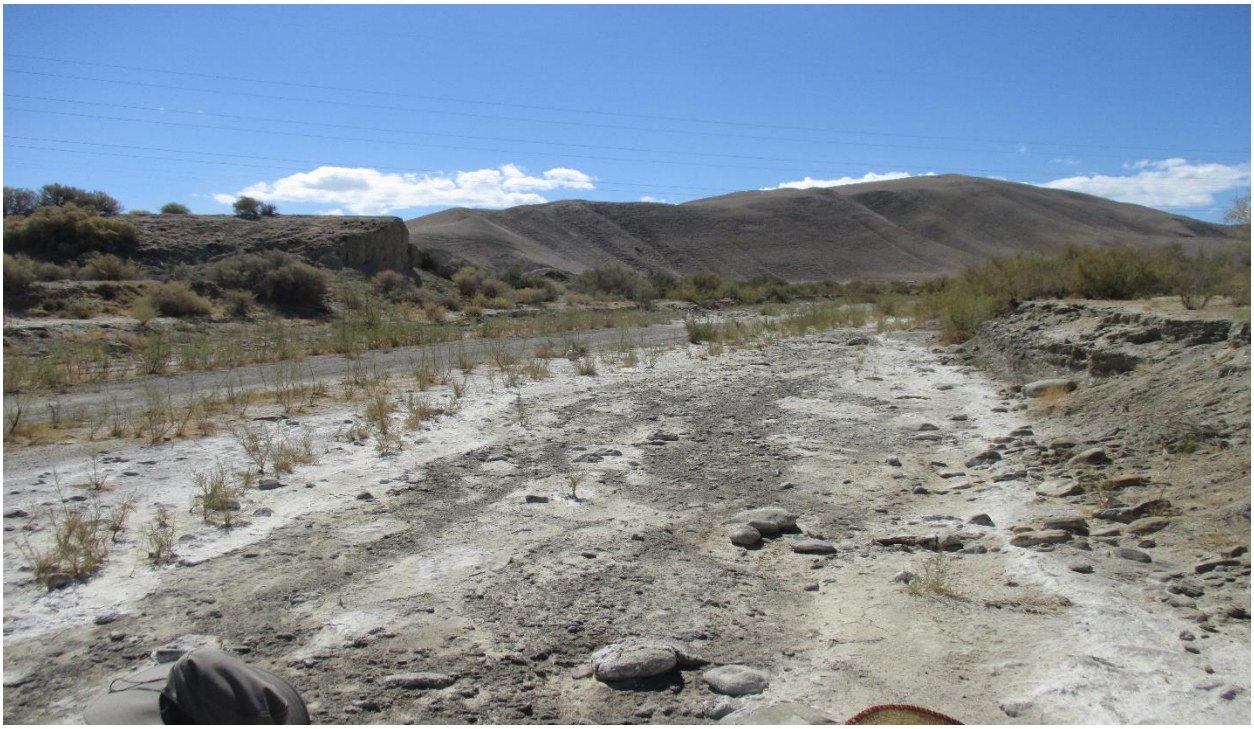

Photo 15: Northwestern portion of Study Area 6 within Panoche Creek bed.

Photo 16: View facing east from wetland soil data point within Panoche Creek in Study Area 6.

Photo 17: View facing south from upland soil data point in Study Area 6.

Photo 18: View of central portion of Study Area 6 facing east.

Photo 19: View of Study Area 6 facing north.

Photo 20: View of well-maintained crop rows within Study Area 7.

Photo 21: View of Study Area 7 taken from Study Area 6 facing east.

Photo 22: Southern portion of Study Area 8 taken from central cleared portion of study area.

Photo 23: View of Panoche Creek located in northern portion of Study Area 8.

Photo 24: View of well-maintained almond orchards of Study Area 9.

Photo 25: View of Study Area 9 facing east.

Photo 26: View of southeast quarter of Study Area 10 facing north.

Photo 27: View of southwest quarter of Study Area 10 facing south.

Photo 28: View of southeast quarter of Study Area 10, facing south.

Photo 29: View of northeast quarter of Study Area 10 facing north.

Photo 30: View of northwest quarter of Study Area 10 facing north.

Photo 31: Northern portion of Study Area 11 facing west showing recreational area and orchards.

Photo 32: View of vineyards within southern portion of Study Area 11.

Photo 33: View of Study Area 12 facing east/southeast.

Photo 34: View of northern portion of Study Area 12 within almond orchards.

Photo 35: View of Study Area 12 facing west along West Panoche Road.

Photo 36: View of Study Area 13 facing west towards Panoche Substation.

Photo 37: Cleared area within central portion of Study Area 13.

Appendix C

Vegetation List by Work Area

Vegetation by Study Area

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 1	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Brassicaceae	*Caulanthus*	*californicua*	California jewel flower
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Hordeum*	*murinum*	barley
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Solanum*	*xanti*	nightshade
	Zygophyllaceae	*Tribulus*	*terrestris*	puncture vine
Study Area 2	Asteraceae	*Holocarpha*	*virgata* ssp. *virgata*	tarplant
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Chenopodiaceae	*Atriplex*	*rosea*	tumbling orach
	Chenopodiaceae	*Atriplex*	*polycarpa*	allscale saltbush
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Lamiaceae	*Trichostema*	*lanceolatum*	vinegar weed
	Poaceae	*Avena*	*fatua*	wild oat
	Poaceae	*Bromus*	*madritensis*	red brome
	Poaceae	*Bromus*	*hordeaceus*	soft chess
	Poaceae	*Distichlis*	*spicata*	salt grass
	Poaceae	*Hordeum*	*murinum*	barley
Study Area 3	Asteraceae	*Holocarpha*	*virgata* ssp. *virgata*	tarplant
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Chenopodiaceae	*Atriplex*	*rosea*	tumbling orach
	Chenopodiaceae	*Atriplex*	*polycarpa*	allscale saltbush
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 3	Lamiaceae	*Trichostema*	*lanceolatum*	vinegar weed
	Polygonaceae	*Eriogonum*	*angulosum*	angle-stem wild buckwheat
	Poaceae	*Avena*	*fatua*	wild oat
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Bromus*	*hordeaceus*	soft chess
	Poaceae	*Distichlis*	*spicata*	salt grass
	Poaceae	*Hordeum*	*murinum*	barley
Study Area 4	Asteraceae	*Ericameria*	*linearifolia*	interior goldenbush
	Asteraceae	*Deinandra*	sp.	Potential rarity*
	Asteraceae	*Gutierrezia*	*californica*	California matchweed
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Boraginaceae	*Phacelia*	*tanacetifolia*	tansy phacelia
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Ephedraceae	*Ephedra*	*californica*	California ephedra
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Lamiaceae	*Salvia*	*columbariae*	chia
	Lamiaceae	*Trichostema*	*lanceolatum*	vinegar weed
	Polemoniaceae	*Navarretia*	sp.	Potential rarity*
	Polygonaceae	*Eriogonum*	*fasciculatum*	California buckwheat
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Schismus*	*arabicus*	Mediterranean grass
	Poaceae	*Poa*	*secunda* ssp. *secunda*	one-sided blue grass
Study Area 5	Asteraceae	*Centaurea*	*melitensis*	tocalote
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Chenopodiaceae	*Atriplex*	*rosea*	tumbling orach
	Chenopodiaceae	*Atriplex*	*polycarpa*	allscale saltbush
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Plantaginaceae	*Plantago*	*ovata*	plantain
	Polygonaceae	*Eriogonum*	*angulosum*	angle-stem buckwheat
	Polygonaceae	*Eriogonum*	*fasciculatum*	California buckwheat
	Poaceae	*Bromus*	*diandrus*	ripgut brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Schismus*	*arabicus*	Mediterranean grass
	Poaceae	*Poa*	*secunda* ssp. *secunda*	one-sided blue grass
Study Area 6	Asteraceae	*Gutierrezia*	*californica*	california matchweed
	Asteraceae	*Isocoma*	*acradenia* var. *bracteosa*	alkali goldenbush
	Asteraceae	*Stephanomeria*	*pauciflora*	wirelettuce
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Boraginaceae	*Heliotropium*	*curassavicum* var. *osculatum*	alkali heliotrope
	Chenopodiaceae	*Atriplex*	*rosea*	tumbling orach

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 6	Chenopodiaceae	*Atriplex*	*polycarpa*	allscale saltbush
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Plantaginaceae	*Plantago*	*ovata*	plantain
	Polygonaceae	*Eriogonum*	*angulosum*	angle-stem buckwheat
	Polygonaceae	*Eriogonum*	*fasciculatum*	California buckwheat
	Poaceae	*Bromus*	*diandrus*	ripgut brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Distichlis*	*spicata*	saltgrass
	Poaceae	*Hordeum*	*murinum*	barley
	Poaceae	*Polypogon*	*monspeliensis*	annual beard grass
	Poaceae	*Poa*	*secunda* ssp. *secunda*	one-sided blue grass
	Tamaricaceae	*Tamarix*	*ramosissima*	saltcedar
Study Area 7	Punicaceae	*Punica*	*granatum*	pomegranate
	Vitaceae	*Vitis*	*vinifera*	wine grape
Study Area 8	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Asteraceae	*Baccharis*	*salicifolia* ssp. *salicifolia*	mule fat
	Asteraceae	*Isocoma*	*acradenia* var. *bracteosa*	alkali goldenbush
	Asteraceae	*Sonchus*	*oleraceus*	common sow thistle
	Asteraceae	*Xanthium*	*strumarium*	cocklebur
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Boraginaceae	*Heliotropium*	*curassavicum* var. *osculatum*	alkali heliotrope
	Chenopodiaceae	*Atriplex*	*lentiformis*	big saltbush
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Poaceae	*Bromus*	*diandrus*	ripgut brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Nicotiana*	*glauca*	tree tobacco
	Tamaricaceae	*Tamarix*	*ramosissima*	saltcedar
Study Area 9	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Poaceae	*Poa*	*annua*	annual blue grass
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Sporobolus*	*airoides*	alkali sacaton
	Solanaceae	*Solanum*	*xanti*	nightshade

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 10	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Asteraceae	*Ambrosia*	*acanthicarpa*	annual bur-sage
	Asteraceae	*Helianthus*	*californicus*	California sunflower
	Asteraceae	*Isocoma*	*acradenia* var. *bracteosa*	alkali goldenbush
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Hirschfeldia*	*incana*	summer mustard
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Chenopodium*	*sp.*	
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Myrtaceae	*Eucalyptus*	*camaldulensis*	red gum
	Palmae			Introduced Palm
	Poaceae	*Avena*	*fatua*	wild oats
	Poaceae	*Bromus*	*diandrus*	ripgut brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Distichilis*	*spicata*	saltgrass
	Poaceae	*Hordeum*	*murinum*	barley
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Nicotiana*	*glauca*	tree tobacco
	Solanaceae	*Solanum*	*xanti*	nightshade
	Zygophyllaceae	*Tribulus*	*terrestris*	puncture vine
Study Area 11	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Cressa*	*truxilliensis*	alkali weed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Martyniaceae	*Proboscidea*	*lutea*	unicorn plant
	Poaceae	*Bromus*	*carinatus*	California brome
	Salicaceae	*Salix*	*gooddingii*	Goodding's black willow
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Tamaricaceae	*Tamarix*	*ramosissima*	saltcedar
Study Area 12	Asteraceae	*Erigeron*	*canadensis*	horseweed
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 12	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Poaceae	*Avena*	*fatua*	wild oat
	Poaceae	*Cynodon*	*dactylon*	Bermuda grass
	Poaceae	*Hordeum*	*murinum*	barley
	Salicaceae	*Populus*	*fremontii*	Fremont's cottonwood
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Solanum*	*xanti*	nightshade
	Zygophyllaceae	*Tribulus*	*terrestris*	puncture vine
Study Area 13	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Asteraceae	*Erigeron*	*canadensis*	horseweed
	Asteraceae	*Lactuca*	*serriola*	prickly lettuce
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Cactaceae	*Opuntia*	*ficus-indica*	Mission prickly pear
	Chenopodiaceae	*Atriplex*	*roseum*	tumbling orach
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Convolvulaceae	*Cressa*	*truxilliensis*	alkali weed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Lamiaceae	*Trichostema*	*lanceolatum*	vinegar weed
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Onagraceae	*Epilobium*	*sp.*	
	Poaceae	*Avena*	*fatua*	wild oat
	Poaceae	*Bromus*	*carinatus*	California brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Cynodon*	*dactylon*	Bermuda grass
	Poaceae	*Hordeum*	*murinum* ssp.	barley
	Salicaceae	*Populus*	*fremontii*	Fremont's cottonwood
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Solanum*	*xanti*	nightshade
	Zygophyllaceae	*Tribulus*	*terrestris*	puncture vine

* Could not be identified to species due to poor condition of specimens and season

Appendix D

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: PVS Study Area 6 City/County: NA/Fresno Sampling Date: 9/18/2014

Applicant/Owner: PV2 State: CA Sampling Point: Wetland 1

Investigator(s): Russell Kokx, Morgan Edel, Julianne Wooten Section, Township, Range: S16, T15S, R12E

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

Subregion (LRR): _____ Lat: 36.626284° Long: -120.661358° Datum: NAD83

Soil Map Unit Name: Cerini-Anela-Fluvaquents, saline-Sodic association NWI classification: _____

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 within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Panoche Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:1 m)			
1. *Distichlis spicata*	25	yes	FAC
2. *Polypogon monspeliensis*	20	no	FACW
3. *Tamarix ramosissima*	5	no	FAC
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	_____	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	20	x2 =	40
FAC species	30	x3 =	90
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	50 (A)		130 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ 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, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: PVS Study Area 6

SOIL Sampling Point: Wetland 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
4	2.5Y 5/4	100					loamy sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Point within Panoche Creek inundated only after storm event.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ 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 Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ 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)
- ☐ 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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: PVS Study Area 6 City/County: NA/Fresno Sampling Date: 9/18/2014

Applicant/Owner: PV2 State: CA Sampling Point: Upland 1

Investigator(s): Russell Kokx, Morgan Edel, Julianne Wooten Section, Township, Range: S16, T15S, R12E

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

Subregion (LRR): _____ Lat: 36.626357° Long: -120.661423° Datum: NAD83

Soil Map Unit Name: Cerini-Anela-Fluvaquents, saline-Sodic association NWI classification: _____

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 – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarix ramosissima*	30	yes	FAC
2.			
3.			
4.			
50% = _____, 20% = _____	30	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:1 m)			
1. *Bromus madritensis*	20	no	FACU
2. *Erodium cicutarium*	10	no	FACU
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	30	x3 =	90
FACU species	30	x4 =	120
UPL species	_____	x5 =	_____
Column Totals:	60 (A)		210 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ 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, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: PVS Study Area 6

SOIL

Sampling Point: Upland 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
8	10YR 4/4	100					sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ 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 Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ 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)
- ☐ 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: