

**PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF DATA REQUESTS 104 - 168**

Technical Area: Cultural Resources (AFC Section 5.4)

Response Date: January 6, 2010

INTRODUCTION

In a letter dated December 1, 2009, the staff of the California Energy Commission (CEC) provided guidance to Palen Solar I, LLC concerning the review of cultural resources under Federal (National Environmental Policy Act [NEPA] and Section 106 of the National Historic Preservation Act [NHPA]) and state (California Environmental Quality Act [CEQA]) law. The letter outlined three approaches, each of which requires an equally thorough review of cultural resources by the CEC and the Bureau of Land Management (BLM).

The first approach is typically used for projects with a relatively small number (≤ 75) of cultural resources. Under this approach, Applicants would complete all investigations necessary to identify, evaluate the significance of, and assess the reasonably foreseeable impacts to cultural resources in the project area before the CEC's Staff Assessment.

The second approach is commonly used for projects with a larger number (> 75) cultural resources. Under this approach, the CEC and the BLM would draft their joint CEQA and NEPA analysis on the basis of an assessment of a large sample (≥ 25 percent) of the cultural resources identified during inventory. On the basis of the inventory and sample, a Programmatic Agreement (PA) concerning the disposition of cultural resources would be executed as part of the NHPA section 106 process. All further cultural resources compliance work would be subject to the provisions of the PA.

The third approach was developed by the CEC and BLM staff to facilitate the review of certain solar thermal projects with compressed review schedules, including the Palen Solar Power Project (PSPP or Project). Under this approach, all inventoried cultural resources would be assumed to be historically significant for the purposes of the joint CEQA and NEPA analysis. Those cultural resources that staff could determine to be not historically significant on the basis of extant inventory information, or those that would not be affected by the Project, could be excluded from further assessment work. Thorough consideration and treatment of cultural resources in the Project area would be ensured through the use of a phased treatment plan as specified in a Memorandum of Agreement (MOA) pursuant to the NHPA section 106 process. This treatment plan would be executed after the issuance of the CEC's Staff Assessment but before the onset of construction.

Subsequent to the receipt of the December 1, 2009 letter, the Applicant received the CEC's Data Requests for Cultural Resources as part of the combined PSPP (09-AFC-7) Data Requests Set 1 (#1-280), dated December 7, 2009. In those requests, staff indicated which data requests for cultural resources must be answered under each of the three specified approaches. Under Approach 1, responses to all of the Data Requests for cultural resources are required. Under Approach 2, responses to all but Data Request # 116 are required, and the scope of data request # 121 would be modified. Under Approach 3, responses are required only to Data Requests numbered 104, 105, 116–125, 132–137, and 141–145.

The Applicant has chosen Approach 3 for the assessment, treatment, and disposition of cultural resources affected by the PSPP. Therefore, responses are provided only for those Data Requests specified by the CEC staff as required under Approach 3.

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DR-CR-104

Information Required:

Please provide a definition of the archaeological surface APE and the built-environment APE for the proposed project, identifying the areas included in them.

Response:

The Archaeological Survey Area is located on the Sidewinder Well 7.5" USGS quadrangle. Specifically, the Archaeological Survey Area is located in all or part of Township 5S and Range 17E, Sections 20, 21, 26, 27, 28, 28, 30, 31, 32, 33, 34, and 35; and Township 6S and Range 17E, Sections 2, 3, 4, 5, 6, 8, 9, 10, and 15.

The Area of Potential Affect (APE) is 3,946 acres. This does not include the additional CEC-mandated buffers, which are another 338 acres.

The Built Environment Survey Area is also located on the Sidewinder Well. Specifically, the Built Environment Survey Area is located in all the areas and acreages listed for the Archaeological Survey Area. The APE for the Built Environment Survey Area is 3,946 acres. This does not include the additional CEC-mandated buffers, which are another 5,027 acres.

DR-CR-105

Information Required:

Please provide a map at a scale of 1:24,000 depicting the final and definitive archaeological surface and built-environment APEs for the proposed project.

Response:

Please see attached maps.

Figure DR-CR-105-a
Figure DR-CR-105-b
Figure DR-CR-105-c
Figure DR-CR-105-d

DR-CR-106

Information Required:

Please provide a figure/figures that includes the following additional project components:

- on-site transmission lines
- off-site transmission lines, including any re-routings and any alternative routes

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- on-site fiber optic system, overhead and/or underground, on- and offsite
- on-site steam lines
- on-site wells and water pipelines
- on-site firewater system pipeline
- septic tanks and leach fields
- drainage diversion channels
- all project-constructed roads, on- and off-site
- culverts
- wells
- oil and chemical containment features, above and/or underground
- land treatment unit

Response:

No response required under Approach 3 (see Introduction).

DR-CR-107

Information Required:

Please provide the lengths, widths, and depths of the channels for storm water runoff diversion.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-108

Information Required:

Please provide plans for the horizontal and vertical extent of grading, including the maximum elevation range and the finished grade elevation.

Response:

No response required under Approach 3 (see Introduction).

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DR-CR-109

Information Required:

Please provide the depth planned for the detention basins.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-110

Information Required:

Please provide the depths of the planned underground pipeline for well water distribution.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-111

Information Required:

Please provide a description of foundation designs, including dimensions, for the steam turbine generator and any other pieces of equipment with deep foundations.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-112

Information Required:

Please provide plans for the horizontal and vertical extent of the septic tanks and leach fields.

Response:

No response required under Approach 3 (see Introduction).

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DR-CR-113

Information Required:

Please provide the planned depth of the holes for the foundations of the transmission line monopoles.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-114

Information Required:

Please provide a discussion of the dimensions and depth of ground disturbance that would result from removal of the supports for the SCE Eagle Mountain-Blythe 230-kV line.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-115

Information Required:

If the area into which the two SCE lines would be re-located has not previously been surveyed for cultural resources:

- Please have a qualified archaeologist survey these sites and record on Department of Parks and Recreation (DPR) 523 forms any cultural resources that are identified; and
- Please submit to staff, under confidential cover, a report on the methods and results of these surveys, with recommendations for the treatment of any cultural resources identified in the surveys.

Response:

No response required under Approach 3 (see Introduction).

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DR-CR-116

Information Required:

Please provide to staff a series of scaled and dimensioned plan-and profile views of the proposed project's (and alternative locations) impact blocks.

Response:

The response to this Data Request will be provided by January 20, 2010.

DR-CR-117

Information Required:

If the previous CHRIS search(es) did not cover the area out 1.0 mile from the entire ROW, please request an additional search and provide to staff copies of all records for known cultural resources in the additional area.

Response:

Due to Information Center closures, the Applicant was unable to compile the information for this request. A records search for the area 1.0 mile from the entire ROW will be conducted on January 6, 2010, and copies of all records for known cultural resources in the additional area will be submitted to the CEC under confidential cover by January 20, 2010.

DR-CR-118

Information Required:

Please conduct a Bureau of Land Management (BLM) class III pedestrian archaeological survey and a built-environment survey of the entire BLM authorized ROW.

Response:

Due to the level of effort required, a Class III archaeological and built environment survey of the entire BLM ROW could not be completed in time for submittal on January 6, 2010 with the overall Data Response document. Surveys are scheduled to be conducted beginning in late January 2010, with the report documenting the results of the survey submitted in May 2010.

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DR-CR-119

Information Required:

Please complete DPR 523 forms for additional identified sites and make a recommendation on the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility of each additional site.

Response:

DPR 523 forms for additional identified sites and recommendations on the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility of each additional site will be completed in May 2010 following conclusion of the Class III archaeological and built environment survey of the entire BLM ROW.

DR-CR-120

Information Required:

Please provide to staff a survey report for the additionally surveyed area and copies of the additional DPR 523 forms.

Response:

A survey report for the additionally surveyed area and copies of the additional DPR 523 forms, submitted under confidential cover, will be provided to the CEC in May 2010 completion of the Class III archaeological and built environment survey of the entire BLM ROW.

DR-CR-121

Information Required:

Pursuant to achieving a BLM class III inventory for all alternative project site location(s), please provide to staff, under confidential cover, the following:

- a) Copies of DPR 523 site forms for all previously known cultural resources from California Historical Resources Information System (CHRIS) record searches, and from BLM records (if pertinent), for the alternative locations, out to 1.0 mile beyond the sites' and linear facility corridors' boundaries;
- b) Copies of CHRIS reports of previous archaeological excavations and architectural surveys conducted within the boundaries of the alternative sites and their linear facility corridors;
- c) A copy of the results of the Native American Heritage Commission's (NAHC) sacred lands database search for each alternative location;
- d) Copies of all letters sent to and received from Native Americans identified by the NAHC as interested in development at each alternative location;

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- e) A pedestrian archaeological survey of 100 percent of the acreage of the alternative location, including a visit to all previously recorded archaeological sites to verify location and to update content and condition;
- f) An examination of historic maps to identify former and extant buildings and structures, including trails, roads, and other infrastructure, aged 45 years or older, for each alternative location;
- g) A windshield built-environment survey of all of the trails, roads, and historic-period use areas in each alternative location, identified from the examination of historic maps; and a visit to all previously recorded built-environment sites to verify location and to update content and condition;
- h) Copies of DPR 523 site forms (with as precise dates as possible) for all cultural resources newly identified or updated through the applicant's additional pedestrian archaeological surveys and windshield built environment surveys for each alternative location;
- i) A map at a scale of 1:24,000 depicting the locations of all previously known and newly identified cultural resources for each alternative location; and
- j) A discussion of the comparative advantages and disadvantages of the proposed project and each alternative location, with respect to cultural resources.

Response:

Records searches have been completed for the CEC's North of Desert Center alternative site, and the AFC Palen Pass alternative site. The results of the record searches for these alternatives will be submitted under confidential cover on January 8, 2010. NAHC letters have been submitted for all alternatives. We were unable to complete the Class I records searches for the Desert Center, Palo Verde Mesa and Cibola alternative sites before the archives housing the data for these sites closed for the Christmas and New Year's holiday. Therefore, record searches for these two sites could not be completed in time for the January 6, 2010 submittal. These records searches were conducted on January 5 and 6, 2010 and the results will be submitted by January 20, 2010.

The following materials will be provided under confidential cover: 1) copies of DPR 523 site forms for all previously known cultural resources from California Historical Resources Information System (CHRIS) record searches, and from BLM records (if pertinent), for the alternative locations, out to 1.0 mile beyond the sites' and linear facility corridors' boundaries; 2) copies of CHRIS reports of previous archaeological excavations and architectural surveys conducted within the boundaries of the alternative sites and their linear facility corridors; 3) copies of the results of the Native American Heritage Commission's (NAHC) sacred lands database search for each alternative location; and 4) copies of all letters sent to and received from Native Americans identified by the NAHC as interested in development at each alternative location.

Class III archaeological and built environment surveys, historic map research, DPR forms, maps and analysis of the comparative advantages and disadvantages of the proposed project and alternative project redesigns are expected to begin in late January 2010, with results to be provided under confidential cover to staff and BLM in May 2010.

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DR-CR-122

Information Required:

If the applicant has analyzed other alternatives, unique to the proposed project, please provide to staff the above requested information for each additional alternative that entails use of land beyond the BLM-authorized ROW.

Response:

No other alternatives beyond the BLM-authorized ROW have been analyzed by the Applicant.

DR-CR-123

Information Required:

Please provide copies of the following:

- a) 1942 Map of Desert Training Center;
- b) 1943 Army Topographic Relief Map of the Desert Training Center Desert Floor (cited in Lyneis 1973);
- c) Any pertinent Mining District Map(s); and
- d) LIDAR data for as much of the proposed project area as is available.

Response:

- a) A map of the Desert Training Center from has been attached. Photographs of DTC topographic maps from 1943 that include the PSPP have also been provided. Maps from the DTC included the following:
 - Hopkins Well 1943 15' historic quadrangle
 - Chuckwalla Mts 1943 15' historic quadrangle
 - b) Photographs of the Topographic Relief Map of the Desert Training Center Floor have been provided in Attachment DR-CR-123.
 - c) To date no Mining District Maps have been identified. Any maps identified in the future will be provided at a later date.
 - d) LIDAR data has been provided in Attachment DR-CR-123.
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DR-CR-124

Information Required:

Please provide copies of any historic aerials and photographs of the Desert Training Center vicinity.

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Response:

No historic aerial photographs were identified at the Patton Memorial Museum. However, photographs of camp life were available. Examples of some of these photographs have been reproduced here. These photographs show tents at an unknown location in the DTC. They have been provided as Attachment DR-CR-124.

DR-CR-125

Information Required:

Please provide information on the nature of the Sacred Lands site and its location in relation to the project area.

Response:

Native American contacts were telephoned to solicit information specifically on the Sacred Lands site identified by the NAHC. No additional information on the site was obtained, though it is thought by the Applicant to be prehistoric site CA-RIV-1515, less than one kilometer north-northeast of the proposed Project on the prehistoric lakeshore of Palen Dry Lake. Please see attached updated Native American Contact Program Communication Log.

DR-CR-126

Information Required:

Please provide a map of BLM's "Area of Critical Environmental Concern" for Palen Dry Lake.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-127

Information Required:

Please identify the nature of the areas of archaeological concern and provide a discussion of any special land use management measures prescribed for this area and what implications they have for the proposed project.

Response:

No response required under Approach 3 (see Introduction).

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DR-CR-128

Information Required:

Please provide copies of the National Register nomination of the Desert Training Center and any supporting documentation (e.g., Brown 1980, and Becker 1980).

Response:

No response required under Approach 3 (see Introduction).

DR-CR-129

Information Required:

Please provide additional historical information regarding the DTC and the specific uses of the APE and Camp Desert Center by the U. S. Army.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-130

Information Required:

Please update the Department of Parks and Recreation (DPR) 523 forms for newly identified historic-period archaeological sites attributed to military activities within the project APE to better justify classifying these resources as —military|| rather than as common civilian roadside debris. Please include specific information on the associated artifacts (e. g., types of ammunition, types of canned foods typical of WWII rations, types of oil cans, etc.), and the activities represented (e. g., maneuver areas, artillery ranges, supply depots, temporary tents, munitions dumps, etc.). Please provide copies of the updated forms to staff.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-131

Information Required:

Please provide the rationale for recommending military sites as ineligible for the NRHP or CRHR, either as individual places or properties, or as elements contributing to a possible historic district/cultural landscape.

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Response:

No response required under Approach 3 (see Introduction).

DR-CR-132

Information Required:

Please provide a discussion of the efficacy of modeling the potential archaeological characteristics and spatial distribution of at-this-time unknown Native American traditional use areas on the basis of available ethnographic information and theoretical principles of ethnogeography, citing appropriate authorities.

Response:

The response to this Data Request will be submitted by January 20, 2010.

DR-CR-133

Information Required:

If reasonably practicable, please develop such a model and submit for staff review and approval a research plan for the field verification in the APE of the model's predictions and recordation of identified traditional use areas.

Response:

The response to this Data Request will be submitted by January 20, 2010.

DR-CR-134

Information Required:

Please implement the staff-approved plan and provide to staff a report on the results and a comprehensive discussion of the traditional use areas in and adjacent to the project APE that may be subject to the visual impact of the construction, operation, and maintenance of the proposed project (e. g., landforms in sight of the APE on which sacred or other traditional activities took place). Please include any additional DPR 523 site forms in an appendix.

Response:

The response to this Data Request will be submitted by January 20, 2010.

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DR-CR-135

Information Required:

Please revisit the southern portion of the project area where —desert pavement exists to verify the adequacy of the extant site survey for identification of prehistoric trails.

Response:

The southern portion of the Project area was revisited. This area includes desert pavement areas where surface conditions would be conducive to preservation of prehistoric trails. Visual inspections of the area did not identify any extant trails in the project area.

One trail segment, site CA-RIV-893T, was previously identified near the project area. However, subsequent surveys failed to identify the resource (Dames and Moore 1987; Eckhardt and Way 2004). The area was revisited on December 23, 2009 to see if any extant portions of the trail existed that could possibly lead into the project area. The trail segment was not identified using the original site record (McCarthy 1980) and subsequent updates. The area has been heavily disturbed by off-highway vehicle (OHV) tracks across the desert pavement, the construction of several transmission lines, the construction of a buried utility line, and graded dirt roads. Additional disturbances may have been associated with the maintenance of these facilities.

Recorded as the Cocomaricopah trail, site CA-RIV-53T has been identified to the east and west of the project area, but was not identified in surveys of the PSPP. The closest segment of the trail (Segment c) was recorded in 2004 (Eckhardt and Carrico 2004). It is located approximately 5 miles west of the PSPP, south of Interstate 10. This segment does not continue into the PSPP. The desert pavements to the south of the PSPP have been heavily disturbed by OHV tracks across the desert pavement, the construction of several transmission lines, the construction of buried utility lines, and graded dirt roads. It is possible that the trail crossed this area in the past. However, no evidence of the extant trail was identified in the PSPP project area.

References:

Eckhardt, William T. and Richard L. Carrico, 2004. Cultural Resources Inventory of the Proposed Southern California Edison Devers-Palo Verde II 500 kV Transmission Line, Riverside County, California. Report Prepared for Southern California Edison Company, Environmental Affairs Division. Prepared by Mooney and Associates, July 2004.

McCarthy, Daniel, 1980. Site form for Site CA-RIV-893T. On file at the Eastern Information Center, University of California, Riverside.

DR-CR-136

Information Required:

Please ensure that any other cleared areas shown on aerial photographs, be field-examined.

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Response:

The cleared areas were reviewed using modern aerial imagery. What appears as a large, somewhat square cleared area on the modern aerial was revisited on December 23, 2009. It was confirmed that vegetation in this area is less dense. No indication of specific activities related to the differential vegetation density (e.g., irrigation equipment, blade marks, etc.) were identified during the PSPP survey or the revisit.

Additional survey by Project Archaeologists Rebecca Apple and Matthew Tennyson did not identify any cultural material in the cleared area. In addition, historic maps reviewed for the survey did not reveal any structures in the area. These maps included:

Map Name	Scale	Year
Chuckwalla Mtns.	1:50,000	1947
Sidewinder Well	1:62,500	1952
Palen Mtns.	1:48,000	1943
Hopkins Well	1:48,000	1943

No structures or additional roads appear on maps of the DTC provided under DR-CR-123a. Between 1996 and 2009, the same aerial imagery shows the expansion of the Cocopah Palm plantation located immediately west of the PSPP site. It is not known if the cleared area in the PSPP is related to the Cocopah facility.

An historic road was designated the temporary number SMP-H-1032. It was identified as a road dating to at least the DTC or possibly earlier based on historic maps of the project area. A trail-like alignment south of SMP-H-1032 visible on the modern aerial was confirmed to be a two-track travel route that roughly parallels the historic road. This road does not appear on any of the historic topographic maps referenced above and does not have associated artifacts to help place it chronologically. It is likely that the two track road is a result of OHV use in the area. It is between 3.5 and 4 meters wide in some spots. It is unlikely that this is a prehistoric trail. Trails in the area tend to range between 30 and 50 cm in width (Eckhardt and Carrico 2004, McCarthy 1980).

References:

Eckhardt, William T. and Richard L. Carrico, 2004. Cultural Resources Inventory of the Proposed Southern California Edison Devers-Palo Verde II 500 kV Transmission Line, Riverside County, California. Report Prepared for Southern California Edison Company, Environmental Affairs Division. Prepared by Mooney and Associates, July 2004.

McCarthy, Daniel, 1980. Site form for Site CA-RIV-893T. On file at the Eastern Information Center, University of California, Riverside.

DR-CR-137

Information Required:

If any new trails are identified by the above, please record them on DPR 523 forms (as linear resources) and provide copies of the forms to staff.

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Response:

No new sites were identified during the field visit and no new site forms or updates were prepared.

DR-CR-138

Information Required:

Please update the DPR 523 forms for all newly identified prehistoric archaeological sites, using different criteria to classify them into site types. Please avoid terms that imply function (e.g., hearth) in favor of descriptors (fire-affected rock scatter), and avoid broad labels such as camp in favor of multiple individual constituents that more precisely articulate the archaeology of the resources. As examples, surface deposits of chipped stone and ground stone artifacts and ceramic sherds would type out, simply enough, as a "chipped and ground stone artifact and ceramic scatter." A deposit that includes one or more intact hearths and ceramic sherds would type out as "fire-affected rock and ceramic scatter." Similarly, develop objective criteria to classify historic-period site types and themes.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-139

Information Required:

Please further update the DPR 523 forms for the prehistoric sites by dividing site types into preliminary chronological groups where possible. Groupings of prehistoric and historical archaeological deposits need to make the greatest possible use of the available sources of chronological data. For prehistoric archaeological sites, the chronological groups should reflect the cultural chronology of the "Project Setting" section of the Preliminary Draft Cultural Resources Technical Report. The chronological assignments should be made, where feasible, based on sources of relative chronological data, such as the most recent projectile point, ceramic, and "unique artifact" typologies. For historical archaeological sites, the chronological groupings similarly should be made relative to the most recent ceramic, bottle and bottle glass, and tin can typologies, and, where applicable, the typologies for less frequent artifact classes such as nails, ammunition, and buttons, reflecting, at a minimum, the broad historic periods set out in the "Project Setting" section, if not narrower time ranges within those periods.

Response:

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DR-CR-140

Information Required:

Please provide copies of the updated the DPR 523 forms to staff.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-141

Information Required:

Please obtain the services of a professional in geoarchaeology: a person who, at a minimum, meets the U.S. Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology, as published in Title 36, Code of Federal Regulations, part 61, and has completed graduate level coursework in geoarchaeology, physical geography, geomorphology, or Quaternary science, or who has education and experience acceptable to staff. Please submit the resume of the proposed geoarchaeologist for staff review and approval.

Response:

Please see resume for Matthew Steinkamp, geoarchaeologist, in Attachment DR-CR-141.

DR-CR-142

Information Required:

Please have the approved geoarchaeologist provide a discussion, based on the available Quaternary science and geoarchaeological literature, of the historical geomorphology of the proposed project's APE, including:

- a) A description of the development of the landforms, with dates, focused on the character of the depositional regime of each landform from the Late Pleistocene epoch to the present;
- b) Data on the geomorphology, sedimentology, pedology, hydrology, and stratigraphy of the APE, and the near vicinity; and
- c) The relationship of landform development to the potential in the APE for buried archaeological deposits.

Response:

Please see the Geoarchaeology Monitoring Report provided as Attachment DR-CR-142 and submitted under confidential cover as requested by the CEC.

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DR-CR-143

Information Required:

Please have the approved geoarchaeologist produce a map or maps of the landforms present in the project area at a scale of not less than 1:24,000; the data sources for the maps may be any combination of published maps and/or satellite or aerial imagery that has been subject to field verification, and/or the result of field mapping efforts; the maps should overlay the project APE on the landform data. Please also provide the metadata for each overlay used.

Response:

Please see the Geoarchaeology Monitoring Report provided as Attachment DR-CR-142 submitted under confidential cover as requested by the CEC.

DR-CR-144

Information Required:

Absent sufficient technical literature pertinent to the reconstruction of the historical geomorphology of the project APE, and absent sufficient field data to elucidate landform relationships, please have the approved geoarchaeologist design a primary geoarchaeological field study of the project APE, submit a research plan for staff approval, and conduct the approved research. The purpose of the study is to facilitate staff's assessment of the likelihood of the presence of subsurface components for previously known or found surface archaeological deposits and of buried archaeological deposits in the project's APE. The primary study should, at a minimum, include the following elements:

- a) Use any natural exposures that reveal aspects of the stratigraphy of the portions of the landforms in the project APE;
- b) A subsurface sampling strategy to document the landform stratigraphy not revealed in natural exposures;
- c) Data collection necessary for determinations of the physical character, the ages, and the depositional rates of the various sedimentary deposits and paleosols that may be beneath the surface of the landforms in the project APE, to the proposed maximum depth of ground disturbance. Data collection at each sampling locale should include a measured profile drawing and a profile photograph (with a metric scale), and the screening of a small sample (three 5-gallon buckets) of sediment from the major sedimentary units in each profile through ¼-inch hardware cloth. Data collection should also include the collection and assaying of enough soil humate or other organic samples to reliably radiocarbon date a master stratigraphic column for each sampled landform; and
- d) An analysis of the collected field data and an assessment, based on those data, of the likelihood of the presence of subsurface components for previously known or

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found surface archaeological deposits and of buried archaeological deposits in the project APE, and, to the extent possible, the likely age and character of such deposits.

Response:

The existing technical literature pertinent to the reconstruction of the historical geomorphology of the Project APE is sufficient to elucidate landform relationships on a gross scale. To augment and refine existing data, the Applicant retained the services of Matthew Steinkamp, a qualified geoarchaeologist with experience in southern California (see Steinkamp resume submitted as an attachment to DR-CR-141). Mr. Steinkamp monitored geotechnical boring and test pitting programs at the PSPP site. The number, spacing, depth, and field methods of the geotechnical test probes reflect engineering and other considerations. Nevertheless, all landforms within the Project were subjected to testing allowing the Mr. Steinkamp sufficient data to field confirm the surface mapping of the Project geology.

Although no buried archaeological deposits were identified in the Project APE, Mr. Steinkamp did identify buried surfaces that have the potential for intact cultural deposits. The Geoarchaeology Monitoring Report submitted as Attachment DR-CR-142 under confidential cover as requested provides an assessment of the likelihood of as yet unidentified buried archaeological deposits in the project APE, and recommendations for future work.

DR-CR-145

Information Required:

Please have the approved geoarchaeologist prepare a report of the primary field study and submit it to staff under confidential cover.

Response:

Please see Geoarchaeology Monitoring Report provided as Attachment DR-CR-142 under confidential cover as requested.

DR-CR-146

Information Required:

Please provide the rationale for recording sites Riv-1015, Riv-1016, Riv-1017, Riv-1018, Riv-1019a, Riv-1019b, Riv-2013a, Riv-2013b, Riv-2014, Riv-2015, Riv-2018, and Riv-2023 as separate sites instead of as clusters of loci. Also, given the larger context of the ACEC, please provide a discussion of a possible archaeological district evidencing the repetitive visits by Native Americans to this area and their associated subsistence activities.

Response:

No response required under Approach 3 (see Introduction).

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF DATA REQUESTS 104 - 168

Technical Area: Cultural Resources (AFC Section 5.4)

Response Date: January 6, 2010

DR-CR-147

Information Required:

Please propose and submit for staff approval a research plan (including methods that do not entail significant impacts to the sites), a proposed schedule, and personnel resumes, to provide data supporting or discounting the existence of an archaeological district.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-148

Information Required:

Please implement the staff-approved research plan and, under confidential cover, provide staff with a report, presenting all the collected data, describing and dating the potential archaeological district, and making a recommendation on its NRHP and CRHR-eligibility, supported by the collected data.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-149

Information Required:

Please provide the APE maps in the final technical report.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-150

Information Required:

Please accurately note the number of acres in the final technical report.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF DATA REQUESTS 104 - 168

Technical Area: Cultural Resources (AFC Section 5.4)

Response Date: January 6, 2010

DR-CR-151

Information Required:

Please provide in the final technical report a legal description of the project location (township, range, sections) as well as show the Desert Center on the regional map (Figure 1, page 2).

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-152

Information Required:

Please provide in the final technical report a map of the previously surveyed areas and recorded resources within the records search area.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-153

Information Required:

Please provide in the final technical report a map of the local landscape.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-154

Information Required:

Please provide in the final technical report information on the lithology of the local ecology.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF DATA REQUESTS 104 - 168

Technical Area: Cultural Resources (AFC Section 5.4)

Response Date: January 6, 2010

DR-CR-155

Information Required:

Please differentiate in the final technical report between the various types of toolstone observed in the lithic scatters identified within the site and attempt to account for their possible origins.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-156

Information Required:

Please provide in the final technical report additional information on Palen Lake, including:

- The periods in history it was wet;
- When it most recently dried up;
- What was the quality of the water (e.g., fresh, saline);
- What was the duration of the wet periods (e.g., 10years, 150 years);
- What were the elevations of various lake highstands; and
- What food resources (e.g., types of fish, shellfish, turtles, waterfowl) were associated with the lake.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-157

Information Required:

Please provide in the final technical report a discussion of the Western Pluvial Lakes tradition present in California from 11,000 years ago into the early Altithermal climate period and how Palen Lake might relate to this tradition.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF DATA REQUESTS 104 - 168

Technical Area: Cultural Resources (AFC Section 5.4)

Response Date: January 6, 2010

DR-CR-158

Information Required:

Please provide in the final technical report a description of the field conditions experienced by the survey teams for the archaeological surveys of both the proposed plant site and the later transmission route, including ground visibility, temperatures, terrain, etc.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-159

Information Required:

Please extend outreach to local Native Americans and other cultural groups that may have knowledge of the regional trail system and traditional land use within this portion of the Chuckwalla Valley.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-160

Information Required:

Please provide in the final technical report an overview map showing only the prehistoric cultural resources within the project APE and vicinity to show the landscape-wide network of cultural/aesthetic expression (e.g., petroglyphs, geoglyphs, trails, quarries, camps).

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-161

Information Required:

Please provide in the final technical report information that clearly identifies the important events/developments, themes, people, and periods of significance within the historic period relevant to Desert Center and the Chuckwalla Valley, Eastern Riverside County.

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF DATA REQUESTS 104 - 168

Technical Area: Cultural Resources (AFC Section 5.4)

Response Date: January 6, 2010

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-162

Information Required:

Please provide in the final technical report additional information regarding earliest historic roads, wells, gas stations, airports, recreational use areas, and mining in the Chuckwalla Valley.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-163

Information Required:

Please provide in the final technical report the following additional information on the P-38:

- When it was invented and manufactured;
- When it would have been available for shipment to soldiers at the DTC;
- Whether there is any field or archival evidence that they were used at the DTC; and
- What distinguishes a P-38-opened can from cans that were opened with other can opener technologies of the time.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-164

Information Required:

Please attempt to distinguish military-issued ration cans and marketed cans by size or estimated capacities (e.g., ounces) and provide a discussions in the final technical report.

**PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF DATA REQUESTS 104 - 168**

Technical Area: Cultural Resources (AFC Section 5.4)

Response Date: January 6, 2010

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-165

Information Required:

Please, for all historical archaeological sites attributed to DTC activities, provide percentages of cans determined as definitely military-issued vs. non-military-issued for the following: beverage, meat, oil, fruit, vegetables, milk, coffee, tobacco, and miscellaneous, and provide the figures and a discussion in the final technical report.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-166

Information Required:

Please provide in the final technical report an overview map showing only the DTC-related cultural resources (e.g., refuse, tank tracks, roads, munitions) at the landscape level relative to the project APE. Please also provide a map showing the surrounding DTC divisional camps and roads relative to the project APE.

Response:

No response required under Approach 3 (see Introduction). *Note that this information will be provided in the revised Class III survey report to be submitted to the BLM and CEC on January 20, 2010.*

DR-CR-167

Information Required:

For all archaeological sites for which project impacts cannot be avoided, please submit for staff approval, a plan, including a research design and methods that do not entail significant impacts to the sites listed in Tables 13 and 14, for using test excavations or the CARIDAP protocol to determine if any subsurface deposits are present and to acquire sufficient data to make recommendations of NRHP and CRHR eligibility for these sites, with the potential of the recovered data evaluated according to its applicability to the research questions posed in the research design. The testing plan should include the following analyses:

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF DATA REQUESTS 104 - 168

Technical Area: Cultural Resources (AFC Section 5.4)

Response Date: January 6, 2010

- Dating all or a sample of datable materials recovered from tested sites, including obsidian, charcoal, bone, and shell;
- Detailed lithic analysis of debitage addressing manufacturing techniques and sourcing of toolstone materials, including, if locally derived, an estimated collection radius; and
- Site-specific and landscape- or APE-based strategies for ceramic analysis to generate such attributions as source, age, mineral content, and paste characteristics that are consistent with J. Schaefer's ongoing research efforts.

Response:

No response required under Approach 3 (see Introduction).

DR-CR-168

Information Required:

Please provide to staff a report on the testing and results at these sites, presenting an analysis of the recovered data and recommendations regarding the eligibility of the sites.

Response:

No response required under Approach 3 (see Introduction).

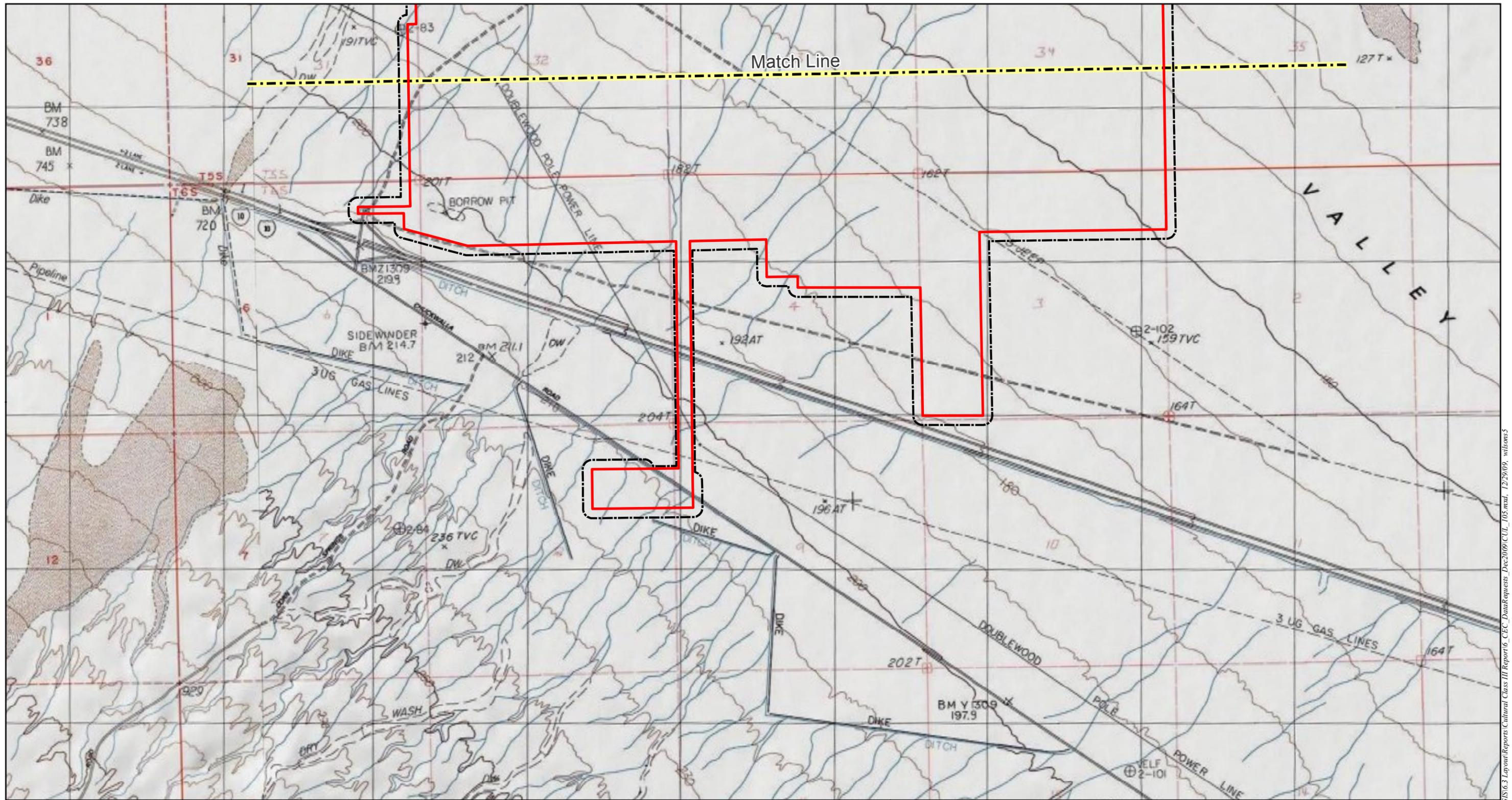
Attachment DR-CR-105

**Figure DR-CR-105a
Project Area of Potential Effects**

**Figure DR-CR-105b
Project Area of Potential Effects**

**Figure DR-CR-105c
Project Area of Potential Effects**

**Figure DR-CR-105d
Project Area of Potential Effects**



Legend

- Area of Potential Effect (3,946 acres)
- CEC Buffers (Additional 338 acres)

Source: NAIP, 2005; USGS 7.5" Quadrangle Sidewinder Well (1983); AECOM 2009

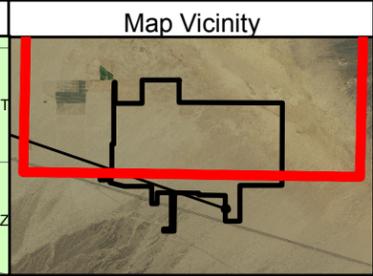
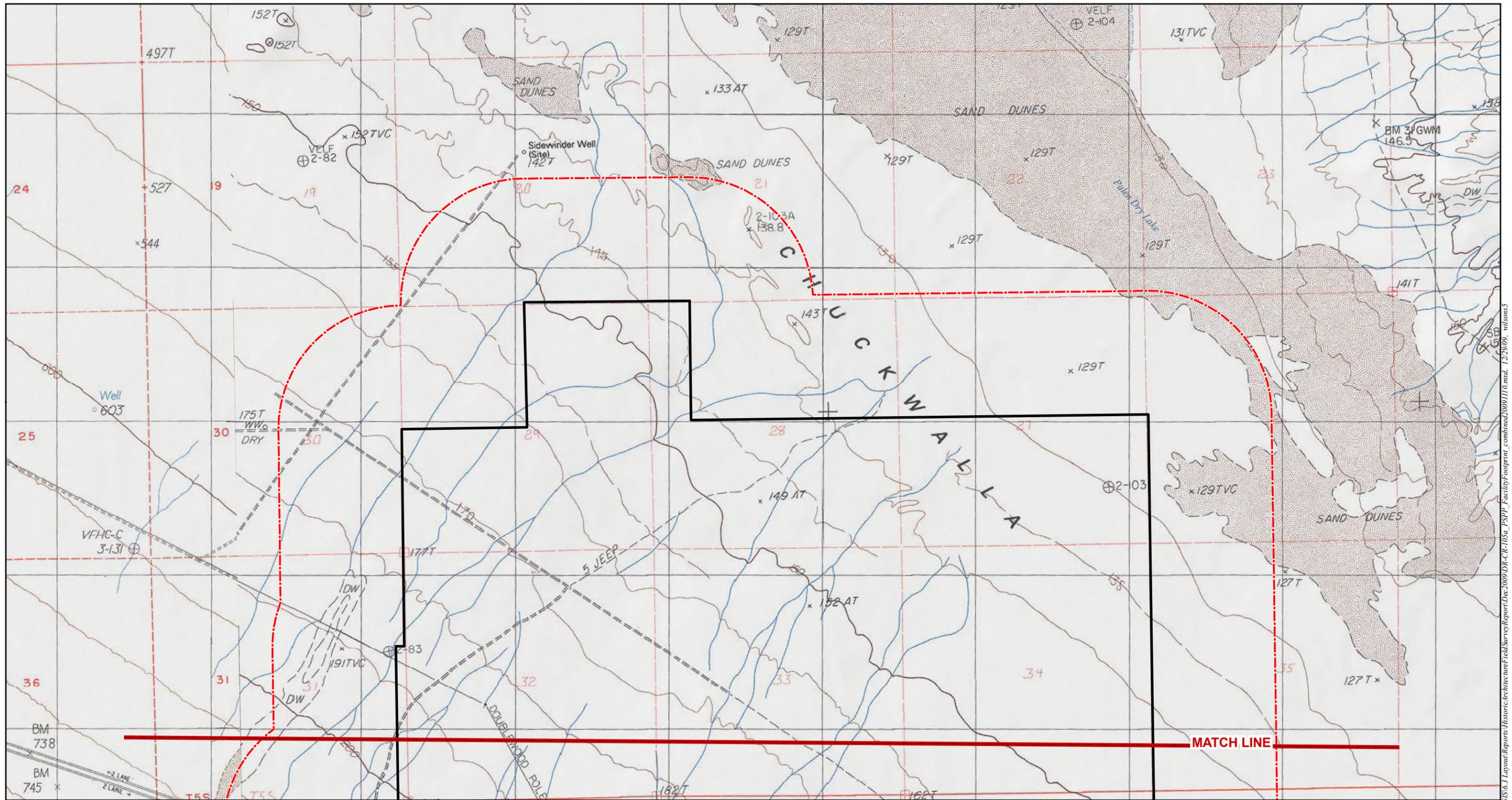
1 inch = 2,000 feet

Class III Cultural Resources Report for the Palen Solar Power Project

DR-CR-105b Project Area of Potential Effects

AECOM

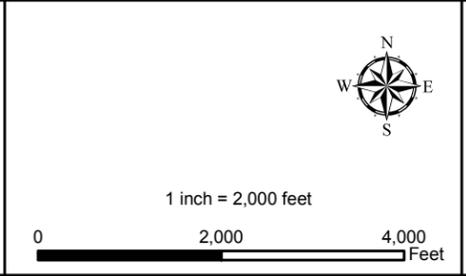
Date: January 2010



Legend

- Project Area of Potential Effects
- CEC 0.5mile Buffer

Source: NAIP, 2005; USGS; AECOM 2009;

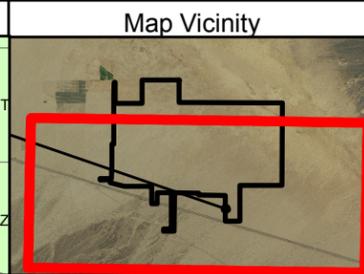
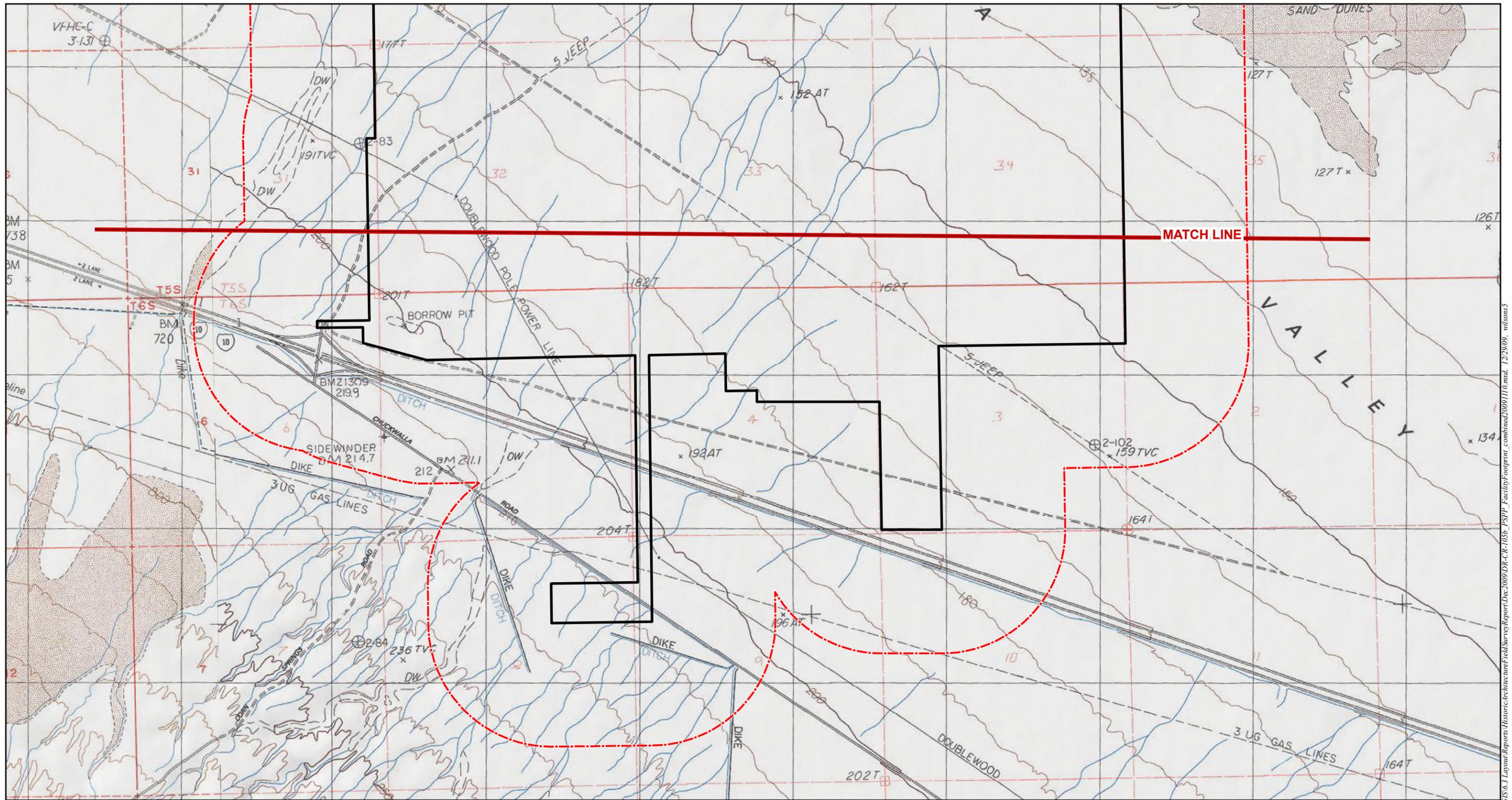


**Palen Solar Power Project
Historic Architecture Field
Survey Report**

**DR-CR-105c
Project
Area of Potential Effects**

AECOM

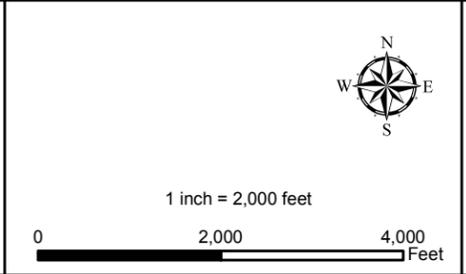
Date: January 2010



Legend

- Project Area of Potential Effects
- CEC 0.5mile Buffer

Source: NAIP, 2005; USGS; AECOM 2009;



**Palen Solar Power Project
Historic Architecture Field
Survey Report**

**DR-CR-105d
Project
Area of Potential Effects**

**Solar
Millennium**

AECOM

Date: January 2010

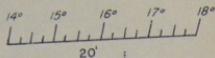
Attachment DR-CR-123
Photographs and LIDAR Data

ENGINEERS, U. S. ARMY

FIRST EDITION-651 ENGR. I

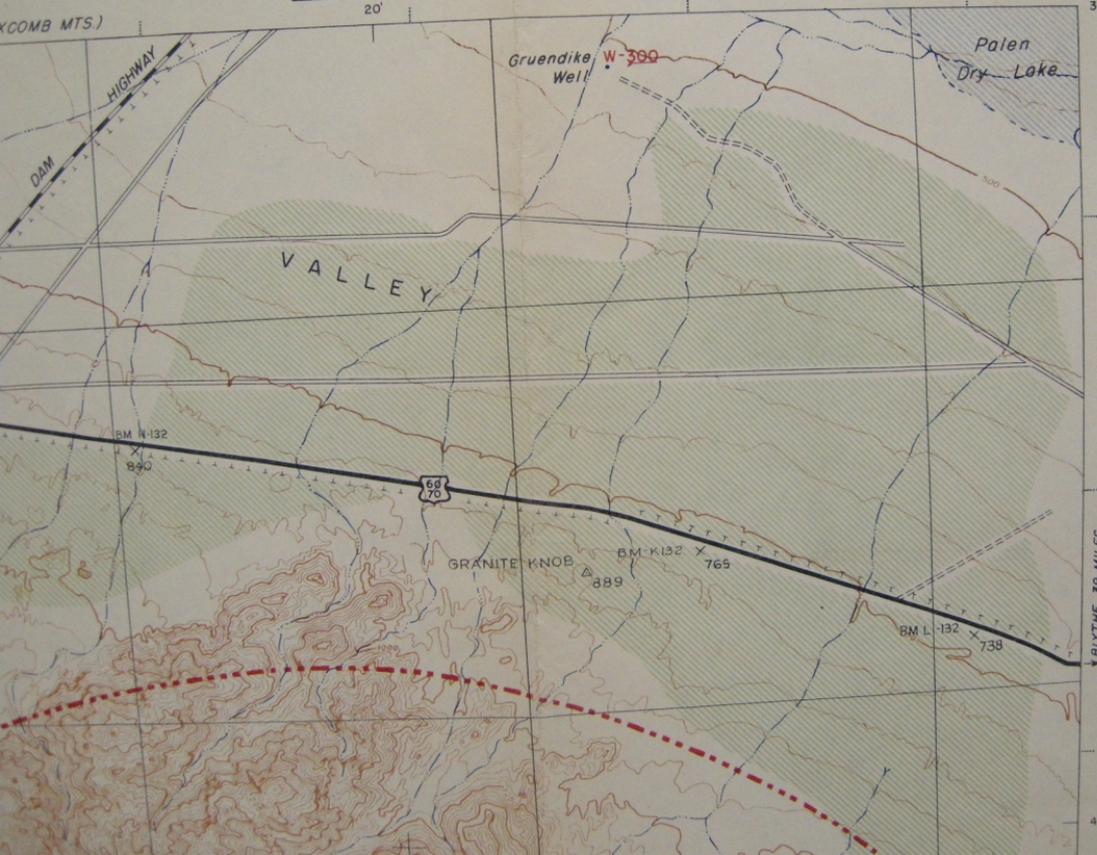
RIVERSIDE COUNTY CHUCKWALLA MTS. QUADRANGLE GRID ZONE "F"

(PALEN MTS.)



115°15' 33°45'

(COMB MTS.)



BLYTHE 39 MILES

40'

RESTRICTED

WAR DEPARTMENT
CORPS OF ENGINEERS, U. S. ARMY

FIRST EDITION-651 ENGR. 1

RIVERSIDE COUNTY
CHUCKWALLA MTS. QUADRANGLE
GRID ZONE "F"

(PALEN MTS.)



115° 15'
33° 45'

57000 FT
Cont'd

(PALEN MTS)

57000 FT
Cont'd

1180

1175

40'

10 MILES

DESERT CENTER 10 MI



118° 15'
33° 45'

25,000:1
Scale

(PALEN MTS)

05

10 MILES
0
5
10

DESERT CENTER 10 MI.

11800 FT
Contour

1180

1175

40'

1170

(L.A. MTS.)

paten

Dry Lake

RED

P A L E N

SOUTH PALEN

C

H

U

C

K

W

A

L

L

A

BM-M132
89'

ROAD

2750

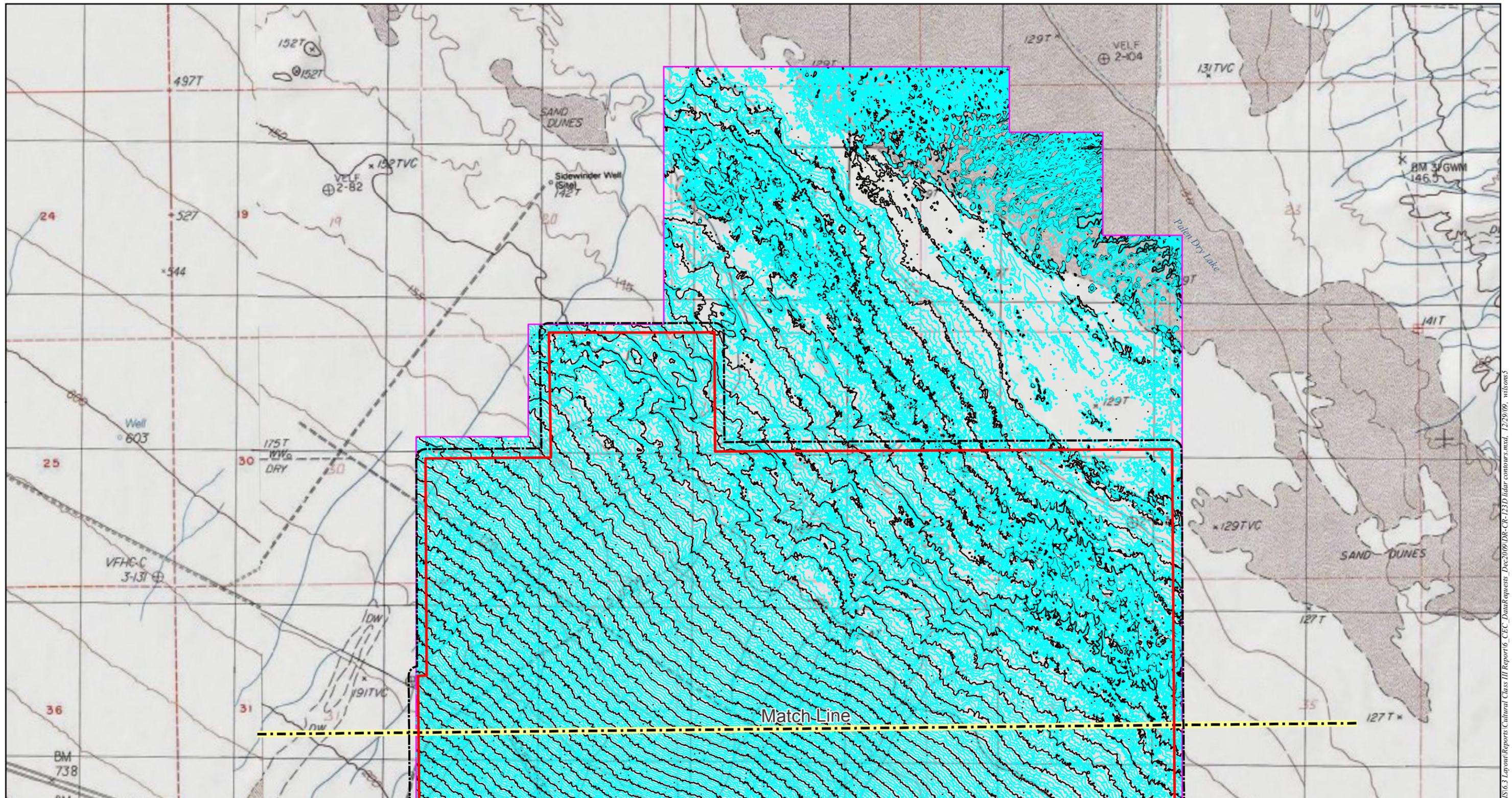
BM-M2
1000'

ROUTE









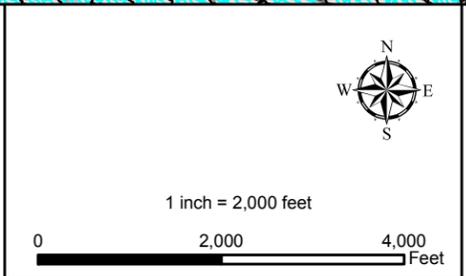
Legend

- Area of Potential Effect (3,946 acres)
- CEC Buffers (Additional 338 acres)
- Palen_Contours.dwg Polyline
- <all other values>

Cad Renderer

- CONTINUOUS, 1, 25
- CONTINUOUS, 4, 25
- CONTINUOUS, 7, 25
- CONTINUOUS, 6, 30

Source: USGS 7.5" Quadrangle Sidewinder Well (1983); AECOM 2009



Class III Cultural Resources Report for the Palen Solar Power Project

DR-CR-123D
Map 1 of 2
Palen LIDAR Contours




Date: January 2010

Path: P:\2009\09080081_Sol.Mil.Palen.6.GIS\6.3_Layout\Reports\Cultural_Class III Report\6_CEC_Data\Reports\Cultural_Class III Report\6_CEC_Data\Reports\Dec2009\DR-CR-123D\lidar contours.mxd, 12/29/09, wisloms5

Attachment DR-CR-124

Historical Photos





Attachment DR-CR-141

Steinkamp Resume

Education

- M.S., Geology, Oregon State University, 2006
- B.A., Anthropology, University of Cincinnati, Ohio, 1986

Registration / Certification

- NHPA Section 106 Compliance Certification. Instructor: Dr. Thomas King, 2007
- Geologist In Training (G.I.T) Oregon Board of Geologist Examiners, 2007
- NAUI certified diver, 1991

Expertise

- Cultural resource survey design, testing, data recovery, monitoring, field methods.
- Stratigraphy and Sedimentology
- Geomorphological and geological analysis, core logging.
- Lithic analysis and raw material analysis
- Northwest, Basin and Range, Southwest, Northeast, Southeast, Midwest region prehistoric and historic archaeology.
- Micro-fossil analysis
- Underwater archaeology

Selected Projects

- Geoarchaeologist, Ridgecrest Solar Power Project (RSPP), Kern County, California
- Geoarchaeologist, Palen Solar Power Project (PSPP), Riverside County, California
- Geoarchaeologist, Blythe Solar Power Project (BSPP), Riverside County, California
- Geoarchaeologist, Stockton Generation Power Project (SGEN), Stockton, California
- Archaeologist, Archaeological Testing at the Acorn and Emerson Lake Training Areas, Marine Air Force Training Command, Twentynine Palms, California

Matthew Steinkamp is a geologist, geomorphologist, geoarchaeologist, underwater archaeologist, and cultural resources project manager with more than 20 years of prehistoric and historic archaeological and historic preservation experience in all areas of the United States, Hawaiian Islands, Micronesia and East Africa. He joined SWCA in 2007 and is a geologist, geomorphologist and geoarchaeologist. He is responsible for assessing the effects of projects on historic and prehistoric resources on land and underwater, and conducting geomorphology and geoarchaeology studies by analyzing the bedrock geology, geomorphic processes and soils to determine archaeological site formation processes, integrity of deposits and presence or absence of sealed cultural remains in deep seated sedimentary environments.

Mr. Steinkamp's work experience has allowed him to acquire extensive knowledge in all phases of prehistoric and historic archaeology. He has worked on numerous cultural resource inventory projects, testing, construction monitoring, mitigation and data-recovery on sites in the Northwest, Southwest, Great Basin, Midwest, Northeast and Southeast United States, as well as the Hawaiian Islands and islands of Micronesia. He has extensive experience in geology and geomorphology such as piston and gravity coring of Lake Tanganyika, East Africa, core logging of mechanical drilling in the Northwest, as well as analyzing ocean drilling cores from the Pacific Ocean abyssal plain to develop a chronological and intensity sequence of large earthquakes along the Cascadia Subduction Zone and San Andreas Fault for the past 10,000 years.

Mr. Steinkamp also has extensive experience in laboratory methods, lithic analysis, micro-fossil analysis of cherts, flints and lacustrine sediments utilizing microscopy, raw material analysis, mineral separation, igneous and sedimentary petrography and petrology, field mapping of geological formations, invertebrate fossil analysis and flint-knapping.

Mr. Steinkamp has conducted cultural resource surveys for various state and federal agencies and private-sector clients. His experience has introduced him to numerous types of construction effects on cultural resources including gas and water-line construction, roadways, commercial buildings, parks, dam re-licensing, canals, coal mines, nuclear facilities, and logging operations. Mr. Steinkamp has co-authored numerous cultural resource inventory, testing and data recovery reports, and his publications include *Lacustrine Micro-Fossil Assemblage from Core NP04-KH3 from the Moba-Kalya Horst Region of Lake Tanganyika, East Africa, as a Biogeochemical Proxy for Late Pleistocene and Early Holocene Climate and Lake Levels* and *Diatoms are Cool, Yet Do They Indicate Dramatic Climate Shifts in the Holocene, Or Are They Just Full of Silica*. Mr. Steinkamp has presented at the University of Dar es Salaam Annual Science Conference in Dar es Salaam, Tanzania.

Attachment DR-CR-142
Geosarch Report
(Confidential attachment and will be submitted under separate cover)