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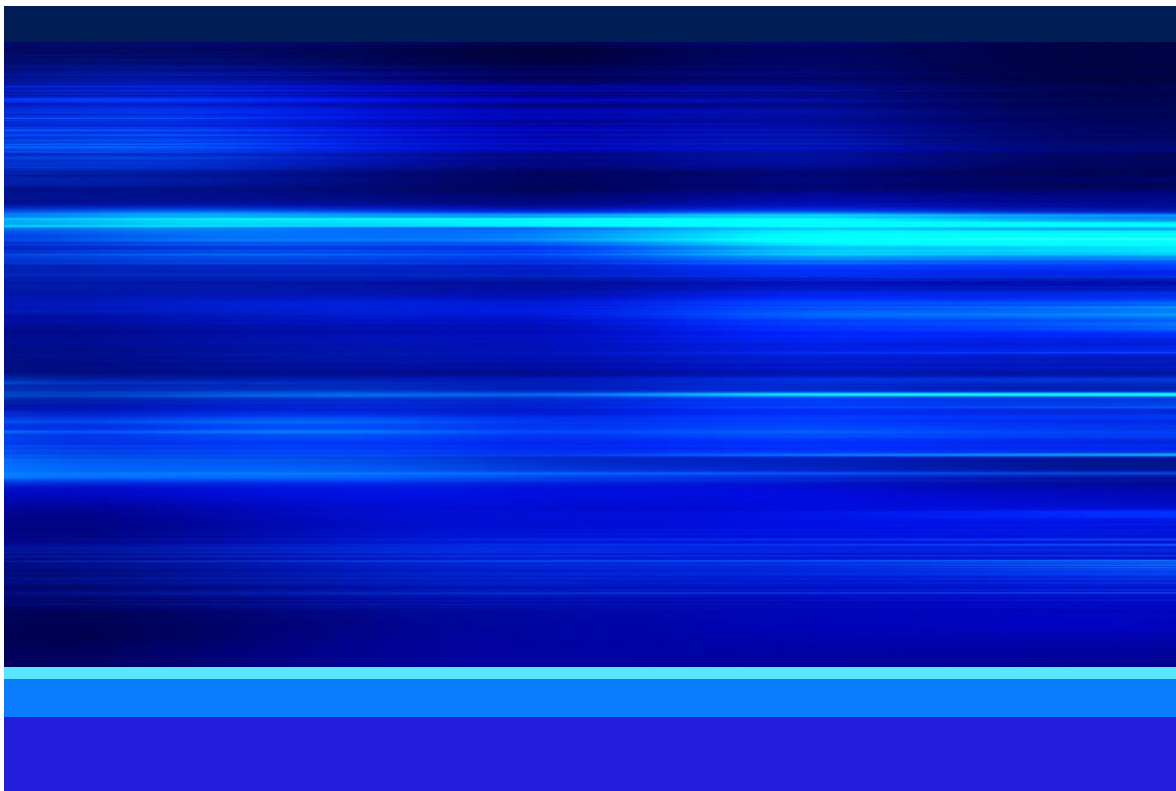
Data Response Set 1 (Revised Response to Data Request 32)

Submitted to
California Energy Commission

Prepared by
Black Rock Geothermal LLC

With assistance from
Jacobs

**Black Rock Geothermal Project
(23-AFC-03)
February 5, 2024**



Introduction

Attached is Black Rock Geothermal LLC's¹ (Applicant) revised response to the California Energy Commission (CEC) Staff's *Data Requests Set 1* regarding the Application for Certification (AFC) for the Black Rock Geothermal Project (BRGP) (23-AFC-03). This submittal includes a revised response to Data Request 32.

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as presented *Data Requests Set 1* and are keyed to the Data Request numbers.

New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 28 would be numbered Table DR28-1. The first figure used in response to Data Request 28 would be Figure DR28-1, and so on. Figures or tables from the BRGP AFC that have been revised have a "R" following the original number, indicating a revision.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

¹ An indirect, wholly owned subsidiary of BHE Renewables, LLC ("BHER").

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Acronyms and Abbreviations

AFC	Application for Certification
BHER	BHE Renewables, LLC
BRGP	Black Rock Geothermal Project
CEC	California Energy Commission
DR	Data Request
DRR	Data Request Response

4. Cultural and Tribal Resources (DR 32)

Background: Archaeological Survey Coverage (DR 32)

Qualified archaeologists were able to survey most of the archaeological study area for the presence of archaeological resources. Three sizable portions of the applicant's archaeological study area, however, had effectively no ground surface visibility. Agricultural crops covered the ground surface in these areas to such an extent that only 10 percent or less of the surface was visible to archaeologists (Jacobs 2023d, Appendix 5.3A, page 47). These three areas consist of the proposed main power plant site, the borrow pit at Hatfield and West Sinclair roads, and about half of the borrow pit east of the Alamo River (Jacobs 2023d, Appendix 5.3A, Figure 6-5). Crop cover on the main power plant site consists of Bermuda grass (Jacobs 2023a, pages 5.2-13, 5.2-17, 5.4-1, 5.11-2, 5.11-9, 5.13-2).

The applicant estimates that the excavation depth at the main power plant site and proposed borrow pits would reach 5 feet below the current ground surface (Jacobs 2023a, Figure 2-7a). Altogether, portions of the archaeological study area with no ground surface visibility encompass about 256 acres out of the 1,936-acre archaeological study area (13.2 percent).

The lack of surface visibility in these areas of the proposed project calls into question whether the archaeological survey missed archaeological resources on the ground surface. The proposed project site is near three recorded cultural resources, including a tribal cultural resource and archaeological sites..

Data Requests:

32. Please indicate when the Bermuda grass and other crops will be harvested from the low-visibility portions of the archaeological study area?

Response: The Applicant has resurveyed some areas that were previously identified as low visibility; however, areas previously obstructed by standing water remained underwater during each resurvey attempt. No new archaeological sites or isolated finds were identified. A copy of the Addendum to the Cultural Resource Technical Report for the Black Rock Geothermal Project is provided as Attachment DRR 32.

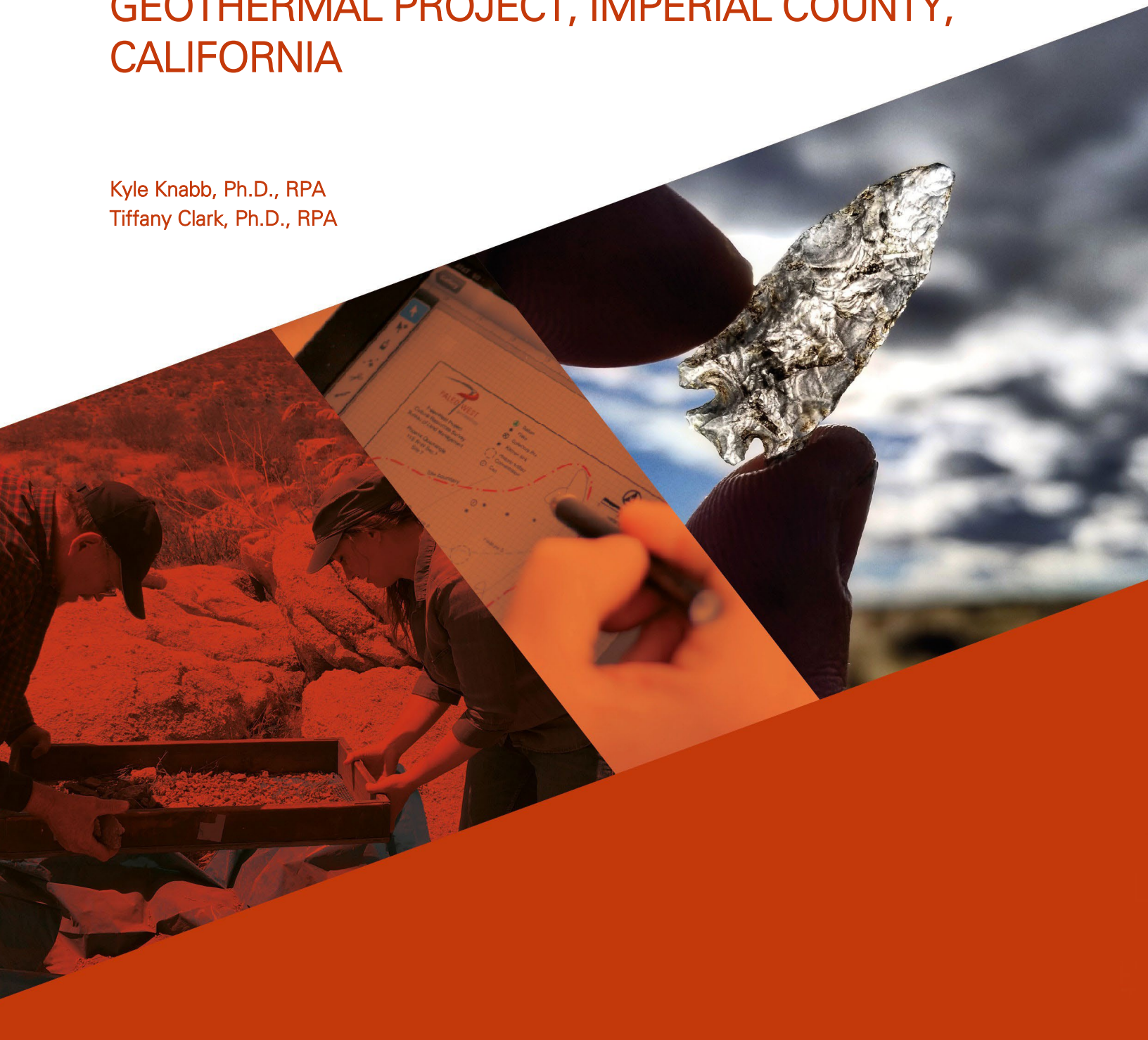
Attachment DRR 32
Addendum to the Cultural Resource
Technical Report for the Black Rock
Geothermal Project





ADDENDUM TO THE CULTURAL RESOURCE TECHNICAL REPORT FOR THE BLACK ROCK GEOTHERMAL PROJECT, IMPERIAL COUNTY, CALIFORNIA

Kyle Knabb, Ph.D., RPA
Tiffany Clark, Ph.D., RPA



ADDENDUM TO THE CULTURAL RESOURCE TECHNICAL REPORT FOR THE BLACK ROCK GEOTHERMAL PROJECT, IMPERIAL COUNTY, CALIFORNIA

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PaleoWest, LLC

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February 1, 2024

MANAGEMENT SUMMARY

At the request of Jacobs, PaleoWest, LLC (PaleoWest) conducted a supplemental cultural resource assessment for the proposed Black Rock Geothermal Project (Project) in Imperial County, California. The proposed Project includes development of a proposed geothermal expansion site, substations, borrow pits, transmission line corridors, well pads, pipelines, and equipment laydown areas. The proposed Project requires compliance with the California Environmental Quality Act (CEQA). The California Energy Commission (CEC) is the lead agency for the purposes of the CEQA analysis of the certification decision.

PaleoWest previously completed a cultural resource technical report for the Project (Knabb et al. 2023). Following review of the report by the CEC, a data request was provided to Jacobs that noted portions of the archaeological study area had effectively no ground surface visibility due to the presence of agricultural crops or were inaccessible due to standing water. The CEC requested that these areas be resurveyed when ground surface visibility improved following the harvest of crops or the abatement of standing water.

PaleoWest carried out survey of these areas on September 12–14, November 14–16, and December 12, 2023. All areas previously marked as having no ground surface visibility were resurveyed within one week of crop harvesting. Additionally, PaleoWest attempted to access areas obstructed by standing water during each survey. These latter efforts were unsuccessful as these areas were underwater and remained inaccessible during all three surveys. No new cultural resources were observed or recorded during the surveys.

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INTRODUCTION

Under contract with Jacobs, PaleoWest, LLC (PaleoWest) completed a supplemental cultural resource study for the proposed Black Rock Geothermal Project (Project) in Imperial County, California. PaleoWest previously completed a cultural resource technical report for the Project (Knabb et al. 2023). Following review of the report by the California Energy Commission (CEC) staff, a data request was made that noted portions of the archaeological study area had effectively no ground surface visibility due to the presence of agricultural crops or were inaccessible due to standing water. The CEC requested that these areas be resurveyed when ground surface visibility improved following the harvest of crops or the abatement of standing water.

This addendum report summarizes the findings of the supplemental archaeological study completed in response to the CEC staff's data request. The scope of the supplemental study follows the CEC's cultural resources guidelines and the *Rules of Practice and Procedure and Power Plant Site Certification Regulations*. This report was prepared to conform to the Office of Historic Preservation's Archaeological Resource Management Report format.

PROJECT DESCRIPTION

The Project is east of the Salton Sea and northwest of the city of Calipatria in the northwest portion of Imperial County (Figure 1-1). Regionally, the site is depicted on the U.S. Geological Survey (USGS) Obsidian Butte, CA (USGS 1960) and Niland, CA (USGS 1960) 7.5-minute topographic quadrangles. The Project is within Sections 13–14, 23–27, and 33–35 of Township (T) 11 South (S), Range (R) 13 East (E); Sections 29–31 of T11S, R14E; and Sections 3–5 and 9–10 of T12S, R13E, San Bernardino baseline and meridian (Figure 1-2).

The proposed geothermal plant will provide approximately 77 megawatts (net) and will be on approximately 55 acres of a 160-acre parcel within the unincorporated area of Imperial County. The Project is bounded by McKendry Road to the north, Severe Road to the west, and Boyle Road to the east. The town of Niland is approximately 8 miles (mi) to the northeast, and the town of Calipatria is approximately 6 mi southeast of the plant site. The surrounding area consists of actively farmed fields as well as other geothermal plants throughout the area, including the Vulcan Power Plant and the Hoch (Del Ranch) Power Plant, both to the southeast of the site. The Project consists of the geothermal power plant as well as associated infrastructure including seven new well pads and associated production and injection wells. In addition, the Project includes construction crew camps, laydown, and parking areas through the region as well as four potential borrow pits. Most of the laydown and parking areas for Project will be adjacent to the site, immediately south and east. However, all sites may be used and will be shared between three proposed projects: Black Rock Geothermal, Elmore North Geothermal, and Morton Bay Geothermal.



Figure 1-1. Project vicinity map.

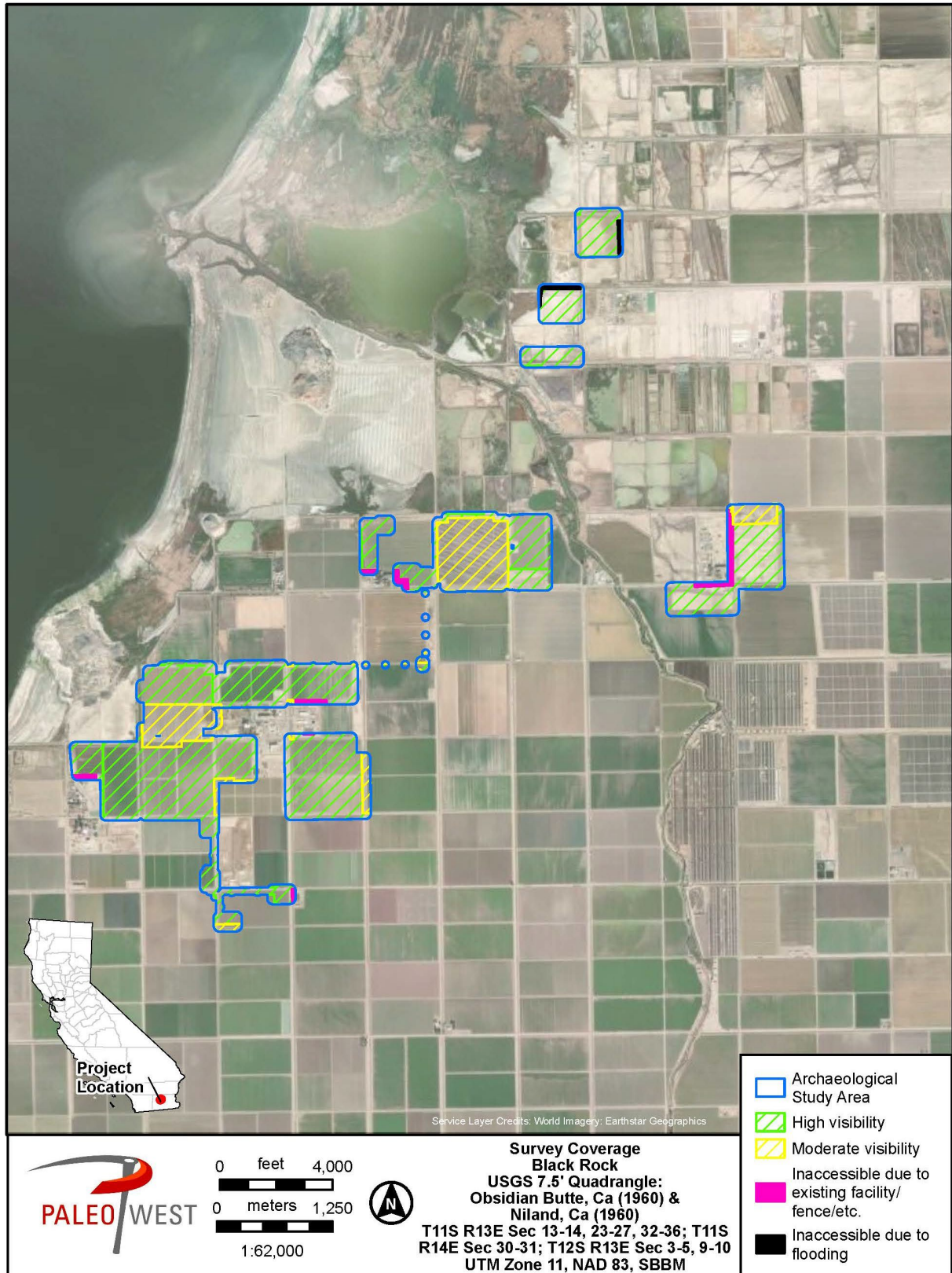


Figure 1-2. Project location and survey coverage map.

PERSONNEL QUALIFICATIONS

This supplemental cultural resource study was conducted under the oversight of Principal Investigator, Tiffany Clark, Ph.D., Register of Professional Archaeologists (RPA). Kyle Knabb, Senior Archaeologist, Ph.D., RPA, managed the Project, directed all fieldwork and reporting efforts, and was also the primary author of the addendum report. Edgar Limon and Marit van Cant served as the Archaeological Field Directors. All key personnel meet Secretary of Interior standards in their respective fields of expertise. Resumes of key personnel are provided in Appendix A.

REGULATORY CONTEXT

Various state laws, ordinances, regulations, and standards (LORS) govern the management of cultural resources. The regulatory context governing the Project was discussed in detail in the cultural resource technical report (Knabb et al. 2023). For a discussion of the regulatory context and relevant LORS, please refer to that report.

SETTING

ENVIRONMENTAL SETTING

The environmental setting for the Project was previously provided in the cultural resource technical report (Knabb et al. 2023). For a detailed discussion of the environmental setting of the Project, please refer to that report.

PREHISTORIC CONTEXT

The prehistoric context for the Project was previously provided in the cultural resource technical report (Knabb et al. 2023). For a detailed discussion of the prehistoric context of the Project, please refer to that report.

ETHNOGRAPHIC CONTEXT

The ethnographic context for the Project was previously provided in the cultural resource technical report (Knabb et al. 2023). For a detailed discussion of the prehistoric context of the Project, please refer to that report.

HISTORIC CONTEXT

The historic context for the Project was previously provided in the cultural resource technical report (Knabb et al. 2023). For a detailed discussion of the historic context of the Project, please refer to that report.

PROJECT METHODS

The survey methods employed in the addendum study are consistent with those outlined in the cultural resource technical report (Knabb et al. 2023). A summary of the field methods used in the supplemental survey is provided below.

SURVEY FIELD METHODS

PaleoWest carried out additional surveys of the archaeological study area on September 12–14, November 14–16, and December 12, 2023. Areas with no surface visibility requiring additional survey totaled approximately 256 acres. The archaeological survey methods followed standard archaeological methods consisting of parallel pedestrian transects spaced at 10–15-meter (33–50-foot) intervals. Crew members also opportunistically examined any subsurface exposures, including rodent burrows and cut banks. Survey crews navigated the transects using georeferenced maps on iPad tablets and handheld global position system (GPS) units. Archaeological resources were recorded with an iSX-Blue data collector GPS unit with sub-meter accuracy.

SURVEY RESULTS

The supplemental archaeological study area is composed of agricultural fields, human-made ponds, a riparian landscape adjacent to the Alamo River, and mud flats (Figure 1-2). The topography is flat except for human made canals and berms. Soils were fine- to medium-grained alluvial sandy loam that are light tan in color and composed of quartz and granitic material. Due to the extensive agricultural and geothermal development in this portion of the valley, little natural vegetation was observed in the archaeological study area.

Ground visibility across the supplemental archaeological survey area varied from excellent visibility (close to 100%) to moderate visibility (25–75%). Except for 31.3 acres of land that consisted of existing geothermal facilities and 4.3 acres of land that were inaccessible due to standing water, the entire supplemental survey area was inventoried for archaeological resources. PaleoWest did not have permission to enter existing geothermal facilities; however, archaeologists were able to examine each of these areas from the perimeter fences and confirmed that the areas had been extensively disturbed by the development of the geothermal facilities.

As part of the supplemental survey, PaleoWest revisited each of the areas that was previously inaccessible due to standing water between September 12–14, November 14–16, and December 12, 2023. During all three revisits, PaleoWest archaeologists found the areas were flooded with standing water. Given that over the course of one year, the areas were consistently underwater, additional attempts to resurvey of these areas are not recommended.

No archaeological resources were identified in the supplemental archaeological survey area.

SUMMARY AND MANAGEMENT RECOMMENDATIONS

Additional pedestrian survey of portions of the archaeological study area with poor visibility identified no new archaeological sites or isolated finds. Areas previously obstructed by standing water remained underwater during each resurvey attempt. Because no archaeological resources were identified in the supplemental archaeological survey area, the previous recommendations proposed in the original cultural resource technical report (Knabb et al. 2023) remain valid. No further archaeological study work is recommended at this time.

REFERENCES

Knabb, Kyle, Tiffany Clark, Andrew Bursan, Dennis McDougall, and Gena Granger
2023 *Cultural Resources Technical Report for the BHE Black Rock Project*. PaleoWest, LLC, Arcadia, California. Prepared for Jacobs and the California Energy Commission, Sacramento, California.

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Appendix A.

Resumes of Key Personnel

TIFFANY C. CLARK, Ph.D., RPA

Principal Investigator / Senior Archaeologist

EDUCATION

Ph.D., Anthropology, Arizona State University, Tempe 2003

M.A., Anthropology (emphasis Bioarchaeology), Arizona State University, Tempe 1997

B.A., Biology, Occidental College, 1992

YEARS OF PROFESSIONAL EXPERIENCE

24+

REGISTRATIONS / CERTIFICATIONS

Register of Professional Archaeologists (ID#989197)

California BLM Permit, Principal Investigator, Statewide

Tiffany Clark is a Senior Archaeologist/Project Manager with PaleoWest. She has over 24 years of experience in cultural resource management in California, Arizona, and New Mexico. Her professional experience includes all phases of survey, excavation, laboratory analysis, research design, report preparation, construction monitoring, Native American consultation, and project management. She has prepared numerous technical reports and environmental documents for compliance with the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and Section 106 and 110 of the National Historic Preservation Act (NHPA). Dr. Clark is a member of the Register of Professional Archaeologists and exceeds the Secretary of Interior's Professional Qualifications Standards in Archaeology.

SELECT PROJECT EXPERIENCE

Utilities

Athos Solar Project, Riverside County, CA. Project Archaeologist (2019-2020). Dr. Clark is responsible for supervising the cultural resources compliance management and monitoring for a renewable solar array project. The project required compliance with CEQA, NEPA, and Section 106 of the NHPA.

Southern California Gas Company Line 235 Pipeline Safety Enhancement Project, Needles, San Bernardino County, CA. Principal Investigator (2019). The project involves a Class III survey of three proposed main line valve replacement sites along the Southern California Gas Company's Line 235 pipeline. Dr. Clark prepared the scope of work for the project and acted as a Principal Investigator for the inventory study. BLM responsible for compliance with Section 106 of the NRHP.

Crimson Renewable Energy Project, Blythe, Riverside County, CA. Senior Archaeologist (2014 – 2016). The project involves the development of a 3,225-acre site for a photovoltaic energy generation plant located approximately 11 miles west of Blythe, California. Dr. Clark assisted with the development and implementation of a Work Plan and Research Design, which involved Class I and III inventory surveys. Riverside County acted as the lead CEQA agency with BLM responsible for compliance with Section 106 of the NRHP.

Avalon Wind Energy Project, Kern County, CA. Cultural Resource Technical Lead (2011-2013). Cultural Resource Technical Lead. Dr. Clark supervised Phase I survey, evaluation, and treatment of cultural resources for a renewable wind energy project. The project required compliance with CEQA.

Cultural Resource Technical Lead, Catalina Renewable Energy Project, Kern County, CA. Cultural Resource Technical Lead (2011-2013). Responsible for development of a Phase I survey, Phase II (site evaluation), and Phase III (data recovery) studies in support of the Solar Element portion of the Catalina Renewable Energy Project.

California Energy Commission, Carlsbad Energy Center Project, San Diego County. Principal Investigator/Project Manager (2015). Responsible for supervising subsurface testing at two archaeological sites located within the Encina Power Station in Carlsbad, San Diego County. The California Energy Commission acted as the lead CEQA agency for the Project. The Carlsbad Energy Center, LLC. Proposed to build a generating facility on the existing Encina Power Station in the City of Carlsbad. As part of the project, the California Energy Commission requested archaeological testing be conducted to determine if intact cultural deposits were present on the facility site. Dr. Clark was

responsible for implementing the subsurface testing program and for preparing the technical report for the Project.

Palo Verde to Pinal West 500kV Transmission Line, Maricopa and Pinal Counties, AZ. *Project Manager/Field Director (2006 - 2007).* Dr. Clark was responsible for the survey of approximately 22-mile-long-corridor for a proposed transmission line that ran between the Palo Verde Nuclear Generating Station and the Pinal West Substation for the Salt River Project. In addition, she co-authored the technical report for the study.

Browning to Dinosaur 500 kV/230kV Transmission Line, Pinal County, AZ. *Project Manager/Field Director (2006 – 2007).* Responsible for a survey and testing project of an approximately 8-mile-long transmission line corridor located in northern Pinal County for the Salt Rivers Project. In addition, she co-authored the technical report for the study.

Pinal West-Browning Transmission Line, Maricopa and Pinal Counties, AZ. *Project Manager/Field Director, (2006 - 2007).* Supervised a Phase I survey of cultural resources within the approximately 88-mile-long transmission line corridor that ran between the Pinal West and Browning substations for the Salt River Project.

Damage Assessment of AZ T:9:5 (ASM), Maricopa County, AZ. *Project Manager/Field Director (2006 - 2007).* Conducted a site condition assessment study of prehistoric site located on Arizona State Trust Land that had been inadvertently impacted by vegetation clearing activities by the Salt River Project. She was also responsible for preparing the technical report for the study.

Dinosaur to Hunt 12kV/69KV Transmission Line, Maricopa County, AZ. *Project Manager/Field Director (2006-2007).* Conducted a Phase I survey within the transmission line corridor connecting the Dinosaur Substation to the Hunt Substation in southeast Maricopa County for the Salt River Project. She was also responsible for preparing the technical report for the study.

Water

Casitas Municipal Water District's Matilija Pipeline Modifications Feasibility Study, Ventura County, CA. *Project Archaeologist (2019-present).* Rincon was contracted by the Casitas Municipal Water District to provide environmental support for the proposed Matilija Pipeline Modifications Feasibility Study. Dr. Clark conducted the due diligence analysis for cultural resources. This task included a South Central Coastal Information Center search, a Native American Heritage Commission Sacred Lands file search, and Native American outreach.

Eastside to Westside Waterline Interconnection Project, City of Ventura, Ventura County, CA. *Project Archaeologist (2017-2018).* Rincon was contracted by Kennedy/Jenks Consultants to provide environmental technical services for the Eastside to Westside Waterline Interconnection Project. Dr. Clark was responsible for supervising the cultural resources assessment for the Project. Efforts included a cultural resource record search, Native American outreach, a pedestrian survey, and preparation of a technical report. The project required compliance with CEQA.

Los Robles Groundwater Utilization Project, City of Thousand Oaks, Ventura County, CA. *Project Archaeologist (2018-2019).* Rincon was contracted by Kennedy/Jenks Consultants to provide environmental technical services for the Los Robles Groundwater Utilization Project in the City of Thousand Oaks. Dr. Clark was responsible for supervising the Phase I cultural resource assessment for the project and the cultural resources and tribal cultural resources sections of the Mitigated Negative Declaration – Initial Study.

Coachella Valley Water District Groundwater Replenishment Project, City of Palm Desert, Riverside County, CA. *Project Archaeologist (2016 – 2018).* Rincon was contracted by the Coachella Valley Water District to provide cultural and paleontological services per the project's Mitigation and Monitoring Program. Dr. Clark was responsible for supervising the preparation of an archaeological monitoring plan, archaeological sensitivity training, and archaeological spot checking for the Phase 1 portion of the project.

Coachella Valley Water District, Westside School Water Consolidation Project, Thermal, Riverside County, CA. *Principal Investigator (2018)*. The Coachella Valley Water District is proposing the construction and installation of an extension of a domestic water mainline located near the Westside School in the community of Thermal. Rincon was contracted to conduct a cultural resource assessment for the project. Dr. Clark was responsible for supervising the record search, Native American outreach, pedestrian survey, and preparation of a technical report.

Coachella Valley Water District, Galindo Mobile Home Park Water System Consolidation Project, Indio, Riverside County, CA. *Principal Investigator (2018)*. The Coachella Valley Water District is proposing infrastructural improvements to mobile home parks to allow a safe and reliable domestic water and fire protection services to disadvantaged communities in the City of Indio. Rincon was contracted to conduct a cultural resource assessment for the project. Dr. Clark was responsible for supervising the record search, Native American outreach, pedestrian survey, and preparation of a technical report.

San Bernardino County Distribution System Infrastructure Protection Program for the Metropolitan Water District, San Bernardino County, CA. *Senior Archaeologist (2016 – 2017)*. Supervised an archaeological assessment for the Project that included literature review and record searches, a Phase I survey, Phase II testing, and preparation of a technical report and mitigation measures for the Metropolitan Water District water distribution infrastructure project.

City of Pasadena Water and Power, Azusa Hydroelectric Project, City of Azusa, Los Angeles County, CA. *Principal Investigator/Project Manager (2016 – 2018)*. Responsible for conducting cultural resources studies in support of a conduit exemption application with the Federal Energy Regulatory Commission. Dr. Clark coordinated with the USDA Forest Service to delineate the Project's Area of Potential Effect and supervised archaeological and historical background research, communication with Native American tribal representatives, a pedestrian survey of the APE, documentation of identified cultural resources, and significance evaluations of cultural resources associated with the Azusa Conduit.

Orange County Distribution System Infrastructure Protection Program for the Metropolitan Water District, Orange, Riverside, and San Bernardino Counties, CA. *Senior Archaeologist (2016 - 2017)*. Supervised an archaeological assessment for the Project that included literature review and record searches, a Phase I survey, Phase II testing, and preparation of a technical report and mitigation measures for the Metropolitan Water District water distribution infrastructure project.

Water Replenishment District of Southern California Sativa Well #5 IS-MND, Los Angeles County, CA. *Principal Investigator (2018)*. Dr. Clark provided senior overview for the cultural resource study that was completed for the Sativa Well #5 project in unincorporated Los Angeles County. This project involved the installation of iron-manganese treatment facilities for a groundwater well that provides potable water supply. Dr. Clark supervised the cultural resources record search, Native American outreach, and survey and reviewed the cultural resource technical report that was prepared for the project.

Development

Hillwood Investment Properties, Moreno Valley Trade Center Project, Moreno Valley, Riverside County, CA. *Principal Investigator/Project Manager (2019-2020)*. Supervised a Phase I survey and Phase II evaluation study in support of a proposed warehouse development in the City of Moreno Valley. Work efforts involved the significance evaluation of two historic period archaeological and built-environment resources. The Project was conducted in compliance with CEQA and Section 106 of the NHPA.

Hillwood Investment Properties, Sycamore Canyon Business Park Buildings 1 and 2, Riverside County, CA. *Principal Investigator/Project Manager (2016 – 2018)*. Supervised a Phase I survey and Phase II evaluation study in support of a proposed warehouse development in the City of Riverside. Work efforts involved the significance evaluation of three prehistoric bedrock milling sites located within the Project area, development and implementation of a focused cultural landscape study, preparation of an archaeological monitoring plan, 3-dimensional modeling of bedrock milling features, and a protein residue study. The Project was conducted in compliance with CEQA and Section 106 of the NHPA.

Terra Verde Group, Tapestry Specific Plan Project, City of Hesperia, San Bernardino County, CA. *Co-Principal Investigator (2013 – 2018).* Provided cultural resources services in support of the 9,367-acre Tapestry Project, a master-planned community development. Work efforts include Phase I surveys, evaluations of significance, development of a Cultural Resources Management Plan, Native American coordination, and the preparation of cultural resources sections for corresponding environmental documents. The work was done to comply with CEQA and Section 106 of the NHPA.

City of Los Angeles Department of Public Works and Bureau of Engineering – Sixth Street Park, Arts, River & Connectivity Improvements Project, City of Los Angeles, Los Angeles County, CA. *Cultural Resources Lead (2017-2018).* The City of Los Angeles Department of Public Works and Bureau of Engineering proposes the creation of public spaces on approximately 12 acres in areas beneath and around the Sixth Street Viaduct in the city of Los Angeles. Dr. Clark was responsible for conducting an archaeological assessment for the Project which included an archaeological record search, reconnaissance survey, and preparation of a technical report for CEQA and Section 106 compliance.

Transportation

San Bernardino County Transportation Authority (SBCTA), Interstate 10 Eastbound Truck Climbing Lane Improvement Project, San Bernardino and Riverside Counties, CA. *Principal Investigator/Cultural Resources Technical Lead/ Project Manager(2017 – 2018).* SBCTA, in conjunction with Caltrans District 8, proposes to extend the eastbound truck climbing lane on Interstate-10 for a distance of 3 miles in the City of Yucaipa and Calimesa in San Bernardino and Riverside counties, respectively. Dr. Clark supervised the cultural resources studies that were being completed for the Project. These tasks include: records searches and literature reviews; archival research; a Phase I survey; Native American consultation and coordination; coordination with local and federal agencies; and preparation of Area of Potential Effect Map, Archaeological Survey Report, and Historic Properties Survey Report for compliance with CEQA and Section 106.

San Bernardino County Transportation Authority (SBCTA), Interstate 215 / University Parkway Interchange Project, City of San Bernardino, San Bernardino County, CA. *Principal Investigator (2017 – 2018).* SBCTA, in conjunction with Caltrans District 8, proposes improvements to the Interstate 215 / University Parkway Interchange. Dr. Clark supervised the cultural resources studies that included: records searches and literature reviews; archival research; pedestrian surveys; Native American consultation and coordination; coordination with local and federal agencies; and preparation of Area of Potential Effect Map, Archaeological Survey Report, and Historic Properties Survey Report for the Project.

State Route 86/Avenue 50 New Interchange Project, City of Coachella, Riverside County, CA. *Principal Investigator (2015 - 2018).* The City of Coachella, in conjunction with Caltrans District 8 and the Coachella Valley Association of Governments, proposes construction of a new interchange at State Route 86 and Avenue 50 in the City of Coachella, Riverside County, California. Dr. Clark supervised the cultural resources studies that included: records searches and literature reviews; archival research; pedestrian surveys; Native American consultation and coordination; coordination with local and federal agencies; and preparation of APE Map, ASR, HRER, and HPSR for the Project.

California Department of Transportation (Caltrans), On-Call Cultural Resources Services, San Bernardino and Riverside Counties, CA. *Principal Investigator (2013 – 2018).* Dr. Clark was responsible for overseeing a number of on-call cultural resources task orders for Caltrans, District 8, Riverside and San Bernardino counties. Task orders completed by Dr. Clark include a Phase I study for the State Route 60 Truck Climbing and Descending Lane Project, Phase I and II studies for the Interstate 40 Median Regrade and U.S. 395 Construct Median Buffer and Widen Shoulder projects, and Phase III data recovery for the State Route 58 Realignment and the State Route 138 Realignment – Crowder Canyon projects. As part of these projects, Dr. Clark supervised cultural resource records searches and literature reviews; archival research; pedestrian and reconnaissance surveys; testing and evaluation for National Register and California Register eligibility; Native American consultation and coordination; coordination with

local and federal agencies; and preparation of technical reports for Caltrans review and approval. All projects were conducted in compliance with CEQA and Section 106 of the NHPA.

California Department of Transportation, Interstate-10 Corridor Project, Los Angeles and San Bernardino Counties, CA. *Principal Investigator (2014 – 2016).* Caltrans, in conjunction with SANBAG, proposed to improve the Interstate 10 (I-10) corridor. The proposed I-10 Corridor Improvement Project consists of adding lane(s) and providing improvements along all or a portion of the existing 33-mile stretch of I-10 from approximately 2 miles west of the Los Angeles/San Bernardino county line in the city of Pomona to Ford Street in the city of Redlands. For this study, Dr. Clark supervised the archaeological assessment of approximately 2,227 parcels within the cities of Claremont, Pomona, Montclair, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, and Redlands, and unincorporated areas of San Bernardino County including Etiwanda, Bloomington, and Bryn Mawr. She was responsible for preparing the Archaeological Survey Report in support of this project, which was approved by the State Historic Preservation Officer in May 2015.

City of Riverside, Sidewalk Improvement Project, Riverside, Riverside County, CA. *Principal Investigator (2016 – 2017).* The City of Riverside, in conjunction with the Caltrans District 8, proposed sidewalk improvements in three residential areas within the City of Riverside. Dr. Clark supervised cultural resource records searches and literature reviews; archival research; reconnaissance surveys; Native American consultation and coordination; coordination with local and federal agencies; and preparation of Area of Potential Effect Maps, Archaeological Survey Report, and Historic Properties Survey Report. The Project was conducted in compliance with CEQA and Section 106 of the NHPA.

County of Inyo and City of Bishop, ATV Adventure Trails of the Eastern Sierra Program, Inyo County, CA. *Cultural Resources Task Manager (2013-2014).* Inyo County and the City of Bishop propose to designate combined use routes on unincorporated County roads to link OHV trails on federally managed lands and provide a unified system of trails for OHV users in Inyo County. Dr. Clark supervised a cultural resource record search, archival research, and an archaeological sensitivity study for the project.

Other

California Army National Guard, Los Alamitos Joint Forces Training Base Buried Site Testing Program, Orange County, CA. *Principal Investigator/Project Manager (2017 – 2018).* Responsible for supervising the development and implementation of a buried site testing program for the California Army National Guard on the Joint Forces Training Base in Los Alamitos, Orange County, California. Responsibilities included agency coordination; conducting a record search and literature review; overseeing a geoarchaeological study involving the excavation of 40 backhoe trenches; artifact analyses; and preparation of a technical reports of findings.

California Department of Conservation, Analysis of Oil and Gas Well Stimulation Treatments in California Environmental Impact Report (EIR), CA (Statewide). *Senior Archaeologist (2014 – 2015).* In accordance with Senate Bill 4, the California Department of Conservation prepared an Environmental Impact Report to provide information to the public regarding potential environmental impacts associated with well stimulation treatments in California. Dr. Clark was Responsible for the assessment and evaluation of the archaeological resources located within the Wilmington Oil and Gas Field, Los Angeles County. As part of the assessment, an archaeological sensitivity study was undertaken which involved the development of a model that evaluated the potential to encounter buried prehistoric and historic period archaeological resources.

Great Basin Unified Air Pollution Control District, Keeler Dunes Dust Control Project, Inyo County, CA. *Cultural Resources Task Manager (2011-2013).* The Great Basin Unified Air Pollution Control District proposed the implementation of dust control measures at Owens Lake on lands managed by the Bureau of Land Management. Dr. Clark was responsible for preparing a Class III cultural resources technical report and writing the cultural resources sections of a joint Environmental Impact Report/Environmental Assessment.

Los Angeles World Airport, Los Angeles International Airport Runway 6L-24R Safety Area and Associated Improvements Project, Los Angeles County, CA. *Project Archaeologist (2012-2013)*. The Los Angeles World Airport proposed infrastructure improvements on the northern runway at the Los Angeles International Airport to enhance safety and maintain efficient operations. Dr. Clark conducted record searches, field surveys, and was responsible for the preparation of a technical report. The project required compliance with CEQA, NEPA, and Section 106.

City of Scottsdale, Windgate Trail Realignment, McDowell Sonoran Preserve, City of Scottsdale, Maricopa County, AZ. *Cultural Resources Project Manager (2006)*. The City of Scottsdale proposed the realignment of a 3.8-mile-long trail located in the McDowell Sonoran Preserve. Dr. Clark conducted the cultural resources survey of the project, documented and evaluated cultural resources, and prepared the technical report.

Crew Chief City of Phoenix, Phoenix Sky Harbor International Airport Runway Expansion Project, City of Phoenix, Maricopa County, AZ. (2000-2004). The City of Phoenix proposed the expansion of a runway at Phoenix Sky Harbor International Airport. Dr. Clark supervised data recovery excavations at the site and assisted in the technical reporting of the findings.

KYLE KNABB, PHD, RPA

Associate Archaeologist

EDUCATION

PhD, University of California, San Diego, 2015

M.A., University of California, San Diego, 2008

B.A., University of California, San Diego, 2005

YEARS OF PROFESSIONAL EXPERIENCE

15

REGISTRATIONS / CERTIFICATIONS

Registered Professional Archaeologist, #17065 (2017)

City of Malibu Certified Archaeologist

County of Riverside Qualified Cultural Resources Consultant

Orange County Certified Archaeologist

Kyle Knabb has 15 years of experience in cultural resources management and compliance monitoring involving archaeological, paleontological, prehistoric and historic resources. He has completed numerous cultural resource projects involving research, reconnaissance, testing, data recovery, monitoring, site recording, site protection/preservation, mapping, consultation, laboratory analysis, and report production. He has managed numerous field projects in support of compliance with the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA). Dr. Knabb has extensive experience in managing small and large-scale projects involving the identification and evaluation of numerous resources including archaeological, paleontological, and historic-period built environment. He has considerable experience working with various agencies and Tribal representatives in California, and has worked closely with Native American representatives, Tribal Historic Preservation Officers, and has been a liaison between the client, the contractor, tribal monitors, and archaeologists. Prior to his work in California, he managed many surveys and excavations in Jordan. Kyle meets the Secretary of Interior's Professional Qualification Standards in archaeology and history and is a Registered Professional Archaeologist (RPA).

SELECT PROJECT EXPERIENCE

Oberon Solar Project, Riverside County, CA. *Project Manager (2020-2021, 45 field days).* This project involves a Class III survey and inventory of approximately 6,900 acres in support of a proposed solar energy project in unincorporated Riverside County. Work efforts included a records search, Native American outreach, pedestrian survey, reporting, and significance evaluations of 220 resources. The project required compliance with CEQA; Riverside County was the lead agency. Client: Aspen Environmental Group

Goetz Marketplace Monitoring, Menifee, CA. *Project Manager (2020).* This project involves the development of a retail plaza, including car wash, gas station, and restaurants. Dr. Knabb was responsible for managing cultural resources monitoring, coordinating with the city, and project deliverables. Client: Salem Engineering Group, Inc.

McCall Retail Plaza Monitoring, Menifee, CA. *Project Manager (2020).* This project involves the development of a retail plaza, including a car wash, gas station, etc. Dr. Knabb was responsible for managing paleontological monitoring, coordinating with the city, and project deliverables. Client: Salem Engineering Group, Inc.

Maverick Solar 8 Project, Riverside County, CA. *Project Manager (2020).* This project involves a Phase I survey of approximately 450 acres in support of a proposed solar energy project in unincorporated Riverside County. Work efforts included a records search, Native American outreach, pedestrian survey, and significance evaluations of three resources. The project required compliance with CEQA; Riverside County was the lead agency. Client: EDF Renewables

Kyle Knabb, PHD, RPA (continued)

Ocean Boulevard Improvement Project, Pismo Beach, CA. *Project Manager (2019-2020).* This project involves bluff stabilization along Ocean Boulevard. Dr. Knabb managed the Phase I cultural resource assessment and Extended Phase I testing the project, coordinated with city of Pismo Beach and Caltrans District, and was responsible for project deliverables (HPSR/ASR/Extended Phase I report). Client: City of Pismo Beach

Murrieta Creek Bridge at Overland Drive (Avenida Alvarado over Murrieta Creek) Project, City of Temecula, CA. *Project Manager (2019-2020).* This project involves roadway gap closure extending Overland Drive through Commerce Center Drive over Murrieta Creek. Dr. Knabb managed the Phase I cultural resource assessment for bridge construction project in Temecula, including records search, tribal outreach, field survey, and deliverables (HPSR/ASR) for submittal to Caltrans. Client: CNS Engineering

Camarillo Springs Housing Project, Camarillo, CA. *Project Manager/Field Crew Chief (January 2020-May 2020).* This project involves a housing development on a former golf course. Dr. Knabb directed the fieldwork effort for Extended Phase I and Phase II excavations at CA-VEN-243, including the excavation of 50 STPs and one 1x1-meter test unit. Other responsibilities included technical review of deliverables. This project required compliance with Section 106; the lead agency was the US Army Corps of Engineers. Client: Cadence Environmental

Village Senior Apartments Project, Sant Barbara County, CA. *Project Manager (September 2019-March 2020).* This project includes the development of a new apartment complex on a vacant lot. Dr. Knabb managed Extended Phase I testing at the project site, including development of a fieldwork and research plan, excavation of 15 shovel test pits, and project deliverables. This project required compliance with Section 106; the lead agency was Housing and Urban Development. Client: Cabrillo Economic Development

Malibu Golf Club Project, Malibu, CA. *Project Manager (August 2019-April 2020, 5 field days).* This project involves the rehabilitation and redesign of a golf course following its destruction in the Woolsey Fire. Dr. Knabb managed the Phase I cultural resources assessment of an approximately 220-acre study area, including records search, tribal outreach, field survey, and reporting. This project required compliance with Section 106; the lead agency was the US Army Corps of Engineers. Client: Malibu Club

Laguna Beach Civic Site Development Project, Laguna Beach, CA. *Project Manager (March 2020-May 2020).* This project involves the development of a new civic building on an undeveloped lot in the city of Laguna Beach. Dr. Knabb managed the Phase I cultural resource assessment of approximately 2-acre study area, including records search, tribal outreach, field survey, ISMND section, and technical report. Assisted the city of Laguna Beach with Assembly Bill 52 notification and consultation. Client: City of Laguna Beach

Tentative Tract Map No. 6307 Project, San Joaquin County, CA. *Project Manager (January 2020-March 2020).* Dr. Knabb managed the Phase I cultural resource assessment of approximately 7-acre study area, including records search, tribal outreach, field survey and technical report. Client: City of San Joaquin

Silverlake Residential Development Project, Los Angeles County, CA. *Project Manager (January 2020-March 2020).* This project involves the development of luxury condominiums along Silverlake Boulevard. Dr. Knabb managed the Phase I cultural resource assessment of approximately 2-acre study area, including records search, tribal outreach, field survey and technical report. The project required compliance with CEQA; the City of Los Angeles was lead agency. Client: Studio Pi2

People's Self-Help Housing, Pismo Beach, CA. *Project Manager (January 2020-March 2020).* This project involves the demolition of an office building and parking lot for the development of a new apartment complex. Dr. Knabb managed the Phase I cultural resource assessment of

Kyle Knabb, PHD, RPA (continued)

approximately 2-acre study area, including records search, tribal outreach, field survey and technical report. Client: People's Self-Help Housing.

Galvin Preservation Association, Aloft and Residence Inn Dual Brand Hotel Project, Burbank, CA. *Project Manager (January 2020-March 2020).* This project involves the remodeling and rebranding of an existing hotel. Dr. Knabb managed the Phase I cultural resource assessment of approximately 10-acre study area, including records search, tribal outreach, field survey and technical report. Client: Galvin Preservation Association.

424 El Portal Drive Remodel Project, Pismo Beach, CA. *Project Manager (January 2020-March 2020).* This project involves the expansion of an existing residential home in Pismo Beach, CA. Dr. Knabb managed the Phase I cultural resource assessment of approximately 1-acre study area, including records search, tribal outreach, field survey and technical report. Client: Arris Studio

BSOA Otay Lakes Campground, San Diego County, CA. *Archaeologist (December 2018-November 2019).* This project involves developing the existing Otay Lakes Park into a Boy Scouts of America Campground. Dr. Knabb managed the cultural resources investigation, including records search, tribal outreach, intensive level survey of ~100-acre project site, and preparation of deliverables. The survey yielded in eight sites, including four new sites. One site, an historic 1920s era homestead with ties to a rural Chinese community, was recommended eligible for CRHP/NRHP. Client: Boy Scouts of America

Skookumchuck Wind Project, Lewis and Thurston County, WA. *Archaeologist (2018-2019).* Archaeologist under RES America for a wind energy project that involved multiple surveys and construction monitoring in Washington. Led multiple intensive level surveys totaling ~300 acres, oversaw construction monitoring staff and QA/QC of deliverables. The survey resulted in the recordation of two new sites. Coordinated with SHPOs office, Tribal Representatives, and client on project deliverables and SEPA compliance. Client: RES America

SDG&E Cultural - Agreement MSA, San Diego and Orange County, CA. *Project Manager (2018-2019).* Dr. Knabb was responsible for overall project management, client relations, and management of individual task orders throughout San Diego county and southern Orange County. Supervised temporary and permanent field staff and subconsultants. Provided QA/QC on deliverables, oversaw project budgets and schedules, coordinated with tribes and tribal monitors. Client: San Diego Gas & Electric

Transmission Lines 636 & 639, San Diego, CA. *Project Manager and Archaeologist (2018-2019).* Project Manager and Archaeologist for project to redevelop Transmission Lines 636 and 639. Supervised testing at archaeological site CA-SDI-4067 in Mission Trails Regional Park. Coordinated with SDG&E staff, park staff, tribal monitors, and UXO consultants, and recommended the area of the site within the project area not eligible for listing on the California Register of Historic Resources and the City of San Diego Register of Historical Resources. Report was accepted by agency with no comments. Client: San Diego Gas & Electric

Artesian Substation Expansion Environmental Compliance, San Diego, CA. *Archaeologist (2018-2019).* Worked a substation expansion project and associated construction activities. Supervised field staff, developed Worker Environmental Awareness Program for cultural resources and provided sensitivity training to construction staff, coordinated with the client's Cultural Resources lead and provided biweekly updates. Client: San Diego Gas & Electric

Desert Valley Monofill – Cell IV Construction, Imperial County, CA. *Project Manager (Sept. 2018-Dec. 2019).* Worked for proposed expansion of existing monofill facility into new cell for disposal of solid waste from geothermal energy plants nearby. Conducted peer review of previous technical reports, led intensive survey of ~400 acre area, oversaw and provided

Kyle Knabb, PHD, RPA (continued)

QA/QC for reporting, and developed Phase II testing plan for excavation and evaluation of six prehistoric sites in the project area. Client: Terraphase Engineering, Inc.

San Onofre Nuclear Generating Station Decommissioning, San Diego, CA. *Archaeologist (2019).* Worked a nuclear generating station decommissioning project. Authored Cultural Resources Mitigation and Monitoring Plan and Discovery Treatment Plan for submittal to California State Lands Commission and the California Coastal Commission. Conducted tribal coordination with local tribal governments. Client: AECOM

SCE Needles Cultural Resources Surveys, San Bernardino County, CA. *Archaeologist (April 2018-September 2018).* Project manager for a series of transmission line projects on BLM land. Prepared cultural resource assessments for five ETS task orders, including records search, field survey, site documentation and DPR forms, and technical reports. Six isolates were identified and recommended not eligible for the NRHP. Client: SWCA

Shake Shack Cultural Resources Monitoring, San Diego, CA. *Project Manager (2018-2019).* Project manager for the construction of a new Shake Shack restaurant in the Little Italy neighborhood of San Diego, which included cultural resources monitoring. Supervised field staff and coordinated monitoring effort with the city, client, and tribal monitors, oversaw the project budget and preparation of the reporting. During monitoring an early 19th century trash deposit was recovered, documented, and curated in compliance with the City of San Diego's Mitigation Monitoring Reporting Program. Client: Terracon

City of Beaumont Environmental Services MSA, Riverside County, CA. *Archaeologist (2018-2019).* Archaeologist for MSA with City of Beaumont to conduct peer review of cultural resources documents and Assembly Bill 52 tribal consultation. Work on these projects included extensive consultation with the Morongo Band of Mission Indians and the Agua Caliente Band of Mission Indians. Drafted mitigation measures in coordination with tribes and successfully completed consultation on numerous projects. Client: City of Beaumont

Invert Access Ramp Historical Evaluation, Los Angeles County, CA. *Archaeologist (November 2018-March 2019).* Los Angeles County Department of Public Works plans to construct an access ramp to the Los Angeles River. Dr. Knabb conducted a site visit and assisted with historical research in support of project deliverables (HRER). Coordinated with agencies (Long Beach Public Works, Los Angeles County Public Works, US Army Corps of Engineers) on project design, construction history, and documenting modifications. Client: Los Angeles County Department of Public Works.

Hillside Pond CEQA Services, Lake Arrowhead, CA. *Archaeologist (2018-2019).* Mr. Knabb oversaw the monitoring program for an exploratory drilling project in Lake Arrowhead in support of project's regulatory requirements with the United States Forest Service. Supervised the records search and daily monitoring in coordination with various stakeholders (e.g. US Bureau of Reclamation, Lake Arrowhead Community Service Department, US Forest Service). Client: Tidewater Engineering

Imperial Irrigation District, Tule Wash Test Well CEQA-NEPA, Imperial County, CA. *Archaeologist (September 2018-August 2019).* Archaeologist for project that involved a Phase I Archaeological investigation and a Paleontological desktop study in support of proposed groundwater test well and related facilities. Oversaw the records search, tribal outreach, intensive level field survey of nearly 300 acres, and preparation of cultural and paleontological resources reports. The survey resulted in recordation of several new archaeological resources. The contract was primarily for CEQA support, but all deliverables were prepared to meet both CEQA and Section 106 requirements. Client: Imperial Irrigation District

City of Carlsbad, Carlsbad Grading and Pampas Grass Removal, Carlsbad, CA. *Project Manager (2018-2019).* Project manager overseeing cultural resources monitoring and tribal monitoring in

Kyle Knabb, PHD, RPA (continued)

support of Pampas Grass removal and regrading of stormwater drainage channels. Supervised monitoring staff and prepared monitoring report and other project deliverables. Client: City of Carlsbad

Jurupa Valley Cultural/Paleo Phase I, Jurupa Valley, CA. *Project Manager (August 2018-December 2018).* Project manager for a Phase I archaeological investigation and a paleontological desktop study in support of a proposed development of a commercial complex, including a car wash, convenience store, and service station. Oversaw the records search, tribal outreach, intensive-level field survey of ~40 acres, and preparation of cultural and paleontological resources reports. Client: Control Management, Inc.

Cultural Heritage Recovery Project, Malibu, CA. *Archaeologist (May 2018-August 2018).* This project involves a gas pipeline replacement within a private residential community in Malibu, CA. The work effort included phase III data recovery of prehistoric human remains and associated artifacts. Client: Private Landowner

Stonewall Mine Restroom Construction Project - Cuyamaca Rancho State Park, San Diego County, CA. *Archaeologist (January 2006-July 2006).* This project that involved a Phase I archaeological survey, Extended Phase I, and Phase II testing at the historic Stonewall Mine in Cuyamaca Rancho State Park. Client: California Department of Parks and Recreation

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