Draft
Environmental Impact Statement

Panoche Valley Solar Facility
San Benito County, CA

September 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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Public Scoping

PUBLIC SCOPING NOTICES

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 07 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

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[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).

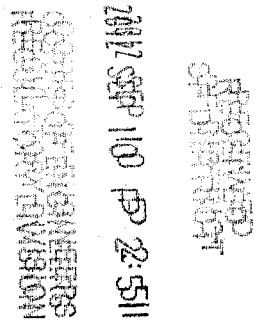
Implementation of Adaptive Management Techniques for Mitigation Measures

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
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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.

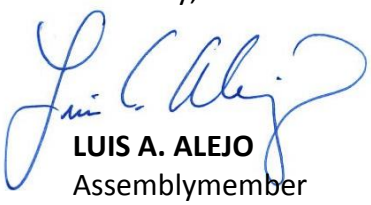
True to its conservative approach to developing renewable energy projects, Duke Energy is awaiting the signing of a long-term power purchase agreement (PPA) with a buyer for the electricity the

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:

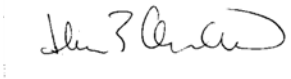
1) Impacts to biological resources including listed, rare, and special status species;
2) Impacts to water resources and water quality;
3) Consistency with the local land use plans;
4) Protection of air quality;
5) Impact on adjacent Bureau of Land Management Areas of Critical Environmental Concern and 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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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.

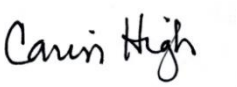
The comments submitted on behalf of the Sierra Club[4] in response to the Panoche Valley EIR succinctly state why it would be inappropriate to authorize the Panoche Valley solar farm:

> 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
www.defenders.org

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).

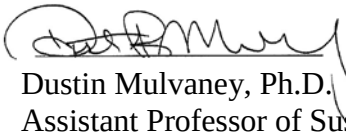
(3) **Decommissioning plan:** The project needs to implement a pre-funded decommissioning, takeback, and responsible recycling program for all PV modules installed, or ensure that the manufacturer has one in place before purchasing PV modules. There is no evidence that such a commitment has been made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

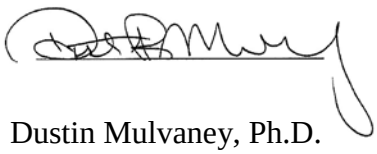
> Prior to construction and mounting of the PV panels, each panel will be checked for cracks or other defects to avoid the possible exposure of toxic metals on the surface. The panels will be properly cleaned, if necessary, to prevent any potential contaminated water from contacting the ground or native 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

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

August 2015

Prepared for:
Panoche Valley Solar, LLC
845 Oak Grove Ave, Suite 202
Menlo Park, CA 94025

Prepared by:
Energy Renewal Partners, LLC
305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746

Date: August 2015

TABLE OF CONTENTS

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 Project is located approximately two miles north of the intersection of Panoche Road and Little Panoche Road, in eastern San Benito County (**Appendix A,** Error! Reference source not found.). This location is approximately two miles southwest of the Fresno 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 Proposed Project Site, the Conservation Lands associated with the Proposed 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.).

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 applied to the County for a Conditional Use Permit for a 1,000 MW 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, PVS 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 to 399 MW 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, BNLL and SJKF dens. The results of these surveys were used to further refine the size and configuration of the Panoche Valley Solar Project. PVS incorporated additional GKR avoidance areas, BNLL avoidance buffers, and a SJKF travel/dispersal corridor. Due to available technology in solar panel efficiency the final Panoche Valley Solar Project design (the Proposed Project) will still have a total

output of approximately 247 MW, but will require only 2,506 acres of land. The Final Supplemental Environmental Impact Report (SEIR) was published by San Benito County in April 2015. A draft Environmental Impact Statement (EIS) is being prepared pursuant to the National Environmental Policy Act (NEPA). A public draft of the EIS is anticipated to be circulated early Fall 2015. Table 1: Various Project Designs illustrates the evolution of the various project designs for the Panoche Valley Solar Project.

Table 1: Various Project Designs

Date Proposed	October 2009		June 2010		September 2010		April 2015 (Current Proposed Project Site)
Proposed MW output	1,000 MW	2010 DEIR	420 MW	2010 FEIR	399 MW	2015 FSEIR	247 MW
Acres impacted	10,900 acres		4,885 acres		2,813 acres		2,506 acres
Acres of conserved land	4,316 acres		10,331 acres		23,292 acres		24,175 acres

2.3 Project Description

Installation of PV Panels and Roadways

The Proposed Project Site will utilize approximately 1,629 acres to install approximately 1 million PV panels that would each be sized 3 feet by 6 feet. The exact number of PV panels will depend on the technology ultimately selected for the Proposed Project. 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 Proposed 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 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), with 35 feet being the maximum distance required to prevent shading of adjacent rows. The Proposed Project will include a 20-foot wide 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 corridors may be native vegetative cover or maintained dirt access paths.

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 Proposed Project Site. Each array will contain up to 35 rows of modules driven by a single motor. There will be a motor drive line connecting the linked rows together, and the drive line needs to more or less be in a straight line. Some contour smoothing will be required to limit the height of the modules above grade (higher modules would require deeper non-uniform foundations).

The Proposed 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). Site 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 Proposed Project Site.

Grading will also 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 Proposed Project Site. Additional information on each of the four planned impacts to waters of the U.S. is provided in Section 4.0.

An additional transportation corridor, a maintained fenced-off dirt path, 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 replace the existing Vasquez County Road and 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 each power block. No direct impacts to jurisdictional waters of the U.S. are anticipated with the construction/installation of the electricity 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 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 Proposed Project measures to avoid, minimize, and mitigate impacts to avian species are outlined in the Proposed Project's Avian Conservation Strategy and Eagle Conservation Plan.

Electric Substation and Switching Station

An electrical substation will utilize transformers to convert power from 34.5 kV to 230 kV. The substation would be located north of the existing Pacific Gas and Electric (PG&E) transmission line and proposed switching station. 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 which will be owned and operated by PG&E. The switching station provides protective relays and breakers to manage interface with the 230 kV grid system. The substation and switching station equipment would cover approximately 9 acres of the proposed 12 acre 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 Proposed Project Site's delivery system to PG&E's existing 230 kV transmission line. No impacts to jurisdictional waters of the U.S. are anticipated with the construction of the electric substation and switching station.

Operation and Maintenance Building

The Operations and Maintenance (O&M) building will be located inside the Proposed 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 facility 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 Proposed Project Site and the existing Panoche substation located 17 miles to the east of the Proposed Project Site. This is a routine method of providing telecommunication services between electrical substations, generating facilities, and other utility substations. This method of providing telecommunication, as illustrated in PG&E's current San Joaquin Valley Operations & Management Habitat Conservation Plan (see Section E6, page 2-21 of PG&E's Conservation Plan), is considered maintenance to existing electrical infrastructure (Jones & Stokes, 2006). Error! Reference source not found. in **Appendix A** depicts the primary telecommunication routes described herein. 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 approximate 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 inch wide and up to 8 feet deep to avoid any conflict with agricultural land uses. From 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 preferred alternative for a secondary system would be installation of a microwave communication system to achieve required system protection. As illustrated in Error! Reference source not found. of **Appendix A**, research has shown that a microwave system could be established between the Proposed Project Site and PG&E's system. The microwave path will start at the Proposed 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 Proposed Project Site switching station and Helm Substation would be approximately 100 feet tall and would be located within the fence line of the two substation/switching stations. The towers would be a free-standing, four-legged lattice steel structure occupying an approximate 30-foot by 30-foot area.

In addition, existing roads at Call Mountain, Panoche Mountain, and Helm Substation will be utilized to access the proposed microwave tower sites, so no new roads would be constructed to bring equipment and materials to the work sites. PG&E will also comply with the Federal Communications Commission (FCC) approval process and Federal Aviation Administration (FAA) filings and approval, including installations of FAA-lights on the microwave tower, as required.

Communications to Moss Landing and Coburn

PG&E will have telecommunications between the Moss Landing, Coburn, and the Proposed 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 DTT (direct transfer trip) 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 Proposed 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 Proposed Project Site would be provided by AT&T utilizing existing AT&T services located 2,000 feet south of the Proposed Project Site along Little Panoche Road. AT&T's preferred method of installation would be to install new copper cables underground in the public road shoulder from the existing connection point to the Proposed Project Site. Installation would include the construction of a trench measuring two feet wide by three feet deep to allow direct burial of the cable in compliance with state and local standards. The cables would then connect to a Network Interface Unit (NIU) measuring approximately 36 inches tall by 12 inches wide and 12 inches deep. The NIU would be placed at the end of the cable trench line near the Proposed Project Site. It is anticipated that PG&E would install cables on the existing distribution line by attaching the cables to wooden cross-arms on each distribution pole using a bucket truck that would park next to the pole and allow the qualified installer to add required attachments. For attachment at each pole, an approximate 10-foot by 10-foot work area would be needed. Since existing facilities will be utilized to bring the AT&T services to the Proposed Project Site and recent biological surveys indicate the absence of any sensitive biological resources, no impacts to sensitive habitat and sensitive biological resources are anticipated to occur in association with this work on private easements and public ROW lands. No impacts to jurisdictional waters of the U.S. are anticipated with the construction/installation of the telephone and internet service.

Security Fencing

The fence around the Proposed Project Site will have an approximate 5 to 6 inch gap along the bottom of the chain linked fence that would allow wildlife to travel through the Site and have access to existing travel corridors (Cypher, B.L, C.L. Van Horn Job, 2009). Fences surrounding the O&M building would utilize the same fencing plan. A comprehensive environmental fencing plan will be developed and submitted to the County prior to fence construction. Gated eight foot high chain link fences, with possible animal exclusion modifications if needed, would be constructed around the substation per the PG&E standard. Temporary wildlife exclusion fencing would be placed around construction staging areas, as needed for wildlife protection.

3.0 Existing Site Conditions

Panoche Creek and Las Aguilas Creek (**Appendix A,** Error! Reference source not found.), are the two major Federal 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 found.**, 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! Reference 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 detected within the Proposed Project Site or have high potential to occur within the Proposed

[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 lieu of 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.

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	1,629	0.116 acres	~520 CY
Perimeter roads including stream crossings and pullouts	30	0.005 acres	~132 CY
Substation/switching station/O&M building	12.0	--	N/A
Grading disturbance areas[1]	106.53		N/A
Trenching and Foundations Adjacent to Arrays	12.41	--	N/A
230 kV Loop-in Tubular Steel Pools	0.006	--	N/A
Perimeter Fencing	0.06	--	N/A
Vazquez County Road	4		
Total impacted acreage	**1,794 acres**	**0.121 acres**	**652 CY**

[1] Includes graded areas that do not overlap with any other project feature. Additional grading impacts are included in total impact numbers for the solar array installation, perimeter roads, substation/switching station/O&M building, and Vazquez County Road.

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 #5 would not be impacted by the Proposed Project.

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.

<u>During Proposed Project Construction</u>

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
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

Project Name	Project Applicant	Location	Size	Status	Acreage	Acres /MW
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	Construction 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 in **Appendix A** as **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 (**Appendix A,** Error! Reference source not found.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 (**Appendix A, 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.

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, has begun planning for development of the Westlands Solar Park on the site and is considering developments of 200 MW or larger. Based on review of publically available information, it does not appear that permitting to complete the CEQA process has a near term completion date. The CEQA process is anticipated to take 12-24 months to complete once initiated and it is unlikely that a project could be operational by 2020 based on the lack of permitting 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, 2016 and qualify for the ITC. Not qualifying for the ITC would reduce the commercial feasibility of construction of the project.

Summary of Determination

Due to the practicability concerns of interconnecting and delivering 247 MW of renewable energy to SCE by 2019 and before the 2020 RPS deadline due to availability of interconnecting on the electric grid, as well as reducing costs of construction by qualifying for the federal ITC, 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.). There 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 found.). 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 3: Summary Off-Site Alternatives in Comparison to the Preferred Alternative provides a summary of the evaluation sequence for each of the off-site alternatives.

Table 3: Summary 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	Yes	**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

N/A: Evaluation criteria not evaluated due to the site being eliminated based on prior criteria

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.

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 in **Appendix A, 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 Crossing/Impact Area 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 Scenerio). 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 **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, even with the slight reduction in power output, On-site Alternative 4 would have the

[2] See Section 6.3.3 for further description of the free span bridge

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 more costly 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 4: Summary of On-Site Alternatives in Comparison to the Preferred Alternative.

Table 4: 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. (see Figures 18a and 18b).

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 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
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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

HOLLISTER FIRE DEPARTMENT

Fire Station 1 110 Fifth Street ● Hollister, CA 95023-3926
Headquarters (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, therefore 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

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)

12/10/14
Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

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)

☒ 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)

12/10/14
Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

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.

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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
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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
	°Select	- °Select	Select Flow: Select	lineal ft ft wide acre(s)	Select

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.
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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

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.
9755 SW Barnes Road, Ste 300
Portland, OR 97225
Job No. 035916

Project Engineer:
Daniel Boultinghouse, P.E.
503-372-3611

Design Engineers:
Structural – Paul Tappana, P.E.
Hydraulic – John Marks, P.E., Devin Doring, E.I.T.

Original: February 19, 2014

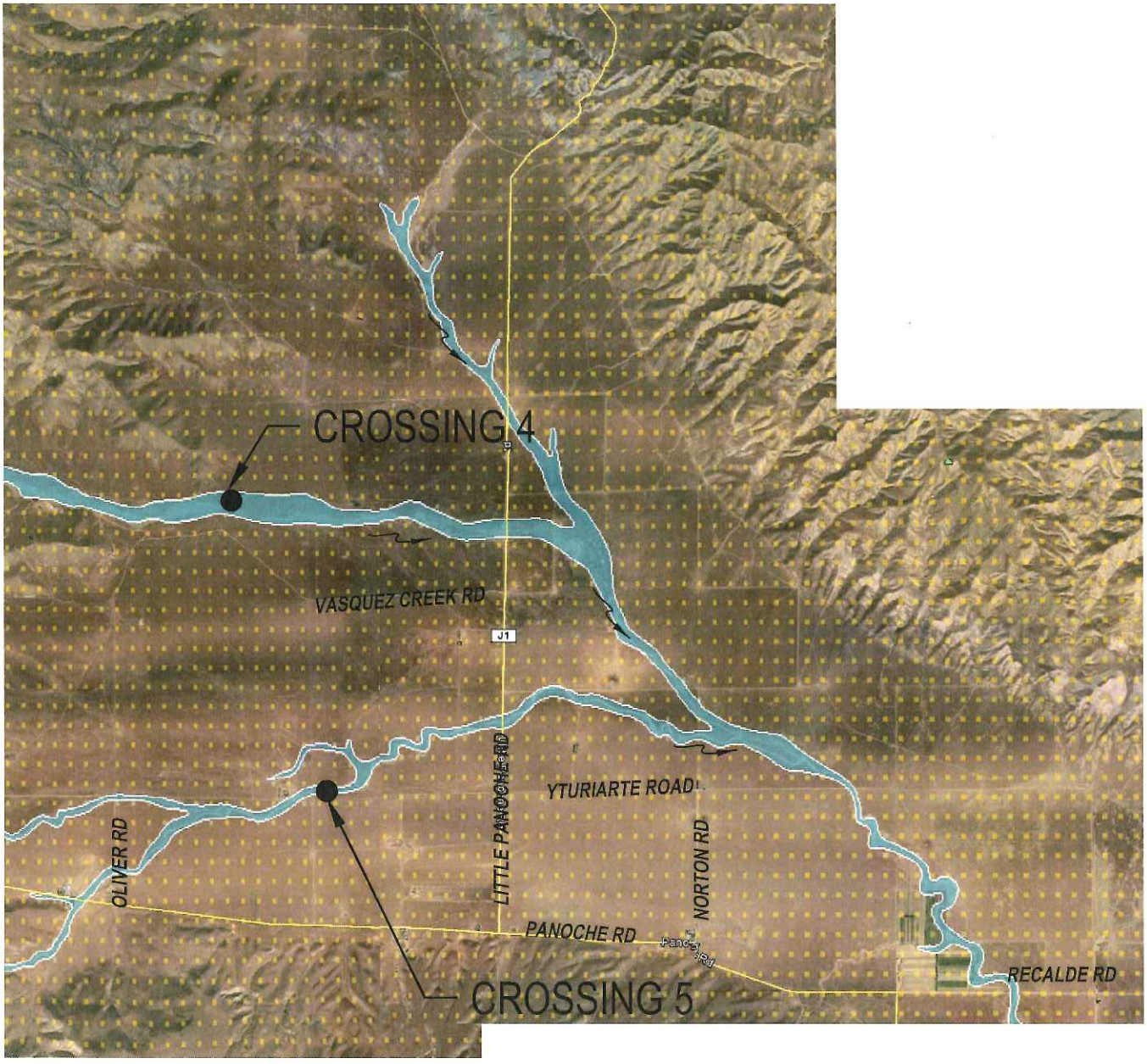
INTRODUCTION

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.

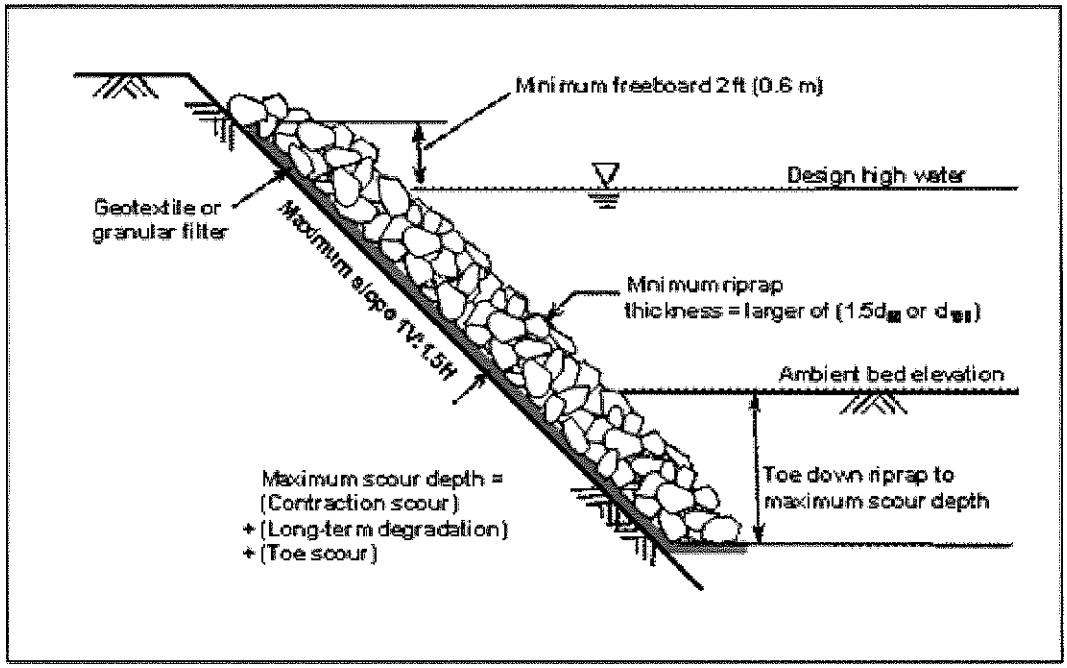


Figure 1. Riprap revetment with buried toe.

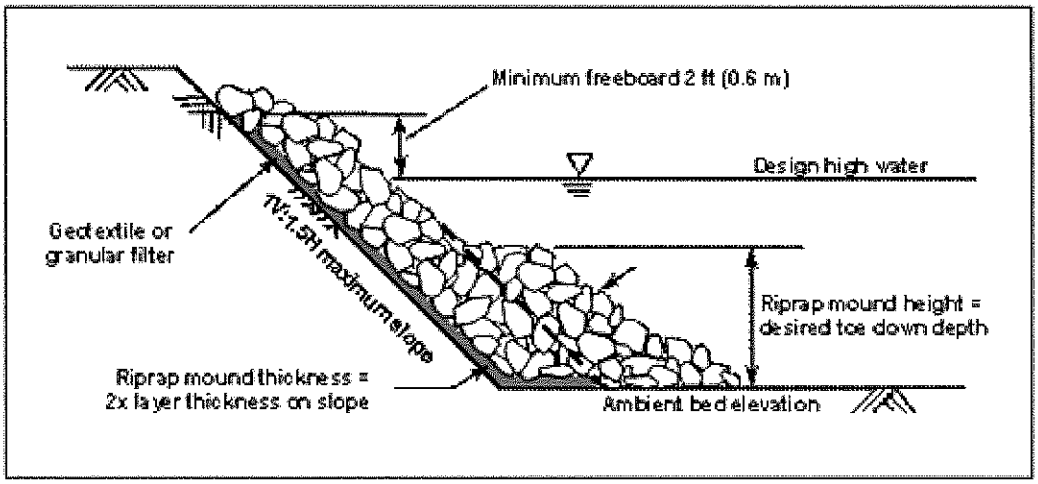


Figure 2. Riprap revetment with mounded toe.

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

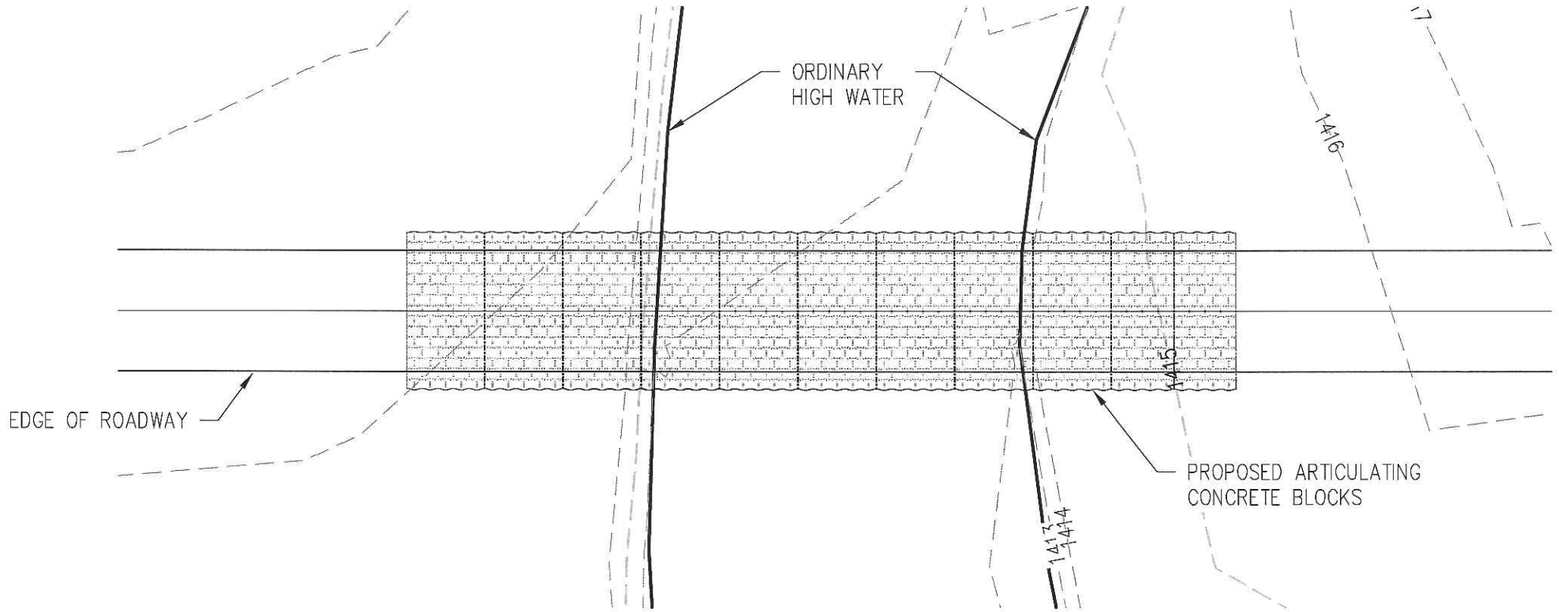
PROJECT			CLIENT	
Panoche Valley Solar Farm			ENERGY RENEWAL PARTNERS	
ALTERNATIVE		DATE	Prepared by:	
Crossing 5 - 2 Span 54' Bridge		2/13/2014	WHPACIFIC, INC	

	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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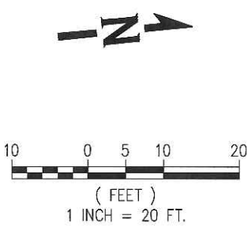

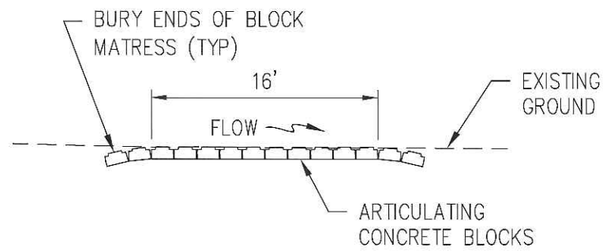

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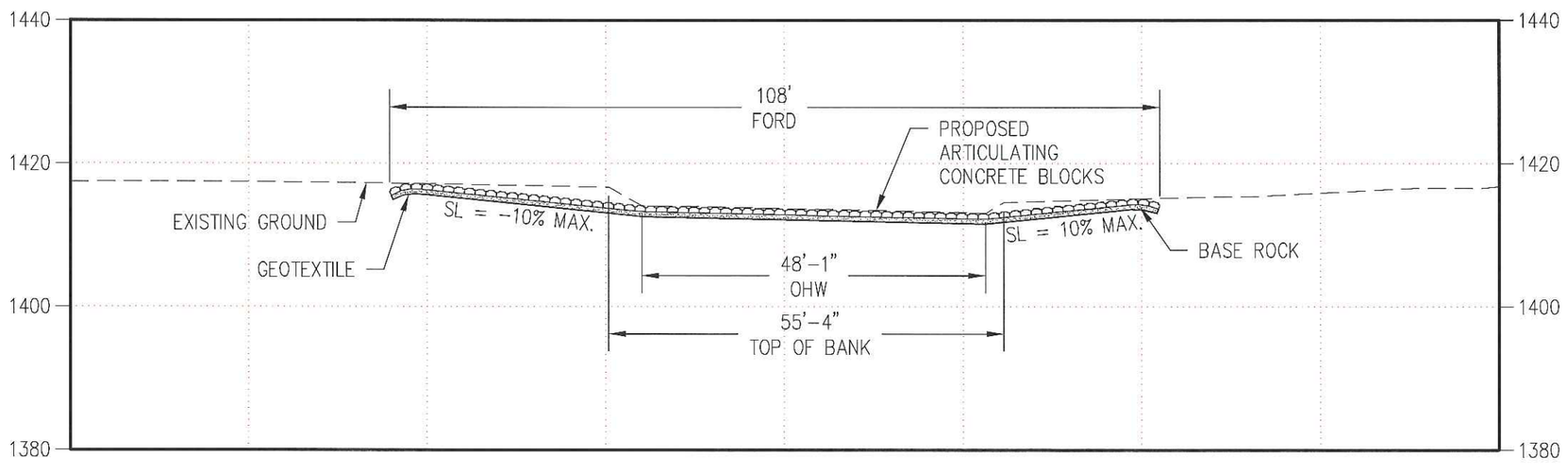
NOT TO SCALE



ELEVATION

CROSSING 4 - FORD

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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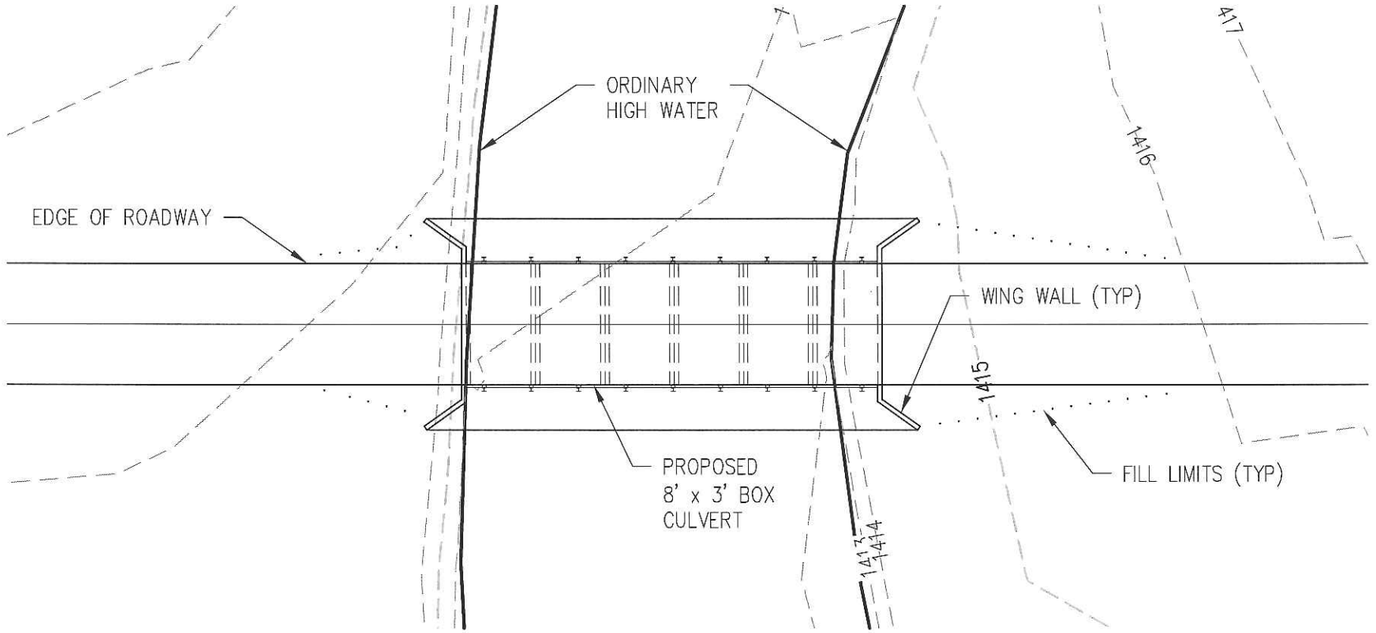

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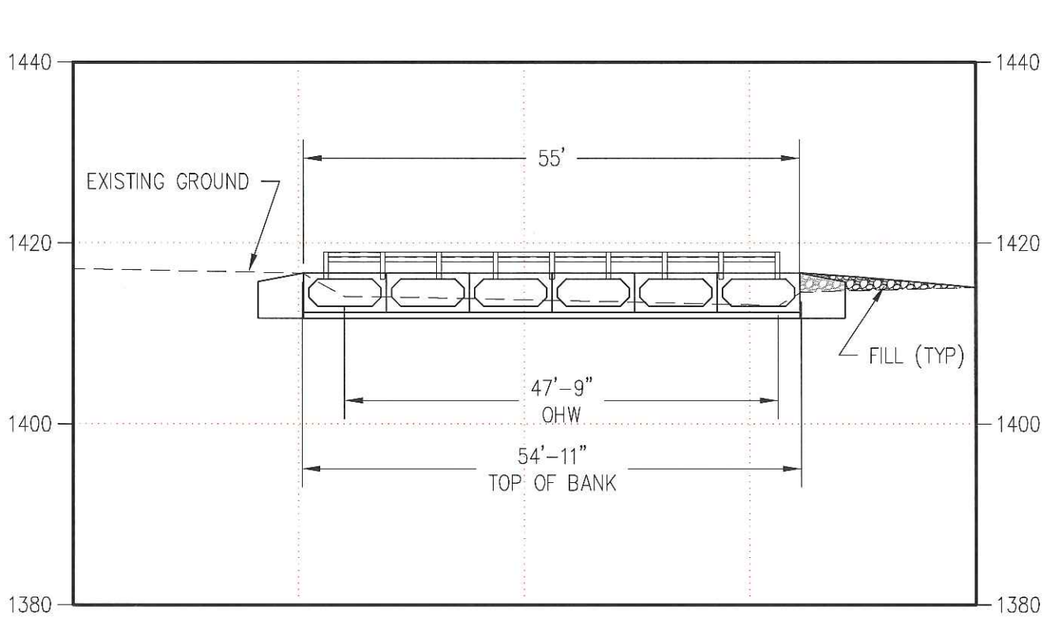

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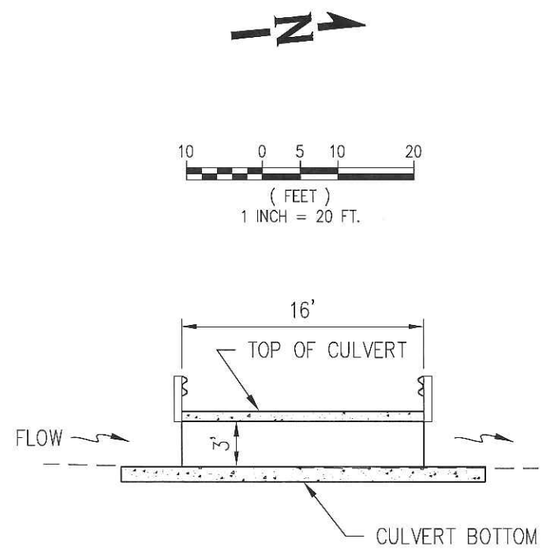

TYPICAL SECTION
NOT TO SCALE

CROSSING 4 - CULVERT

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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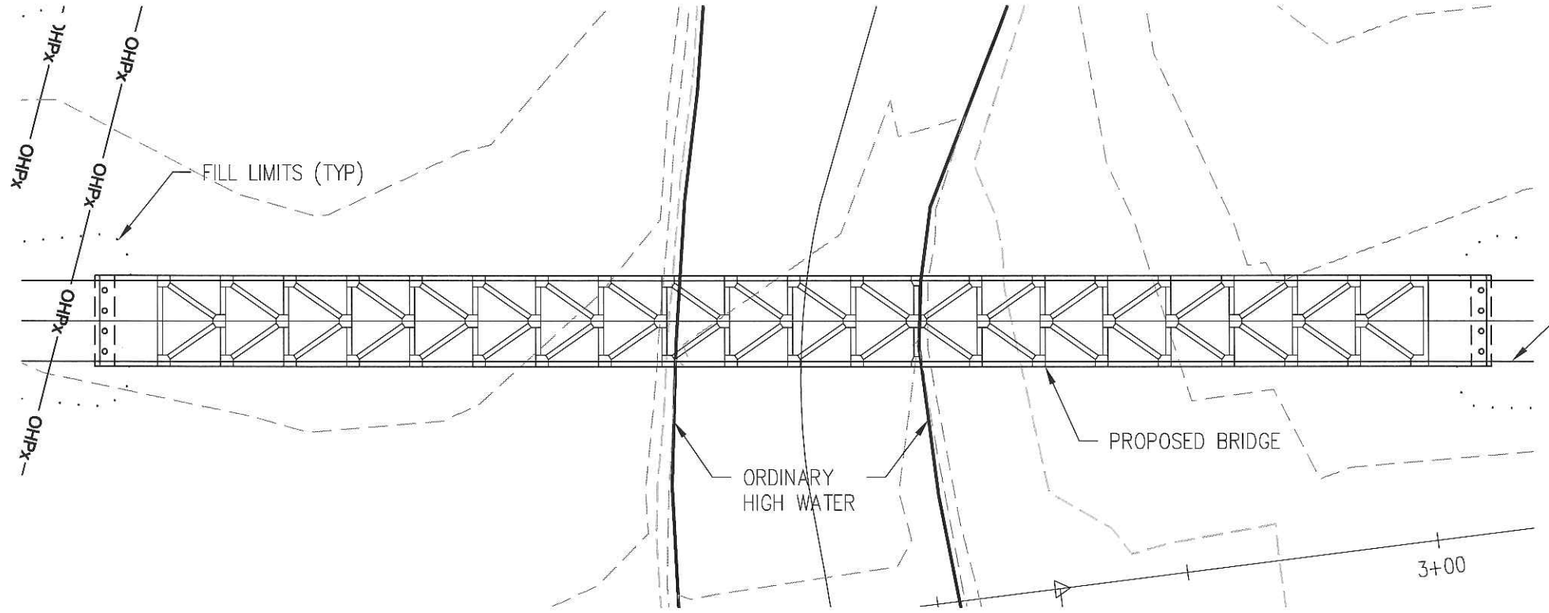

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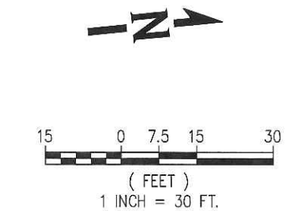

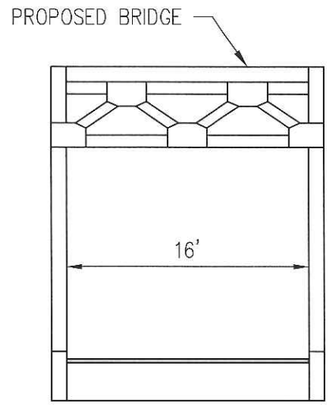

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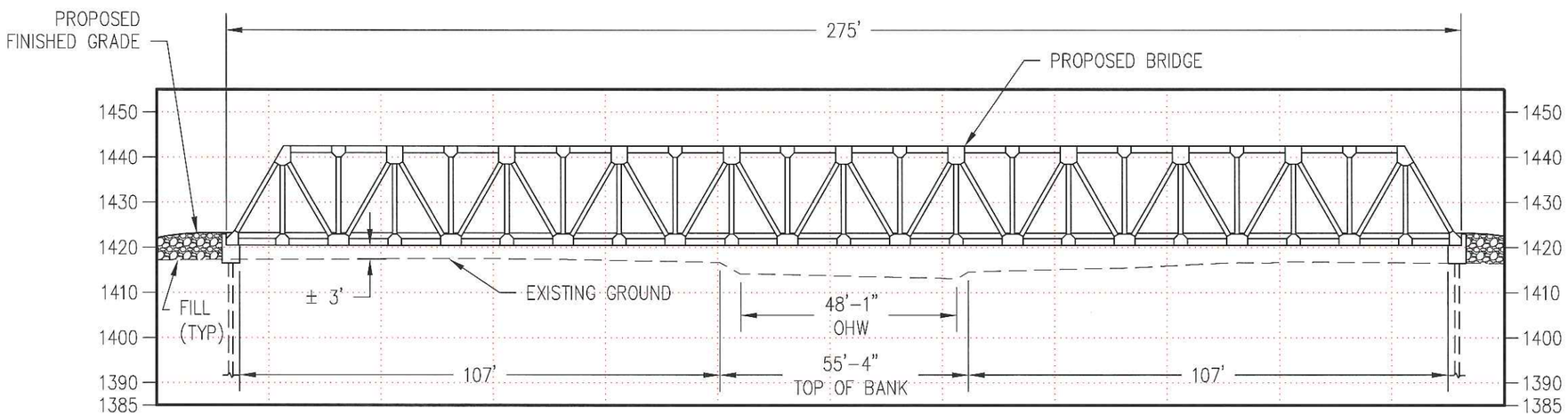

ELEVATION

CROSSING 4 - FREE SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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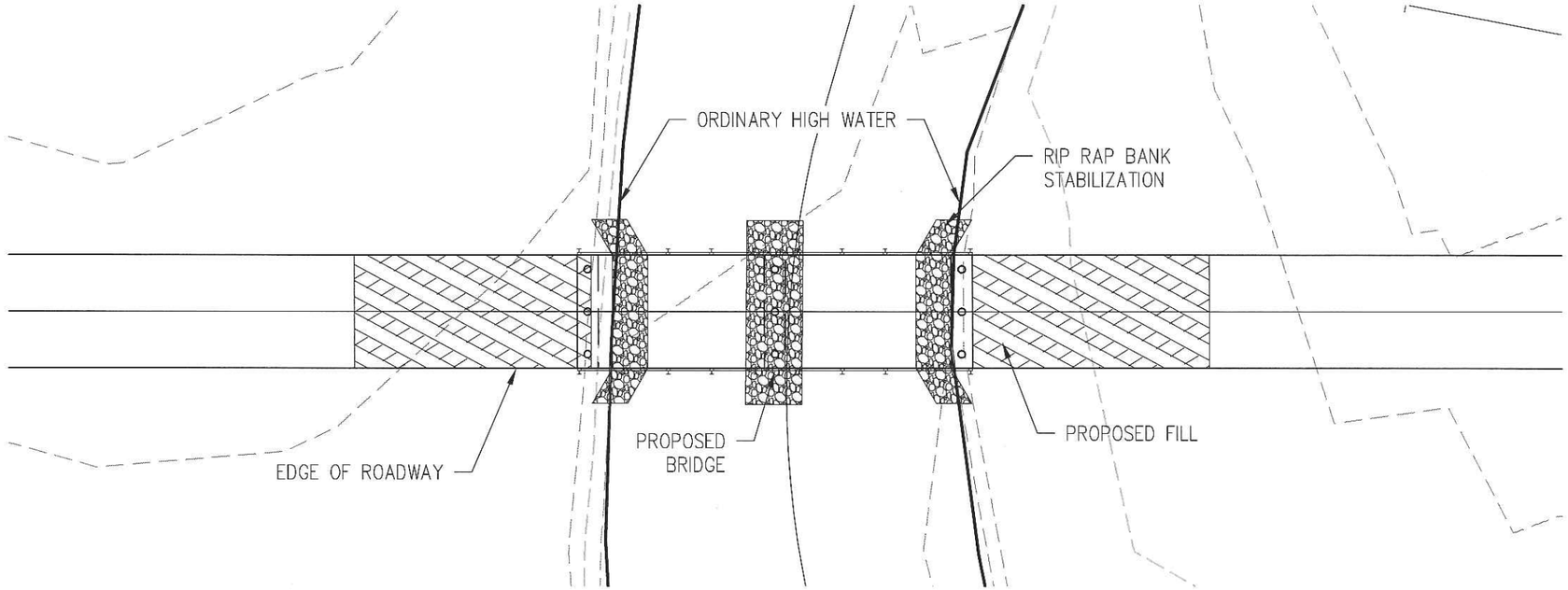

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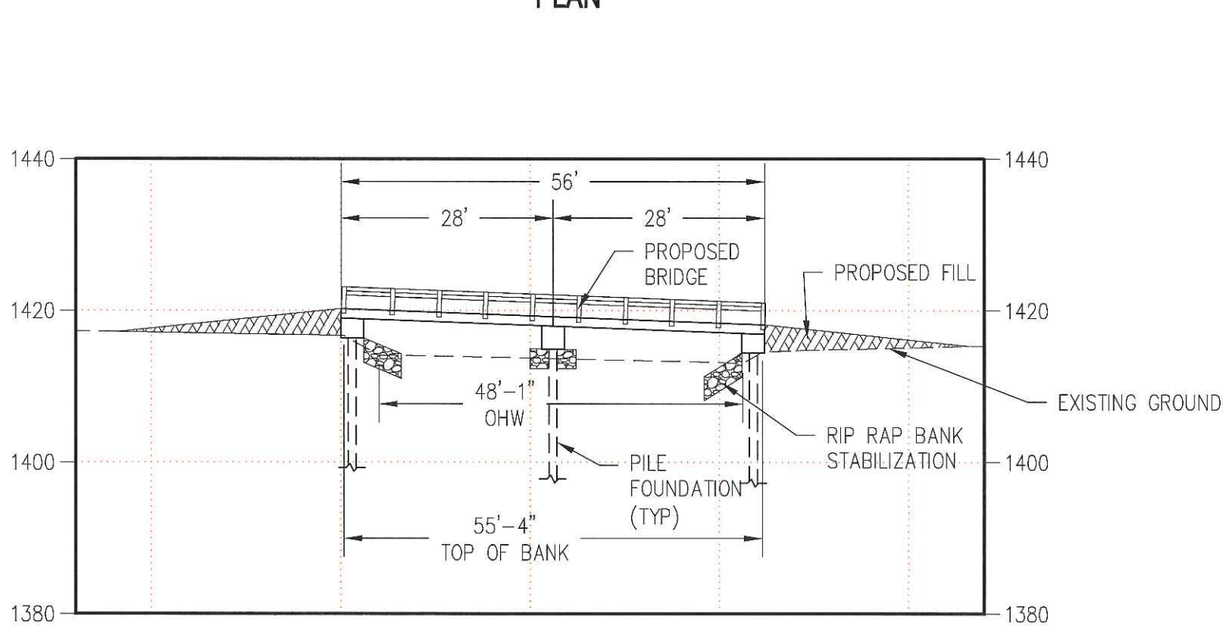

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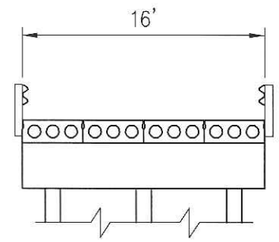

TYPICAL SECTION
NOT TO SCALE

CROSSING 4 - MULTI SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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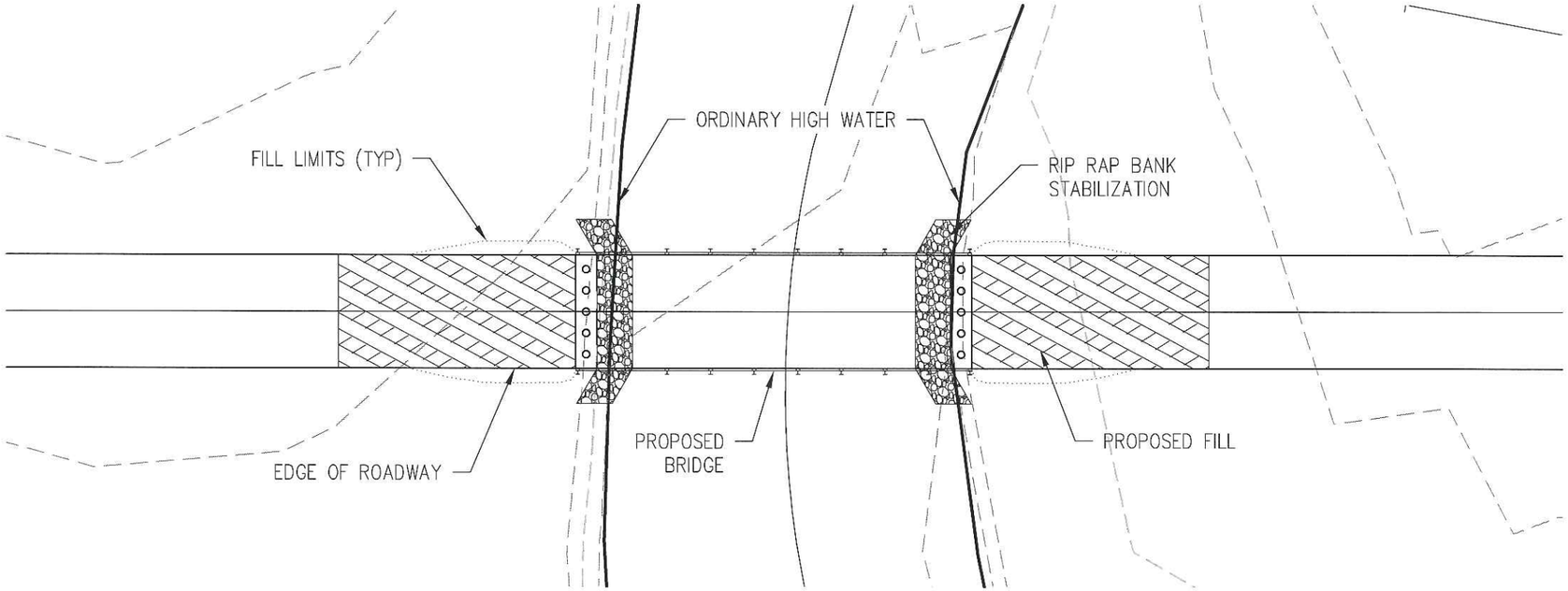

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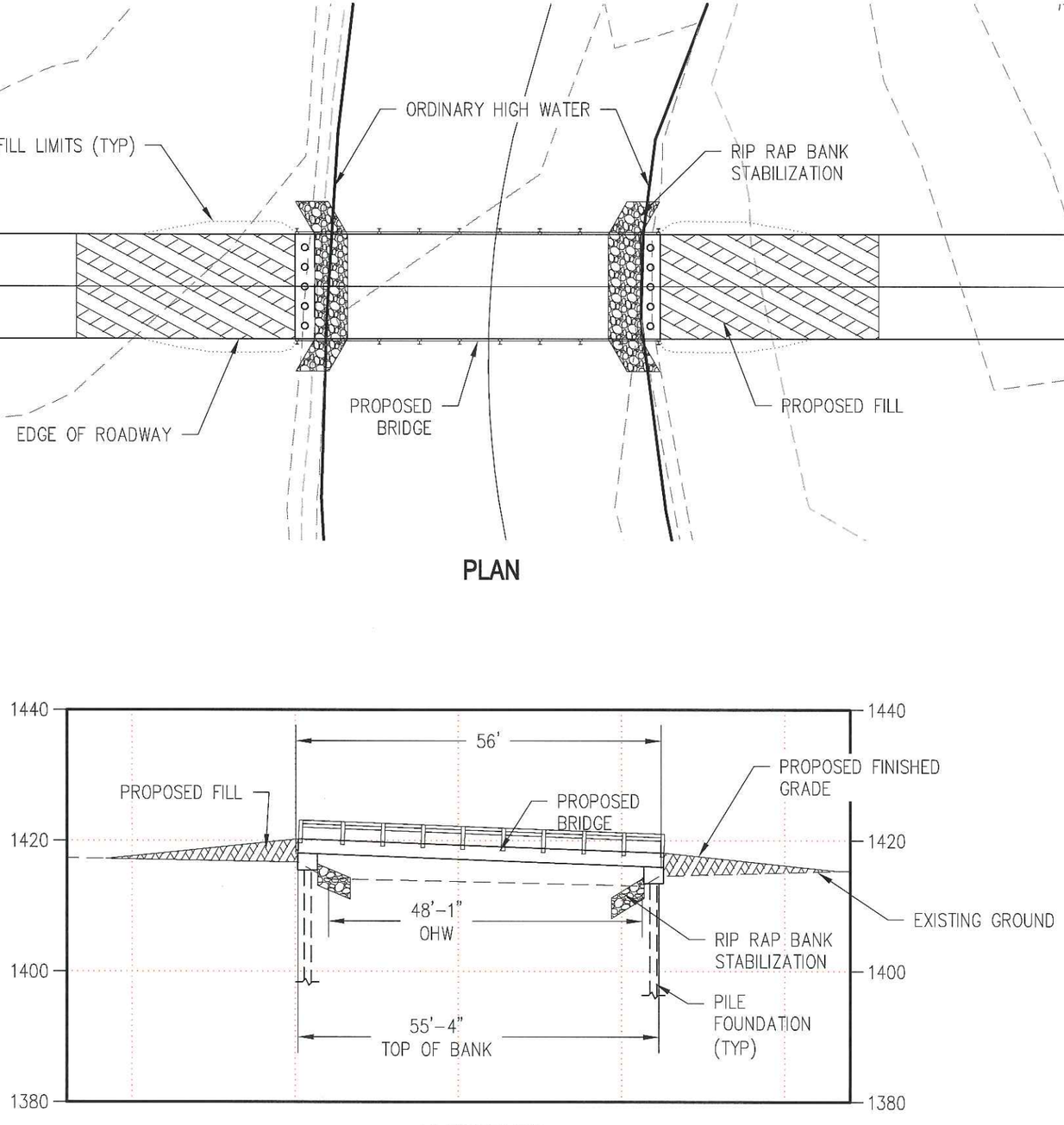

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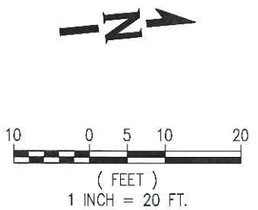

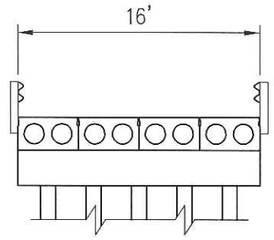

TYPICAL SECTION

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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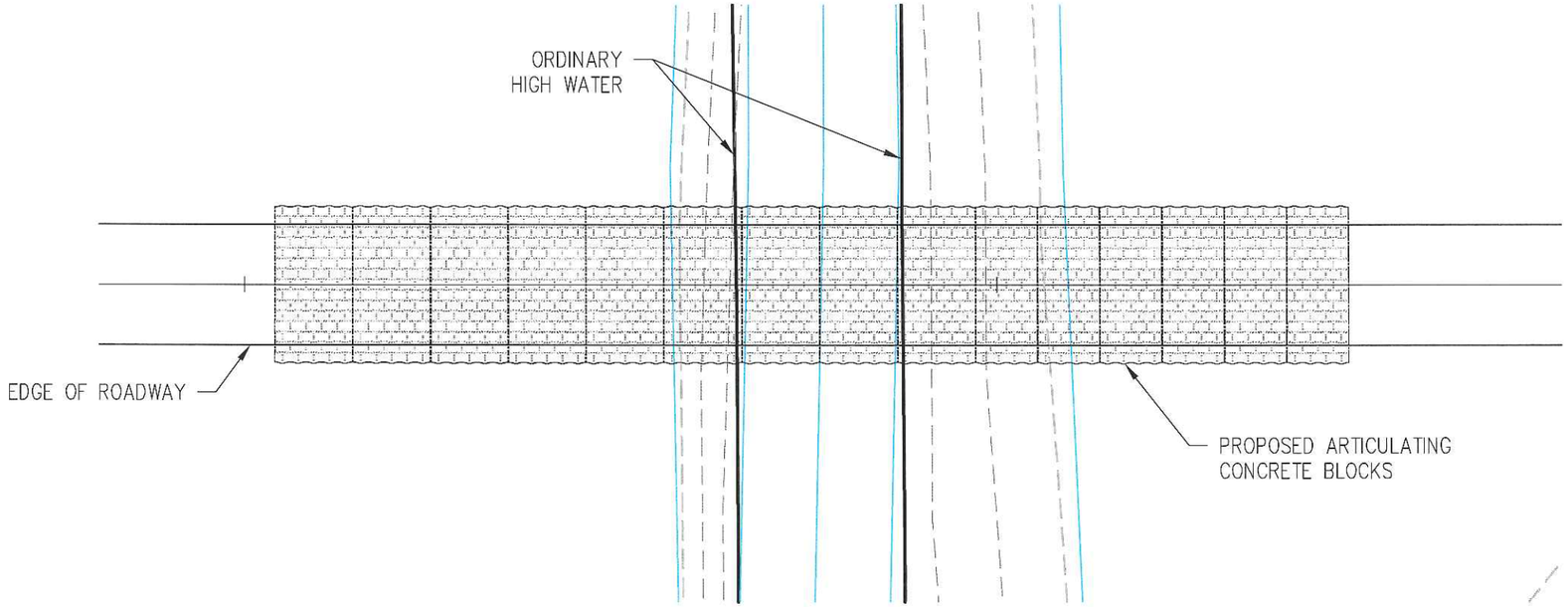

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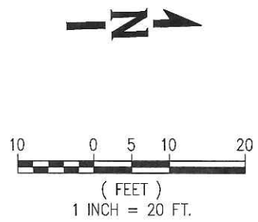

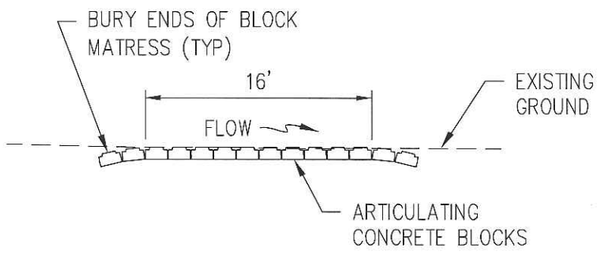

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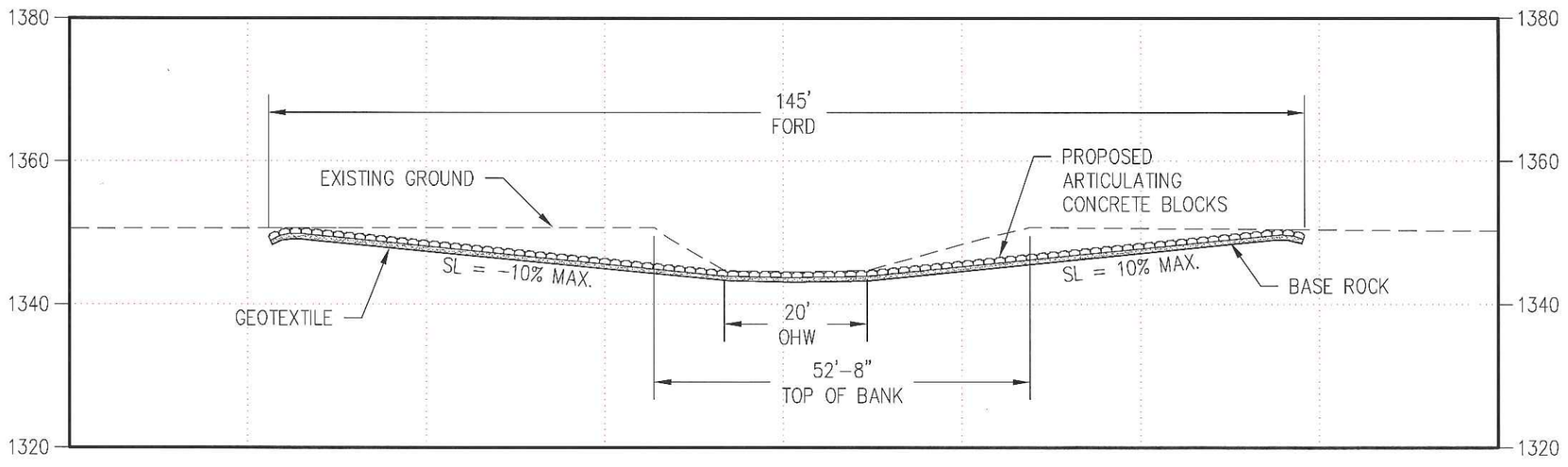

ELEVATION

CROSSING 5 - FORD

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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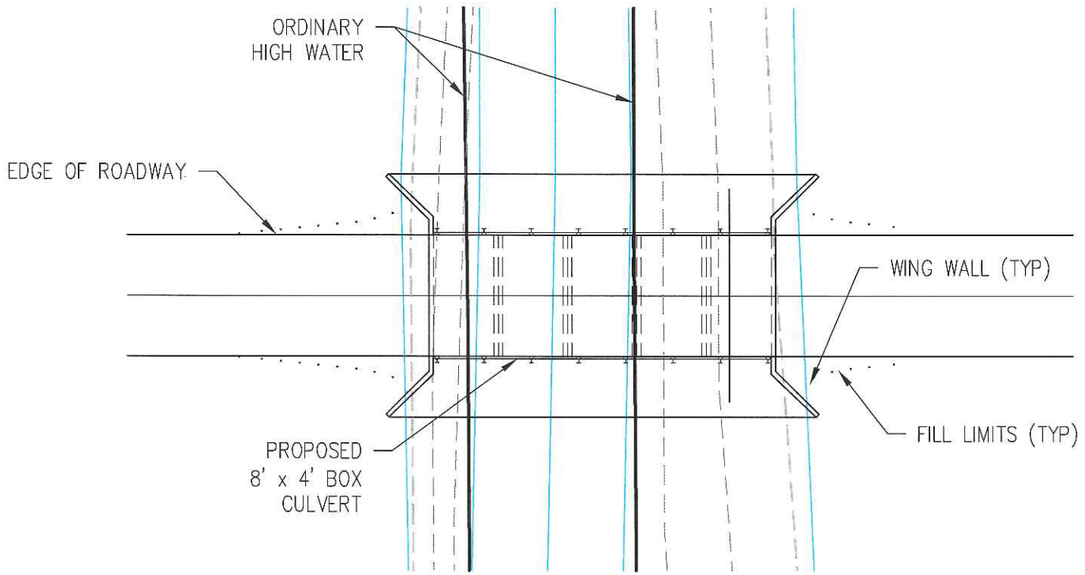

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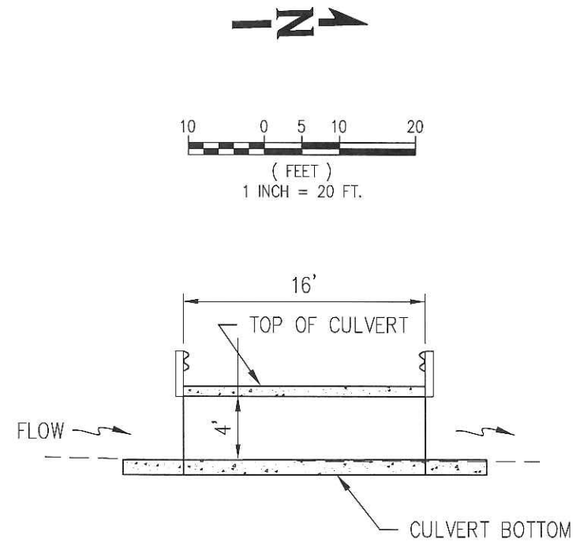

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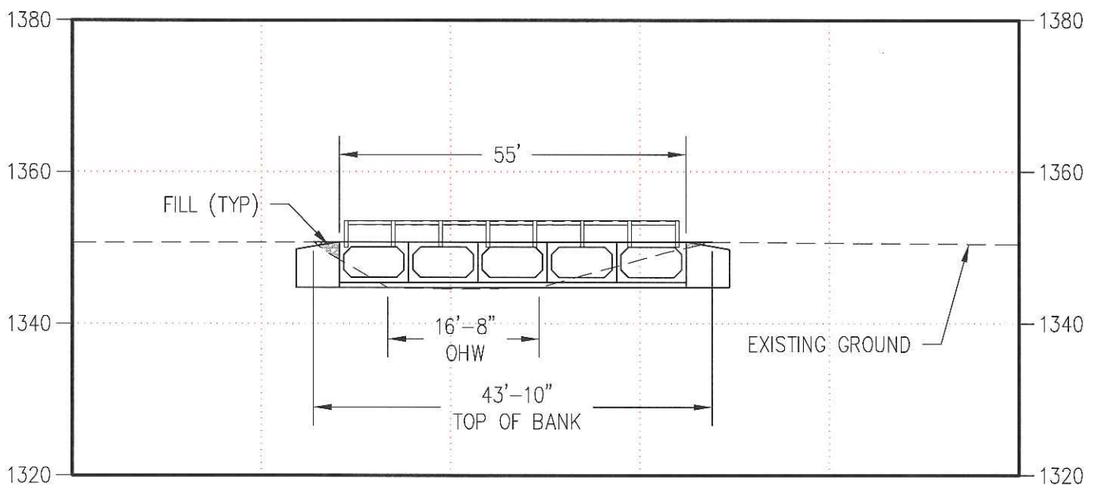
NOT TO SCALE



ELEVATION

CROSSING 5 - CULVERT

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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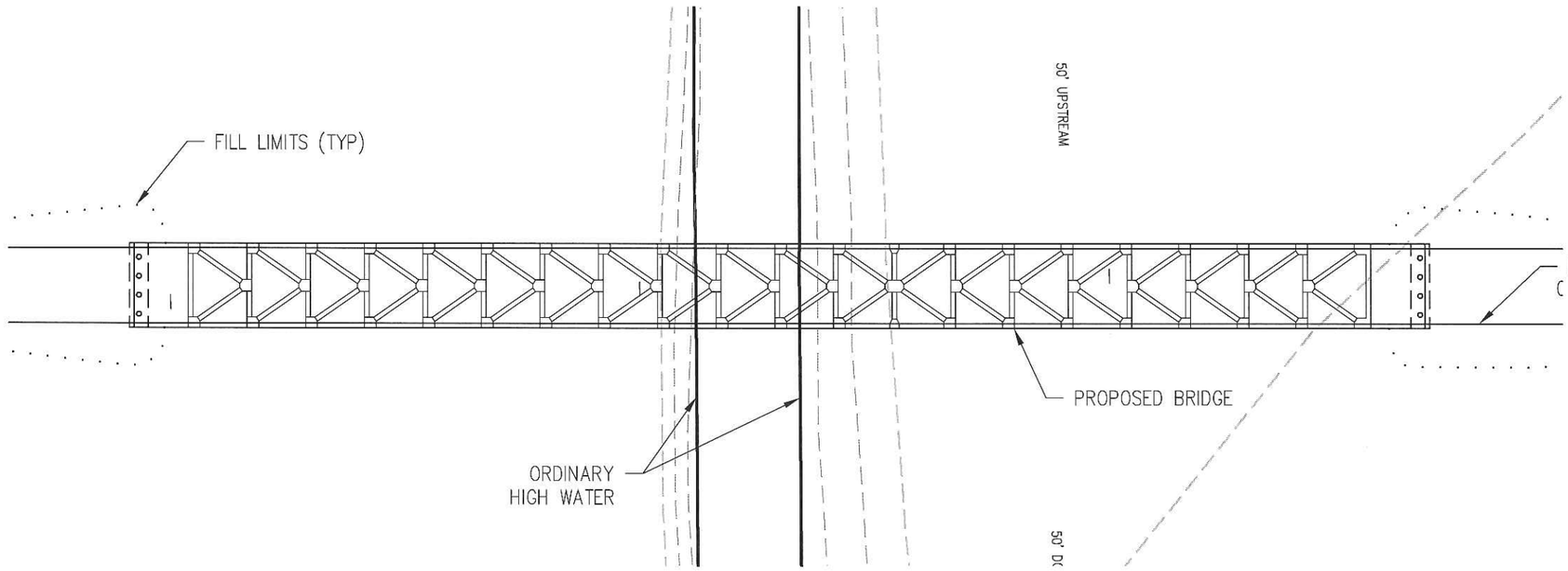
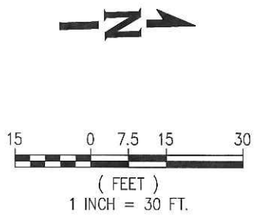
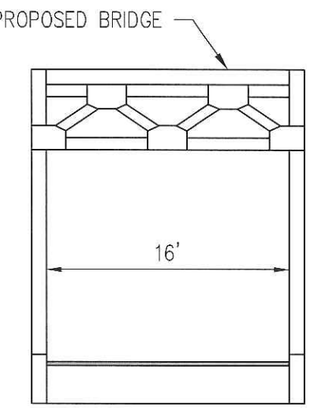


PLAN





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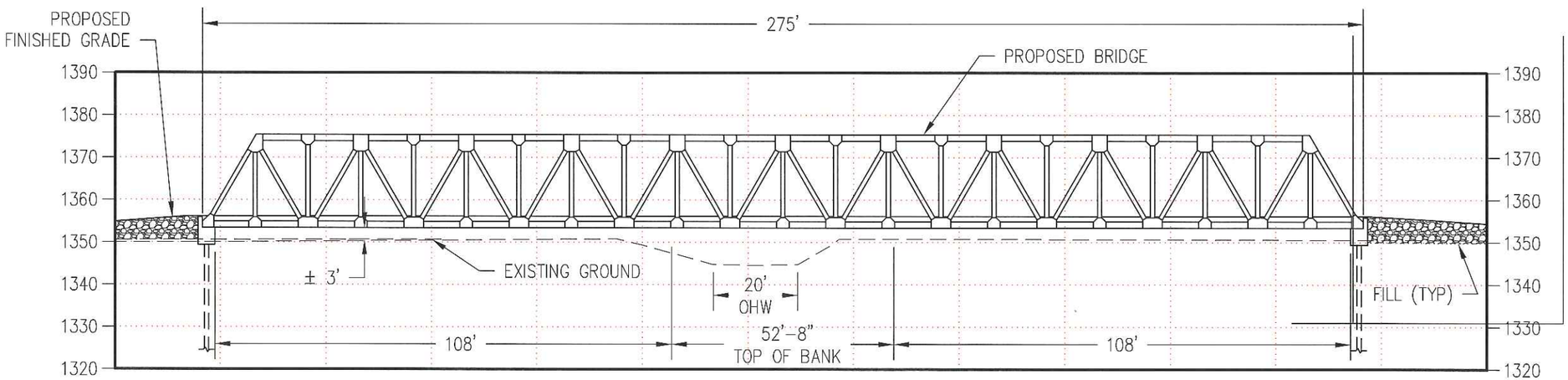
NOT TO SCALE



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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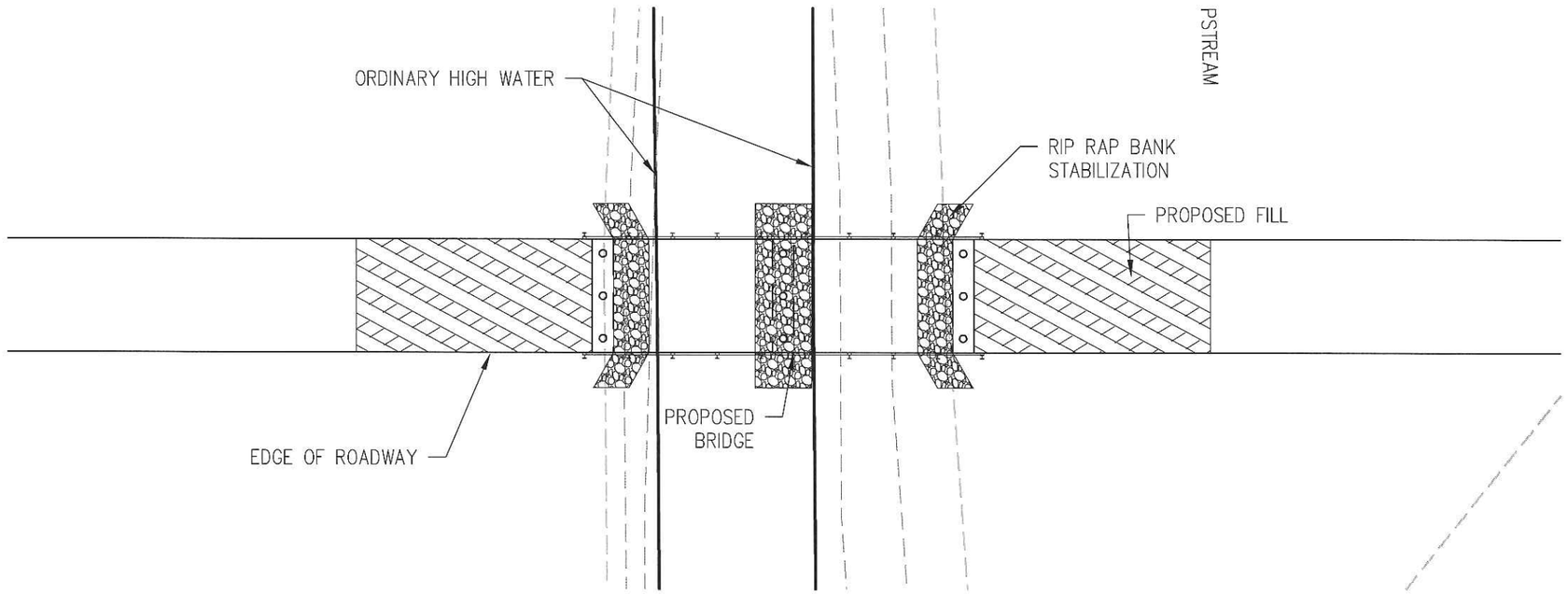

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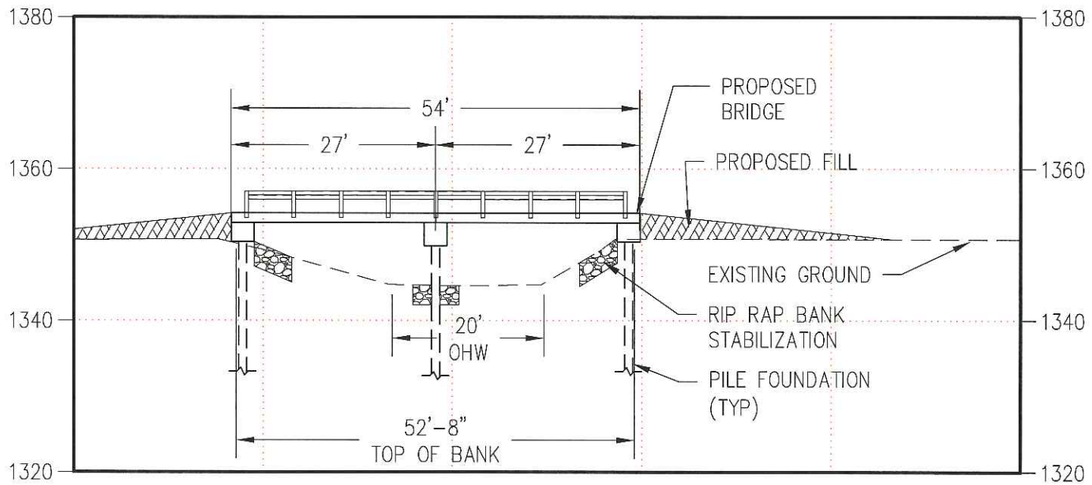

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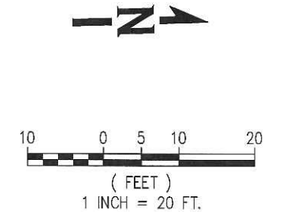

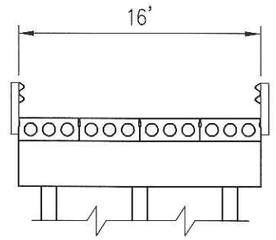

TYPICAL SECTION
NOT TO SCALE

CROSSING 5 - MULTI SPAN

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
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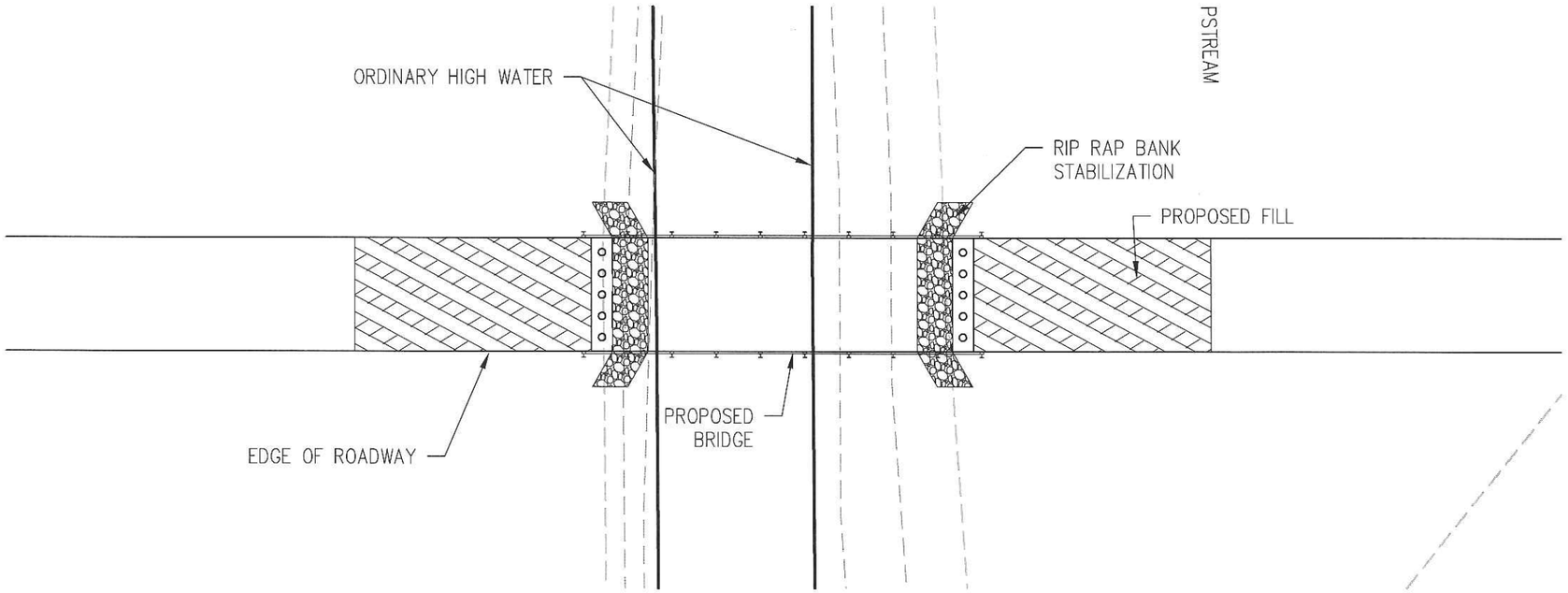
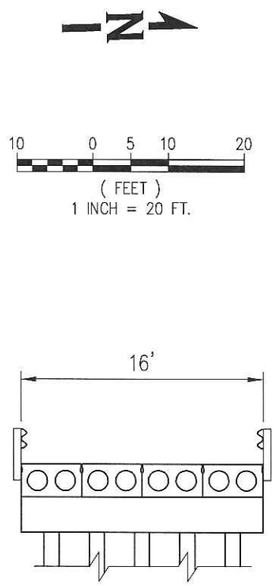


PLAN

ELEVATION



TYPICAL SECTION
NOT TO SCALE

CROSSING 5 - SINGLE SPAN

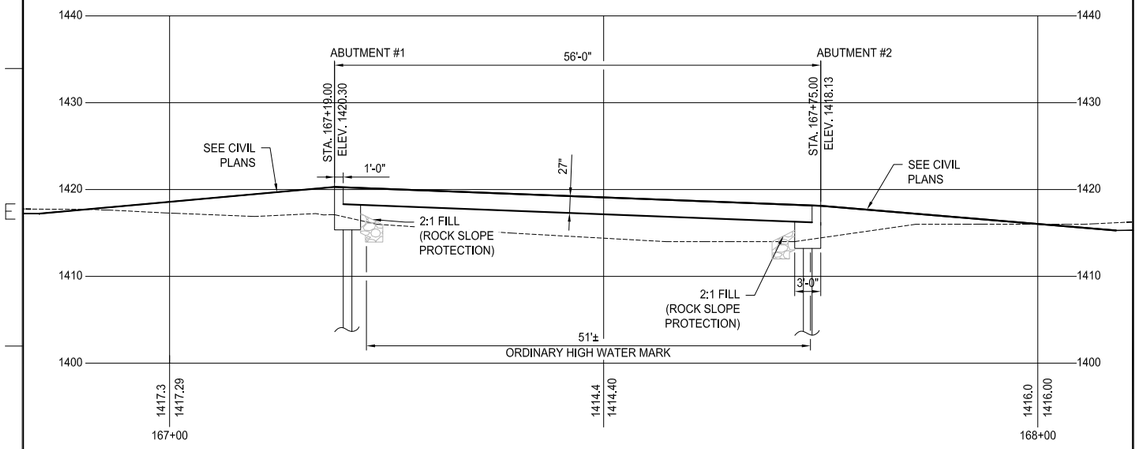
PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION

WHPacific

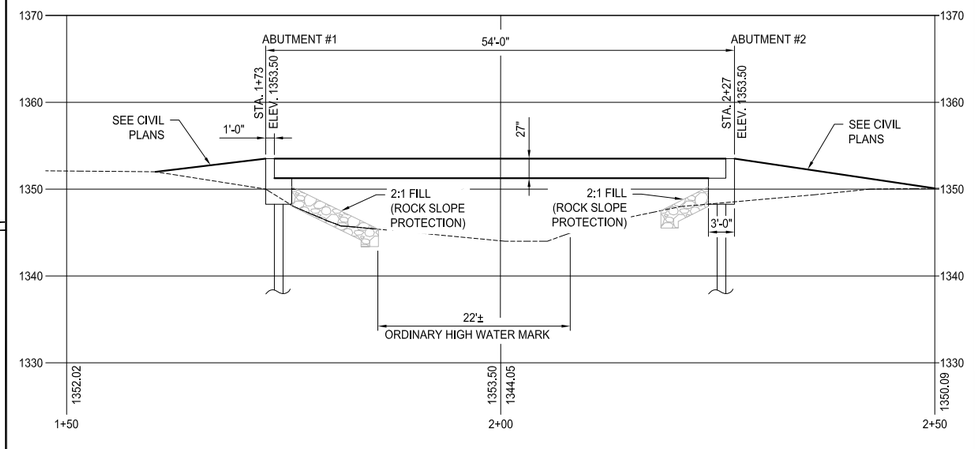
PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13

APPENDIX F

Amec Foster Wheeler Plan Views

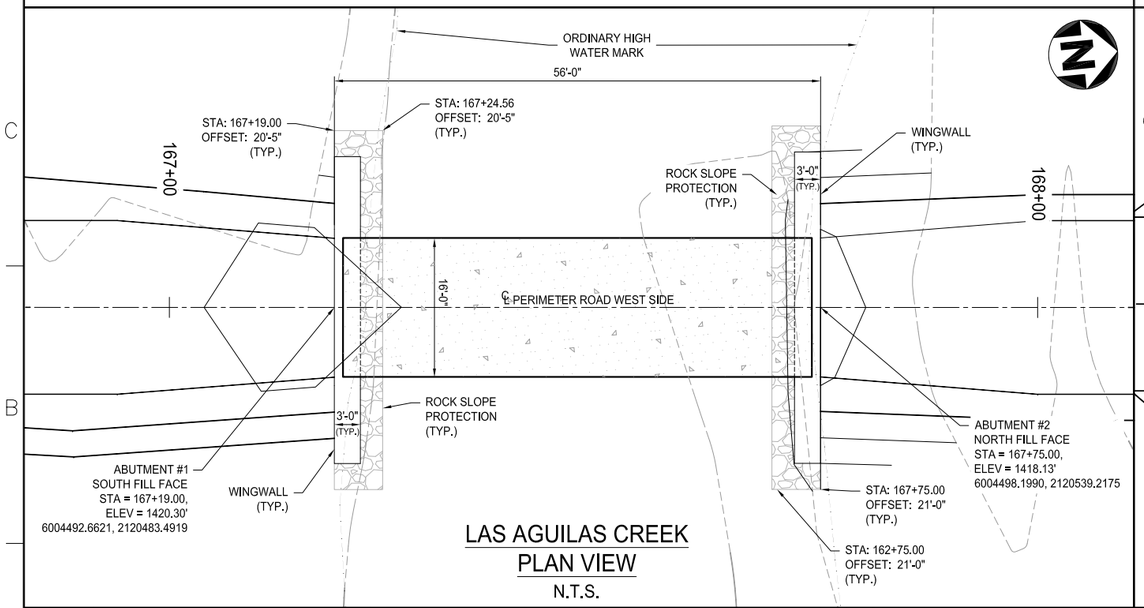


LAS AGUILAS CREEK
ELEVATION VIEW
N.T.S.

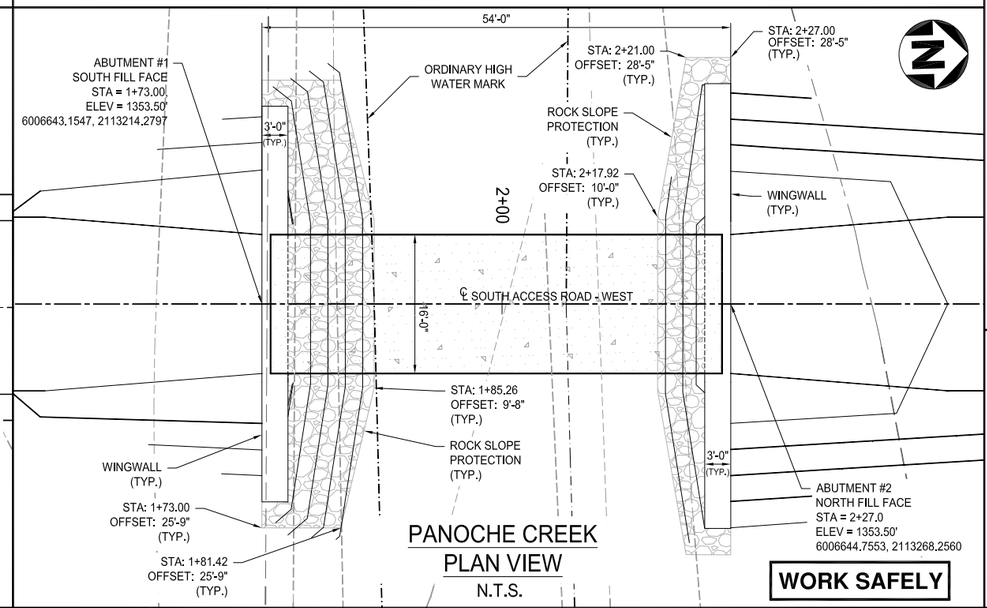


PANOCHE CREEK
ELEVATION VIEW
N.T.S.

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.



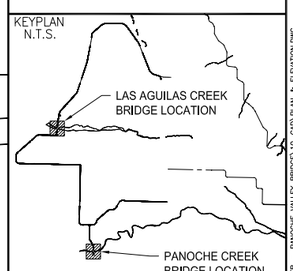
LAS AGUILAS CREEK
PLAN VIEW
N.T.S.



PANOCHE CREEK
PLAN VIEW
N.T.S.

WORK SAFELY

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

PROJECT NO.	ACTIVITY NO.
176055	
SCALE	PACKAGE CODE
NTS	

	BY	DDMMYY
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 PLAN AND ELEVATION

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0301

REV. A

SAVED: 23-Feb-15 3:38 PM PLOTTED: 23-Feb-15 4:02 PM USER: JOHNSON, JEFFERY L.

CAD FILE: P:\STUDIES\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\PLAN & ELEVATION.DWG

ARCH D-24x36

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

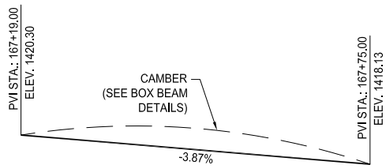
NOTES
1. NOT TO SCALE

PANOCHE BRIDGE QUANTITIES

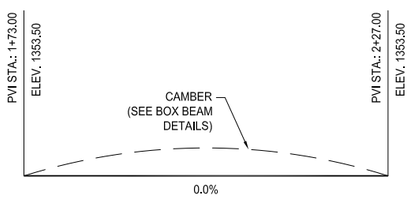
Caltrans ITEM No.	DESCRIPTION	EST. QTY	UNIT
760090	MOBILIZATION, DEMOBILIZATION, AND FINAL CLEANUP	1	LS
NA	Survey and Staking	1	LS
NA	Contractor Supplied Material Testing	1	LS
192001	STRUCTURE EXCAVATION (BRIDGE)	11	CY
721026	ROCK SLOPE PROTECTION (NO. 1, METHOD B) (CY)	21	CY
490513	FURNISH STEEL PILING (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 QUANTITIES

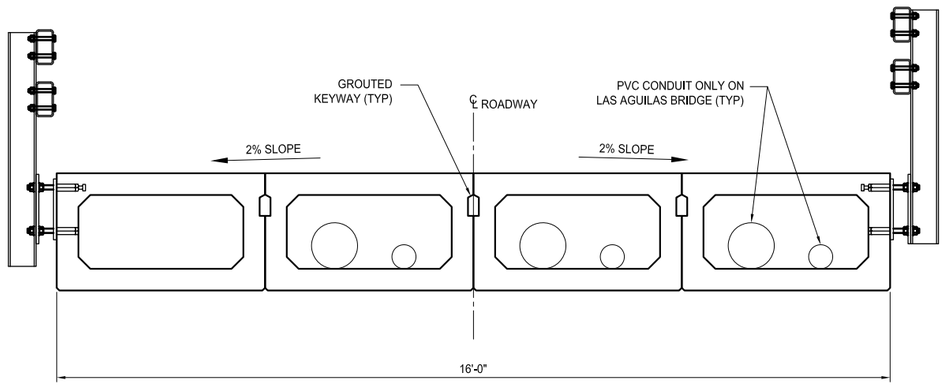
Caltrans ITEM No.	DESCRIPTION	EST. QTY	UNIT
760090	MOBILIZATION, DEMOBILIZATION, AND FINAL CLEANUP	1	LS
NA	Survey and Staking	1	LS
NA	Contractor Supplied Material Testing	1	LS
192001	STRUCTURE EXCAVATION (BRIDGE)	15	CY
721026	ROCK SLOPE PROTECTION (NO. 1, METHOD B) (CY)	14	CY
490513	FURNISH STEEL PILING (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



LAS AGUILAS BRIDGE PROFILE GRADE



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

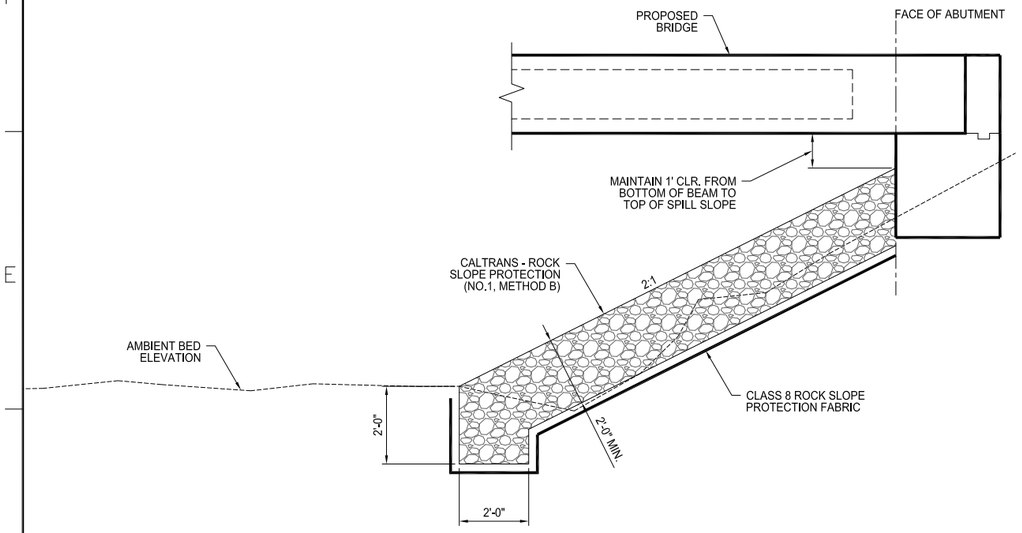
CLIENT DWG. NO.

DRAWING NO. D-000-C-0302 REV. A

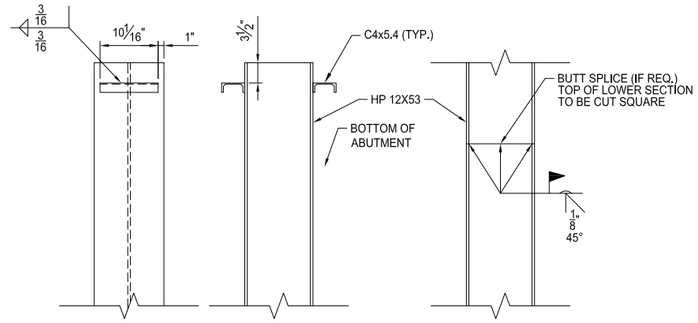
ARCH D-24x36

CAD FILE: P:\STLOUIS\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\PLAN & ELEVATION.DWG

SAVED: 23-Feb-15 3:38 PM PLOTTED: 23-Feb-15 4:02 PM USER: JOHNSON, JEFFERY L.



ROCK SLOPE PROTECTION
N.T.S.



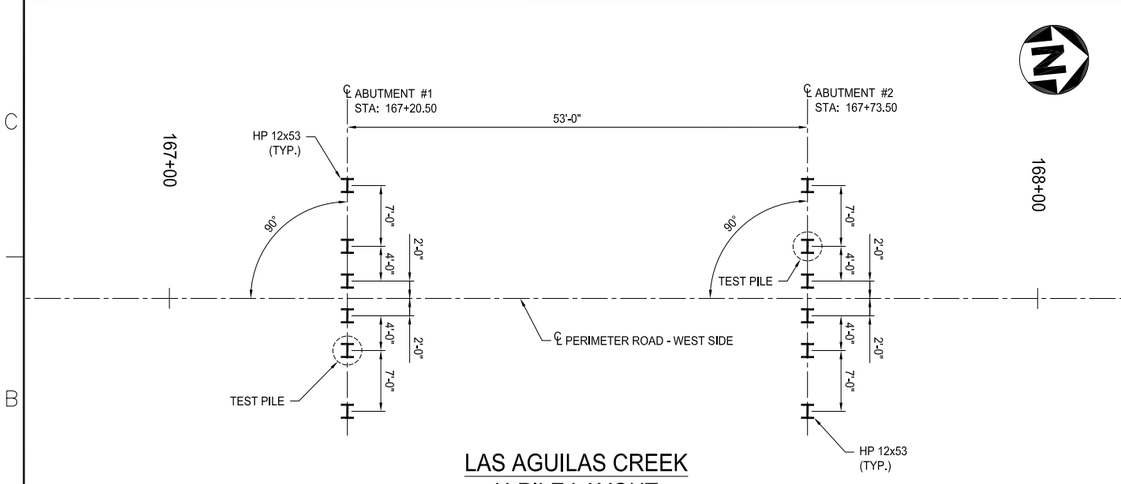
TYPICAL PILE CHANNEL SHEAR CONNECTOR DETAIL

STEEL PILE SPLICE DETAIL

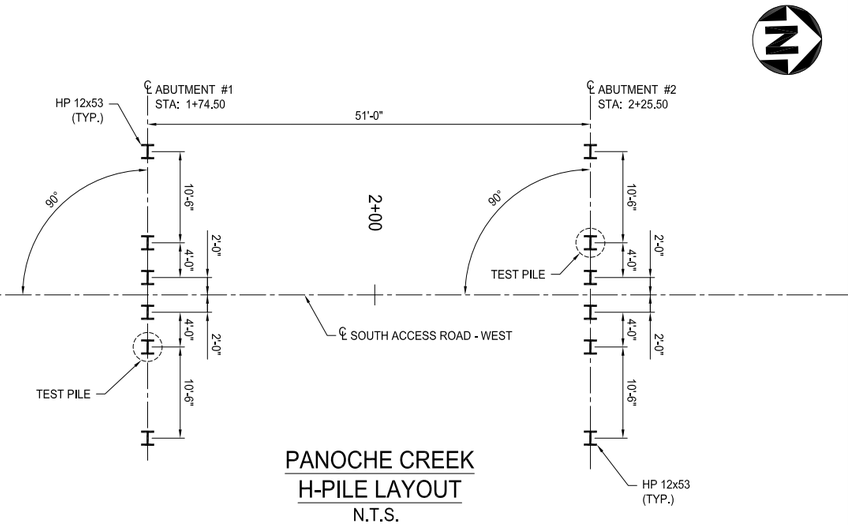
PILE DATA				
	Las Aguilas Bridge		Panoche Bridge	
	Abutment # 1	Abutment # 2	Abutment # 1	Abutment # 2
Shape	HP12x53	HP12x53	HP12x53	HP12x53
Pile Type	Friction	Friction	Friction	Friction
Number	6	6	6	6
Approx. Length (ft.)	32	32	32	32
Pile Axial Service Load (kips)	80	80	80	80
Pile Driving Verification 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

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
PILE LAYOUT AND ROCK SLOPE PROTECTION DETAILS

amec

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0303

REV. A

CAD FILE: P:\STLOUIS\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGES\10-CAD\PILE LAYOUT.DWG

SAVED: 23-Feb-15 3:39 PM PLOTTED: 23-Feb-15 4:02 PM USER: JOHNSON, JEFFERY L.

ARCH (D-24x36)

GENERAL NOTES FOR PRESTRESSED BOX BEAMS:

DESIGN STRESSES:

PRESTRESSED CONCRETE
F'c = 6,000PSI (28-DAY)
F'd = 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.		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
GENERAL NOTES FOR BOX BEAMS

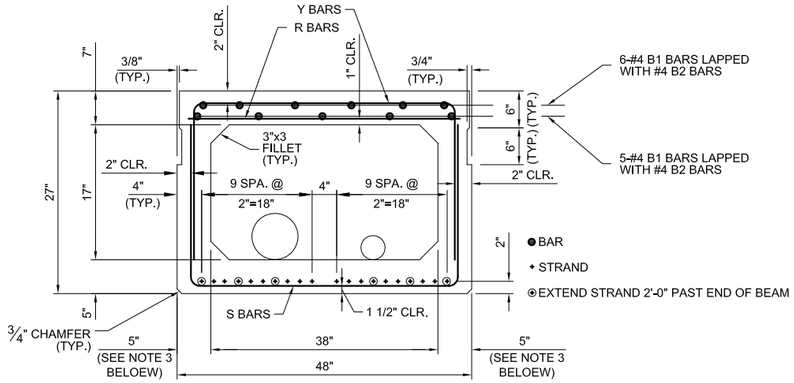
AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0304
REV. A

CAD FILE: P:\STLOUIS\20151520\11\0001 - AMEC POWER - PANOCHE VALLEY BRIDGES\11-CAD\BOX BEAM DETAILS.DWG

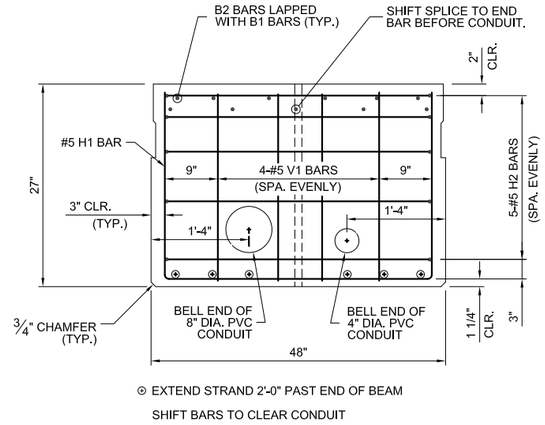
SAVED: 23-Feb-15 3:47 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

ARCH (3-24x36)

LAS AGUILAS BRIDGE



27X48 BOX BEAM



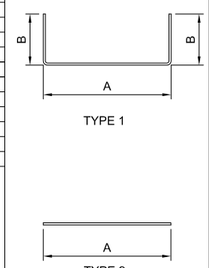
⊙ EXTEND STRAND 2'-0" PAST END OF BEAM

SHIFT BARS TO CLEAR CONDUIT

END VIEW OF BEAM

REINFORCING SCHEDULE

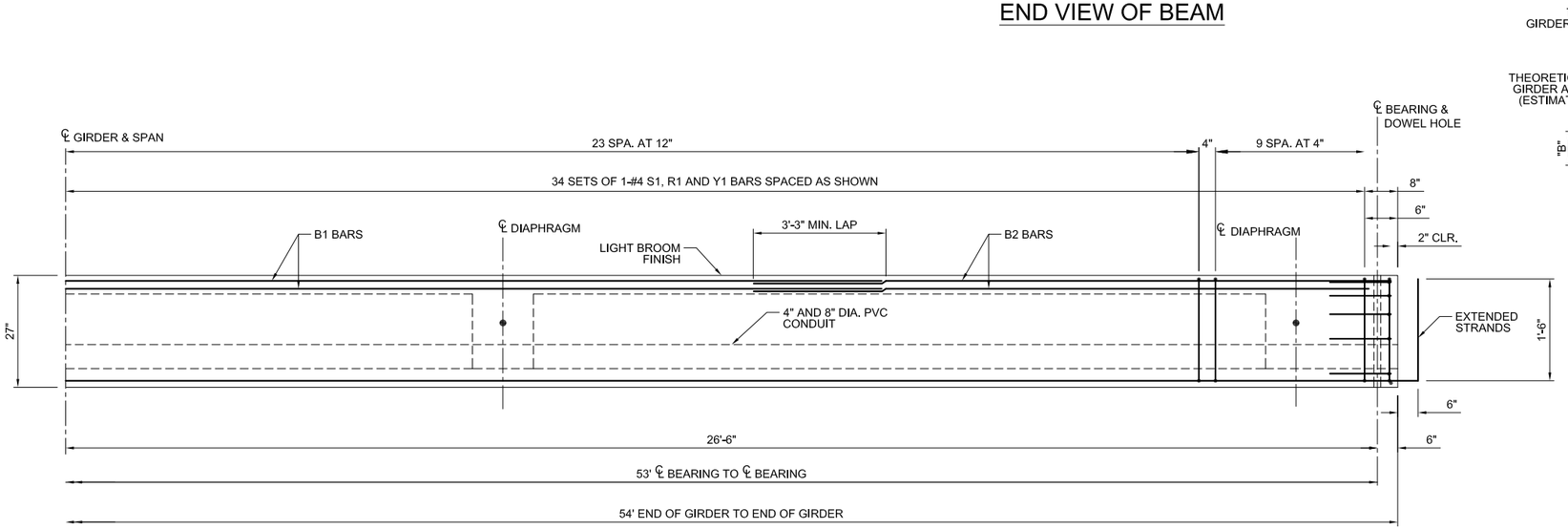
REINFORCING BARS								
SIZE	MARK	TYPE	A	B	C	D	E	BENDING DIAGRAMS
#4	R1	2	44"					
#4	S1	1	44"	21"				
#4	Y1	1	44"	20"				
#4	B1	2	32'-0"					
#4	B2	2	16'-0"					
#5	H1	1	42"	23"				
#5	H2	1	41"	18"				
#5	V1	2	23"					



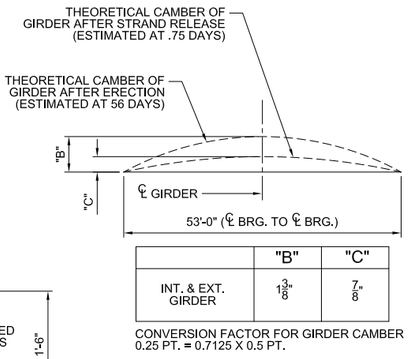
FABRICATOR'S SHOP DRAWINGS SHALL SHOW COMPLETE DETAILS OF BEAM REINFORCING.

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.



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 EMBEDED COMPONENTS.

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

PANOCHE VALLEY SOLAR LLC

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

SUBJECT
CIVIL
BRIDGE CROSSINGS
LAS AGUILAS CREEK BOX BEAM

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0305

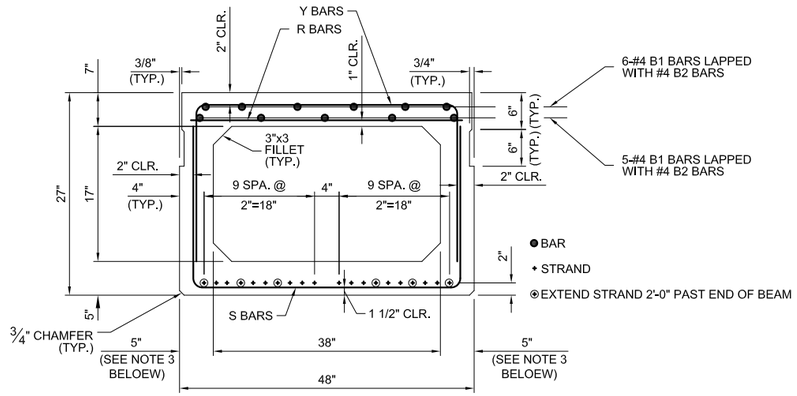
REV. A

CAD FILE: P:\STLOUIS\2015\03\15001 - AMEC POWER - PANOCHE VALLEY BRIDGES\15-CAD\BOX BEAM DETAILS.DWG

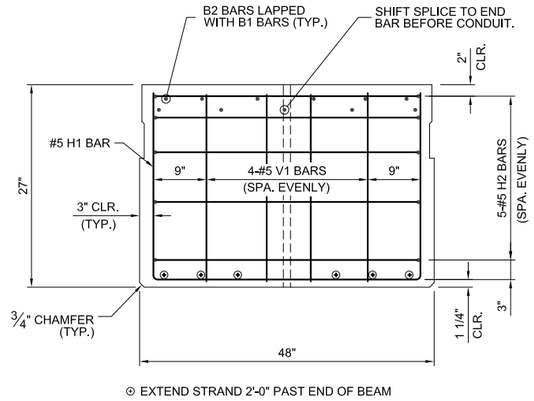
SAVED: 23-Feb-15 3:47 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

ARCH D-24x36

PANOCHE CREEK BRIDGE



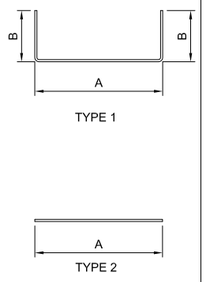
27X48 BOX BEAM



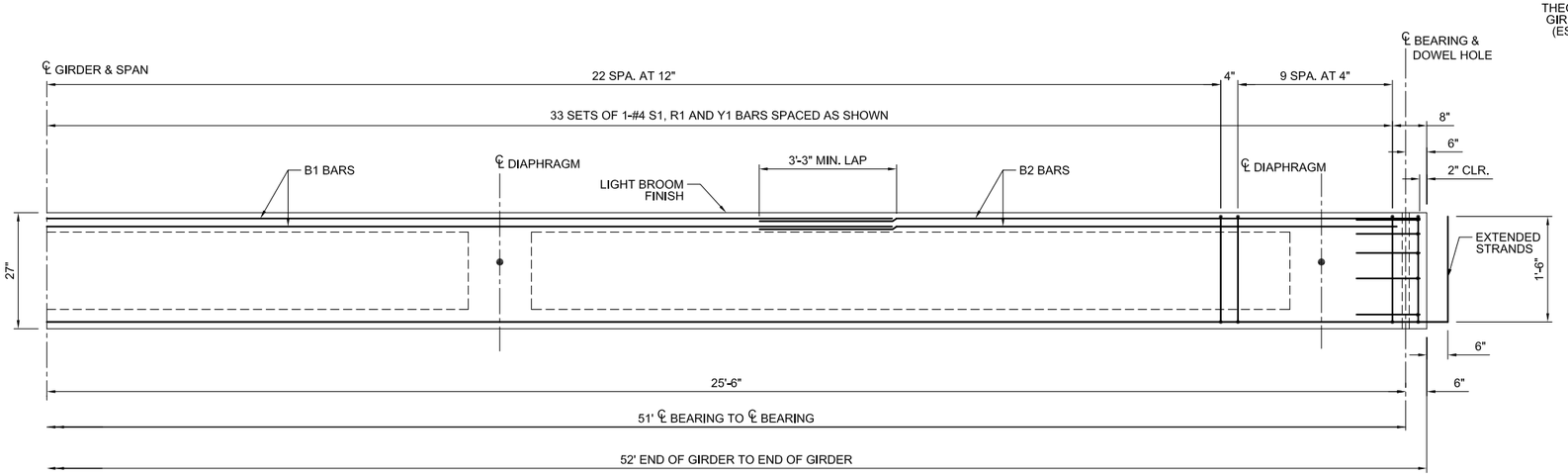
END VIEW OF BEAM

REINFORCING SCHEDULE

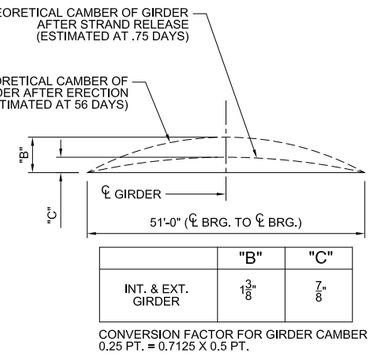
REINFORCING BARS								
SIZE	MARK	TYPE	A	B	C	D	E	BENDING DIAGRAMS
#4	R1	2	44"					
#4	S1	1	44"	21"				
#4	Y1	1	44"	20"				
#4	B1	2	30'-0"					
#4	B2	2	16'-0"					
#5	H1	1	42"	23"				
#5	H2	1	41"	18"				
#5	V1	2	23"					



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.

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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

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	24FEB15	ISSUED FOR PERMIT REVIEW	JLJ	JS	HRM	APP	APP	APP

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR. (TMB)	PROJECT MGR. (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.

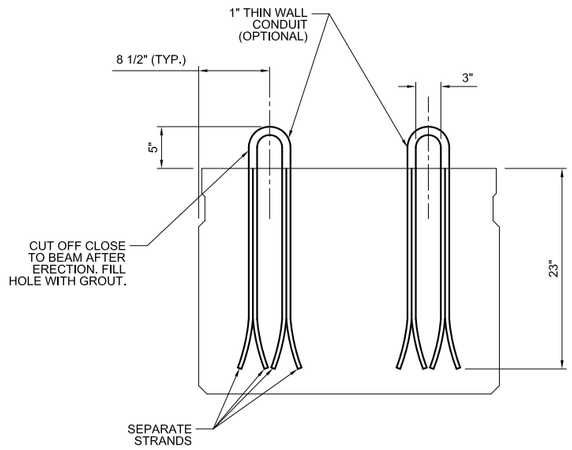
DRAWING NO. D-000-C-0306

REV. A

CAD FILE: P:\STLOUIS\SD\15\225115001 - AMEC POWER - PANOCHE VALLEY BRIDGES\15-CAD\BOX BEAM DETAILS.DWG

SAVED: 23-Feb-15 2:47 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L

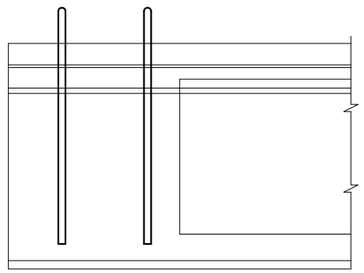
ARCH D-24x36



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.



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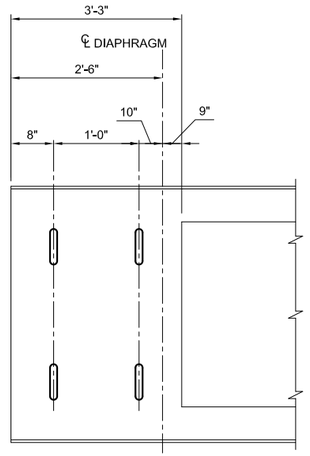
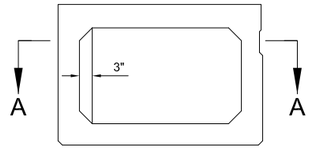


PLAN

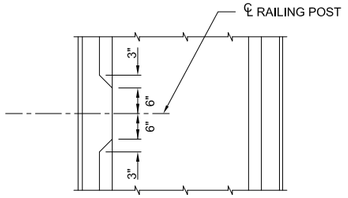
BEAM LIFTING INSERTS AT ABUTMENT

CONTRACTOR MAY PROPOSE AN ALTERNATE LIFT LUG SYSTEM TO BE APPROVED BY THE ENGINEER. SUBMIT COMPLETE DETAILS WITH BOX BEAM SHOP DRAWINGS.



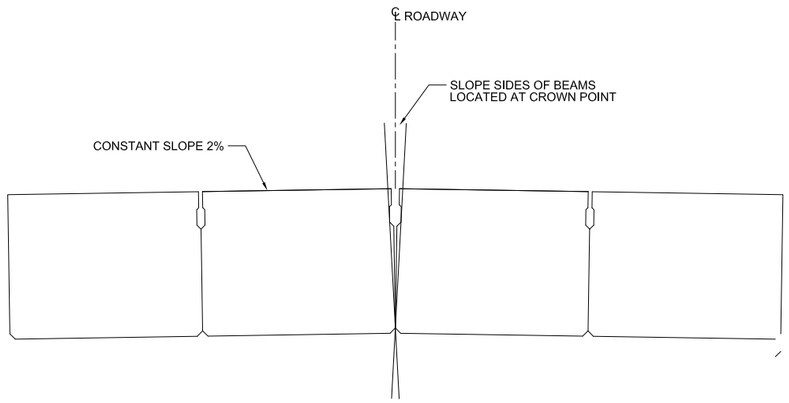
SECTION SHOWING WALL THICKENING AT RAILING ANCHORS

(REINFORCEMENT NOT SHOWN)

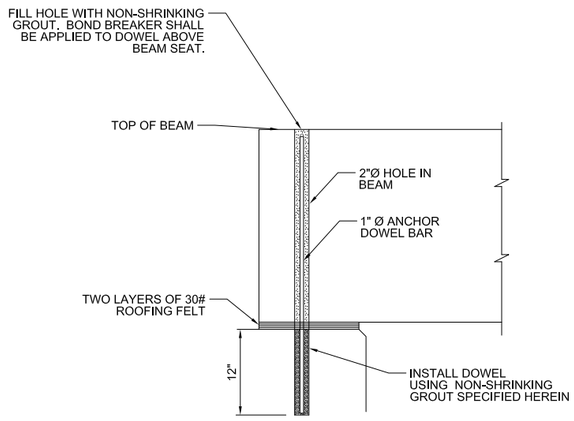


SECTION A-A

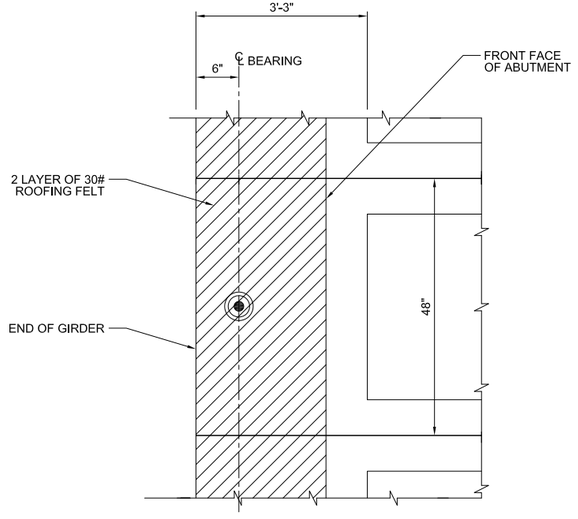
REFER TO RAILING SHEETS FOR ADDITIONAL RAILING DETAILS.



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.		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
BOX BEAM DETAILS

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0307

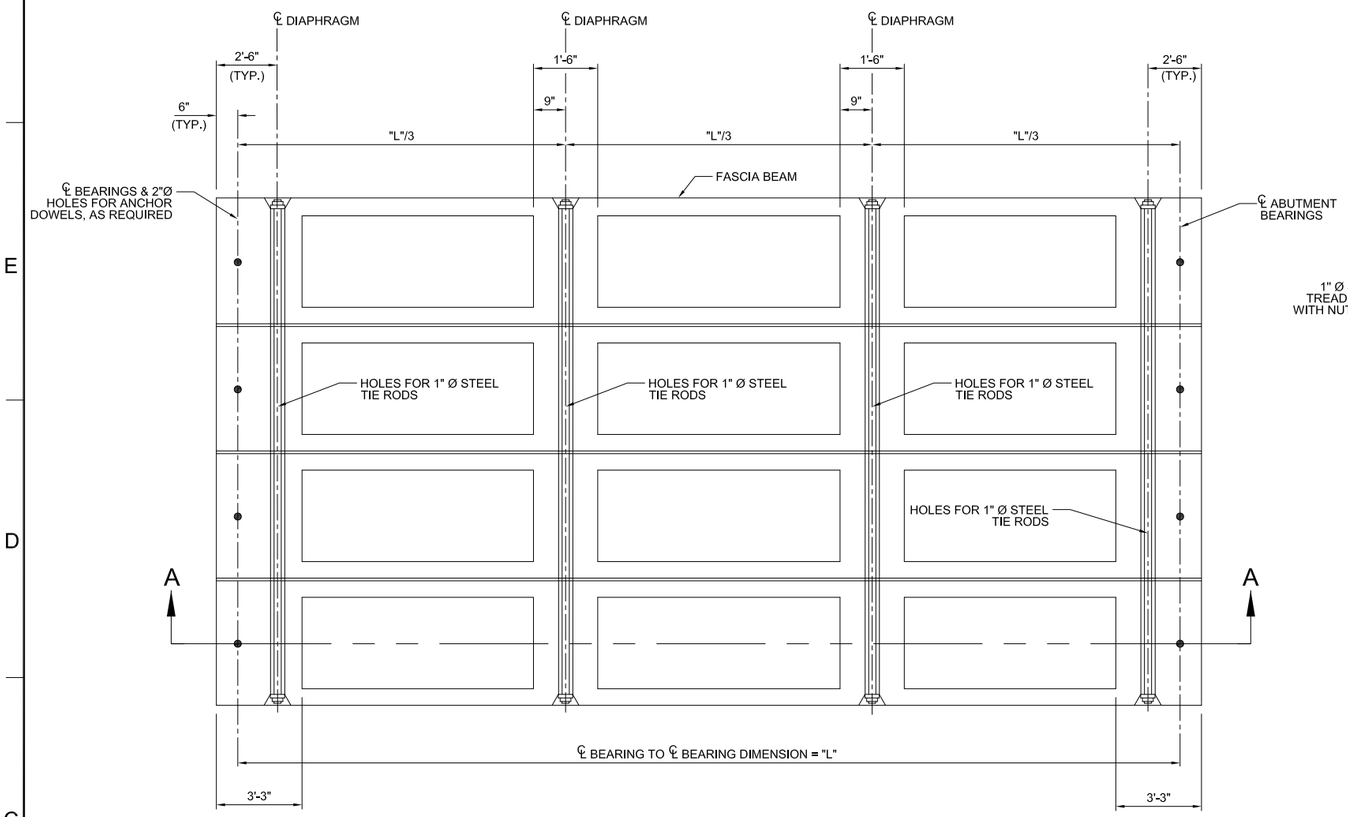
REV. A

CAD FILE: P:\STLOUIS\207153211\5001 - AMEC POWER - PANOCHE VALLEY BRIDGE\11-CAD\BOX BEAM DETAILS.DWG

SAVED: 23-Feb-15 3:47 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

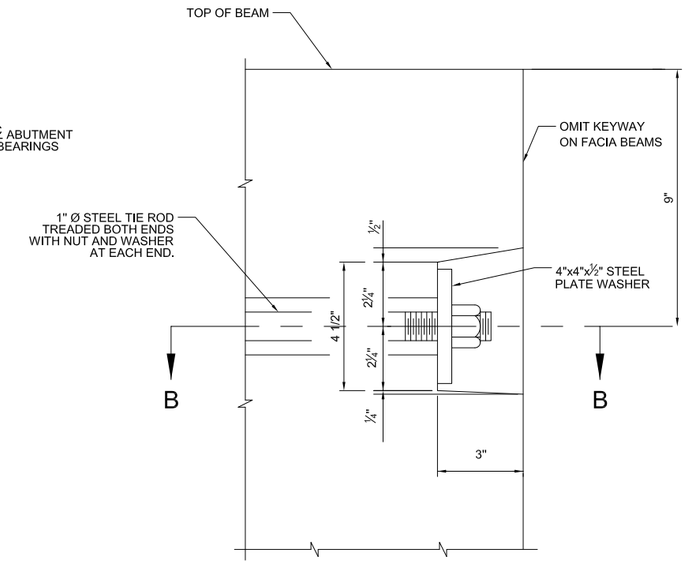
ARCH D-24x36

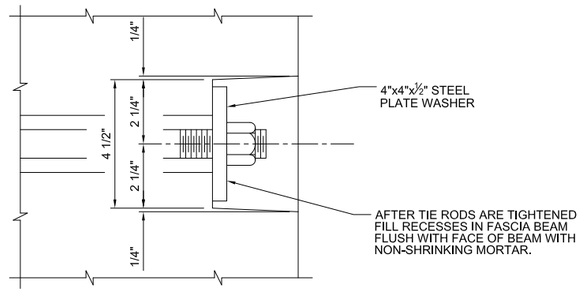
9 8 7 6 5 4 3 2 1



TYPICAL PLANS OF DIAPHRAGMS AND TRANSVERSE TIE RODS

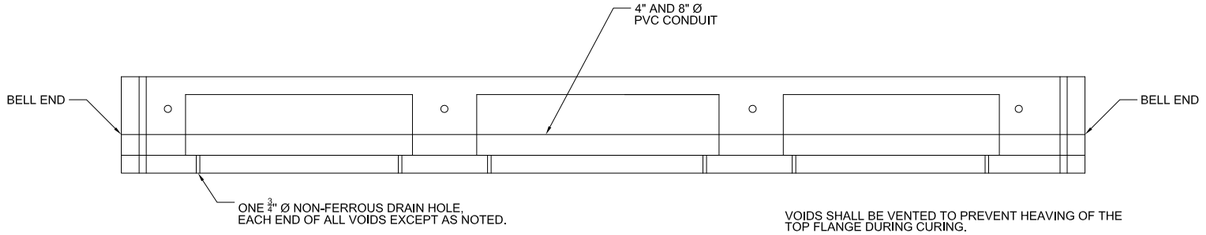
NOTE: OMIT KEYWAY ON OUTSIDE OF FASCIA BEAMS





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.	TMB DEPARTMENT MGR.	HRM 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
BOX BEAM DIAPHRAGM

AREA

CLIENT DWG. NO.

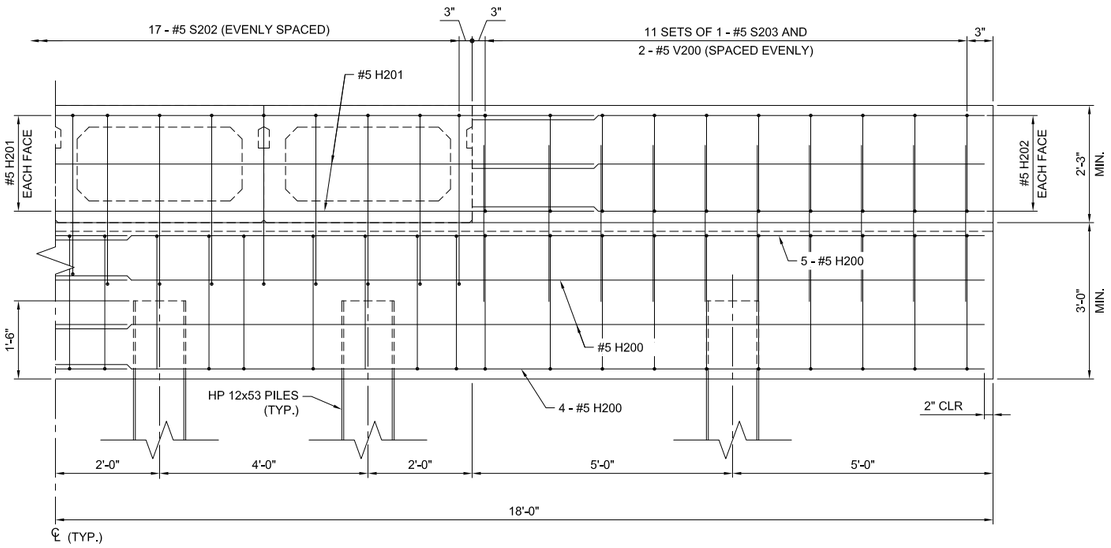
DRAWING NO. D-000-C-0308

REV. A

CAD FILE: P:\TLO\SB\2015\32515001 - AMEC POWER - PANOCHE VALLEY BRIDGE\110-CAD\BOX BEAM DETAILS.DWG

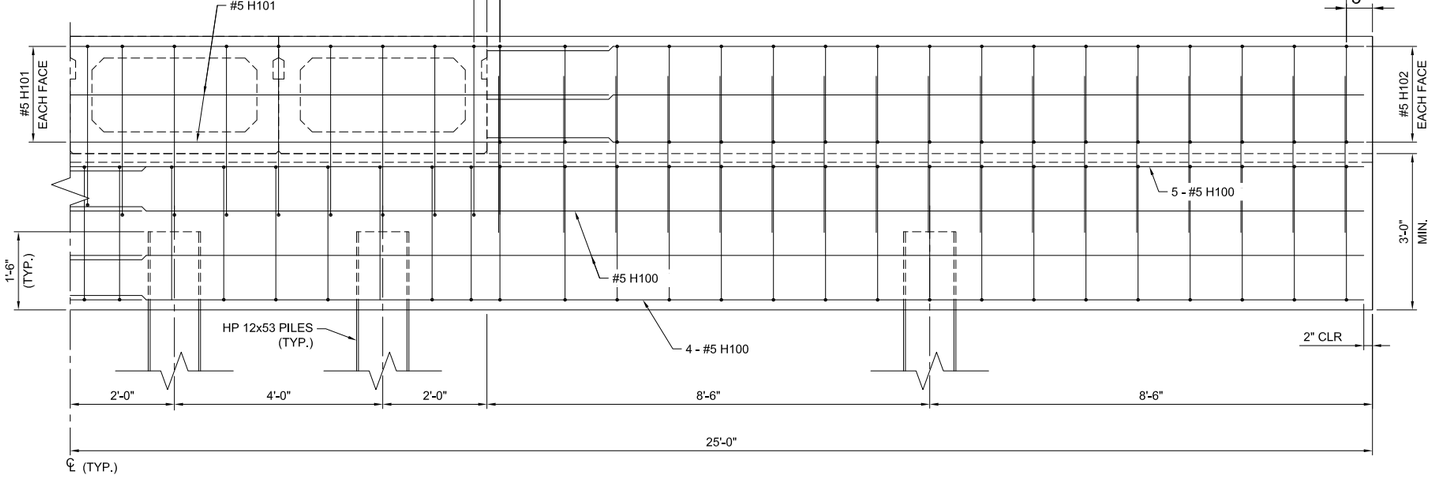
SAVED: 25-Feb-15 3:47 PM PLOTTED: 25-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

ARCH (24x36)



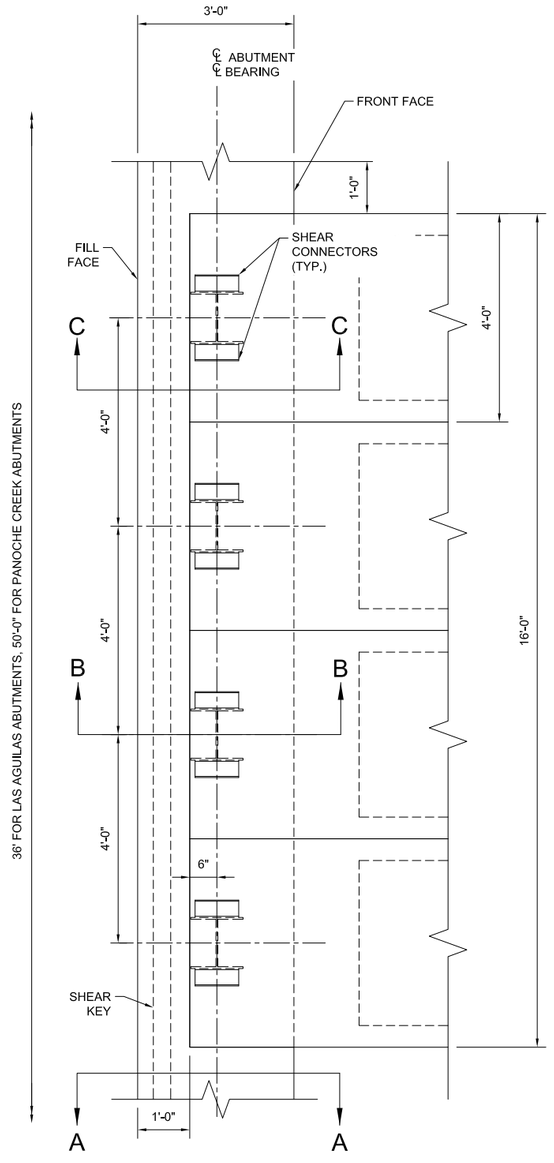
HALF SECTION LAS AGUILAS CREEK ABUTMENTS

(SYMMETRICAL ABOUT CENTERLINE)
(LOOKING AT FILL FACE)



HALF SECTION PANOCHE CREEK ABUTMENTS

(SYMMETRICAL ABOUT CENTERLINE)
(LOOKING AT FILL FACE)



TYPICAL PARTIAL ABUTMENT 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

TMB	HRM
CLIENT PROJECT MGR.	DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.	SCALE	PACKAGE CODE
176055		NTS	

	BY	DDMMYY
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

CAD FILE: P:\STUDIOS\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\ABUTMENTS.DWG

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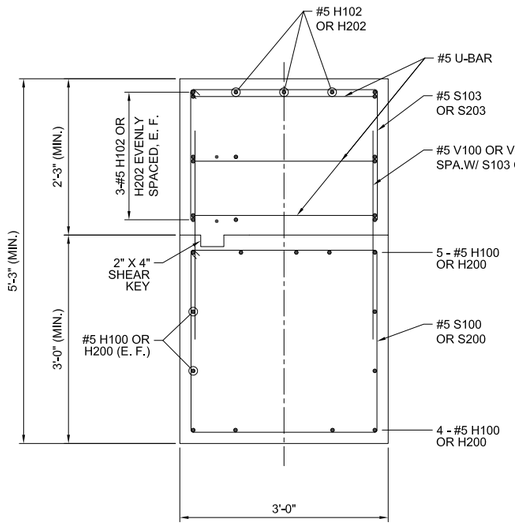
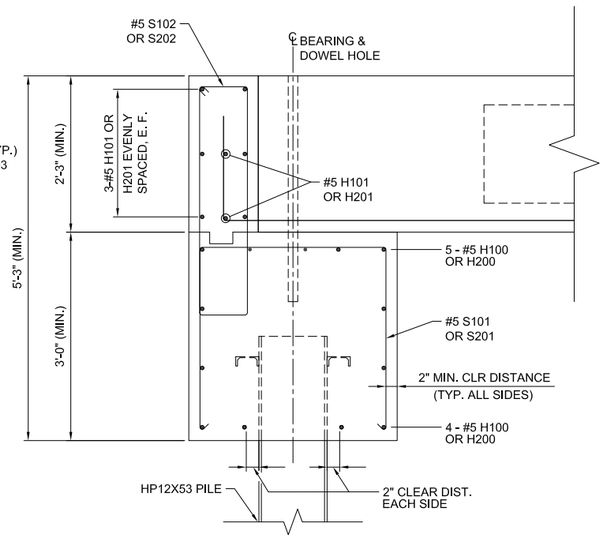
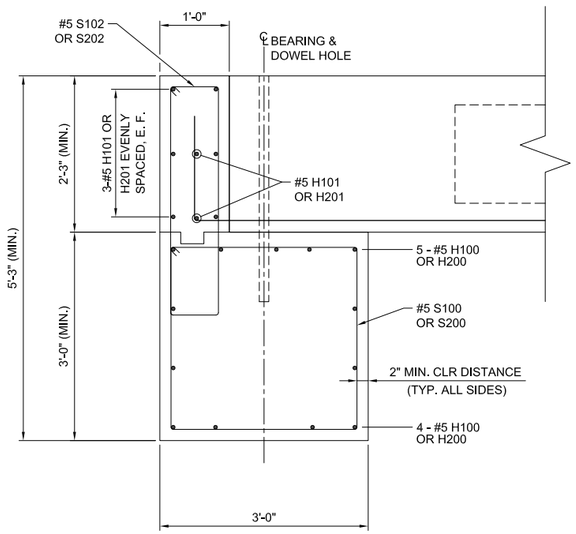


SECTION A-A



SECTION B-B

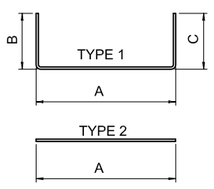


SECTION C-C

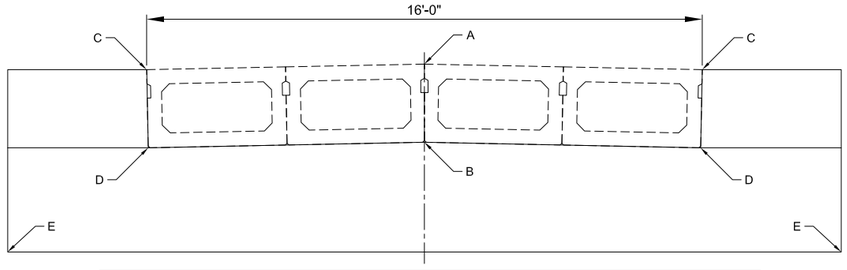
NOTES
1. NOT TO SCALE

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

TMB	HRM
CLIENT PROJECT MGR.	DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE
PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.	SCALE	PACKAGE CODE
176055		NTS	

	BY	DDMMYY
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

SAVED: 23-Feb-15 3:54 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

CAD FILE: P:\STUDIOS\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\ABUTMENTS.DWG

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.

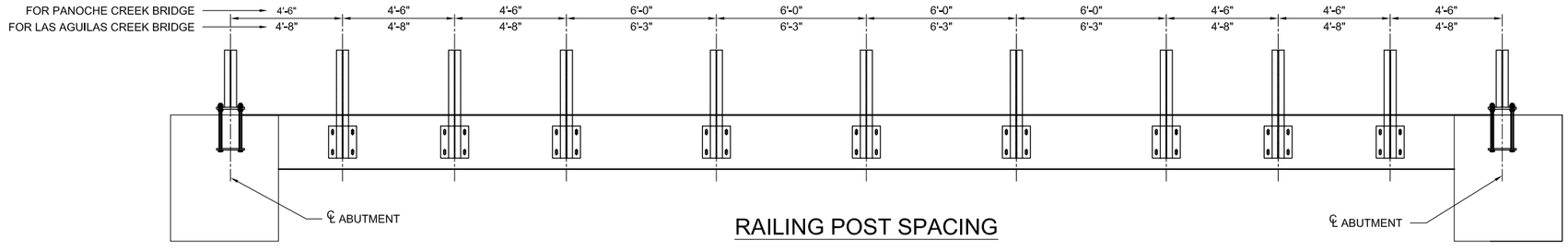
FASTENERS:
FURNISH MATERIAL CONFORMING TO THE FOLLOWING:

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.



RAILING POST SPACING

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
GUARDRAIL SYSTEM GENERAL NOTES

AREA

CLIENT DWG. NO.

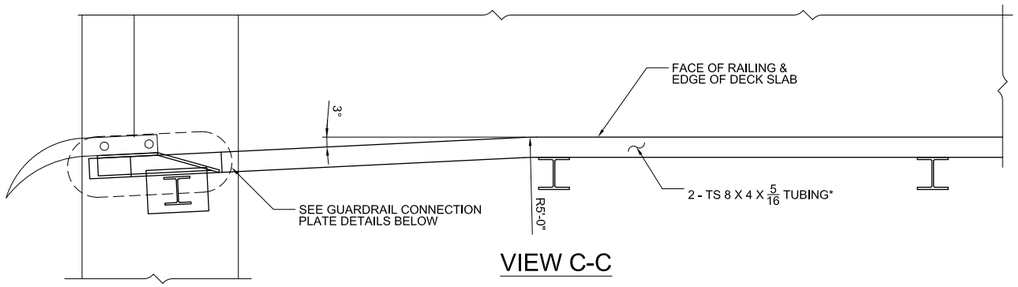
DRAWING NO. D-000-C-0311

REV. A

SAVED: 23-Feb-15 3:59 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

CAD FILE: P:\STLOUIS\CIVIL\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGES\10-CAD\GUARDRAIL DETAIL 1.DWG

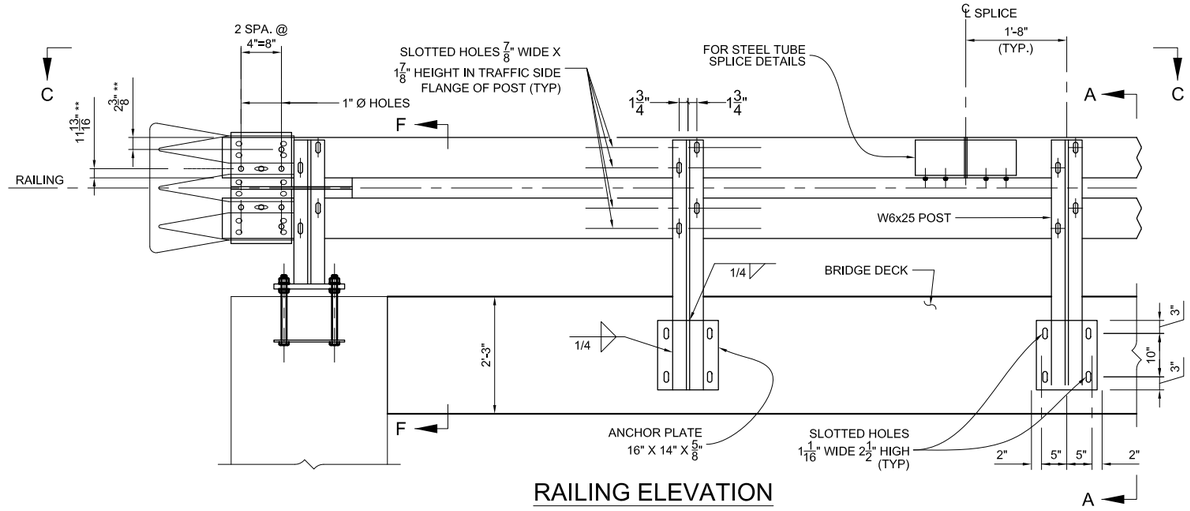
ARCH D-24x36



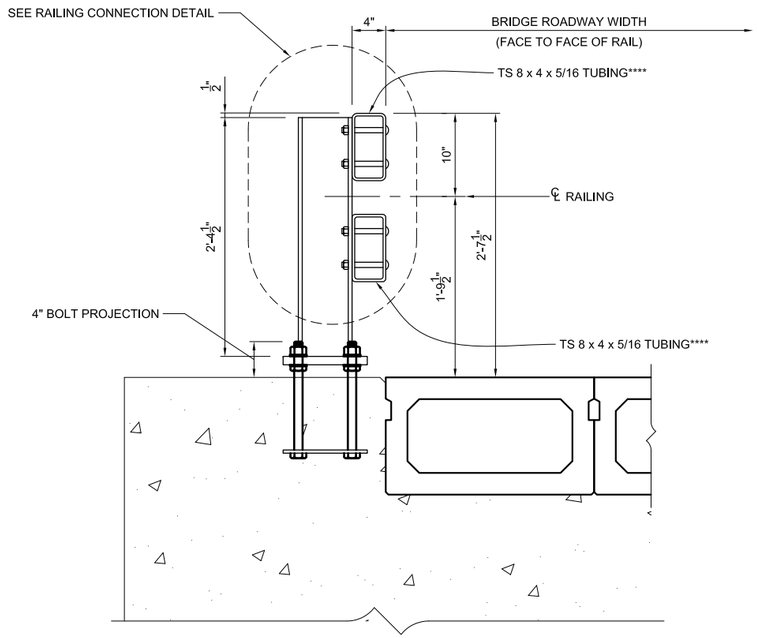
VIEW C-C

* - 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".

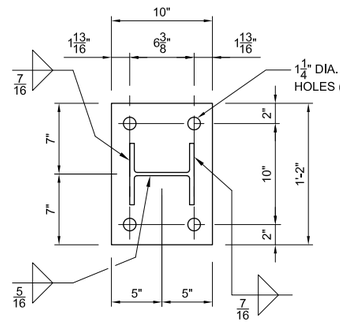
** - SYMMETRICAL ABOUT RAILING



RAILING ELEVATION

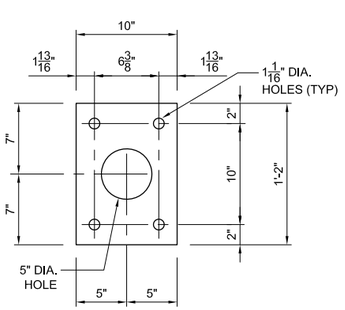


SECTION F-F



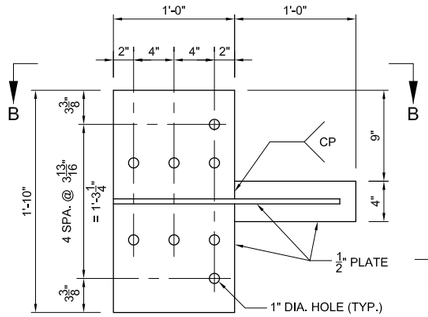
BASE PLATE

(1" PLATE)

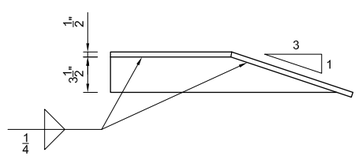


SPACER PLATE

(3/8" PLATE)

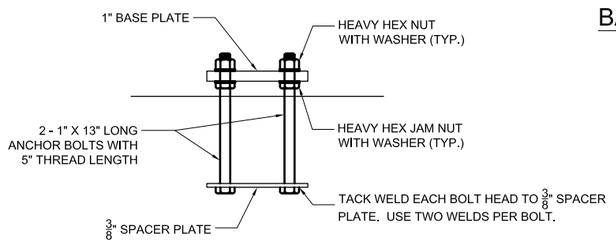


GUARDRAIL CONNECTION PLATE DETAILS



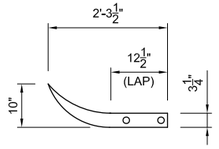
VIEW B-B

RAILING ELEVATION ON CONCRETE SLAB



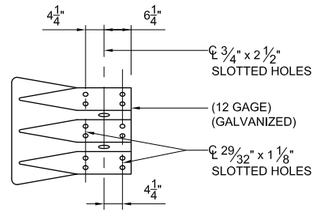
FLUSH MOUNTED POST ANCHOR DETAIL

(POST NOT SHOWN)



PLAN

DETAIL OF FLARED END



ELEVATION

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.		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 1

AREA

CLIENT DWG. NO.

DRAWING NO. C-000-D-0312

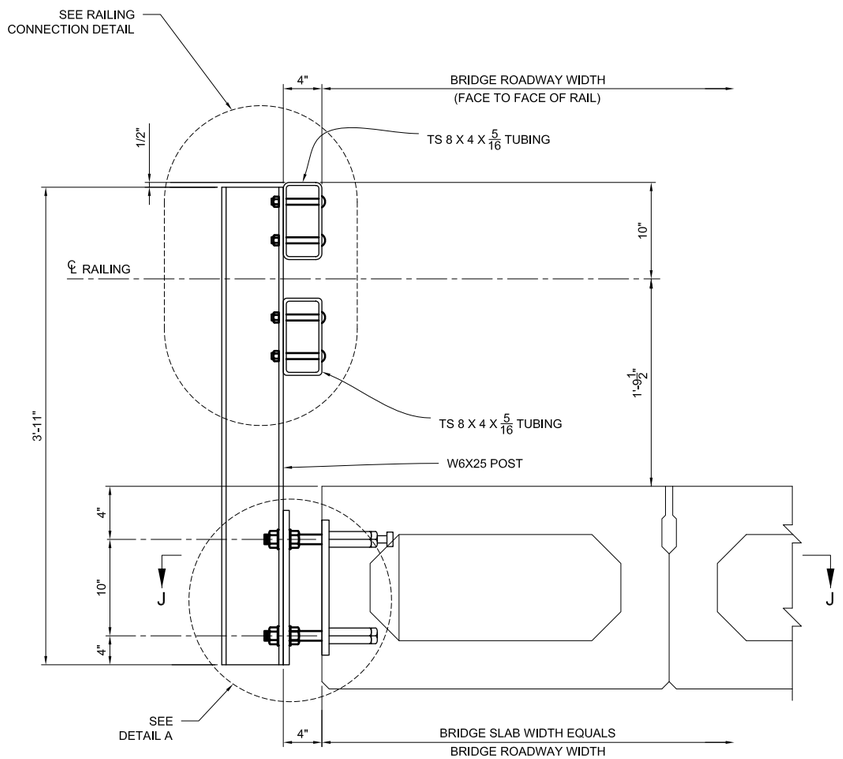
REV. A

CAD FILE: P:\STLOUIS\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\GUARDRAIL DETAIL 2.DWG

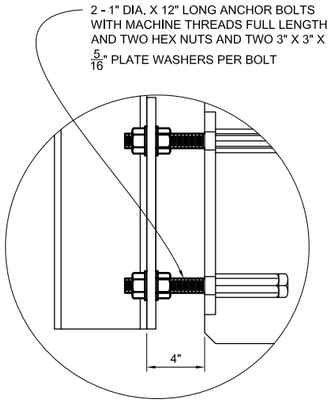
SAVED: 23-Feb-15 4:01 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

ARCH 0-24x36

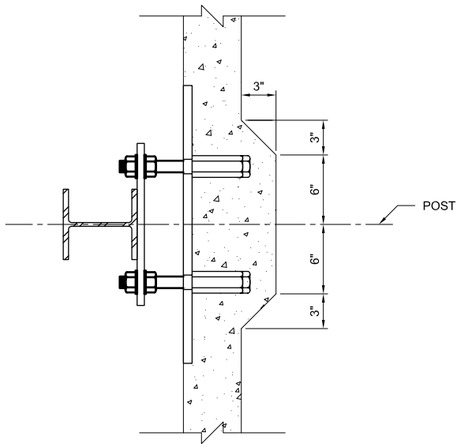
NOTES
NOT TO SCALE



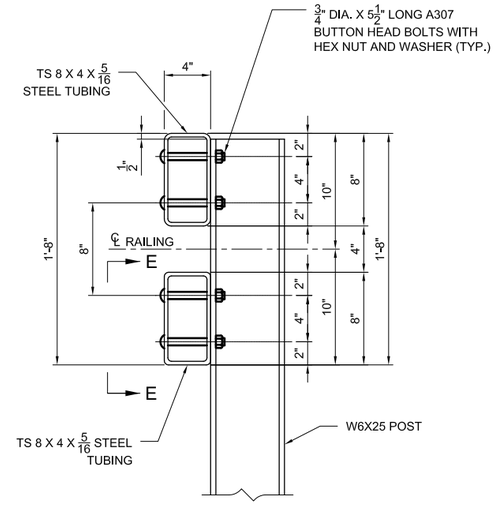
SECTION A-A



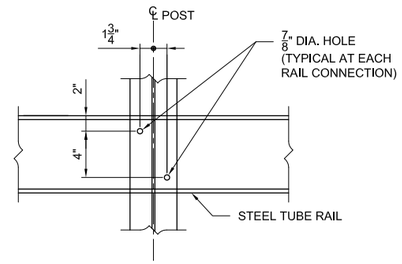
DETAIL A



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

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 DETAILS 2

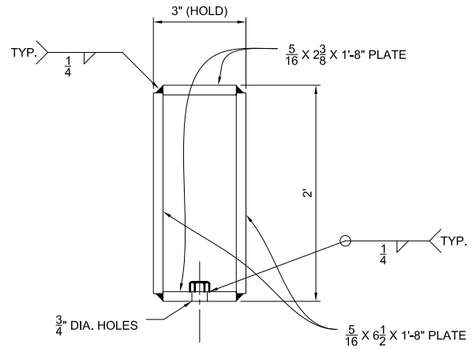
AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0313
REV. A

SAVED: 23-Feb-15 3:59 PM PLOTTED: 23-Feb-15 4:03 PM USER: JOHNSON, JEFFERY L.

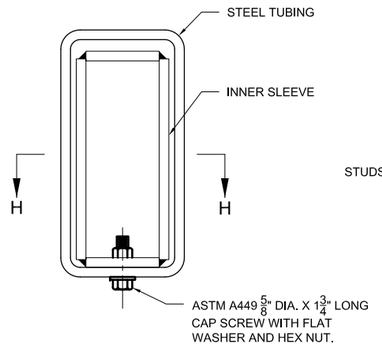
CAD FILE: P:\STUDIES\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGE\10-CAD\GUARDRAIL DETAIL 1.DWG

ARCH D-24x36

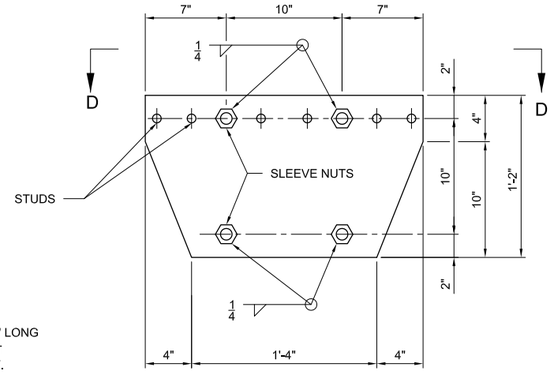
NOTES
NOT TO SCALE



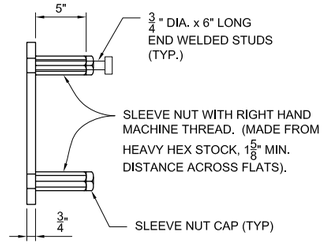
FINISHED DIMENSIONS OF INNER SLEEVE



SECTION THRU SPLICE

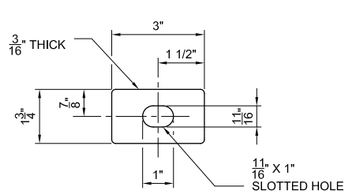


ELEVATION



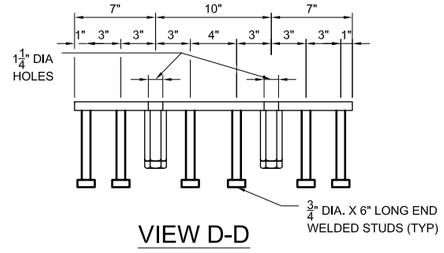
END VIEW

POST ANCHOR DEVICE

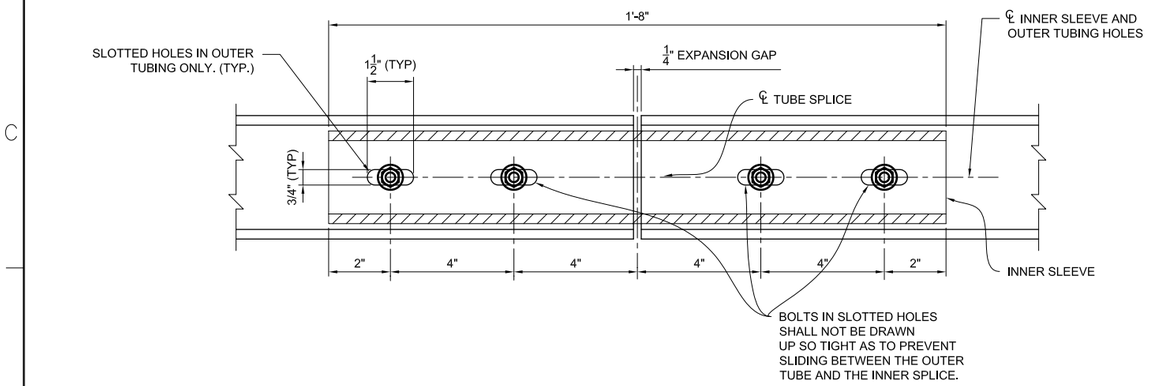


SPECIAL WASHER

PLACE WASHER BETWEEN BOLT HEAD AND FACE OF THRIE BEAM RAIL.

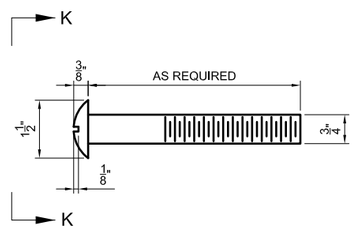


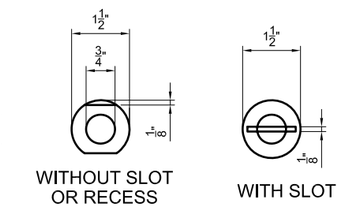
VIEW D-D



SECTION H-H

STEEL TUBE SPLICE DETAILS





VIEW K-K

DETAIL OF 3/4" DIA. BUTTON HEAD BOLT

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

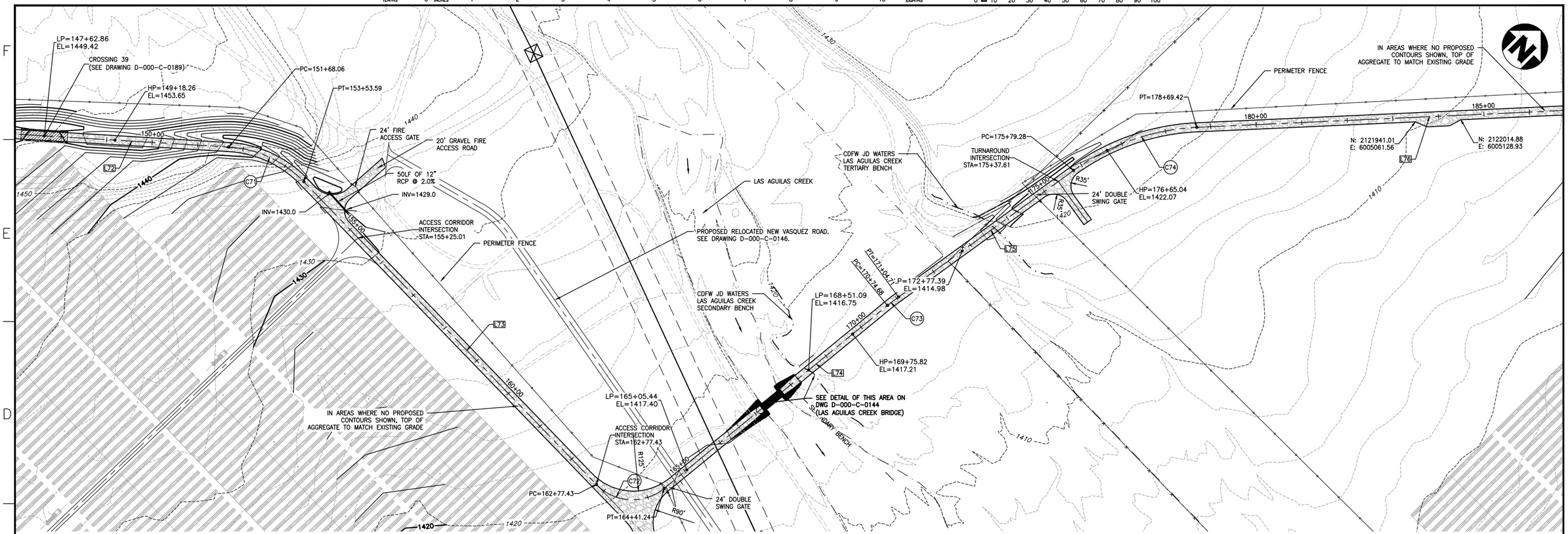
SUBJECT
CIVIL
BRIDGE CROSSINGS
GUARDRAIL SYSTEM DETAILS 3

AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0314
REV. A

CAD FILE: P:\STLOUIS\2015\325115001 - AMEC POWER - PANOCHE VALLEY BRIDGES\10-CAD\GUARDRAIL DETAIL 1.DWG

SAVED: 23-Feb-15 3:59 PM PLOTTED: 23-Feb-15 4:04 PM USER: JOHNSON, JEFFERY L.

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

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	JCS	03JUN14
SCALE	PACKAGE CODE	DRN	JCS	03JUN14
AS SHOWN		CHK	MTG	12JAN15
		APP	LEC	12JAN15

PANOCHE VALLEY SOLAR LLC

SUBJECT
CIVIL
PERIMETER ROAD
PLAN AND PROFILE
WEST SIDE

AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0139
REV. D

ARCH D-24x36

CAD FILE: P:\CAD\CIVIL\D-000-C-0121 - 0145.DWG

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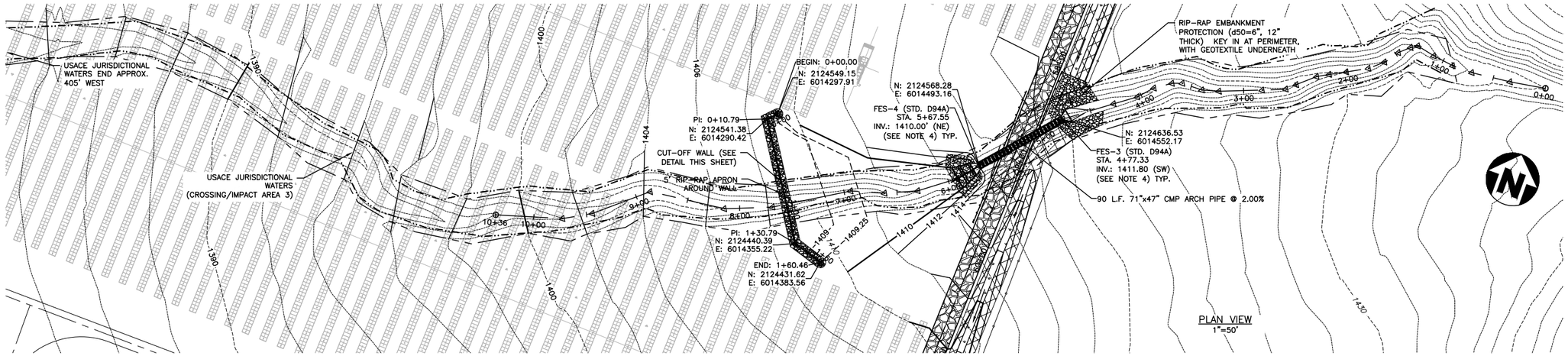
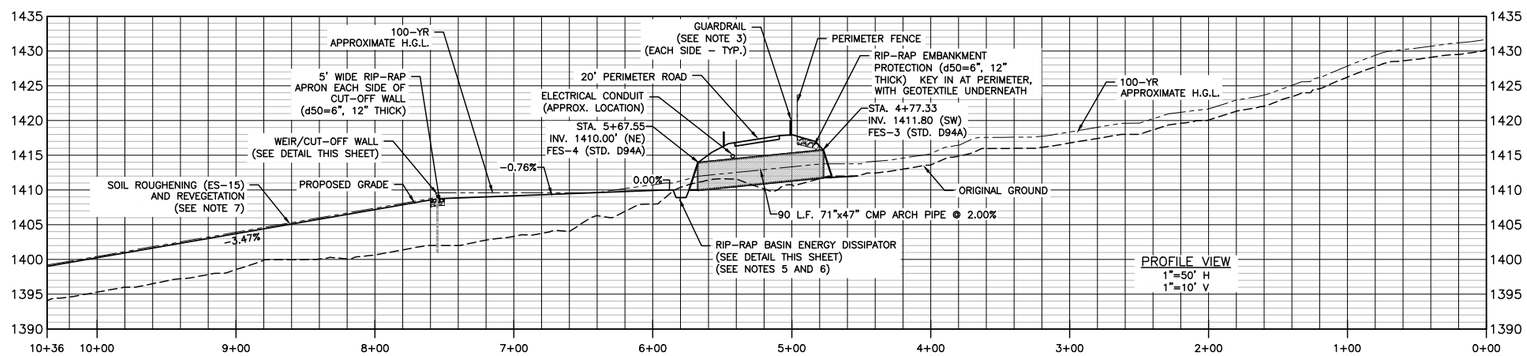
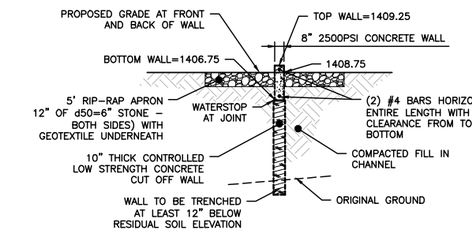


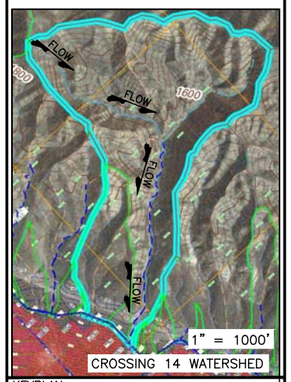




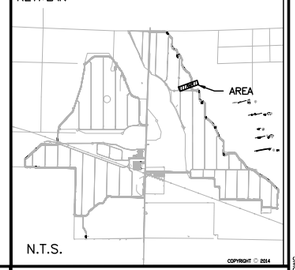
SECTION B–B
1"=5' H AND V

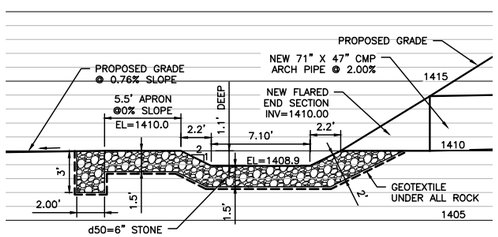
NOTES:
1. TOP OF WALL TO BE WITHIN 1/8" OF ELEVATION 1049.25
2. ALL VERTICAL SURFACES TO BE FORMED
3. VERTICAL SURFACES DOWN FROM 2" BELOW UNDISTURBED SOIL MAY BE PLACED AGAINST NEAT CUT IF APPROVED BY ENGINEER AND CONCRETE WILL NOT MORE THAN 1" BEYOND THEORETICAL FACE.
4. ALL EXPOSED SURFACES TO BE 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-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-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-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 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 DOWNSTREAM OF BROAD CRESTED WEIR ≤ 0.2' AT Q = 65 CFS, V ≤ 2.0 FT/S

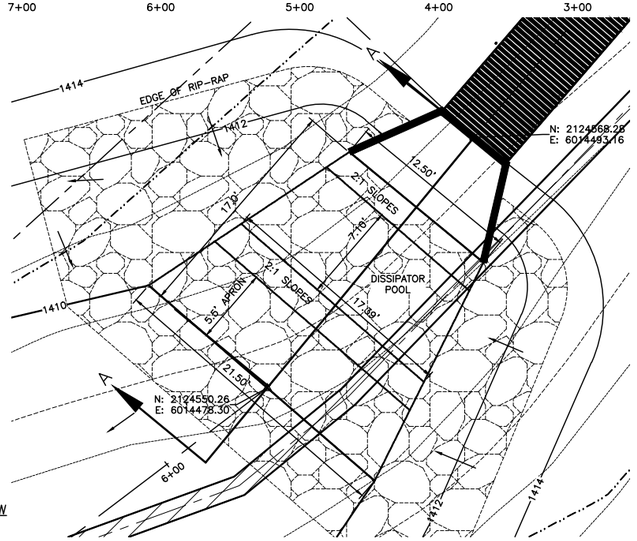


KEYPLAN

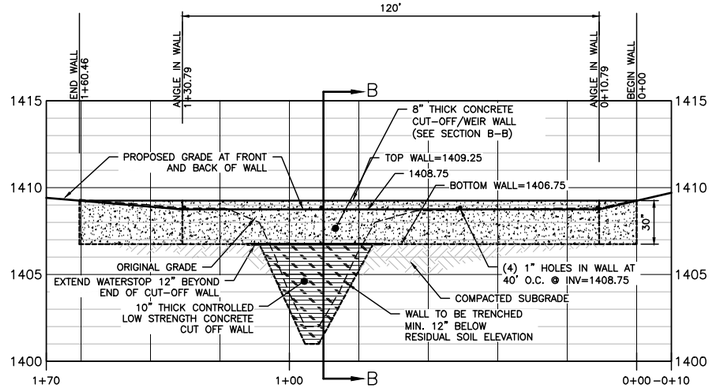




SECTION A–A
1"=5' H AND V



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.	DRE DEPARTMENT MGR.	HRM PROJECT MGR.

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

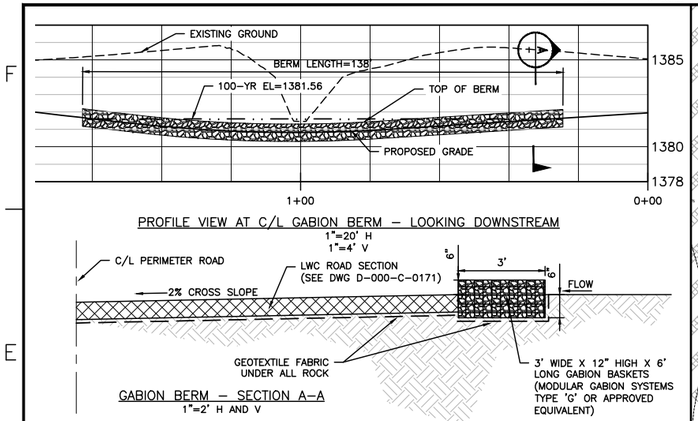
SUBJECT
CIVIL
PERIMETER ROAD DETAILS
CROSSING 14

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: STEADMA, CHARLES

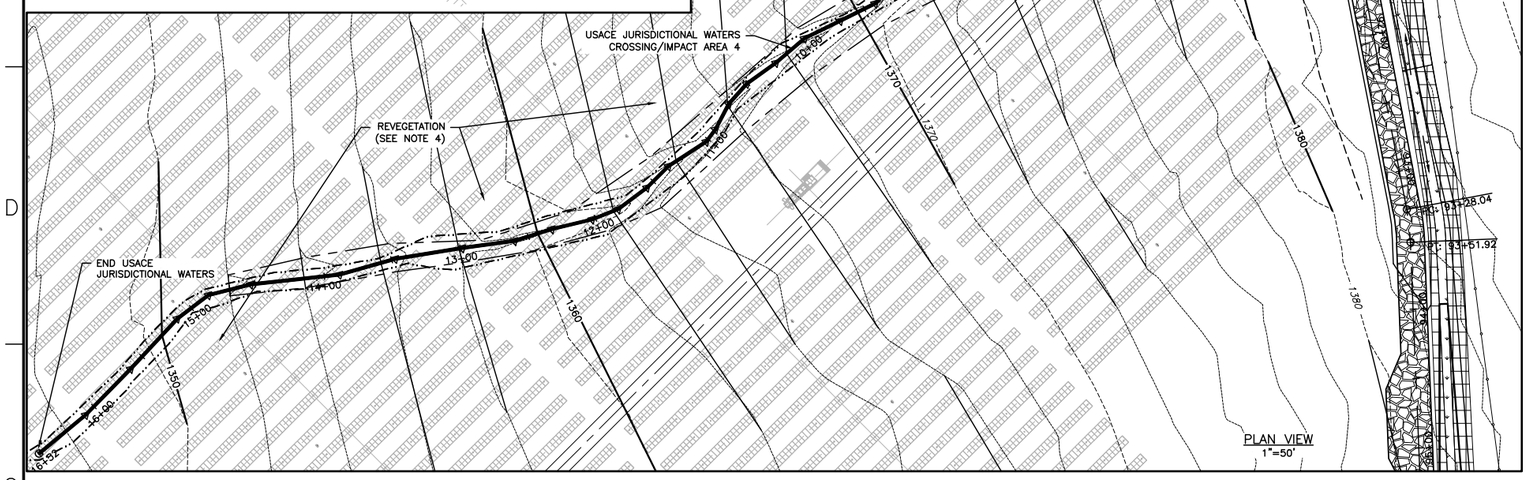
CAD FILE:P:\CAD\CIVIL\D-000-C-0154 - 0160.DWG

ARCH D-24x36

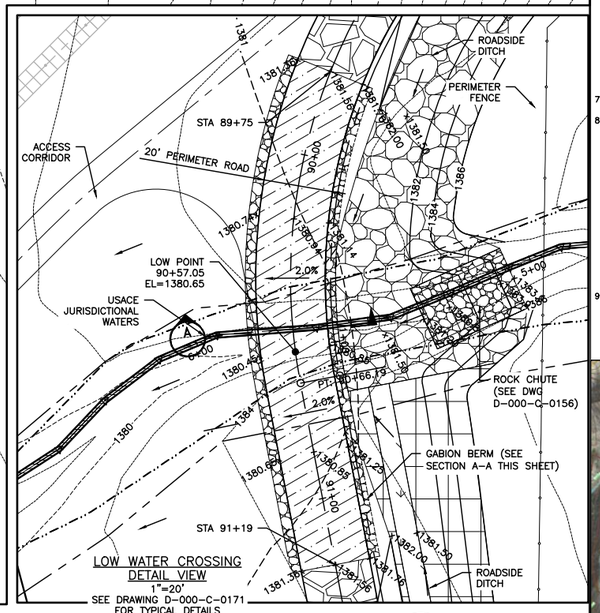


PROFILE VIEW AT C/L GABION BERM – LOOKING DOWNSTREAM
1"=20' H
1"=4' V

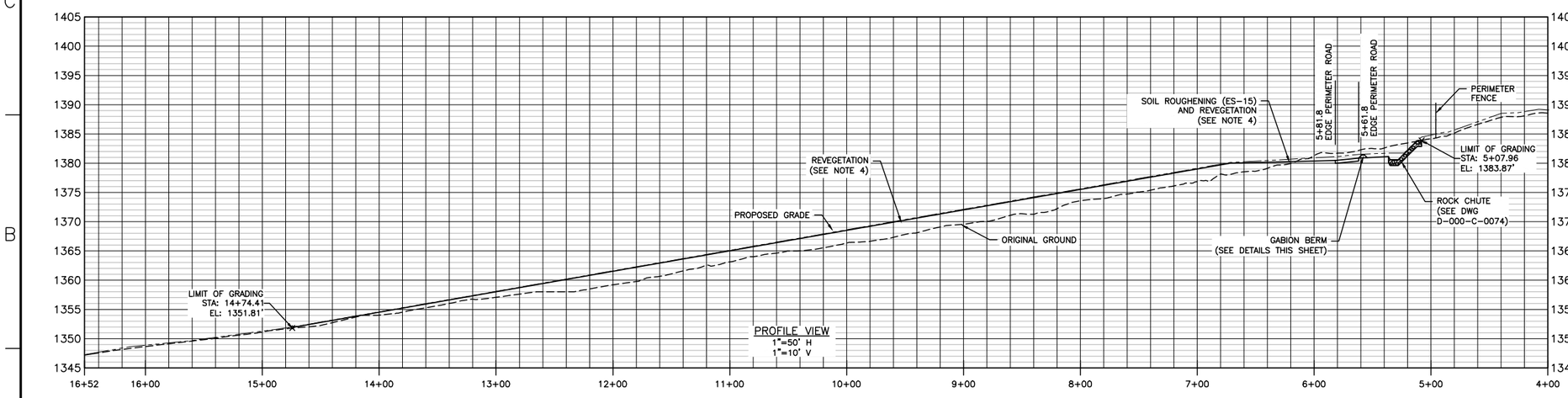
GABION BERM – SECTION A–A
1"=2' H AND V



PLAN VIEW
1"=50'



LOW WATER CROSSING
DETAIL VIEW
1"=20'
SEE DRAWING D-000-C-0171
FOR TYPICAL DETAILS



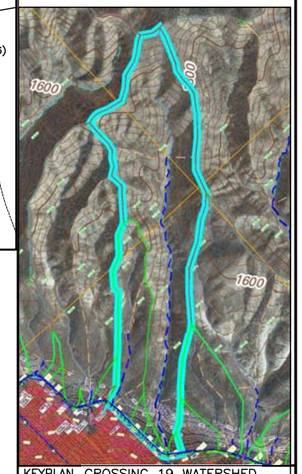
PROFILE VIEW
1"=50' H
1"=10' V

0 10' 25' 50' 100'
1"=50'-0"

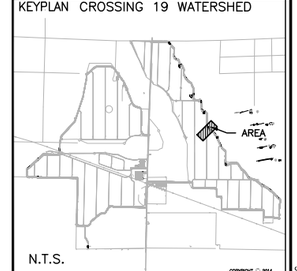
WORK SAFELY

NOTES

1. FOR GENERAL NOTES SEE DRAWING D-000-C-0002.
2. ALL CONTRACTORS SHALL 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) 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 I
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



N.T.S.

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
REFERENCES		

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DRE DEPARTMENT MGR.	HRM PROJECT MGR.

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 19

AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0158
REV. D

SAVED: 23-Feb-15 8:56 PM PLOTTED: 24-Feb-15 8:26 AM USER: STADHAM, CHARLES

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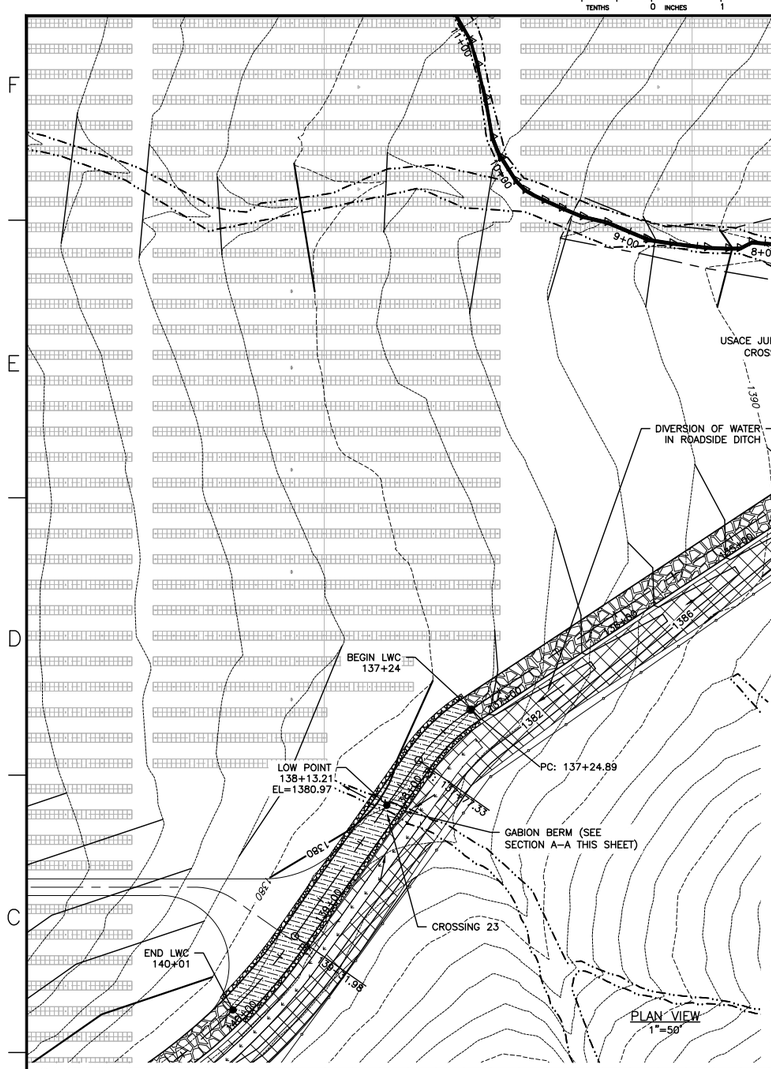
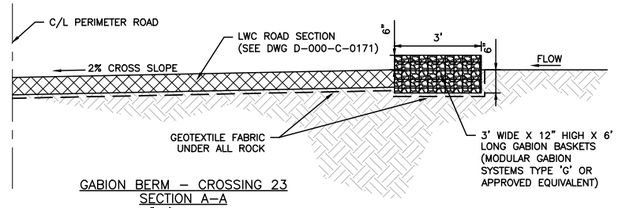
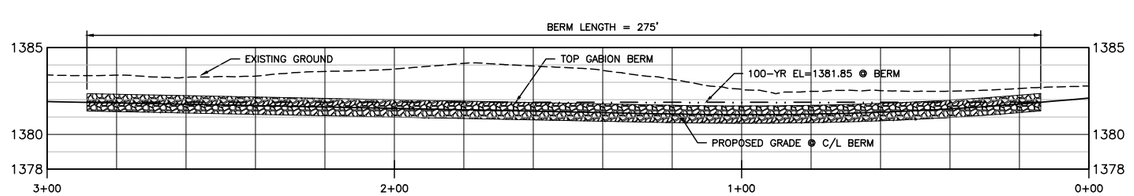
ARCH D-24x36

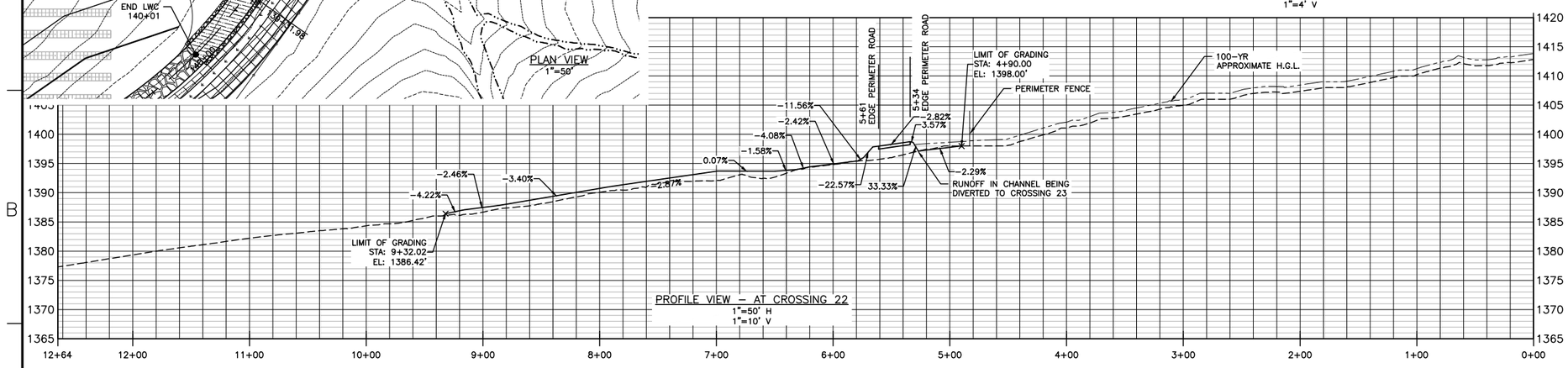




GABION BERM – CROSSING 23
SECTION A–A
1"=2' H AND V

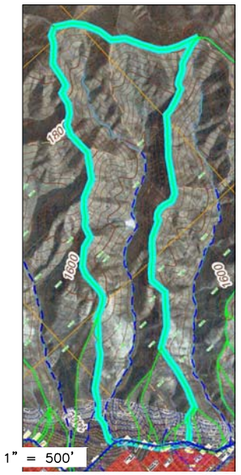


PROFILE VIEW AT C/L GABIONS – CROSSING 23 – LOOKING DOWNSTREAM
1"=20' H
1"=4' V



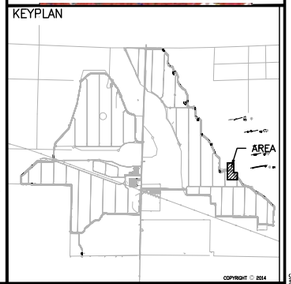
PROFILE VIEW – AT CROSSING 22
1"=50' H
1"=10' V

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 ENGIINEERING 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



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				

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

APPROVED FOR PERMIT REVIEW

CLIENT PROJECT MGR.	DRE DEPARTMENT MGR.	HRM PROJECT MGR.

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

CAD FILE: P:\CAD\CIVIL\D-000-C-0154 - 0160.DWG

SAVED: 23-Feb-15 8:56 PM PLOTTED: 24-Feb-15 8:38 AM USER: STEADHAM, CHARLES

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