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Appendix 5.3A
Cultural Resources Technical Report

PALEOWEST

CULTURAL RESOURCES TECHNICAL REPORT FOR THE BHE BLACK ROCK PROJECT, IMPERIAL COUNTY, CALIFORNIA

Kyle Knabb, Ph.D., RPA
Tiffany Clark, Ph.D., RPA
Andrew Bursan, M.A
Dennis McDougall
Gena Granger, M.A., RPA

4/5/2023

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Prepared by:
Kyle Knabb, Ph.D., RPA
Tiffany Clark, Ph.D., RPA
Andrew Bursan
Dennis McDougall
Gena Granger, M.A., RPA

Prepared for:
Jacobs
2485 Natomas Park Drive, Suite 600
Sacramento, California 95833

PaleoWest, LLC
517 South Ivy Avenue
Monrovia, California 91016
(626) 408.8006

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MANAGEMENT SUMMARY

At the request of Jacobs, PaleoWest, LLC (PaleoWest) conducted a cultural resources assessment for the proposed BHE-Black Rock 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. The study scope was developed in accordance with the CEC's cultural resources guidelines and the *Rules of Practice and Procedure and Power Plant Site Certification Regulations*. This report has been prepared to conform to the Office of Historic Preservation's Archaeological Resource Management Report format.

This report summarizes the methods and results of the cultural resources assessment of the Project area. In accordance with CEC guidance, archaeological and architectural history study areas were defined for the Project. For the proposed geothermal expansion site, substations, borrow pits, and equipment laydown, the archaeological study area includes the Project footprint plus a 200-foot buffer; for the proposed transmission line corridors, well pads, and pipelines, the study area includes the Project footprint with a 50-foot buffer. In total, the archaeological study area for the proposed Project encompassed approximately 1,936 acres. Based on CEC guidance for new power plant and transmission line construction in rural settings, the architectural history study area includes all Project elements along with a 0.5-mile (mi) buffer; this area encompasses approximately 9,959 acres.

The cultural resources assessment included background and archival research, development of a historic context and research design, an intensive pedestrian survey of the archaeological study area and a reconnaissance survey of the architectural history study area, and resources documentation and evaluation. Existing cultural resources records search data were compiled from the South Coast Information Center of the California Historical Resources Information System using a 1-mi buffer around the Project footprint for all components except the transmission lines, to which a 0.5-mi buffer was applied. Results of the record search indicate that 13 cultural resources have been previously documented within the records search area. These resources include three prehistoric sites, six historic period sites, and four historic built-environment resources. None of these resources are located within the Project area. One historic built-environment resource (P-13-018312; Sonny Bono Salton Sea National Wildlife Refuge) lies outside of the Project area but within the architectural history study area. None of these historic built-environment resources appear to have been evaluated for listing on the California Register of Historic Places (CRHR). A Sacred Lands File search was also conducted by the Native American Heritage Commission October 13, 2022.

PaleoWest conducted field surveys of the archaeological and architectural study areas between August 9 and September 2, 2022, November 7 and 11, 2022, January 30 and 31, 2023, and March 31, 2023. The survey resulted in the documentation of 11 cultural resources, including 3 previously recorded historic built-environmental resources (2 irrigation canals and 1 building), and 8 newly recorded built-environment resources (7 irrigation-related structures and 1 channelized river segment).

PaleoWest analyzed the CRHR eligibility of all identified cultural resources within the Project study area under Criteria 1, 2, 3, and 4. All cultural resources were recommended not eligible for listing on the CRHR. To mitigate impacts to potential cultural resources that may be encountered during Project construction, PaleoWest recommends mitigation measures be implemented for the discovery of inadvertent archaeological resources and human remains.

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1 INTRODUCTION

At the request of Jacobs, PaleoWest, LLC (PaleoWest) conducted a cultural resources assessment for the proposed BHE-Black Rock Project (Project) in Imperial County, California (Figure 1-1). 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. The study scope was developed in accordance with the CEC's cultural resources guidelines and the *Rules of Practice and Procedure and Power Plant Site Certification Regulations* (CEC 2007).

In accordance with CEC guidance, PaleoWest defined archaeological and architectural history study areas for the proposed Project (Figure 1-2 to Figure 1-6). For the geothermal expansion site, substations, borrow pits, and equipment laydown, the archaeological study area includes the Project footprint plus a 200-foot (ft) buffer; for the proposed transmission line corridors, well pads, and pipelines, the study area includes the Project footprint with a 50-ft buffer. Based on CEC guidance for new power plant and transmission line construction in rural settings, the architectural history study area includes all Project elements along with a 0.5-mile (mi) buffer. The archaeological study area encompasses approximately 1,936 acres with the architectural history study area including approximately 9,959 acres.

This report summarizes the methods and results of the cultural resources assessment and has been prepared to conform to the Office of Historic Preservation's (OHP's) Archaeological Resource Management Report format (OHP 1990).

1.1 PROJECT LOCATION AND DESCRIPTION

The Project area 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 quadrangle maps. The Project is within Sections 13-14, 23-27, and 33-35 of Township 11 South, Range 13 East; Section 29-31 of Township 11 South, Range 14 East; and Sections 3-5 and 9-10 of Township 12 South, Range 13 East, San Bernardino baseline and meridian (Figure 1-2 to Figure 1-6).

The Project will provide approximately 77 megawatts (net) and will be located on approximately 60 acres of a 160-acre parcel within the unincorporated area of Imperial County, California and 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 eight (8) miles to the northeast, and the town of Calipatria is approximately six (6) miles southeast of the plant site. The surrounding area consists of actively farmed fields as well as other geothermal plants located throughout the area, including the Vulcan Power Plant and the Hoch (Del Ranch) Power Plant, both located 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 up to fifteen potential construction crew camps, laydown and parking areas, and borrow pits located throughout the region. Most of the laydown and parking areas for Project will be located adjacent to the site immediately south and east. However, up to all fifteen sites may be used and will be shared between three proposed

projects: Black Rock Geothermal Project, Elmore North Geothermal Project, and Morton Bay Geothermal Project.

1.2 PERSONNEL QUALIFICATIONS

The 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 and directed all fieldwork and reporting efforts. Dr. Knabb was also the primary author of the report. Evan Mills, M.A., RPA and Kurt McLean served as the Archaeological Field Directors with the field crew consisting of Heather Landazuri, Alex Wetcher, Eunice Ambriz, Jackson Case, Stephen Molinares, and Matthew Steber. The architectural history portion of the assessment was completed by Senior Architectural Historian Mr. Andrew Bursan, M.A., with oversight from Alex Bethke, M.A., Architectural History Program Director. All key personnel meet Secretary of Interior standards in their respective fields of expertise. Resumes of key personnel are provided in Appendix A.

1.3 REPORT ORGANIZATION

This report documents the results of a cultural resources investigation conducted for the proposed Project. Section 1 has introduced the Project location and description. Section 2 states the regulatory context that should be considered for the Project. Section 3 synthesizes the natural and cultural setting of the Project area and the surrounding region. The results of the cultural resources literature and records search conducted at the South Coastal Information Center (SCIC) are presented in Section 4. Section 5 presents the research design and research questions. Details of the field investigation, including methods, results, and significance evaluations, are included in Section 6. Section 7 provides a summary and management recommendations. As noted above, Appendix A contains resumes for key personnel for the study. Appendix B contains maps depicting the locations of previously recorded cultural resources and prior cultural resources studies. Appendix C includes the results of the Sacred Lands File (SLF) search by the Native American Heritage Commission (NAHC) and coordination efforts carried out for this study. Appendix D includes maps showing the locations of all identified cultural resources within the Project area. Appendix E contains copies of the Department of Parks and Recreation (DPR) 523-series records. Appendix F contains copies of technical reports whose survey coverage is wholly or partly within 0.25 mi of the Project area.

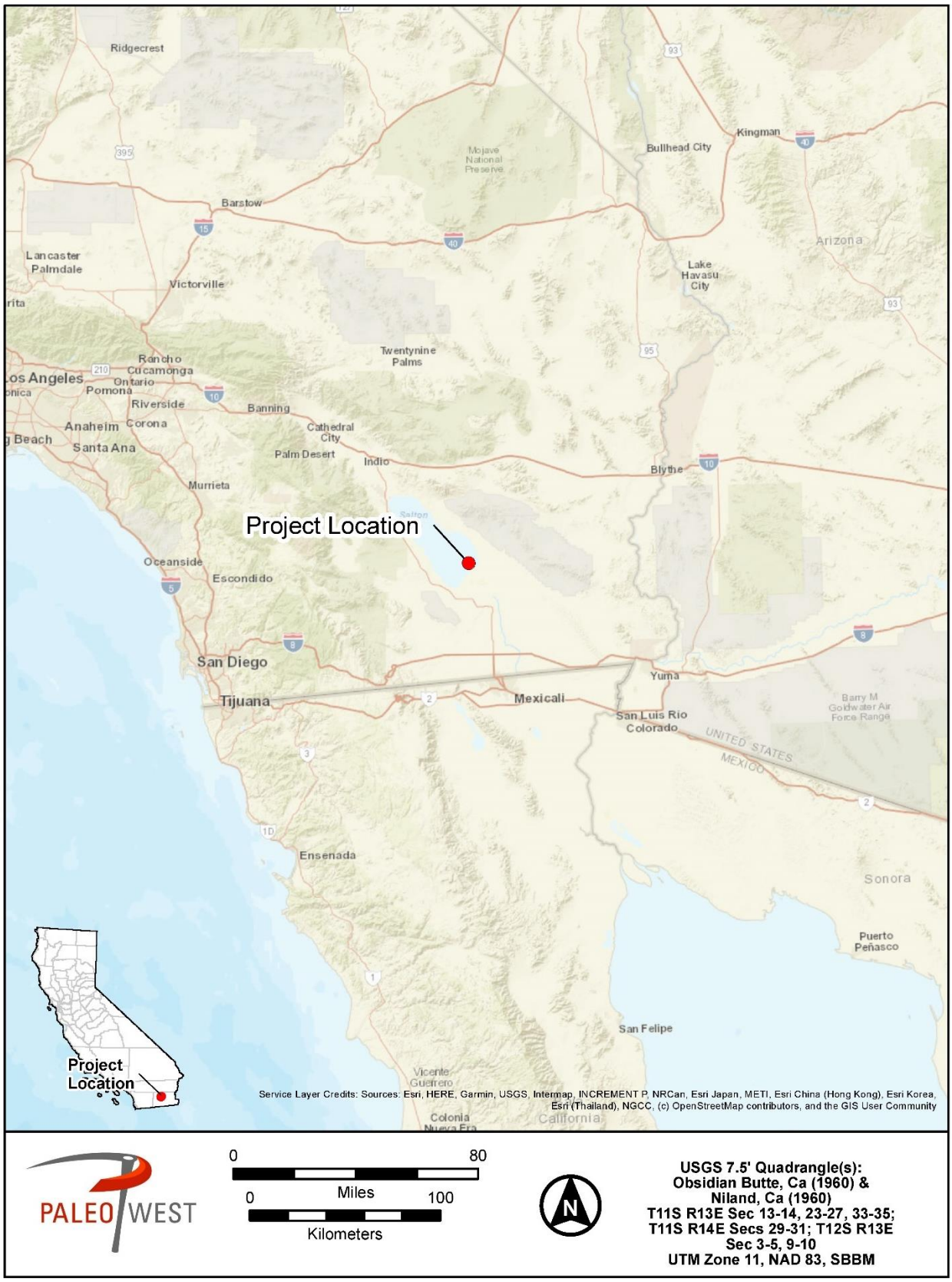

Figure 1-1. Project vicinity map.

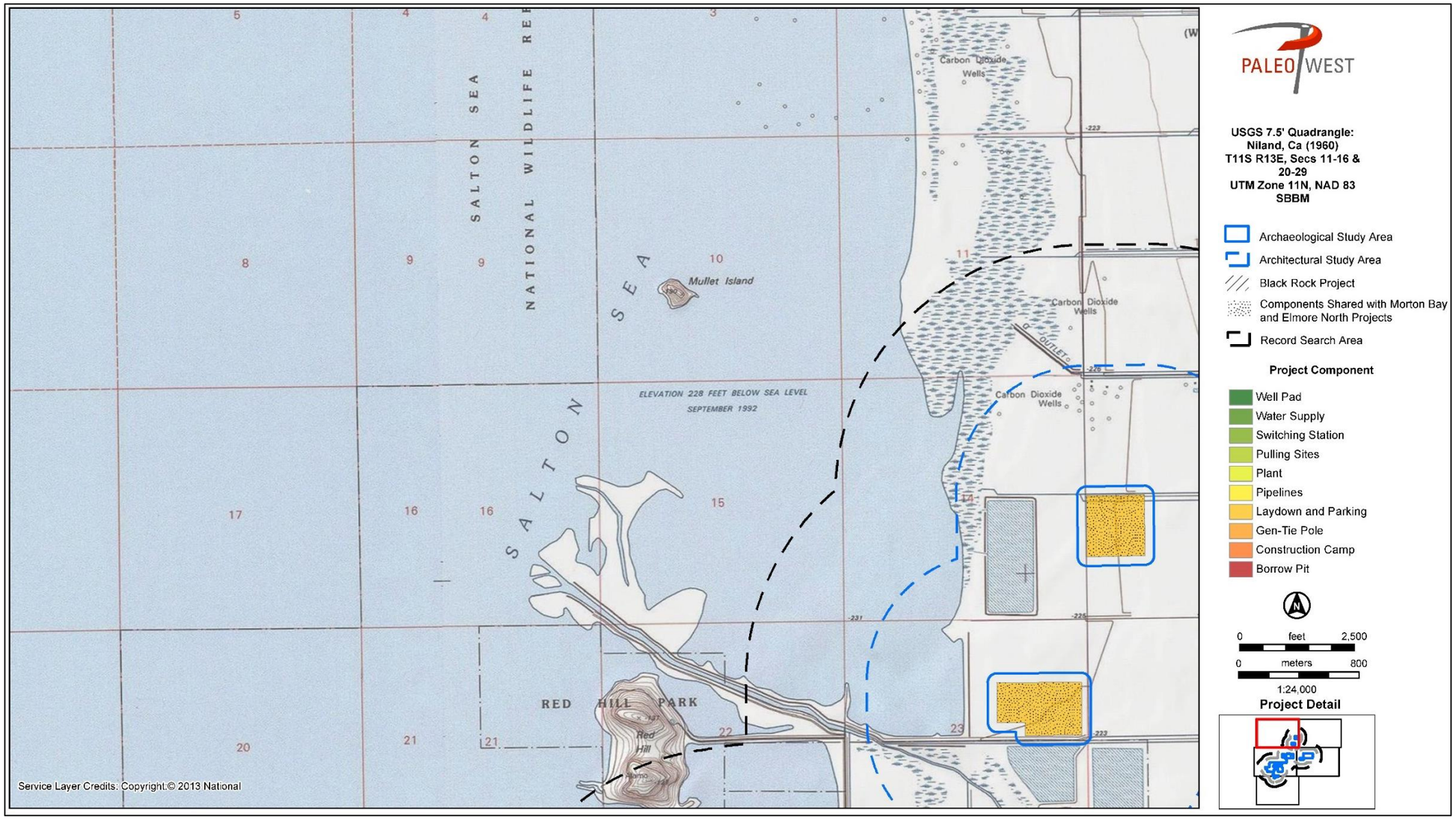

Figure 1-2. Project location map.

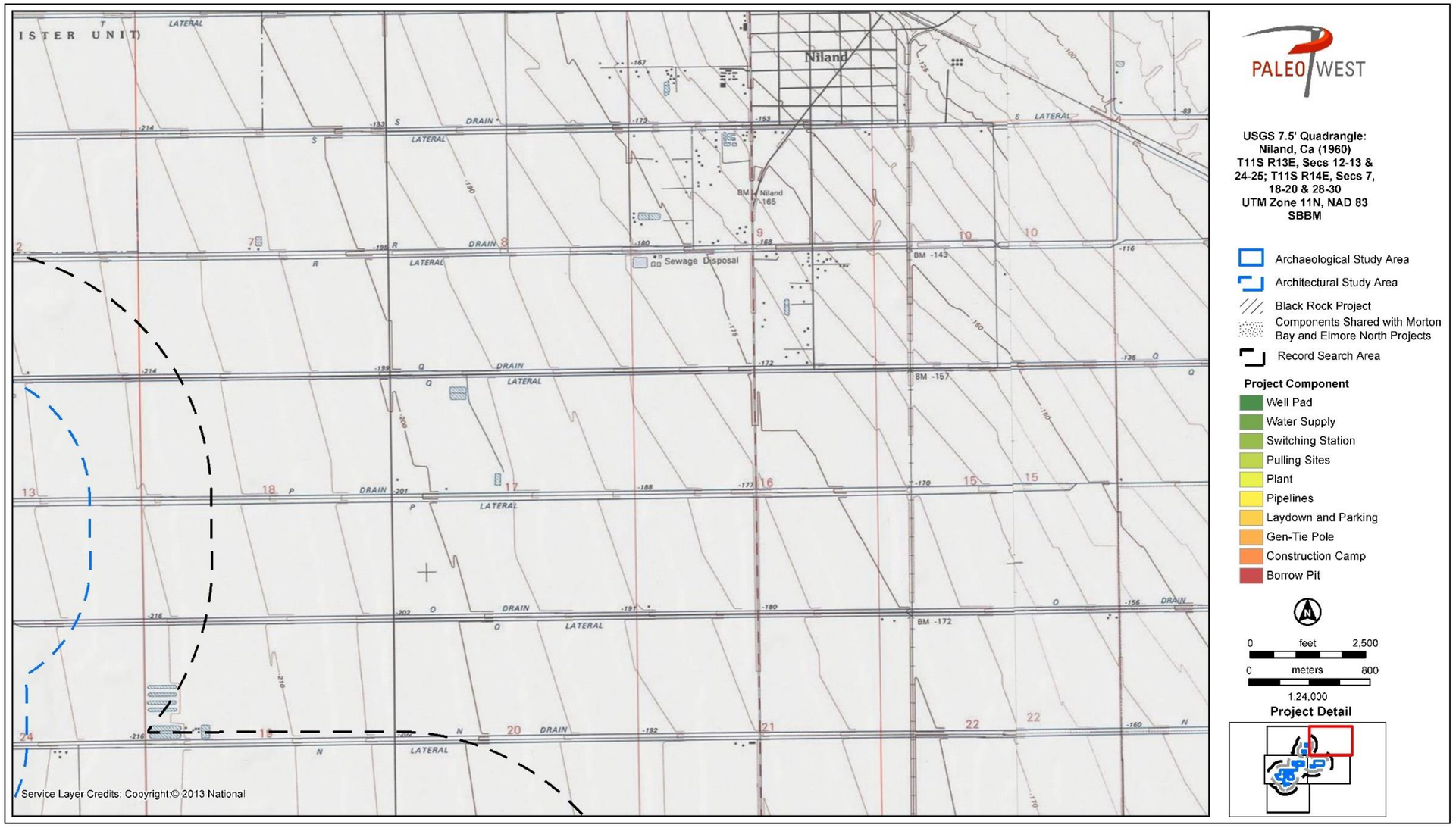

Figure 1-3. Project location map (continued).

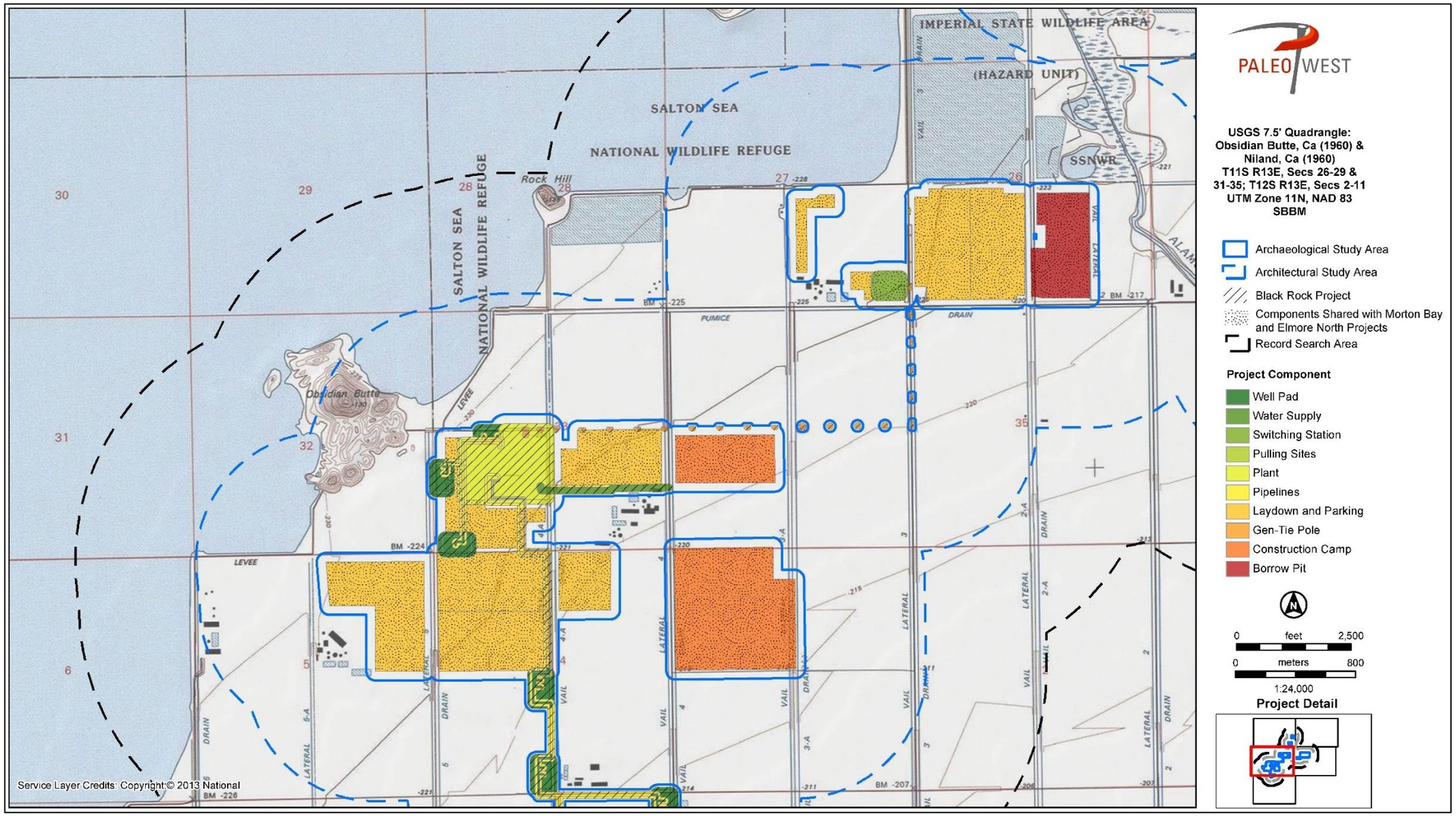

Figure 1-4. Project location map (continued).

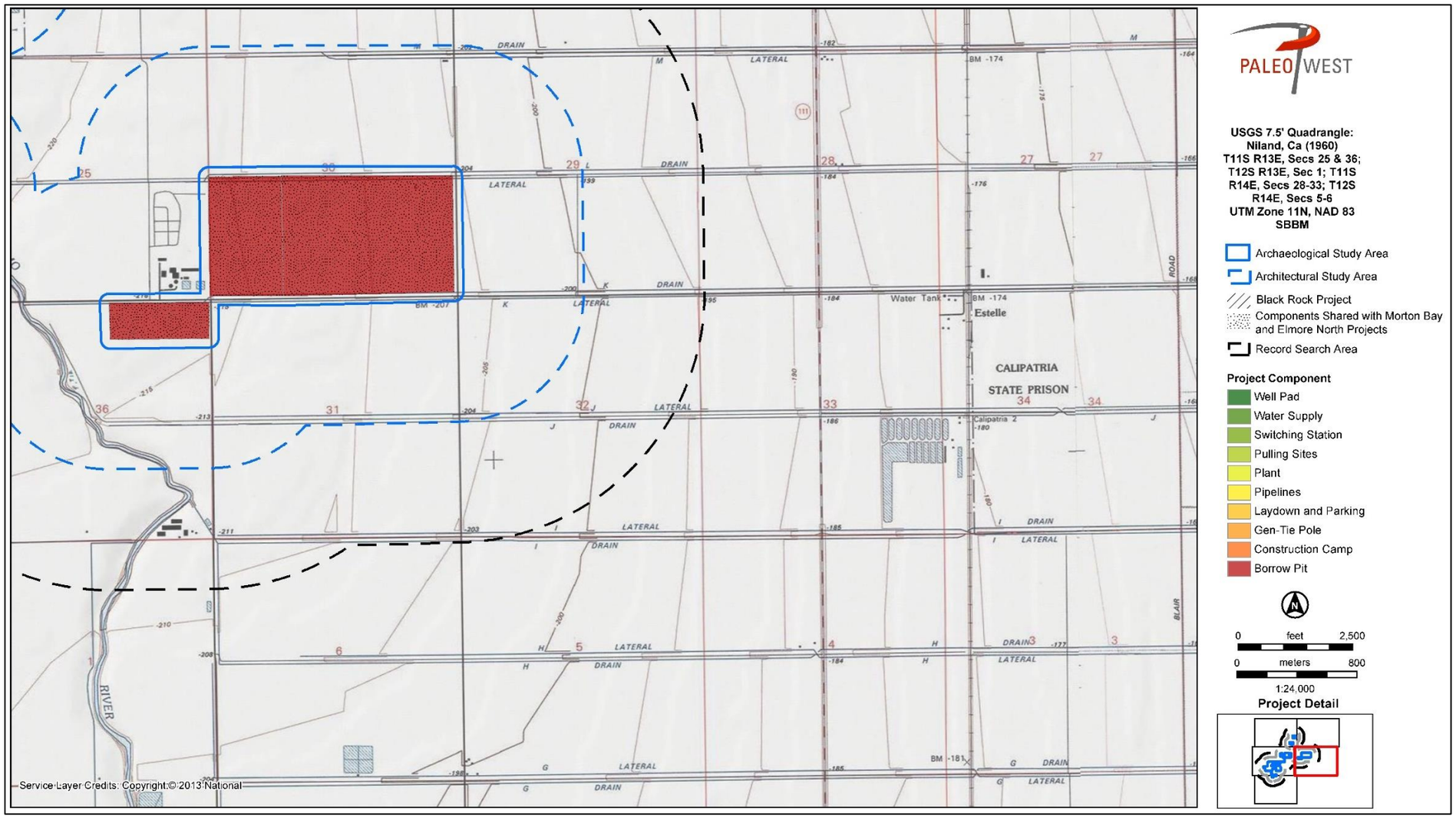

Figure 1-5. Project location map (continued).

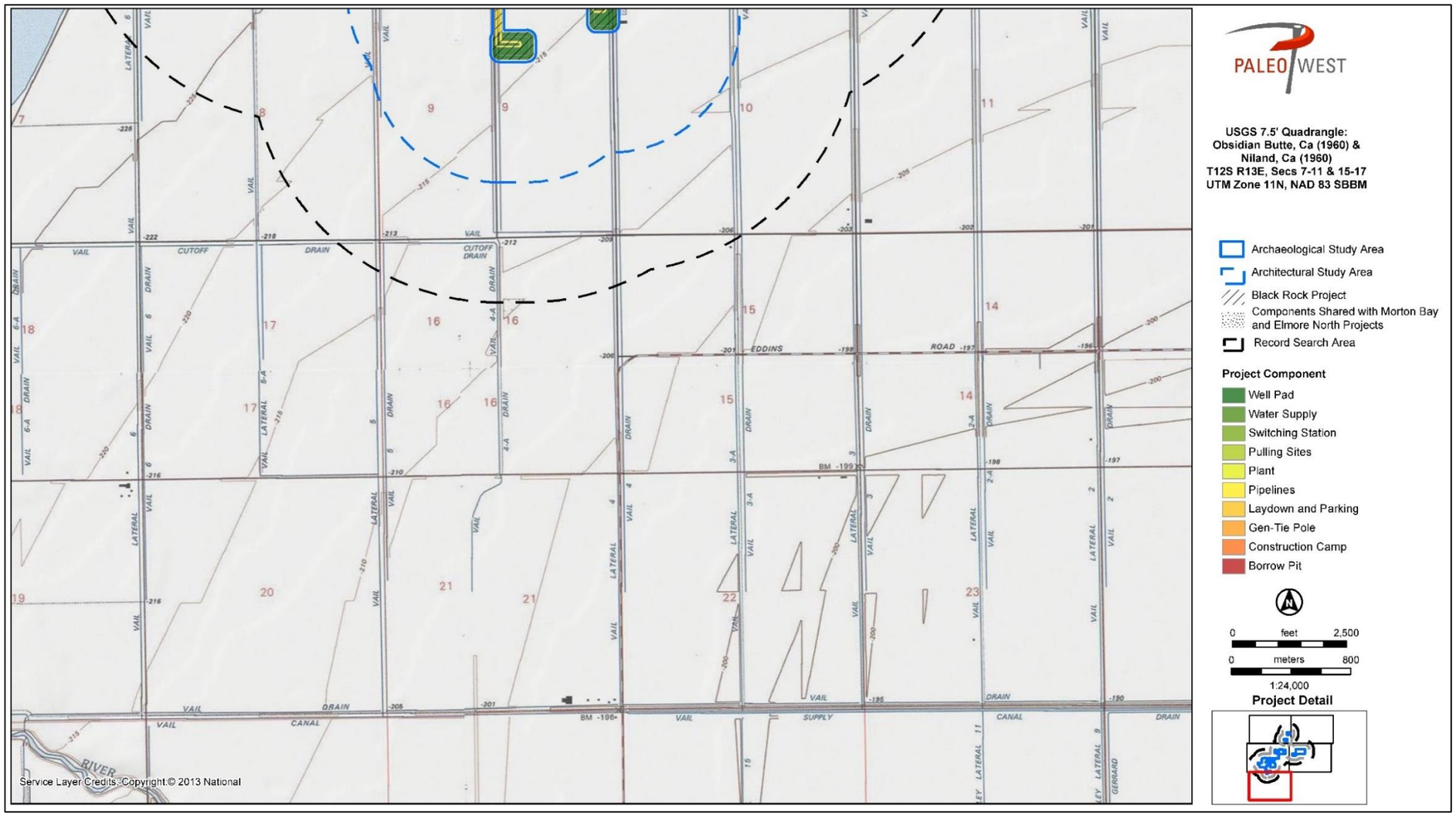

Figure 1-6. Project location map (continued).

2 REGULATORY CONTEXT

2.1 STATE LAWS AND REGULATIONS

2.1.1 California Environmental Quality Act

The proposed Project is subject to compliance with CEQA, as amended. Compliance with CEQA statutes and guidelines requires both public and private projects with financing or approval from a public agency to assess the project's impact on cultural resources (Public Resources Code [PRC] Sections 21082, 21083.2 and 21084 and California Code of Regulations [CCR] 10564.5). The first step in the process is to identify cultural resources that may be impacted by the project and then determine whether the resources are "historically significant" resources.

CEQA defines historically significant resources as "resources listed or eligible for listing in the California Register of Historical Resources (CRHR)" (PRC Section 5024.1). A cultural resource may be considered historically significant if the resource is 45 years old or older, possesses integrity of location, design, setting, materials, workmanship, feeling, and association.[1] In addition, it must meet at least one of the following criteria for listing in the CRHR:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. Has yielded, or may be likely to yield, information important in prehistory or history (PRC Section 5024.1).

Cultural resources are buildings, sites, humanly modified landscapes, traditional cultural properties, structures, or objects that may have historical, architectural, cultural, or scientific importance. CEQA states that if a project will have a significant impact on important cultural resources, deemed "historically significant," then project alternatives and mitigation measures must be considered.

Integrity

Historical resources eligible for listing in the CRHR must also retain enough of their historic character or appearance (integrity) to be recognizable as historical resources and to convey the reasons for their significance. For the purposes of eligibility for the CRHR, integrity is defined as "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (OHP 2001). The

[1] The Office of Historic Preservation (OHP) guidelines recognize a 45-year-old criteria threshold for documenting and evaluating cultural resources (assumes a 5-year lag between resource identification and the date that planning decisions are made) (OHP 1995:2). The age threshold is an operational guideline and not specific to CEQA statutory or regulatory codes.

evaluation of integrity must be grounded in an understanding of a resource's physical features and how they relate to the concept of integrity. Determining which of these aspects are most important to a resource requires knowing why, where, and when a resource is significant. To retain historic integrity, a resource must possess several, and usually most, aspects of integrity:

1. Location is the place where the historical resource was constructed or the place where the historic event occurred.
2. Design is the combination of elements that create the form, plan, space, structure, and style of a resource.
3. Setting is the physical environment of a historical resource and refers to the character of the site and the relationship to surrounding features and open space. Setting often refers to the basic physical conditions under which a resource was built and the functions it was intended to serve. These features can be either natural or manmade, including vegetation, paths, fences, and relationships between other features or open space.
4. Materials are the physical elements that were combined or deposited during a particular period or time, and in a particular pattern or configuration to form a historical resource.
5. Workmanship is the physical evidence of crafts of a particular culture or people during any given period of history or prehistory and can be applied to the resource, or to individual components.
6. Feeling is a resource's expression of the aesthetic or historic sense of a particular period. It results from the presence of physical features that, when taken together, convey the resource's historic character.
7. Association is the direct link between the important historic event or person and a historical resource.

2.1.2 Impacts Assessment Criteria

CEQA Section 21084.1 states that significant impacts may occur if "a project may cause a substantial adverse change in the significance of an historical resource." CEQA Guidelines use the terms effects and impacts interchangeably. Section 15064.5(b)(1) defines adverse impacts as a substantial adverse change to a historic resource, encompassing "demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." As outlined in 14 CCR Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project:

A. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or

B. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in a historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency

reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

C. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

CEQA defines three types of effects:

1. Direct or primary effects that are caused by a project and occur at the same time and place.
2. Indirect or secondary effects that are reasonably foreseeable and caused by a project but occur at a different time or place.
3. Cumulative impacts that are two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

2.1.3 Assessing Visual Impacts

The process to determine significant impacts includes not only direct impacts, but potential indirect visual impacts. CEQA Guidelines Section 150064.5 (b)(1) defines a substantial adverse change as including alteration such that the significance of a historical resource *or its immediate surroundings* would be materially impaired. Although demolition and destruction are fairly obvious significant impacts, it is more difficult to assess when change, alteration, or relocation crosses the threshold of substantial adverse change. Therefore, for an alteration to be considered a substantial adverse change, it must be shown that the integrity and/or significance of the historical resource would be materially impaired by the change in views towards or from a historic resource.

Adverse visual impacts may be created when a project is visible within the viewshed of the historical resource, when it blocks a view toward the historical resource, or when it introduces an element that is incompatible with the criteria under which the resource is eligible. Simply because a project will be visible from a historical resource does not mean it automatically will create a significant impact. Thus, it is necessary to evaluate the visual changes and alterations a proposed project may introduce to the resource.

An adverse impact may be obstructive, which is to say it may block the view to or from a historical resource; it may also not be obstructive and still create an adverse impact in that it introduces elements so incompatible with the criterion or criteria under which a historical resource is eligible for listing that it diminishes the resource's significance to a substantial degree.

2.1.4 Mitigation of Adverse Impacts

Mitigation of adverse impacts is required if a proposed project will cause substantial adverse change to a historical resource (14 CCR Section15064.5[b]). Mitigation measures must be enforceable through permit conditions, agreements, or other legal means and are proportional to the expected impacts. The measures seek to reduce impacts entirely or to a level considered not significant (14 CCR Section15126.4). As such, the examples of mitigation measures

provided may not satisfy CEQA requirements in every circumstance. Mitigation measures for historical resources may include but are not limited to:

1. Altering a proposed project to avoid damaging effects on any historical resource in a significant manner, such as by not taking a certain action or parts of an action.
2. Rectifying impacts through maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, or reconstruction of the historical resource in a manner consistent with the Secretary of Interior's Standards for the Treatment of Historic Properties.
3. Documentation of the historical resource, by way of historic narrative and photographs or architectural drawings meeting California OHP recommendations prior to demolition.
4. Deeding the site into a permanent conservation easement.
5. Abandonment of the proposed project.

CEQA Section 15064.5(b)(3) states that a project that follows the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (*SOI Standards*) shall be considered as mitigated to a level of less than a significant impact on the historical resource.

2.1.5 Assembly Bill 52

Signed into law in September 2014, California Assembly Bill 52 (AB 52) created a new class of resources – tribal cultural resources – for consideration under CEQA. Tribal cultural resources may include sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe that are listed or determined to be eligible for listing on the CRHR, included in a local register of historical resources, or a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant and eligible for listing on the CRHR. AB 52 requires that the lead CEQA agency consult with California Native American tribes that have requested consultation for projects that may affect tribal cultural resources. The lead CEQA agency shall begin consultation with participating Native American tribes prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Under AB 52, a project that has potential to cause a substantial adverse change to a tribal cultural resource constitutes a significant effect on the environment unless mitigation reduces such effects to a less than significant level.

2.1.6 Warren-Alquist Act

The 1975 Warren-Alquist Act (PRC Section 25000 et seq.) established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The CEC is the primary energy policy and planning agency in California. The agency is responsible for permitting and licensing geothermal power plants 50 megawatts or larger. The CEC has developed guidelines that outline the environmental information that is required to be submitted for applications of certification for geothermal power plants (CEC 2007).

3 PROJECT CONTEXT

This section of the report summarizes information regarding the physical and cultural setting of the Project area, including the prehistoric, ethnographic, and historic contexts of the region. Several factors, including topography, available water sources, and biological resources, affect the nature and distribution of prehistoric, ethnographic, and historic-period human activities in an area. This background provides a context for understanding the nature of the cultural resources that may be identified within the region. Much of the information provided in the following sections has been adapted from a report compiled by PaleoWest entitled *Cultural Resources Inventory for the Border Fuels Reduction Project, Imperial and San Diego Counties, California* (Tennyson et al. 2022).

3.1 ENVIRONMENTAL CONTEXT

3.1.1 Physiography and Geology

The Project area is within the Colorado Desert of Imperial County, the largest and most arid subdivision of the Sonoran Desert and one of the hottest and most arid environments in the United States. The Project area is within the southern portion of a major physiographic and geologic feature of the Colorado Desert, the Salton Trough. The Salton Trough is an extensive topographic and structural depression extending from the Gulf of California about 130 mi northwest through the Coachella Valley to the summit of San Gorgonio Pass. The Gulf of California is separated from the trough by the roughly 11-meter (m) tall (36 ft tall) delta of the Colorado River, which slopes gradually down to the north to about 226 ft below mean sea level (bmsl) at the Salton Sea, then rises gradually through the Coachella Valley. This feature evolved during the late Cenozoic Era as a result of tectonic forces that continue to the present day to separate the Baja California peninsula from mainland Mexico. These forces are manifested by numerous fault systems (including the San Andreas Fault) that have resulted in a deepening of the rift that, through the millennia, has contained bodies of either freshwater or saltwater. Intrusions of seawater into the rift first occurred during the late Cenozoic Era, during the Miocene and Pliocene epochs. Elevations within the Project area range from 215 to 235 ft bmsl. Most of the Project area is currently under agriculture.

Subsequently, during the early Pleistocene epoch, a growing alluvial fan of the Colorado River delta sealed off the upper portion of the rift from the sea, creating the Salton Trough basin. The lower portion became what is today the Gulf of California. After this division of the rift, flood episodes of the Colorado River would occasionally divert into the Salton Trough basin long enough to temporarily fill it with fresh water, creating a large lake known historically as Lake Cahuilla. Often, after episodes of flooding, the river eventually returned to its regular channel, into the Gulf of California and the lake would then gradually empty by evaporation. This cycle occurred several times during the Pleistocene and subsequent Holocene epoch. Lake Cahuilla, when full or even nearly full, would have encompassed the smaller present-day Salton Sea and covered much of the Imperial Valley, creating an extensive (but temporary) lacustrine environment (Apple et al. 1997; Schaefer 2006; Waters 1983).

Geologically, a sequence of marine, nonmarine, and lacustrine-associated geologic, sedimentary formations that extend deep beneath the Salton Trough document the geologic history of the rift described above. The Split Mountain Formation, deposited in the rift during

the late Miocene epoch, consists primarily of nonmarine sediments of terrestrial (alluvial and colluvial) origin. At the beginning of the subsequent Pliocene epoch, marine sediments of the Imperial Formation began to be deposited atop the Split Mountain Formation, indicating the first marine transgressions into the rift depression (Dorsey et al. 2007). Later in the Pliocene, deposition of the nonmarine sediments contained in the Palm Springs and Canebrake Conglomerate formations indicate terrestrial contributions to the rift depression. Deposition of these latter two formations may have been at least partially contemporaneous with the deposition of the Imperial Formation marine sediments. Beginning possibly as early as the late Pliocene, the lacustrine sediments contained in the Borrego Formation indicate the end of marine deposition in the rift and the creation of the Salton Trough, and the presence in it of a freshwater lake. These sediments mostly overlie the Palm Spring and Canebrake Formations, but, in some instances, they appear to also interfinger with them, possibly indicating some contemporaneity with the deposition of these formations.

During the Pleistocene, deposition of the nonmarine Ocotillo Conglomerate Formation appears to have occurred contemporaneously with deposition of the lacustrine Brawley Formation. The contemporaneous deposition of these formations likely indicates that a Lake Cahuilla-like body of water was intermittently present in the Salton Trough basin during this period. These formations are subsequently overlain by Holocene-age lacustrine and alluvial deposits, indicating that these conditions continued throughout the period.

In general, the soils in Project area consist of unconsolidated alluvium derived from granitic bedrock or Tertiary-age sedimentary formations. These soils are mostly moderate to excessively drained and rapidly permeable. Wind and water erosion are both significant agents in soil erosion, and erosion from both is substantially evident in the area.

3.1.2 Climate and Hydrology

Conditions within the Colorado Desert are among the hottest found in the United States. Average daily temperatures typically range from the low 40 degrees Fahrenheit (°F) in winter to 105°F in summer, although summer temperatures can reach into the 120s°F (State Parks 1984). A high of 127°F was recorded at the Gold Rock Ranch station, approximately 15 mi northwest of Yuma. This region also experiences rapid heat loss at night, resulting in a wide daily temperature variance of approximately 30°F. Annual rainfall totals within the Colorado Desert are among the lowest in the Sonoran Desert, averaging less than 2 inches (in.) per year in the Salton Trough and between 2-4 in. along the Colorado River (Crosswhite and Crosswhite 1982), though recent summer monsoons have been known to produce more than the average yearly precipitation in a single rainfall event. Droughts of up to 60 days are not uncommon in this area, and the longest recorded drought lasted for more than three years, with documented rainfall of 0.01 in. (Jaeger 1957; Shreve and Wiggins 1964). Freshwater is found in the form of occasional springs and wells, and sporadically in the numerous seasonal drainages. It is thought that the climatic conditions at lower elevations of the Colorado Desert have remained much the same since the late Pleistocene.

The most significant hydrological feature in the vicinity of the Project area, given the criticality of water supply in the ecology, prehistory, and history of the Colorado Desert, is ancient Lake Cahuilla. Consequently, the implications of the periodic inundation of the Salton Trough will be described in more detail. As described previously, although it is generally accepted that freshwater inundations of the Salton Trough likely began during the Pleistocene epoch, it is

documented that during the middle to Late Holocene epoch, Lake Cahuilla filled during natural episodes of Colorado River flooding, and then receded, several times before its last natural desiccation about 300 Before Present (B.P.) (Schaefer 1994, 2006; Waters 1983; Wilke 1978). During the Holocene, Lake Cahuilla formed in the Salton Trough when the Colorado River's major flood episodes breached a drainage divide near Cerro Prieto in northern Baja California. The resulting head-cutting diverted all or most of the Colorado River flow into the Salton Trough. Unchecked, the Colorado River flow would fill the trough to the 40-ft (12-m) above mean sea level (amsl) contour, at which point an outflow channel was created. Flow into the trough presumably would have continued until siltation clogged the inflow channel. High evaporation rates would then cause the lake to recede and salinity to increase proportionally. Stands of Lake Cahuilla at the 40-ft (12-m) amsl contour were truly huge, covering 2,201 mi^2 and reaching a maximum depth of 315 ft. Higher shorelines have been reported and dated to the Pleistocene (Waters 1983); however, it is not clear that any of these were associated with freshwater lakes resulting from Colorado River diversions.

3.1.3 Flora and Fauna

Creosote bush scrub is the most widespread natural vegetation type in the Sonoran Desert, and it covers large expanses of the Colorado Desert. Other natural plant communities also present in the general area include mesquite woodland, desert ironwood woodland, palo verde woodland, four-wing saltbush scrub, creosote bush-burrow weed scrub, brittle bush scrub, ocotillo scrub, and desert buckwheat scrub. The creosote bush scrub community is dominated by creosote bush (*Larrea tridentata*) and salt bush (*Atriplex canescens*) and occurs where the soil is more alkaline. Small shrubs include mesquites (*Prosopis* sp.), burrobush (*Hymenoclea salsola* var. *pentalepis*), desert ironwood (*Olneya tesota*), and desert broom (*Baccaris sarothroide*), with ocotillo sparsely present on alluvial fans (Shreve and Wiggins 1964). Larger drainages and washes support species of small trees and shrubs including western honey mesquite (*Prosopis glandulosa*), ironwood, and blue palo verde (*Cercidium floridum*), as well as species such as smoketree (*Psorothamnus spinosa*) (Bureau of Land Management [BLM] 2011:9.1071). Many of the plants in these various communities, including salt bush, mesquite, cactus, and buckwheat, were of economic importance to Native American people who occupied the area (Bean 1972; Bean and Saubel 1972).

The Colorado Desert is inhabited by a variety of faunal species that are well adapted to the dry and arid environment. Mammals commonly found in this region include kit fox (*Vulpes macrotis*), desert cottontail (*Sylvilagus audoboni*), and black-tailed jackrabbit (*Lepus californicus*), and an array of rodents such as white-tailed antelope squirrel (*Ammosphermophilus leucurus*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert and Merriam kangaroo rats (*Dipodomys merriami*), and desert pocket mouse (*Perognathus penicillatus*). Coyote (*Canis latrans*), desert bighorn sheep (*Ovis Canadensis nelson*), and Sonoran pronghorn antelope (*Antilocapra americana sonorensis*) are among the larger mammals. The most common bat species in this area is the California leaf-nosed bat (*Macrotus californicus*). This region is also populated by a variety of reptiles, such as the fringed-toed lizard (*Uma inornata, U. notate*), flat-tailed horned lizard (*Phrynosoma m'calli*), desert tortoise (*Gopherus cinctus*), chuckwalla (*Sauromalus obesus*), and desert iguana (*Dipsosaurus dorsalis*). Many snake species thrive in the hot, sandy ecosystem of the Colorado Desert as well, and include the banded sandsnake (*Chilomeniscus cinctus*), sidewinder (*Crotalus cerastes*), and rosy boa (*Lichanura trivirgata gracia*).

3.2 PREHISTORIC CONTEXT

Schaefer (1994) was the first to develop a chronological sequence for the Colorado Desert area. The sequence he proposed strongly resembles the scheme in use for the San Diego region, while also incorporating archaeological information from the contiguous Mojave Desert region to the north. Schaefer's reliance on these two adjacent areas is in large part due to the well-defined cultural histories that have been developed for the Mojave Desert and San Diego regions. In contrast to these two areas, the basic culture history of the Colorado Desert region has not changed dramatically since pioneering archaeologist Malcolm Rogers (1939, 1945, 1966) published his initial impressions of the desert's chronology and cultural development, which it should be noted, also encompassed the San Diego region. Consequently, understanding the early prehistory of the Colorado Desert region still relies heavily on comparisons with, and information derived from, both the San Diego region and the Mojave Desert areas.

3.2.1 Paleoindian Period (ca. 12,000 to 10,000 B.P.)

The earliest well-documented prehistoric sites in Southern California belong to the Paleoindian Period (circa [ca.] 12,000–10,000 B.P.) during the Late Pleistocene. In the western United States, most evidence for the presence of Paleoindian peoples derives from finds of large-fluted spear and projectile points (Fluted-Point Tradition) found at sites associated with big game hunting. Paleoindian sites have been documented in places such as Clovis and Folsom in the Great Basin and the northern Desert Southwest area including the Mojave Desert (Moratto 1984:79–88). In the Mojave Desert, while absolute dating remains elusive, the Paleoindian Period is assumed to span approximately 12,000 to 10,000 B.P. (Sutton et al. 2007:234–236). Elsewhere in California, most of the evidence for the Fluted-Point Tradition derives principally from isolated occurrences of fluted points that have been found scattered across the state (Dillon 2002; Rondeau et al. 2007). Only isolated occurrences of fluted points have been observed in the Colorado Desert (e.g., Davis et al. 1980:150; Kline 2014) and in the San Diego area in mountains of southern San Diego County (Kline and Kline 2007). Some finds have also been made to the south in Baja California (Des Lauriers 2008; Hyland and Gutierrez 1995).

The beginning of the San Dieguito Tradition or Complex, which is associated with artifact assemblages distinct from that of the Fluted Point Tradition, is also assumed to date to the Paleoindian Period. In California (Alta California), this tradition has been documented mostly in the coastal area of San Diego County (Carrico et al. 1993; Rogers 1966; Warren 1966, 1967; Warren and True 1961); and to a lesser degree in the Mojave Desert (Sutton et al. 2007) and Colorado Desert (Rogers 1939, 1966; Schaefer 1994; Warren 1967). In the Mojave Desert, Sutton et al. (2007:236) assign the San Dieguito Complex to the early Archaic Period during the Early Holocene. Warren dates the San Dieguito Tradition as beginning circa 10,000 B.P. and ending sometime between 8500 and 7200 B.P. (Warren 1967, 1968:4; Warren et al. 1998; Warren and Ore 2011). It is characterized by an artifact inventory consisting almost entirely of flaked stone biface and scraping tools, but lacking the distinctive fluted points associated with the Fluted-Point Tradition. The subsistence system or emphasis of the San Dieguito Tradition, while not yet entirely agreed upon, appears to have been oriented towards hunting rather than gathering, based on the predominance of primarily hunting-associated tools in recovered artifact assemblages (Warren 1967, 1968).

Evidence for the Fluted-Point Tradition in the general vicinity of the Project area is minimal with only two isolated flute points have been identified in the Colorado Desert (Davis et al. 1980; Kline 2014) with a third point found in the mountains of San Diego County (Kline and Kline 2007). In contrast, the San Dieguito Tradition is relatively well-documented in the San Diego area. The most substantial evidence for this tradition derives from a stratified archaeological site, the C.W. Harris Site (CA-SDI-149/316/4935B), in western San Diego County along the San Dieguito River. The Harris Site formed the original basis upon which the San Dieguito Tradition was defined (Rogers 1939, 1966; Vaughan 1982; Warren 1966, 1967, 1968; Warren and True 1961). Diagnostic artifact types and categories associated with the San Dieguito Tradition include elongated bifacial knives, scraping tools, crescentics, and Silver Lake and leaf-shaped projectile points (Carrico et al. 1993; Knell and Becker 2017; Rogers 1966; Vaughn 1982; Warren 1966, 1967; Warren and Ore 2011; Warren and True 1961). The C.W. Harris Site also provided the oldest calibrated radiocarbon date (9968 B.P.) found in association with a subsurface San Dieguito artifact assemblage (Warren et al. 1998; Warren and Ore 2011). Another slightly younger calibrated radiocarbon date of 9130 B.P. was also acquired from a San Dieguito-associated subsurface stratum at site CA-SDI-316 (Cooley 2013). Finally, possible evidence for the San Dieguito Tradition has been discovered at a site in the southern mountains of San Diego County; the site assemblage included complete, elongated bifacial knives and/or projectile points that bear a strong resemblance to some of those recovered from the C.W. Harris Site (Pigniolo 2005).

Although Rogers (1939, 1966) has described occurrences of sites and artifacts attributable to the San Dieguito Complex in the Mojave and Colorado Desert areas, the ability to accurately determine the antiquity of these artifacts and sites by radiometric dating methods has proven to be problematic (Schaefer and Laylander 2007:247; Sutton et al. 2007:237; Warren 1967:179). Consequently, the radiometric dating of the artifacts and their context at the C.W. Harris Site has for several decades, been the principal means of ascertaining the antiquity of these similar desert assemblages (Warren 1967). In the Mojave Desert area, the San Dieguito Complex has been largely subsumed under the Lake Mojave Complex (Sutton et al. 2007:236). Recently, calibrated radiocarbon dates from several Lake Mojave Complex associated sites have produced dates of similar antiquity to those from the C.W. Harris Site (Sutton et al. 2007:235) (i.e., ca. 10,000-9000 B.P.). In the Mojave Desert area, these Lake Mojave Complex sites are frequently associated with glacial lakes that were still present at the end of the Pleistocene and the beginning of the Holocene. Such glacial-related lacustrine features were generally not present in the more southerly Colorado Desert area. However, given the discovery of Paleoindian Period and/or Lake Mojave Complex associated projectile points in the Salton Basin (Apple et al. 1997; Wahoff 1999), it is possible that this basin, too, may have been inundated, at least periodically, during this earlier period.

3.2.2 Archaic Period (ca. 10,000 to 1,500 B.P.)

The Archaic Period (ca. 10,000–1500 B.P.) encompasses the interval between the relatively cool/wet conditions of the early Holocene and the appearance of assemblages characteristic of the Late Prehistoric. The Archaic Period is generally differentiated from the earlier Paleoindian Period by a shift from hunting-focused subsistence systems to a more generalized economy with an increased focus on gathering and the use of grinding tools and seed-processing technology. Consequently, typical artifact assemblages in the Mojave Desert—where sites dating to the early Archaic Period are common—contain dart points, but with increasing quantities of ground stone tools (such as manos and metates) occurring into the middle and

latter parts of the period. As with the Paleoindian Period, little archaeological evidence has yet been encountered in the Colorado Desert area that can be definitely attributed to the early part of the Archaic Period (i.e., from ca. 8500–4000 B.P.) (Schaefer 1994:64; Schaefer and Laylander 2007:247). Although evidence of early Archaic occupation in the Colorado Desert has long been minimal—as noted above for the Paleoindian Period—possible evidence is the discovery of Paleoindian Period and/or Lake Mojave Complex associated projectile points in the Salton Basin (Apple et al. 1997; Wahoff 1999) and at site CA-SDI-7074 in the mountains of southeastern San Diego County (Williams 2014), could change this paucity of evidence.

A possible early Archaic discovery in the Salton Basin occurred during an archaeological investigation at the Salton Sea Test Base (Apple et al. 1997; Wahoff 1999). This discovery consisted of an assemblage of large projectile points that were stylistically associated with early Archaic-style projectile points in the Mojave Desert, including Pinto and Elko styles. Although archaeological investigations did not obtain any radiocarbon dates to verify the relative dating evidence, the styles of these points appear to be associated with the early Archaic Period. More recently, excavations at site CA-SDI-7074, in the eastern foothills of the Laguna Mountains, uncovered more than 100 subsurface thermal features, many of which were likely earth ovens associated with agave roasting activity (Williams 2014). Although radiocarbon dating indicated that most of these oven features dated to the Late Prehistoric Period, five of the more deeply buried features were discovered to date between 9600 and 8590 B.P. These results not only indicate the use of agave as a food resource much earlier in time than was previously realized, but also suggest a reappraisal of the dating for the inception of the early Archaic Period in the area (Williams 2014:325). Additional evidence for an early to mid-Archaic Period use at the site includes the recovery of a single Elko-style projectile point (Williams 2014:151).

Limited evidence has been found for late Archaic (beginning ca. 4000 B.P.) occupation in the western Colorado Desert. One of the few studies that have documented use during this time was completed by Love and Dahdul (2002) in the northern Coachella Valley of the Salton Basin. The contexts of several sites in the Coachella Valley, some possibly associated with ancient stands of Lake Cahuilla, were radiocarbon dated to circa 3000-2000 B.P. (Love and Dahdul 2002; Schaefer and Laylander 2007:249). Other evidence for the late Archaic use in the area includes deposits found at the Indian Hill Rockshelter (CA-SDI-2537) in Anza-Borrego Desert State Park (McDonald 1992) and at another rock shelter in Tahquitz Canyon, near Palm Springs (Bean et al. 1995; Schaefer and Laylander 2007:247). The Indian Hill Rockshelter, until recently, was the oldest radiocarbon-dated archaeological site in the area. The site contained distinctive dart-sized projectile points, ground stone implements, rock-lined caches, and inhumations, one of which was radiocarbon dated to 4070$\pm$100 years B.P. (McDonald 1992; Schaefer 1994; Wilke and McDonald 1989). The rock shelter in Tahquitz Canyon, although lacking radiocarbon dates, exhibited an assemblage similar to that found in the Indian Hill Rockshelter (Bean et al. 1995; Schaefer and Laylander 2007:247).

Evidence for settlement patterning during the Archaic Period in the Colorado Desert area is minimal. However, some of the late Archaic sites in the Coachella Valley appear to have been in contexts associated with intermittent ancient stands of Lake Cahuilla (Love and Dahdul 2002). It seems likely, therefore, that this hydrological feature had a significant influence on settlement patterns in the western Colorado Desert during at least the late Archaic. Evidence of Archaic habitation at the Indian Hill and Tahquitz Canyon rockshelter sites indicate that adjacent mountain areas were also used by prehistoric groups during the middle to late Archaic.

3.2.3 Late Prehistoric Period (ca. 1,500 to 300 B.P.)

The Late Prehistoric and Protohistoric periods are represented in this region by the Patayan Complex. These periods date from approximately 1500 B.P. until the American expansion into the area at the turn of the nineteenth century. The Protohistoric Period encompasses a protracted 300-year-long period of sporadic European exploration and colonization that had little effect on aboriginal lifeways in the Southern California deserts.

Compared to those shifts noted for the middle and late Archaic Period, the changes occurring at the onset of the Late Prehistoric Period were rather abrupt. The magnitude of these changes and the short period of time within which they took place seem to indicate a significant alteration in subsistence practices ca. 1500–1300 B.P. The changes observed in the archaeological record in the San Diego area during the Late Prehistoric Period include: a shift in settlement patterning indicative of population increases; a shift from hunting using the atlatl and dart to using the bow and arrow; a reduced emphasis on shellfish gathering along some areas of the coast (possibly as a result of silting-in of the coastal lagoons); the introduction and production of pottery; an increase in storage of principal foodstuffs, such as mesquite, acorns, and piñon nuts; a shift in burial practices from inhumation to cremation; and, along the Colorado River, a change in economic and settlement patterns that involved subsistence expansion and the adoption of floodplain horticulture (Gallegos 2002; McDonald and Eighmey 1998; Schaefer 1994).

In the Coachella Valley and Salton Basin area, the Late Prehistoric Period is associated with the periodic infilling and emptying of Lake Cahuilla. This substantial hydrological feature is seen as recurrently altering the course of human settlement in the area during the period (Schaefer and Laylander 2007:250–251). During times of lake absence, settlement appears to have been characterized by the occupation of semi-sedentary villages along major water courses and around springs with adjacent montane areas seasonally occupied to exploit mesquite, acorns, and piñon nuts. Tahquitz Canyon in the mountainous area west of the Salton Basin has been documented as having been an important population center during the Late Prehistoric Period (Bean et al. 1995).

Schiffer and McGuire (1982:216–222) and Waters (1982a) used a chronology originally proposed by Rogers (1945) to divide the Late Prehistoric Period in the Colorado Desert area based on the progression or changes in development of ceramic types. Referring to the period as "Patayan" (instead of the term "Yuman," used by Rogers), three phases were defined that were correlated with fillings and desiccations of Lake Cahuilla. These phases include:

- Patayan I begins at approximately 1200 B.P. with the introduction of pottery into the Colorado Desert. Sites dating to this phase appear to be limited mostly to the Colorado River area.
- Patayan II coincides with an infilling of Lake Cahuilla around 950 B.P. As described previously, the lake covered much of the Imperial Valley and created an extensive lacustrine environment that is thought likely to have attracted people from the Colorado River area. New pottery types appear at this time as a result of local production along the lakeshore and technological changes in the Colorado River area. Subsequently, Lake Cahuilla experienced several fill/recession episodes before its final desiccation.

- Patayan III begins around 500 B.P. as the lake receded. Colorado Buff ware became the predominant pottery type during this time period across the Colorado Desert and along the Colorado River. Several Patayan II pottery types continue into the Patayan III (Waters 1982a, 1982b).

This chronological scheme has served as a useful tool for organizing archaeological assemblages in the area. However, Schaefer and Laylander (2007:252–253) noted that data obtained from more recent archaeological investigations highlight some serious discrepancies with its use (e.g., Hildebrand 2003).

As previously noted, the beginning of the Late Prehistoric Period in the San Diego County area is marked by the appearance of several new tool technologies and subsistence shifts in the archaeological record. Movements of people during the last two millennia can account for at least some of these changes. Yuman-speaking people have occupied the Gila and Colorado river drainages of what is now western Arizona at least 2000 years ago (Moriarty 1968); over time, these groups appear to have migrate westward through the Colorado Desert and the mountains of the Peninsular Ranges to the coast. An analysis by Moriarty (1966, 1967) of materials recovered from the Spindrift Site in La Jolla indicated a preceramic Yuman phase. Based on his analysis and a limited number of radiocarbon samples, Moriarty concluded that Yumans, lacking ceramic technology, migrated and occupied what is now the San Diego coastline circa 2000 B.P. Subsequently, by approximately 1200–1300 B.P., ceramic technology diffused into the coastal area from the eastern deserts. Although these Yuman speakers may have shared cultural traits with the people occupying what is now eastern San Diego County before 2000 B.P., their influence is better documented throughout present-day San Diego County after 1300 B.P. with the introduction of small points, ceramics, Obsidian Butte obsidian from the Salton Basin, and the practice of cremation of the dead.

Two distinct archaeological complexes have been proposed for the Late Prehistoric Period in what is now San Diego County. The Cuyamaca Complex is based on analysis by True (1970) of archaeological excavations undertaken in the Cuyamaca Rancho State Park and analysis of archaeological collections at the San Diego Museum of Man. Results of his analysis, True (1970) was able to define a Late Prehistoric Period Complex for southern San Diego County. This complex differs from the San Luis Rey Complex, which Meighan (1954) identified in the northern portion of the county. The two complexes are primarily differentiated by the presence or absence, or differences in the relative occurrence, of certain diagnostic artifacts in site assemblages. For example, Cuyamaca Complex sites generally contain both Cottonwood Triangular-style and Desert Side-notched arrow points, while Desert Side-notched points are quite rare or absent in San Luis Rey Complex sites (Pigniolo 2001). Other examples include use of Obsidian Butte obsidian, which is far more common in Cuyamaca Complex sites than in San Luis Rey Complex sites and ceramics. While ceramics are present during the Late Prehistoric Period throughout the region, pottery occurs earlier in time and appears to be somewhat more specialized in form at Cuyamaca Complex sites. Burial practices at Cuyamaca Complex sites are almost exclusively cremations, often in special burial urns for interment. In contrast, archaeological evidence from San Luis Rey Complex sites indicates use of both inhumation and cremation. Based on ethnographic data, it is now generally accepted that the Cuyamaca Complex is associated with the Yuman Diegueño/Kumeyaay and the San Luis Rey Complex with the Shoshonean Luiseño/Juaneño.

Compared to Archaic Period sites, Late Prehistoric Period sites attributable to the San Luis Rey or Cuyamaca complexes, while not absent, are less common in the near-coastal areas of the county. As noted by Gallegos (1995:200):

> "for San Diego County, there is temporal patterning, as the earliest sites are situated in coastal valleys and around coastal lagoons. Late Prehistoric Period sites are also found in coastal settings but are more common along river valleys and interior locations."

In contrast, numerous Late Prehistoric Period sites, attributable to the San Luis Rey or Cuyamaca complexes, have been identified in the inland foothill areas of the region (e.g., Carrico and Cooley 2005; Chace and Hightower 1979; Cooley and Barrie 2004; McCown 1945; McDonald et al. 1993; Raven-Jennings and Smith 1999; Willey and Dolan 2004).

3.2.4 Ancient Lake Cahuilla and Obsidian Butte

Wilke (1978:90-93) initially posited three lacustrine intervals in the Salton Trough representing an unknown number of stands of Lake Cahuilla during the past 2,100 years. Waters (1983) subsequently refined Wilke's original estimates of the lacustrine intervals and suggested that there had been four lacustrine intervals that reached the 12-m amsl shoreline during the last 1,500 years (Waters 1983:382-385). The results of additional archaeological research suggest that a fifth, more recent lacustrine interval of Lake Cahuilla occurred sometime between the Spanish explorations of the region in A.D. 1540 and 1775. Radiocarbon dating indicates that this high stand probably occurred between approximately A.D. 1685 and 1740 (Cleland 1999:13).

The Lake Cahuilla chronology, in calendar years before present (cal B.P.; before A.D. 1950), corrected for variations in radiocarbon, is as follows:

- Lacustrine Interval 5: 330-270 cal B.P.;
- Lacustrine Interval 4: 520-370 cal B.P.;
- Lacustrine Interval 3:740-580 cal B.P.;
- Lacustrine Interval 2: 1010-740 cal B.P.;
- Lacustrine Interval 1: 1250-1010 cal B.P.

It should be noted that the dates for the duration of the lake high stands represent maximum spans. The stratigraphic record reveals that the next oldest lacustrine intervals are associated with radiocarbon assays from two distinct sedimentary strata dating to approximately 2285 and 2300 cal B.P. Stratigraphic evidence indicates that there were no episodes of filling of Lake Cahuilla between about 2300 and 1250 cal B.P. (Waters 1983).

Each interval of filling the empty basin or evaporating all the impounded water likely occurred over several decades. As such, it is likely that during much of the past 2,300 years, the lake was neither full nor empty, but rather rising or falling between 84.8 m bmsl and 12-m amsl. A salient implication of this vertical dynamism is that the areal extent of Lake Cahuilla was highly variable over time. Native American settlement must have shifted often as the shoreline advanced or retreated. This variability in lake elevations is also important for determining when volcanic glass was available from the Obsidian Butte source. In late prehistoric times, especially after 950 B.P., toolstone from Obsidian Butte was widely used in Southern California. However, the source was inundated at its glass inaccessible whenever Lake Cahuilla's surface elevation

was higher than 40 m bmsl (Schaefer and Laylander 2007). Expanding or receding, the lake would have prevented access to Obsidian Butte glass whenever the water level stood between 40 m bmsl and 12 m amsl. Ethnographic testimony attests to the importance of Obsidian Butte as a primary source of volcanic glass and a place of special importance to many local native populations persists to this day (Gates and Crawford 2010).

3.3 ETHNOGRAPHIC CONTEXT

Schaefer (2006:21) has previously indicated that the location of the Project area is in a boundary area of the traditional territories of two tribal groups, the Yuman-speaking Tipai (Kamia) to the south and the Shoshonean-speaking Cahuilla to the north (Schaefer 2006:21). Schaefer's use of the term "Tipai" has evolved in the literature, through time, as the one applicable to the people living in the area of eastern San Diego and Imperial counties.

The general early term applied for the Yuman-speakers in the area was "Diegueño," from the mission with which they came to be associated, the San Diego Mission de Alcalá. This term was later adopted by anthropologists (e.g., Kroeber 1925) and further divided into the southern and northern Diegueño. Subsequently, Shipek (1982) initiated the use of a Yuman language term, "Kumeyaay," for the people formerly designated as the Diegueño. According to Carrico (1998: V-3):

> "The linguistic and language boundaries as seen by Shipek (1982) subsume the Yuman speakers into a single nomenclature, the Kumeyaay, a name applied previously to the mountain Tipai or Southern Diegueño by Lee (1937), while Almstedt (1974:1) noted that 'Ipai applied to the Northern Diegueño with Tipai and Kumeyaay for the Southern Diegueño. However, Luomala (1978:592) has suggested that while these groups consisted of over 30 patrilineal clans, no singular tribal name was used and she referred to the Yuman-speaking people as 'Ipai/Tipai…"

Other researchers designated the Kumeyaay living north of the San Diego River as 'Ipai (Northern Diegueño) and those living south of the river and into Baja California as Tipai (Southern Diegueño) (Hedges 1975:71–83; Langdon 1975:64–70). Gifford (1931) designated the Kumeyaay living in the eastern San Diego and Imperial counties as the Kamia, who were distinguished by a desert orientation, with contacts and travel most frequently between eastern San Diego County and the Imperial Valley. This term has generally been replaced with the designation of eastern Kumeyaay or Tipai (Gifford 1931:2; Hedges 1975; Langdon 1975; Luomala 1978). Recently, however, Schaefer (2006:25) stated that:

> "The Kamia specifically were also directly related to the Tipai (southern Kumeyaay) of the mountains and coastal areas of San Diego County and northern Baja California. Their dialect, however, is closely related to the Cocopah and other delta Yumans."

According to Schaefer (2006:21), the Tipai (Kamia) and the Cahuilla "consider the cultural resources of the general area as part of their cultural and historical legacy." As such, both groups are described herein.

3.3.1 Cahuilla

The Cahuilla are a subgroup of the Takic family of the Uto-Aztecan stock and are therefore closely related linguistically to other "Shoshonean" speaking groups including the Gabrielino, Luiseño, and Serrano. These Takic-speaking groups are thought to represent a migration into the area occurring approximately 1500 B.P. (Schaefer 2006:21). According to Schaefer (2006:22):

> What role these Takic speakers had in the development of the Patayan pattern in the Colorado Desert remains unclear, although it may have been considerable. The ancestors of the Colorado River Yumans are most often identified as the source of ceramics, cremation practices, agriculture, some architectural forms, and some stylistic and symbolic representations. The Takic migrations may coincide with the introduction of bow-and-arrow technology, but no direct association can be made. They may have contributed specific hunter and gatherer techniques as well as cosmological and symbolic elements to the Patayan cultural system.

The diversity of Cahuilla territory reflects the range of environmental habitats in inland Southern California. Topographically, their territory ranged from the summit of the San Bernardino Mountains to the Coachella Valley and Salton Sink. Ecological habitats included the full range of mountains, valleys, passes, foothills, and desert areas. Villages were typically situated in canyons or on alluvial fans near water and food resources, and a village's lineage owned the immediately surrounding land (Bean 1972). Well-developed trails were used for hunting and travel between settlements. Village houses ranged from brush shelters to huts 15–20 ft long. Important plant foods exploited from the Cahuilla's diverse habitat included mesquite and screw beans, piñon nuts, and various cacti. Other important plant foods included acorns, various seeds, wild fruits and berries, tubers, roots, and greens. Women were instrumental in the collection and preparation of vegetal foods.

Cahuilla settlement and subsistence patterns were impacted by fill and recession episodes of Lake Cahuilla. When the lake was present, the desert area becoming a more productive resource area. Schaefer (2006:22) states that "Cahuilla mythology and oral tradition also indicate that when Lake Cahuilla dried up, it was the mountain people who resettled the desert floor. The time of Lake Cahuilla is also best documented in the oral traditions of the Cahuilla, both with regard to settlement patterns, song cycles, and the effects of Lake Cahuilla on patrilineal clan segmentation." According to Strong (1929:36) "The derivation of the term Cahuilla is obscure, and it is regarded by the Indians to be of Spanish origin."

The earliest Spanish contact with the Cahuilla may have been with the Juan Bautista de Anza expedition trips in 1774 and 1777. The route followed San Felipe Creek adjacent to Carrizo Creek and then through Borrego Springs, up into the San Jacinto Mountains (Pourade 1962:164; Schaefer 2006:23). The impact of the Spanish mission system and colonization was much less immediate and profound among the Cahuilla compared to Native American groups residing along the coast. It was not until 1819, after the establishment of the San Bernardino estancia and cattle ranch at San Gorgonio, that a more direct Spanish influence was felt. By 1823, members of the Romero Expedition documented that the Cahuilla at Toro were growing corn and melons and were already familiar with the use of horse and cattle, indicating a familiarity with Hispanic practices (Bean and Mason 1962).

During the Spanish Period and into the Mexican Period, political leadership became more centralized as Juan Antonio from the Mountain Cahuilla and Chief Cabazon in the desert emerged as central figures (Strong 1929). Juan Antonio's group played a significant role during the Mexican American War, siding with the Mexicans against the Luiseño who supported the American invasion (Phillips 1975). Along with the rise of powerful chiefs and political restructuring, Mexican language, clothing, and food were incorporated into traditional culture during this era.

With the 1848 signing of the Treaty of Guadalupe Hidalgo, the U.S. Government promised to preserve the liberty and property of the inhabitants of California. In 1952, a treaty was drafted to settle land rights issues for the Cahuilla (as well as Serrano and Luiseño). The treaty was never ratified by Congress and the best farming and grazing lands were claimed by Euro-American settlers. In addition, Executive Orders enacted in the 1960s and 1970s resulted in the establishment of reservations that substantially reduced Cahuilla land. The result of these orders created a checkerboard of 48 sections of reservation lands spread across the eastern edge of the Santa Rosa and San Jacinto mountains and the Coachella Valley (Cultural Systems Research, Inc. [CSRI] 1983). Although various modifications have occurred over time, this has remained the permanent home of the Cahuilla to date.

3.3.2 Tipai/Ipai (Kamia)/Kumeyaay

The Tpai-Iipai/Kumeyaay were also hunter-gatherers who seasonally altered between the mountainous western portions of their territories and the eastern desert areas to maximize resource exploitation. Similar to the Cahuilla, the lifeways of the Tpai-Iipai/Kumeyaay were impacted by the fill and recession of Lake Cahuilla. Schaefer (2006:26) states that "Lake Cahuilla figures prominently in the Kamia's origin myth (Gifford 1931:75–83) and except for the Cahuilla, represents the only other major recorded oral tradition regarding the ancient lake." The Tipai/Kamia were closely connected to the Quechan on the Colorado River and served as trading partners between the coastal and desert groups, using a travel route through the Mountain Springs Grade. These trading partners also were frequently politically allied against other groups to the north and south (Cook et al. 1997:9). The earliest Spanish contact may have been in 1785 by Pedro Fagés or during the Anza expedition journeys in 1774 and 1777 (Cook et al. 1997; Schaefer 2006). By this time, the Tpai-Iipai/Kumeyaay were hostile to the Spaniards and were in alliance with other groups, actively resisting Spanish rule in the area. In 1775, this resistance culminated in open revolt when tribal members from at least 14 local villages banded together and attacked, and burned, the Mission San Diego de Alcalá (Carrico 2008:32–33). The Tipai-Ipai/Kumeyaay continued to resist European and Anglo rule through the Mexican Period and into the American Period.

Although Mexico's governance of Alta California did not last long, it did help to cement the changes brought by the Spanish missionization and colonization of the area. One major alteration occurred in 1835 when the missions were secularized, and their large land holdings were made available to private citizens. Although some large grants of land were made prior to 1834, secularization of the mission's large grazing holdings ushered in the Rancho Era.

One impact was the dissolution of the mission as a residential and labor center for territorially disenfranchised Native Americans. Many mission neophytes had little option but to work on the new Mexican ranchos. Communities living farther from the ranchos were able to maintain their traditional lifeways for a bit longer. New ranches put new pressures on California's native

populations, as grants were made in inland areas still occupied by the Kumeyaay, forcing them to acculturate or relocate farther into the backcountry. In rare instances, former mission neophytes were able to organize pueblos and attempt to live within the new confines of Mexican governance and culture. The most successful of these pueblos was the Pueblo of San Pasqual, located inland along the San Dieguito River Valley, founded by Kumeyaay who were no longer able to live at the Mission San Diego de Alcalá (Carrico 2008; Farris 1994).

During the American Period, railway systems began to connect the people and products of Southern California to the rest of the United States. Increased American settlement and claims on the land for residential, mining, agricultural, and ranching purposes in the second half of the nineteenth century meant that many remaining lands sustaining Native American populations were marked, surveyed, or even fenced as private, again changing the landscape of what are now San Diego and Imperial counties. Native American reservations were established, ostensibly to provide land for Native American populations, but these holdings made available only the poorest of subsistence lands and forced many indigenous peoples to adopt a more sedentary lifestyle, reliant on the Anglo economic system as an alternative to moving to reservations (Carrico 2008).

3.3.3 Quechan

According to Quechan oral tradition, their territorial range extended along the Colorado River from Blythe in the north to Mexico in the south. At the time of sustained European contact in the seventeenth century, the Quechan people numbered in the thousands. The largest concentration of Quechan traditionally lived at the confluence of the Colorado and Gila rivers, although they were strangely not reported in that area in 1540, when the Alacon and Diaz expeditions reached the confluence (Forbes 1965; Forde 1931). Nevertheless, in the following century, large Quechan villages existed in the area.

The Quechan economy was based on a combination of horticulture, fishing, and gathering. During the winter and spring, Quechan groups lived in seasonal village settlements located on terraces above the river floodplain. After the spring floods receded, small family groups dispersed to their agricultural plots along the river to plant crops. After the harvest in the fall, the Quechan gathered again in the large villages on the terraces, where stored agricultural foods, fishing, and limited gathering allowed them to live together through the winter (Bee 1983; Forde 1931). In all times but high flood, fishing in the Colorado River provided an important source of protein. Numerous named villages were located along the terraces above the lower Colorado River flood zone. The village known as *Avi Kwotapai* was located on the west side of the Colorado River between Blythe and the Palo Verde Valley, and *Xenu mala vax* was on the east side of the river near present-day Ehrenhberg (Bee 1982). Quechan and other Yuman-speaking groups report well-traveled trails that extend along the Colorado River, as well as trail networks between peaks and other significant landscape features (see discussions in Cleland and Apple 2003). Primary ethnographic sources for the Quechan include Bee (1983), Castetter and Bell (1951), and Forde (1931).

The contemporary Quechan community is concentrated in the lands of the Fort Yuma-Quechan Reservation and has its main headquarters in Fort Yuma, Arizona. The reservation is approximately 45,000 acres and is located along the lower Colorado River in both Arizona and California just north of the United States/Mexico border.

3.4 HISTORIC CONTEXT

The history of the region is generally divided into Spanish (1769–1821), Mexican (1821–1846), and American (1846–present) periods. The Spanish Period is marked by the establishment of a mission and presidio on a hill overlooking San Diego Bay in July 1769. The Spaniards introduced European crops, cattle, and other livestock. The Mexican Period began in 1821 when Mexico achieved independence from Spain. During the 1820s, a small village began to form at the base of Presidio Hill that became the Pueblo of San Diego (present-day Old Town). The town served as a market center and port for numerous ranchos in the region that were chiefly employed in cattle raising for the exportation of hides and tallow. In 1846, San Diego was occupied by American troops and officially became part of the United States when the Treaty of Guadalupe Hidalgo formalized the transfer of territory from Mexico to the United States in 1848.

European contact with coastal southern California began as early as 1542, with the voyage of Juan Rodríguez Cabrillo. However, intensive interactions and contacts with interior areas only came after the establishment of the Spanish presidio and mission of San Diego in 1769. During the Spanish Period, exploratory probes into eastern San Diego County were made by Pedro Fagés and others, and the southern immigrant trail came into use by colonists from Sonora. Mission culture may have begun to impact Native culture on the western extreme of the Project area.

In the 1800s, most travel from Arizona to San Francisco by Mexican soldiers, and later by American settlers, followed Anza's route. While the historic activity in the area during the early nineteenth century was limited primarily to travel with little settlement or resource exploitation, more intensive activity began in the 1820s, with the onset of limited placer mining in the eastern Colorado Desert. Early Spanish prospectors named the Cargo Muchacho ("loaded boy") Mountains after the gold they found there.

Mexico obtained independence from Spain in 1821. Soon thereafter, California's administrators began to shift their focus away from the Franciscan mission system and toward Hispanic lay settlement of the province. Avenues for foreign trade were opened, and private land grants became more numerous and extended farther inland from the coast.

During the Mexican American War of 1846–1848, California was occupied and subsequently annexed by the United States (U.S.). From the 1840s through the 1880s, the U.S. Cavalry established a series of camps and forts throughout Arizona, Nevada, and the California desert to protect settlers and immigrants from hostile tribes (Rice et al. 1996). Land ownership was complicated by this transition. The Treaty of Guadalupe-Hidalgo, signed in February 1848, obligated the U.S. Government to recognize legitimate land claims in Alta California. While Mexicans initially made up most of the population, the Gold Rush after 1849 stimulated large-scale immigration into the region. Despite large land holdings and a strong cattle industry, many Mexican landowners found themselves overextended when the northern California miners' demand for meat dwindled. To pay their taxes and bills, some were forced to offer up their lands at public auction (Garcia 1975:22). Small farmers had difficulty maneuvering through the process and acquiring land (Garcia 1975:16). Settlers increasingly squatted on land that belonged to Mexicans, citing their preemption rights, which was the tradition that squatters had the first opportunity to buy the unimproved, unclaimed land for a fair price before auction (Garcia 1975:22). Squatters increasingly challenged the validity of Spanish-Mexican claims through the Board of Land Commissioners created by the California Land Claim Act of 1851

(Garcia 1975:22-23). Most Californios did not retain their original land holdings by 1860, including Santiago Arguello, who was granted the former Mission San Diego land in 1846 and eventually lost $24,000 in property (Garcia 1975:24).

Following the establishment of forts throughout the area, the California desert region again opened for exploration and settlement. As part of an effort to establish a railroad route from St. Louis to the Pacific Ocean, the U.S. Government conducted a series of surveys between 1853 and 1855 to identify feasible routes. One of the railroad survey parties, led by Lieutenant R.S. Williamson, included a young geologist, William Phipps Blake, who was the first to identify the Salton Trough as an ancient lakebed (Cory and Blake 1915; Rice et al. 1996) and recognized the fertility of the basin. Sporadic flooding occurred at least eight times from 1824 to 1904. It was during this time that the 1856 U.S. Government Land Office survey documented several historic trails within the region, as well as the Tipai settlement at San Sebastian Marsh (Warren et al. 1981; Warren and Roske 1981).

By 1860, most of the land in San Diego region was unimproved farmland and some ranches (Garcia 1975:15). Settlement of the area occurred through homesteading primarily, which was authorized by the Homestead Act during the Civil War. The Timber Act, passed in 1873, also spurred settlement. It required a 10-year cultivation period of healthy trees. Some speculators and ranchers used this law as a way to obtain land for purposes other than what the patent stated. In the 1870s and 1880s, small farming communities were quickly established throughout San Diego County as settlers took up homestead claims on government land or small holdings purchased from real estate developers.

Significant economic development of the Colorado Desert region began in the 1870s and came to fruition in the early part of the twentieth century. Development was dependent largely on transportation and the availability of potable water. The first of these came in 1872 with the construction of the Southern Pacific Railroad from Los Angeles to present-day Indio, and eventually to Yuma. The early townsite of Indio, the midpoint between Los Angeles and Yuma, was created to provide living quarters for train crews and railroad workers. The first trains ran on May 29, 1876 (Pittman 1995:36). The Southern Pacific continued east, paralleling an 1857 road along the eastern side of the Salton Trough. Railroad stops were built at Walters (now called Mecca), Woodspur (Coachella), and Thermal, among others. The same large dunes that had hindered de Anza's expedition hindered construction of the railroad.

The Southern Pacific Railroad was finally forced to build along the eastern edge of what came to be known as the Imperial Sand Dunes. Railroad sidings in the area with names such as Glamis, Amos, and Ogilby developed into small company towns. The second Transcontinental Railroad was completed when the Southern Pacific and Atchison, Topeka, and Santa Fe Railroads were linked at Deming in New Mexico Territory on March 8, 1881, providing settlers relatively quick and easy access to the region. The citizens of Imperial Valley petitioned the Southern Pacific Company to build a branch line south, connecting the valley to the main Southern Pacific Railroad. In 1903, the line was completed from Old Beach (Niland) to Imperial. By 1904, the line had been extended to Calexico (Heath 1945). A branch line ran from El Centro to Seeley, connecting the Southern Pacific to the San Diego and Arizona Eastern Railroad (Farr 1918). The San Diego and Arizona Eastern Railroad ran from 1919 to 1983, connecting San Diego and Imperial Counties (Crawford 2010).

The completion of the railroad resulted in an unprecedented real estate boom for the city and county of San Diego. The population of San Diego swelled by 700 percent from 5,000 in 1885

to 40,000 in 1889 (Hector et al. 2004:18). Most of the growth was concentrated in the coastal areas and adjacent inland valleys, west of the present Project area, but Imperial County began to experience significant development during the first decade of the twentieth century, with the inauguration of an irrigation system tapping the waters of the Colorado River.

3.4.1 Imperial County

Imperial County (County) was founded on August 15, 1907. It was the last county to be organized in California and measures 4,087 mi^2 in area (O'Dell 1957:8). Largely unoccupied by Euro-Americans through much of the early nineteenth century, the historic development of the western portion of the Imperial County has been influenced by three major water bodies, the Salton Sea, the Alamo River, and the New River. All three landforms lie within five miles of the Project area and are the result of a manmade accident that occurred between 1905 and 1907. A discussion of each of these geographic features is provided below.

Beginning in the early twentieth century, population in the county began to increase with the completion of the Alamo Canal, which directed water from the Colorado River, into Mexico, and back into California (O'Dell 1957:87-88). By 1905, there were about 67,000 irrigated acres farmed by recent settlers to the valley (Hendricks 1971:8; Bright 1998:70). Over the next twenty years, many farmers moved into the county, drawn by the growing agricultural industry, which took off with the construction of the Hoover Dam in 1936 and the All-American Canal in 1940.

Cotton became a major industry in the vicinity of the Project area with 50,000 acres of land in the county devoted to its cultivation in 1914 (McGroarty 1914:27). Alfalfa was another important crop, but as production exceeded demand, it became too expensive to export. As a result, dairy farming became a growing industry, with 2,000 dairies opening in the valley to make use of the surplus alfalfa (Anderholt 1989:53). Historically, most of the land within the Project area has been owned by small-scale farms, some of which have been in operation since the early twentieth century (see Section 3.4.3 below). Although Imperial County is rich in a variety of mineral resources (e.g., clays, gypsum, and marble), mining does not appear to have developed as an important industry in the Project area.

3.4.2 Salton Sea

The Salton Sea is in the location of the historic Lake Cahuilla, which the Colorado River periodically emptied for centuries (San Diego Union-Tribune 2015). In 1905, high spring flooding on the Colorado River spilled over a California Development Company canal, overflowing through the New River and Alamo channels, and flooding the Imperial Valley. The entire volume of the Colorado River rushed down into the Salton Sea until engineers were able to stop the flow of water in 1907, two years after the initial breach. By this time, the Salton Sea was a 400 m^2 body of water – larger than Lake Tahoe (Picone 2021)

The Salton Sea is an endorheic lake, which means the waters never discharge into the ocean and either seep into the earth or evaporates. As a result, the lake has a higher saline level than the Pacific Ocean and is constantly increasing in salinity from evaporation (Picone 2021). When the saline levels were lower in the 1950s and 1960s, the Salton Sea was a popular tourist destination where millions of visitors would come to the warm waters every year, sometimes drawing more tourists than Yosemite (Picone 2021). In the 1950s, the California Department of Fish and Game stocked the lake with fish in a successful effort to draw fisherman. A yacht club

opened, and many high-profile Hollywood stars visited, including Sonny Bono, who learned how to water ski on the sea (San Diego Union-Tribune 2015). By the 1970s, tourism came to a halt as rising salinity, shoreline flooding, and fertilizer runoff from nearby farms caused algal blooms and elevated bacterial levels. This caused a mass-die-off of the sea's fish, and in turn, the local bird populations (Picone 2021). Today, the Salton Sea remains a busy stopping spot for migratory birds. The main tourist draw is the Sonny Bono Salton Sea National Wildlife Refuge (NWR), approximately 0.5-mile northwest of the Project area on the southeastern shores of the Salton Sea. As many as 25,000 visitors a year visit the NWR each year for recreational purposes (San Diego Union-Tribune 2015).

3.4.3 Canal System

The Alamo Canal, completed in 1901 by the California Development Company, was the first canal to serve Imperial County. By 1905, Imperial County had 80 mi of canals and 700 mi of distribution canals. Most of the water was redirected from Colorado River, providing water to 12 water districts that served Imperial Valley. Prior to 1936, the water supply for the Imperial Valley was silt laden. The canal system quickly became clogged and dredging the system was difficult and expensive. The California Development Company did not have the financial resources to keep the system clear. As described above, construction of a new control gate in 1905, coinciding with unusually heavy floods, led the Colorado River to overflow its banks and flood the Imperial Valley. A total of 13,000 acres of irrigable land was destroyed as a result with and an additional 30,000 acres left without a water supply. All crops were lost and by 1909, the California Development Company was bankrupted.

The Imperial Irrigation District (IID) was formed in 1911 under a state charter to acquire properties of the bankrupt California Development Company. By 1922, the IID had acquired 13 water companies and between 1930 and 1940, the All-American Canal was built to replace the Alamo Canal (Dowd 1956:88). The All-American Canal provided reliable water to the valley from the Colorado River and by 1942, became the sole source of imported water for the Imperial Valley.

Three major distribution canals channel water throughout the valley: East Highline, Central Main, and Westside Main canals (CH2M Hill 2001). The three canals service different portions of the valley: the East Highline Canal serves IID's area east of the Alamo River and is approximately 4.5 miles northeast of the Project area, the Central Main Canal serves the area between the Alamo River and the New River; and the Westside Main Canal serves the area west of the New River. The East Highline Canal Reach 1 and Reach 2 segments, which run from the Alamo Canal at Laurence Heading in Mexico north to Niland, were initially constructed in ca. 1914. Following its construction, a network of irrigation lateral canals was constructed off of the East Highline Canal at 0.5-mi intervals running in a westward direction (CH2M Hill 2001). Between 1923 and 1927, the East Highline Canal was extended to the area north of Niland (Dudek and Rincon Consultants 2022:23).

The Vail Canal System, which also receives water diverted from the East Highline Canal (IID 1959), was also likely constructed in the early twentieth century during a period of drainage expansion in the late 1920s and 1930s. The Vail Canal is approximately 4.5 miles south of the Project area and was built on land owned by the Vail family and is associated with Vail Ranch. The Vail family had constructed several large ranches throughout southern California (Tennyson

and Apple 2009). The most famous member of the family was Walter Lennox Vail, who had owned land near the Project area (CEC 2003 4.3-16).

Much of the irrigation water that is transported through the East Highline, Central Main, and Westside Main canal systems drain into the Alamo River and New River, which flow west and north from the Mexicali Valley in Baja California to the Salton Sea. The modern river courses were created in 1905-1907 by high spring flooding on the Colorado River. Washing out portions of the Alamo Canal, the flood water coursed into the Salton Basin and created the Alamo and New River channels (Dowd 1956:35). The Alamo and New rivers eventually became one of the main outlets to the Salton Sea with extensive drainage systems constructed by the IID in the early decades of the twentieth century (Dowd 1956:36).

In total, approximately 1,667 mi of canals and laterals distribute irrigation water within IID's service area. The 123-mi-long Coachella Canal branches from the All-American Canal to serve the Coachella Valley. Today, 3,000 mi of irrigation and drainage canals irrigate more than 600,000 acres of land in the Imperial and Coachella valleys with water from the Colorado River, yielding nearly $1 billion in crops (Bureau of Reclamation n.d.).

4 CULTURAL RESOURCES INVENTORY

A literature review and records search were conducted at the SCIC, housed at San Diego State University, on March 23, 2022. This inventory effort included the Project area along with a corresponding buffer, collectively termed the records search area. A 1.0-mi radius buffer was included around all Project facilities with a 0.5-mi radius buffer placed along transmission lines. The objective of the SCIC records search was to identify prehistoric or historical cultural resources that have been previously recorded within the records search area during prior cultural resource investigations.

As part of the cultural resources inventory, PaleoWest staff also conducted archival research and examined historical maps and aerial images to characterize the developmental history of the Project area and surrounding area. A summary of the results of the record search and background research is provided below.

4.1 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS

The data review indicates that 35 previous investigations have been conducted and documented within the records search area since 1977 (Table 4-1). Twenty-two of these studies were conducted within 0.25-mi of the Project area, of which 18 studies intersect the Project area. None of these studies have been completed within the last five years. Figure B-1 in Appendix B contains maps depicting the locations of previous cultural resources studies.

Table 4-1. Previous Cultural Studies within the Records Search Area

Report No.	Date	Author(s)	Title	Intersects Project Area	Within 0.25-Mi Radius of Project Area[1]
IM-00109	1977	Von Werlhof, Jay, Sherilee Von Werlhof, And Morlin Childers	Archaeological Examinations of The Obsidian Butte Quarry Site, Imperial County		X
IM-00140	1978	Von Werlhof, Jay and Sherilee Von Werlhof	Archaeological Examinations of Ten Geothermal Test Sites Near Salton Sea	X	X
IM-00160	1978	Von Werlhof, Jay	Archaeological Examinations of Republic Geothermal Sweetwater Drill Sites		
IM-00163	1978	Imperial County Planning Department	Final Environmental Impact Report for Geothermal Exploratory Operations in The Salton Sea Prospect		
IM-00183	1979	Imperial County Planning Department	Environmental Impact Report #211-78 For Forty-Nine-Megawatt Geothermal Power Plant & Facilities Niland Area	X	X
IM-00225	1980	Westec Services, Inc.	Appendix A – History of Local Development	X	X
IM-00230	1981	Westec Services, Inc.	Salton Sea Anomaly Cultural Resource Review Data-Support Package	X	X

Report No.	Date	Author(s)	Title	Intersects Project Area	Within 0.25-Mi Radius of Project Area[1]
IM-00234	1981	Westec Services, Inc.	Salton Sea Anomaly - Master Environmental Impact Report	X	X
IM-00236	1981	Westec Services, Inc.	Volume II - Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49 Mw) Environmental Impact Report Appendices	X	X
IM-00237	1981	Westec Services, Inc.	Volume I - Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49 Mw) Environmental Impact Report Draft	X	X
IM-00254	1981	Westec Services, Inc.	Final Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49 Mw) Environmental Impact Report Comments and Responses	X	X
IM-00255	1981	Westec Services, Inc.	Final Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49MW) Environmental Impact Report Volume I	X	X
IM-00320	1984	County Of Imperial Planning Department	Draft Environmental Impact Report for The Niland Geothermal Energy Program		
IM-00509	1994	RTP Environmental Associates Inc.	Salton Sea Mineral Recovery Pilot Demonstration Project	X	X
IM-00512	1994	RTP Environmental Associates Inc.	Conditional Use Permit and Environmental Information for The Hazard Area Exploration Wells	X	X
IM-00636	1980	Von Werlhof, Jay	Imperial Valley College Foundation Environmental Studies for Ten Geothermal Exploratory Wells	X	X
IM-01096	2007	ASM Affiliates	Cultural Resources Survey of The Hudson Ranch I Geothermal Project, Imperial County, California	X	X
IM-01181	2000	Tetra Tech, Inc.	Draft Salton Sea Restoration Project Environmental Impact Statement/Environmental Impact Report		X
IM-01255	2001	McGown, Lucille Ronan, Gordon A. Clopine, Doris Hoover Bowers, Jay Von Werlhof, Ruth Deette Simpson, Ronald V. May, and Pat King	The Archaeological Survey Association of Southern California's Lake Le Conte Survey		X
IM-01306	1980	Wirth Associates, Inc	APS/SDG&E Interconnection Project Environmental Study Phase II Corridor Studies - Native American Cultural Resources Appendices		

Report No.	Date	Author(s)	Title	Intersects Project Area	Within 0.25-Mi Radius of Project Area[1]
IM-01385	2008	Laylander, Don, Sarah Stringer-Bowsher, and Jerry Schaefer	Cultural Resources Review for The Sonny Bono Salton Sea National Wildlife Refuge Complex, Imperial and Riverside Counties, California	X	X
IM-01461	2011	ESA Associates	Cluster I Solar Power Project	X	X
IM-01470	2010	Schaefer, Jerry, Shelby Gunderman, and Don Laylander	Cultural Resource Study for The Hudson Ranch II Project, Imperial County, California		
IM-01484	2010	Imperial County Planning Department	Simbol Calipatria, I Plant Project		
IM-01493	2012	ESA Community Development	Revised Cluster I Solar Power Project Final Environmental Impact Report/ Response to Comments	X	X
IM-01494	2012	Ecology And Environment, Inc.	County Of Imperial Hudson Ranch Power II Cup #G10-0002/ Simbol II Cup #12-0005 Draft Environmental Impact Report		
IM-01505	2012	Ecology And Environment, Inc.	County Of Imperial Simbol Calipatria Plant I Cup #12-0004 Draft Environmental Impact Report Volume 1		X
IM-01520	2013	Imperial Wells Power LLC	Imperial Wells Geothermal Exploration Project, Project Description		
IM-01559	2011	Giacinto, Adam	Cultural Resource Study for The Simbol SM Calipatria Plant I, Imperial County, California		
IM-01640	2016	Stanford, J. Todd and Lachman, Daniel	Phase I Environmental Site Assessment Hell's Kitchen Power Plant West of Wister Road, Between Noffsinger Road and Pound Road Calipatria, California 90291		
IM-01642	2012	NA	County Of Imperial - Hudson Ranch Power II Cup #G10-002/Simbol II Cup #12-0005 Final Environmental Impact Report, Volumes I And II	X	X
IM-01643	2016	NA	Geo-Genco Geothermal Project, Imperial County, California		
IM-01695	2016	Castells, Shelby Gunderman	Cultural Resource Study for The Geo-Genco Geothermal Project, Imperial County, California		
IM-01697	2017	NA	Addendum To PEIR and Initial Study/Environmental Analysis For: Controlled Thermal Resources Hell's Kitchen Exploratory Wells Project		
IM-01710	2011	Ehringer, Candace	Cluster I Solar Project - Cultural Resources and Paleontological Studies	X	X

[1] Copies of reports conducted within 0.25-mi of the Project area are included in Appendix F.

4.2 PREVIOUSLY RECORDED CULTURAL RESOURCES

The records search indicated that 13 cultural resources have been previously documented within the records search area (Table 4-2). These resources include three prehistoric sites, six historic period sites, and four historic built-environment resources. None of the previously recorded cultural resources intersect the Project area. One historic built-environment resource (P-13-018312; Sonny Bono Salton Sea National Wildlife Refuge) lies outside of the Project area but within the architectural history study area. A description of this resource is provided below. Figure B-2 in Appendix B contains maps depicting the locations of previously identified cultural resources.

Table 4-2. Cultural Resources Recorded in the Record Search Area

Primary No.	Trinomial	Type	Age	Description
P-13-000452	CA-IMP-452	Site	Prehistoric	Obsidian Butte; a lithic quarry
P-13-003251	CA-IMP-3251H	Site	Historic	Pond of water
P-13-003254	CA-IMP-3254	Site	Historic	Salt deposit; no longer extant
P-13-003255	CA-IMP-3255	Site	Historic	Saltwater pond
P-13-003256	CA-IMP-3256	Site	Historic	Mud volcanos
P-13-003257	CA-IMP-3257	Site	Historic	Mud volcanos
P-13-006638	CA-IMP-6638	Site	Prehistoric	Lithic scatter
P-13-008176	NA	Site	Prehistoric	Lithic quarry
P-13-009110	CA-IMP-8395	Site	Historic	Carbon dioxide wells
P-13-013841	NA	Structure	Historic	Cement-lined canal
P-13-014278	NA	Structure	Historic	Segment of O Lateral canal
P-13-014279	NA	Structure	Historic	Segment of N Drain of East Highline Canal
P-13-018312	*NA*	*Building*	*Historic*	*906 West Sinclair Road, Calipatria; Sonny Bono Salton Sea NWR Headquarters*

Italics indicate resources in the architectural study area.

4.2.1 P-13-018312 (906 West Sinclair)

This resource consists of a historic-era building that was associated with the operation of the Sonny Bono Salton Sea National Wildlife Refuge (NWR) (Speulda-Drews 2021). Known as Quarters 7, the building was constructed in 1951 on an isolated parcel at the northern end of the refuge. Quarters 7 was designed by United States Fish and Wildlife Service (USFWS) architect, Vernon Acker. The single-story, rectangular plan with attached garage reflected the post-World War II architectural trend of the minimalist ranch. The evaluation of Quarters 7 by Speulda-Davis (2021) concluded that the building was not eligible for the NRHP under any criteria. Quarters 7 does not appear to have been evaluated for listing on the CRHR.

4.3 ARCHIVAL RESEARCH

PaleoWest conducted archival research that involved the examination of both original and secondary historical sources. The purpose of this work was to establish and develop appropriate contexts with which to evaluate historic period archaeological and architectural resources identified within the study areas. This research focused on the identification of specific research themes that included a history of early settlement and exploration and

twentieth century irrigation infrastructure and canal systems. Sources consulted as part of this effort include BLM land patents, General Land Office (GLO) maps, property records, and building permits to obtain information on the construction and age of historic properties. In addition, newspapers and genealogical databases were examined to acquire data on the owners of the historic properties. Finally, online historical records were also accessed for information on the construction and operation of the IID (2022).

4.4 ADDITIONAL SOURCES

A variety of historical maps were consulted as part of the cultural resource study including Calipatria, CA (1944, 1976) 15-minute, Iris, CA (1940, 1945) 15-minute, Obsidian Butte, CA (1956, 1992) 7.5-minute, and Salton Sea (1954, 1955, 1959, 1963, and 1965) one by two-degree USGS quadrangles. Historical aerial images from NETROnline (2022) dated 1953, 1984, 1996, 2002, 2010, and 2018 were also examined.

Results of the archival map and photograph research indicate that by the early 1940s, the communities of Niland and Calipatria had been established north and south of the Project area, respectively. These communities are linked by a grid of rural roads, most of which were placed at 0.5-mi intervals. Other development observed in the vicinity of the Project area at this time include branches of the Southern Pacific Railroad and numerous lateral canals and drains that extend off the East Highline Canal. By 1954, the Calipatria Airport was established. In the 1960s, lands surrounding Salton Sea and the Project area had been designated as Wildlife Refuge Lands and Managed or Protected Lands.

As part of the background research for the Project, PaleoWest also attempted to consult local county records and historical societies. An examination of on-line resources indicates that Imperial County does not maintain a registry of historically significant cultural resources. Furthermore, outreach with local historical societies, including the Imperial County Historical Society/Pioneers' Museum, Palo Verde Historical Society, and the Fort Gaston Historical Society, resulted in negative findings. None of these societies provided information on cultural resources, historic events, and historic individuals known to have existed in the architectural study area.

4.5 NATIVE AMERICAN COORDINATION

A SLF search request was sent to the NAHC on August 8, 2022 for the Project site (Appendix C). The objective of the SLF search was to determine if the Native American Heritage Commission had any knowledge of Native American cultural resources (e.g., traditional use or gathering area and place of religious or sacred activity) within the immediate vicinity of the Project area. Due to a processing delay at the NAHC, PaleoWest sent out initial outreach letters based on SLF results from a nearby project on August 9, 2022. The NAHC responded on October 13, 2022 with a positive result. In addition, they recommended PaleoWest contact 27 individuals representing 17 local tribal groups to request information on sensitive Native American cultural resources in the vicinity of the Project area.

PaleoWest sent information request letters to these individuals on August 9, 2022 and December 7, 2022 via the U.S. Postal Service and email. The letter requested information on

cultural resources within the BHE Black Rock Project[2]. A round of follow up calls and emails were subsequently conducted on August 25, 2022, December 7, 2022, and December 21, 2022 to those tribes and tribal contacts who had yet to respond to the letter request.

To date, the following responses have been received:

- Ray Teran of the Viejas Band of Kumeyaay Indians responded via email on August 10, 2022 and stated that the Project has cultural significance that is tied to the Tribe, and that cultural resources have been located within or adjacent to the Project area. The Tribe requests that a Kumeyaay Cultural Monitor be on site for ground disturbing activities and to be informed of any new discoveries such as inadvertent discovery of cultural artifacts, cremation sites, or human remains. Lastly, Mr. Teran stated that if another Tribe in a closer proximity to the Project area requests to perform cultural monitoring, then the Viejas would defer to them.

- Ms. Lisa Cumper, the Tribal Historic Preservation Officer for the Jamul Indian Village, responded via email on August 23, 2022 stating that the Project materials had been received and that she would respond with her comments at a later time. Ms. Cumper responded again on November 16, 2022, stating that portions of the Project within Obsidian Butte is positive for cultural sensitivity.

- Ms. Courtney Coyle, attorney for Ms. Carmen Lucas (Kwaaymii Laguna Band of Mission Indians) responded via email on August 25, 2022 requesting additional information regarding the Project location and the scope of work to be conducted. Ms. Coyle's request was forwarded to the CEC on August 29, 2022. On September 8, 2022, PaleoWest responded to Ms. Coyle and stated that her email had been forwarded to the CEC.

- Ms. Carmen Lucas (Kwaaymii Laguna Band of Mission Indians) responded via telephone on August 29, 2022 and stated that she has serious concerns with the Project. She noted that the entire Project area is considered sacred with many cultural resources present in the vicinity. Resources and cultural landscapes in the area include Obsidian Butte, multiple mudholes, and the Ancient Lake Cahuilla cultural landscape. Ms. Lucas explained that obsidian from Obsidian Butte is found across southern California, including as far west as La Jolla, and that mudholes represent the heartbeat of mother earth. Ms. Lucas expects adverse impacts would occur to Obsidian Butte, the mudholes in the area, and the Ancient Lake Cahuilla cultural landscape. She expressed opposition to all three projects.
- Ms. Lacy Padilla, Operations Manager for the Agua Caliente Band of Cahuilla Indians, responded via email on January 9th, 2022 stating that the project lies within the Tribe's Traditional Use Area. Ms. Padilla requested a copy of the cultural resources report and associated documentation, and the presence of an approved cultural resources monitor during ground disturbing activities. PaleoWest responded to Ms. Padilla and stated that the documentation requested would be provided when available.

[2] The NAHC letters included the Black Rock Geothermal Project, Elmore North Geothermal Project, and Morton Bay Geothermal Project areas.

- Mr. Joseph Ontiveros, Cultural Resources Director for the Soboba Band of Luiseno Indians, responded via telephone on December 12, 2022 and stated that the Tribe defers to more local Tribes, including Torres-Martinez Desert Cahuilla Indians and Quechan Tribe of the Fort Yuma Reservation.

The results of the NAHC SLF search, the list of contacts, a sample outreach letter, a contact/response matrix, and copies of correspondence are included in Appendix C.

5 RESEARCH DESIGN

A research design is an explicit statement of the theoretical and methodological approaches to be followed in a cultural resources study (OHP 1990). Inventory studies, such as this one, rely on data from archaeological and historical resources visible on or above the ground surface with supplemental information provided by archival research and literature review (OHP 1991). In such studies, the focus of the research design is to ensure the adequacy of the identification effort. Should any identified resources within the Project area have sufficient age and integrity to warrant consideration for CRHR eligibility, then relevant research questions and data requirements may be posed to evaluate the significance of the resource and make recommendations regarding determinations of eligibility.

For the purposes of this study, two related research domains were identified: 1) history of early Euro-American settlement and exploration; and 2) twentieth century irrigation infrastructure and canal systems. Research regarding the development of settlements of the Imperial Valley is important for understanding whether cultural resources in the area should be considered significant. Use of the valley was, at first, associated with transportation. Due to the remoteness and limited accessibility of resources, permanent settlements were few and far between. However, the construction of irrigation infrastructure and canal systems in the early decades of the twentieth century greatly increased the agricultural potential of the area. This resulted in an influx of settlers who established farms and ranches throughout the area.

The following questions may be considered when examining the nature and extent of early settlement and irrigation agriculture within the Project area.

- What evidence of historic period agriculture, ranching, and homesteading is present in the Project area?
- Do historical archaeological sites in the Project area represent early historical settlement, such as homestead structures or features, or historical agricultural pursuits within the Project area?
- What specific activities were performed at these sites? Did these activities change over time?
- What is the age of these sites? How long were these settlements occupied and when were they abandoned?
- How do agriculture, ranching, and homesteading sites in the Project area reflect or diverge from regional or national trends?
- What was the socioeconomic status, ethnicity, or national origin of the homesteaders?

Data Requirements (among the data needed to address the research questions posed above):

- Chronological data from temporally diagnostic artifacts that can be used to assess the age of the sites;
- Artifact assemblages and features to identify the types of activities that were associated with each site;

- Artifacts (e.g., culinary artifacts, food preparation items, food containers and remains, clothing/grooming, personal hygiene, and medicinal items), that may be used to examine the social, ethnic, or economic background of the residents of the sites; and
- Documentary information in the form of U.S. Geological Survey historical maps, land patent records, master title plat maps, and County assessor records to address questions of land ownership.

6 FIELD INVESTIGATION

To fully comply with CEC requirements, PaleoWest followed OHP's (1995) guidelines for recording and evaluating archaeological and historic built-environment resources for CRHR eligibility. In this section, a definition of the resource categories that were employed in the cultural resources study is first presented. This is followed by the methods and results of the archaeological and architectural history surveys. A map showing the survey results is provided in Appendix D. DPR forms for all newly recorded and updates resources are included in Appendix E.

6.1 RESOURCE DEFINITIONS

The *Instructions for Recording Historical Resources* (OHP 1995) has adopted the NRHP resource categories as a basis for the classification of California's historical resources. The NRHP categories that have been defined by the National Park Service (1990) include the following:

- Building: A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn. If a building has lost any of its basic structural elements, it is usually considered a "ruin" and nis categorized as a site (see below).
- Structure: The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter. If a structure has lost its historic configuration or pattern of organization through deterioration or demolition, it is usually considered a "ruin" and nis categorized as a site (see below).
- Object: The term "object" is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.
- Site: A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.
- District: A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

For the purposes of this study, a "site" was defined as a location that has material evidence of past life, activities, and culture. OHP's guidelines indicate any cultural resources over 45 years of age should be recorded (1995:2). Documentation of resources less than 45 years old also may be filed if a resource is of exceptional importance as defined in the National Register Bulletin Guidelines, (36CFR60.4(g) (CEC 2007:86). Following Tennyson et al. (2022), an archaeological site is defined as exhibiting at least one of the following:

- One or more features;
- Five or more artifacts in clear association within a 25 m^2 (5 × 5 m) area;
- Fewer than five artifacts that have data potential or are "diagnostic" (i.e., fluted points).

Examples of archaeological sites commonly found in the Project vicinity include prehistoric lithic scatters and quarries and historic-period refuse scatters, roads, canals, and agricultural remnants. Resources separated by more than 30 m or located on different landforms were recorded as distinct sites or as isolates unless other indicators suggested a close association. Isolates were defined as fewer than five artifacts that are greater than 45 years old.

Previously recorded cultural resources were also revisited during this survey. Their condition was assessed, and an update was made to the DPR record. All newly recorded cultural resources were fully recorded and are described in this report. Maps showing the locations of all identified cultural resources within the archaeological and architectural history study areas area included in Appendix D. DPR forms for these resources have also been submitted in conjunction with this report (See Appendix E).

6.2 ARCHAEOLOGICAL SURVEY

6.2.1 Methods

An intensive pedestrian survey of the archaeological study area was completed by PaleoWest archaeologists between August 9 and September 2, 2022, November 7 and 11, 2022, January 30 and 31, 2023, and March 31, 2023. PaleoWest's Associate Archaeologists Evan Mills, M.A., RPA, and Kurt McLean served as the Field Director with assistance from Heather Landazuri, Alex Wetcher, Eunice Ambriz, Jackson Case, Stephen Molinares, Matthew Steber, Earl Morales, and Gustavo Banuelos. The archaeological survey methods followed standard archaeological methods consisting of parallel pedestrian transects spaced at 10–15 m (33–50-ft) 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. Areas that were inaccessible to the surveyors were noted and described (i.e., landform type, reason for inaccessibility).

The survey area was documented with digital photographs that included general views of the topography, vegetation density, and other images. A photograph log was maintained to include photograph number, date, orientation, photograph description, and comments. The surveyors carefully inspected all areas likely to contain or exhibit sensitive cultural resources to ensure discovery and documentation of cultural resources located within the survey area. In particular, the survey crews carefully inspected rocky outcroppings, banks, clearings, and other habitable flat spots.

All archaeological materials and features of an eligible age were recorded during the survey in accordance with OHP (1995) guidelines. Historic period archaeological indicators include the remnants of buildings, objects, and structures, or concentrations of materials at least 45 years in age, such as domestic refuse (e.g., glass bottles, ceramics, toys, buttons, and leather shoes),

refuse from other pursuits such as agriculture (e.g., metal tanks, farm machinery parts, and horse shoes) or structural materials (e.g., nails, glass window panes, corrugated metal, wood posts or planks, metal pipes and fittings, and railroad spurs). Prehistoric site indicators include areas of darker soil with concentrations of ash, charcoal, animal bone (burned or unburned), shell, flaked stone, ground-stone, pottery, or even human bone.

When archaeological remains were found during the survey, site boundaries were defined by surveying out in widening concentric circles until artifacts were no longer encountered. Artifacts or features that were within 30 m of each other, or that were clearly related, were combined into the same isolate or site. All resources were digitally recorded in the field directly into a FileMaker database using an iPad.

6.2.2 Results

The archaeological study area is composed of agricultural fields, human-made ponds, a riparian landscape adjacent to the Alamo River, and mud flats (**Error! Reference source not found.** to **Error! Reference source not found.**). 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. The only area that was characterized by non-agricultural plant species was along the Alamo River, which contained salt-cedar (*Tamarix chinensis*), common reed (*Phragmites australis*), arroweed (*Pluchea serica*), and various types of saltbush (*Atriplex* spp.). Noted disturbances include expansive agricultural fields, berms, canals, and ponds excavated for irrigation and hunting, and the construction and maintenance of numerous dirt, graveled, and paved roads. The surface of the graveled roads included a mix of imported gravel and local gravel with obsidian from the nearby Obsidian Butte.

Ground visibility across the archaeological survey area was variable (Figure 6-5). Although excellent visibility (close to 100%) was found in many areas, moderate visibility (25-75%) was noted near ponds and in some of the fallow agricultural fields. Areas with no visibility (less than 10%) were associated with some active agricultural fields. With the exception of 54 acres of land that were inaccessible (i.e., fenced off or underwater), the entire archaeological survey area was inventoried for archaeological resources. All of the fenced off areas were located in existing geothermal facilities that PaleoWest did not have permission to enter. 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. No archaeological resources were identified in the archaeological study area.

6.3 ARCHITECTURAL HISTORY SURVEY

6.3.1 Methods

An initial architectural survey was conducted from August 22 to 24, 2022 by PaleoWest Senior Architectural Historian Mr. Andrew Bursan, M.A. A follow up architectural survey was conducted by Kurt McLean from November 8 to 9, 2022 under the supervision of Mr. Bursan. Prior to conducting the survey, records search results and historical aerial images and maps were inspected to identify the locations of potential historic built-environment resources in the survey area. During the field work effort, each of the locations identified by the desktop

Figure 6-1. Overview of archaeological survey area showing agricultural fields, facing east.

Figure 6-2. Overview of archaeological survey area showing irrigation/hunting pond, now dried, facing east.

Figure 6-3. Overview of archaeological survey area showing riparian habitat near Alamo River, view to the north.

Figure 6-4. Overview of archaeological survey area showing mud flats, view to the northwest.

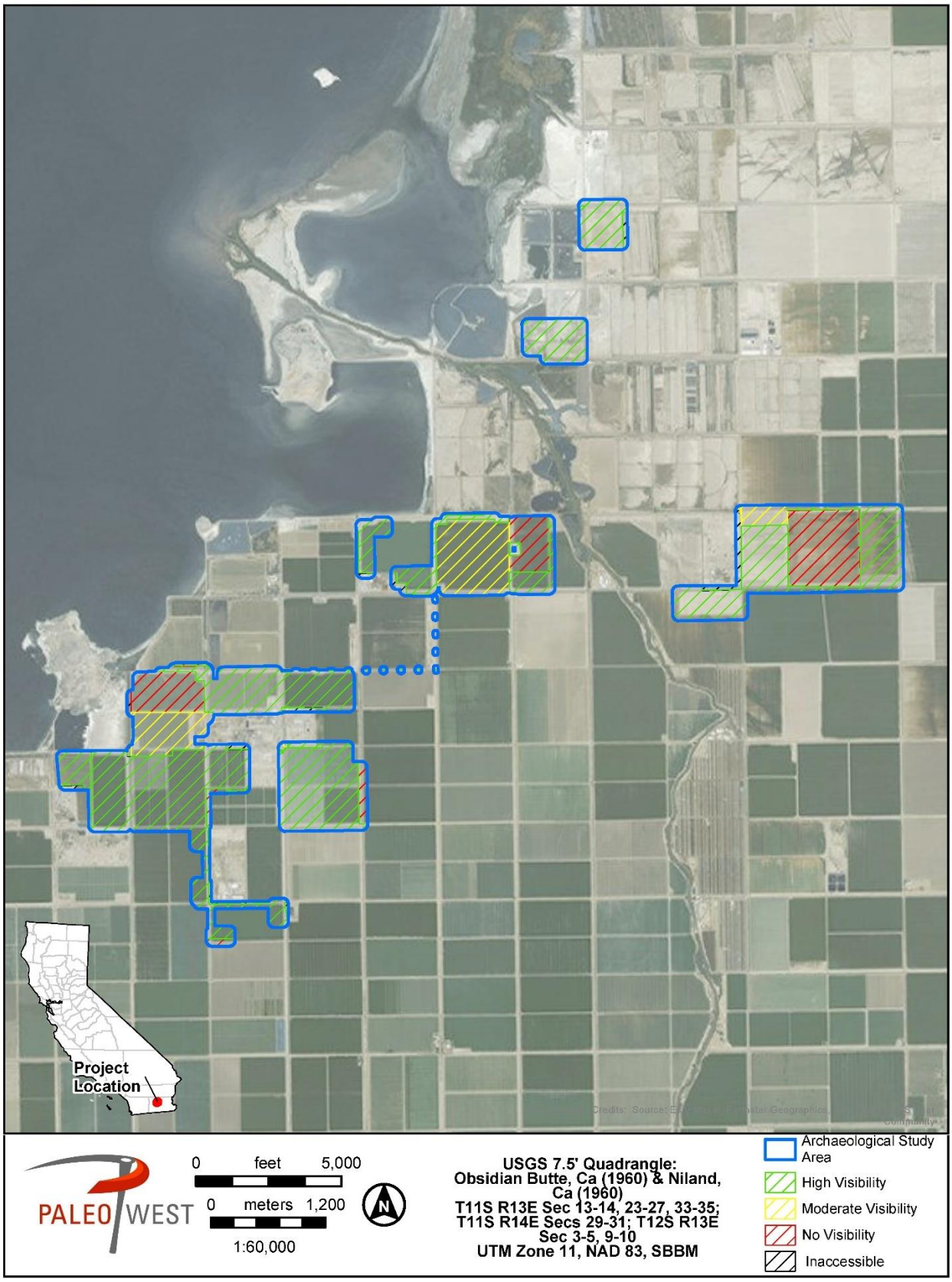

Figure 6-5. Survey coverage map.

analysis was visited to determine if standing buildings or structures were present in these areas. Additionally, a windshield survey of the entire architectural study area was completed to ensure that there were no additional historic built-environment resources in the study area that had not be identified by the desktop analysis.

As part of the documentation effort, high resolution photographs were taken of each identified property which had standing buildings or structures at least 45 years old. Field notes were also taken to document the characteristics of each built-environment resource and their current condition. To determine whether the properties might be associated with a historic district, attention was paid to the setting, level of architectural cohesion, and historic integrity of the area.

6.3.2 Results

Results from the architectural history survey identified a total of 11 built-environment resources 45 years old or older in the architectural history study area (Table 6-1). These include three previously recorded built-environmental resources (two irrigation-related structures and one building) and eight newly recorded built-environment resources (seven irrigation-related structures and a channelized segment of a river). A description and evaluation of each of these resources is provided below.

P-13-018312 (906 West Sinclair Road)

P-13-018312 is a previously recorded historic period building, known as Quarters 7, at the Sonny Bono Salton Sea NRW Headquarters (Speulda-Drews 2021). The Salton Sea NWR was established in 1930. By the late 1940s, staffing levels and activities at the refuge had reached the point where additional infrastructure was needed. Designed by USFWS architect, Vernon Acker, Quarters 7 was built in 1951 and housed the administrative headquarters for the Salton Sea NWR between the mid-1960s to the early 1980s. The building is characterized by single-story, rectangular plan with attached garage that reflects the post-World War II architectural trend of the minimalist ranch. Although additional buildings and structures were built on the parcel over the years, Quarters 7 is the only building on the property that is more than 45 years old.

During the revisit to P-13-018312 by PaleoWest, the current condition of the Quarters 7 building was documented. The building 6exhibits stucco siding and a standing-seam metal roof with an eave overhang and solar panels. An aluminum door is located its south elevation, along with a series of aluminum-framed windows. The building appears to have undergone several notable alterations since its original recordation by Speulda-Drews in 2021. Most notably, the shiplap siding had been replaced with stucco and new vinyl and aluminum windows have been installed.

CRHR Evaluation

Quarters 7 was previously evaluated for listing on the NRHP by the USFWS (Speulda-Drews 2021). The resource was determined not eligible for the NRHP under any criteria. Additionally, the evaluation concluded that the Quarters 7 lacked integrity of setting, design, materials, and feeling because it had been significantly altered, with new, larger buildings constructed on the site.

Table 6-1. Built-Environment Resources in the Architectural History Survey Area

Name	Build Date	Resource Type	Description	Previous Evaluation
P-13-018312 (West Sinclair Road)	1951	Building	NWR Administrative building (Quarters 7)	Recommended not eligible for the NRHP; not evaluated for CRHR
River Alamo and Ponds	1927-1949	Structure	Channelized portion of river with four associated ponds and levee remnants	-
J Lateral	ca. 1914	Structure	East-west running irrigation channel and drainage	-
K Lateral	ca. 1914	Structure	East-west running irrigation channel and drainage	-
L Lateral	ca. 1914	Structure	East-west running irrigation channel and drainage	-
M Lateral	ca. 1914	Structure	East-west running irrigation channel and drainage	-
P-13-014279 (N Lateral)	ca. 1914	Structure	East-west running irrigation channel and drainage	Recommended not eligible for the NRHP; not evaluated for CRHR
P-13-014278 (O Lateral)	ca. 1914	Structure	East-west running irrigation channel and drainage	Recommended not eligible for the NRHP; not evaluated for CRHR
P Lateral	ca. 1914	Structure	East-west running irrigation channel and drainage	-
Q Lateral	ca. 1914	Structure	East-west running irrigation channel and drainage	
Vail Canal System	ca. 1914	Structure	Canal system consisting of a supply channel, laterals, and associated drains	Segment outside of study area recommended not eligible for the NRHP; not evaluated for CRHR

Although the USFWS did not evaluate P-13-018312 for listing on the CRHR, the information provided in Speulda-Drews' (2021) significance evaluation can be used as a basis to assess the eligibility of the building as a historical resource under CEQA. Speulda-Drews (2021) noted that the building cannot be associated with any event or theme that has made a significant contribution to history. It is only building that still remains on the property from the 1950s and is now surrounded by a complex of modern buildings and structures. As such, it does not convey a close association with the 1950s period and does not meet CRHR Criterion 1. The building was designed by Vernon Acker, an architect working for the USFWS between 1949 and 1959. Acker is not a recognized architect or an important person in California's past. As such, the building does not meet the CRHR Criterion 2. As built, Quarters 7 exemplified a minimalist ranch design with California outside living elements of a concrete patio and cut-out roof with ramada over the rear entry. However, the building has been significantly altered so that it no longer reflects features of a California-inspired minimalist ranch. Therefore, the property does

not meet CRHR Criterion 3. Finally, the property has not and will likely not yield information important to history or prehistory and therefore it does not meet CRHR Criterion 4. As previously documented, the building lacks integrity of setting, design, materials, and feeling.

PaleoWest recommends P-13-018312 be considered not eligible for inclusion in the CRHR.

Channelized Segment of Alamo River and Ponds

This resource consists of 3.8-mi-long channelized segment of the Alamo River and associated ponds and levee remnants that are located north of the bridge at Sinclair Road and the Salton Sea. The river channel is unlined with steep-sided banks. The width of the channel ranges from approximately 40 to 90 ft with an unknown depth. Thick riparian vegetation grows along either side of the river channel and adjacent banks (Figure 6-9). There are four ponds that lie west of the river (Pond 1-4). The northernmost pond (Pond 1) is roughly circular in shape and measures 790 by 700 ft in size. Pond 2 is approximately 0.5 mi to the southeast of Pond 1 and measures 1,097 by 640 ft with an irregular shape. Pond 3 lies 350 ft south of Pond 2 and is roughly oval in shape and measures 693 by 1,135 ft in size. The south pond, Pond 4, is 370 ft southeast of Pond 3 and is roughly rectangular in shape; it measures 395 by 268 ft in area. The ponds appear to hold water on a seasonal basis with only one feature (Pond 2) found to contain standing water at the time of the architectural history survey. The resource also includes the remnants of a series of levees, most of which are located near the mouth of the river west of Garst Road.

The Alamo River is 52 mi in length and flows west and north from the Mexicali Valley in Baja California to drain into the Salton Sea. Prior to the twentieth century, the river was one of the natural overflow channels of the Colorado River that drained into the historic Lake Cahuilla. In1900, a canal intake and headgates were built by the California Development Company at Pilot Knob to divert water off the Colorado River. Known as the Alamo Canal, the canal was excavated to the international boundary line and on into Mexico for a distance of four to five miles; it then swung to the west for two or three miles to a connection with the old Alamo River channel (Dowd 1956:17). In 1905, high spring flooding on the Colorado River spilled over the Alamo Canal, overflowing through the old Alamo River channel, and flooding the Imperial Valley (Dowd 1956). Flood water from the Colorado River rushed down through the river into the Salton Sea until engineers were able to stop the flow of water in 1907, two years after the initial breach. The flooding event resulted in the deepening of the Alamo River channel as much as 20 to 30 ft in some places (Dowd 1956:35).

The Alamo River eventually became one of the main drainage outlets to the Salton Sea for the extensive drainage system which was later constructed by the IID (Dowd 1956:36). In the early decades of the twentieth century, the IID undertook several infrastructural projects to improve the flow and drainage of the River. In 1927, a new outlet for the river was constructed, along with an associated levee to raise and strengthen the riverbanks and prevent overtopping and the flooding of adjacent land. The levee ran along the north side of the channel west of Garst Road for a distance of approximately 3,700 feet (IID 1927). In 1949, the IID began efforts to channelize portions of the Alamo River Channel as part of the North End Improvement Plan (IID 1949). The purpose of the plan was to improve drainage and increase the agricultural productivity in the Vail Canal system. The work involved dredging a new river channel north of Sinclair Road to eliminate bends in the river; levees were also constructed as part of the IID project to control bank erosion (Schaefer et al. 2010: 29). The four ponds appear to be the result

Figure 6-6. Overview of channelized Alamo River from Sinclair Road, facing northwest.

of the channelization and represent the bends in the river that were cut off during dredging activities.

CRHR Evaluation

The channelization of the Alamo River by the IID served to improve the Vail Canal irrigation system and increase the agricultural productivity of the area. The activities of the IID are associated with the continued development of irrigation infrastructure and canal systems in the Imperial Valley. However, the construction of the channelized portion of the Alamo River and associated ponds and levees occurred more than a decade after the construction of the Vail Canal system. As such, the channelization of this section of the Alamo River cannot be directly linked to any specific events that made a significant contribution to the broad patterns of our history. Additionally, the channelization of the river was funded and constructed by the IID and cannot be attributed to a specific individual. Therefore, the resource does not meet CRHR Criterion 1 or 2. The resource is simple in design and construction and does not represent an engineering feat; therefore, it does not meet CRHR Criterion 3. Finally, additional study of the channelized river and ponds are unlikely to yield information important to history or prehistory and therefore it does not meet CRHR Criterion 4.

PaleoWest concludes that the channeled portion of the Alamo River and associated ponds are not eligible for inclusion in the CRHR.

J Lateral

The J Lateral is an approximately 9.5-mi-long irrigation canal and associated drain that runs in an east-west direction along either side of East Hoober Road. The J Lateral is part of a large lateral distribution system that originates from the East Highline Canal Reach 2, which was initially constructed ca. 1914. The lateral canal is an open, concrete- and dirt-lined, trapezoidal-shaped channel that has a top width of approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. Based on contractor's date stamp, it appears that portions of the J Lateral were lined with concrete in 1963. The lateral has numerous checks/drops, which consist of a single gate with one chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam. The checks/drops have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side.

For most of its length, the J Lateral is flanked by a dirt-lined drain that measures approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. The drainage system associated with the J Lateral post-dates the construction of the irrigation canal. Although the exact date of construction cannot be ascertained, it was likely constructed in the late 1920s or 1930s (Dowd 1956:70-71).

CRHR Evaluation

The J Lateral is a part of the IID's East Highline Canal Reach 2 system, which was initially constructed ca. 1914. The construction and operation of the East Highline Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The extensive canal systems that were built in the early twentieth century significantly increased the agricultural productivity of the area east of the Alamo River. Because the J Lateral can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The J Lateral was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The J Lateral and associated drain are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the J Lateral does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the J Lateral has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the J Lateral. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations including lining portions of the laterals with concrete and the replacement of gates and hardware. As a result of these alterations, J Lateral lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the J Lateral be considered not eligible for inclusion in the CRHR.

K Lateral

The K Lateral is an approximately 6.1-mi-long irrigation canal and associated drain that runs in an east-west direction along either side of Sinclair Road. The K Lateral is part of a large lateral distribution system that originates from the East Highline Canal Reach 2, which was initially constructed ca. 1914. The lateral canal is an open, concrete- and dirt-lined, trapezoidal-shaped channel that has a top width of approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. The lateral has numerous checks/drops, which consist of a single gate with one chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam. The checks/drops have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side.

For approximately half of its length, the K Lateral is flanked by a dirt-lined drain that measures approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. The drainage system associated with the K Lateral post-dates the construction of the irrigation canal. Although the exact date of construction cannot be ascertained, it was likely constructed in the late 1920s or 1930s (Dowd 1956:70-71).

CRHR Evaluation

The K Lateral is a part of the IID's East Highline Canal Reach 2 system, which was initially constructed ca. 1914. The construction and operation of the East Highline Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The extensive canal systems that were built in the early twentieth century significantly increased the agricultural productivity of the area east of the Alamo River. Because the K Lateral can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The K Lateral was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The K Lateral and associated drain are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the K Lateral does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the K Lateral has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the K Lateral. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations including lining portions of the laterals with concrete and the replacement of gates and hardware. As a result of these alterations, K Lateral lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the K Lateral be considered not eligible for inclusion in the CRHR.

L Lateral

The L Lateral is an approximately 9.2-mi-long irrigation canal and associated drain that runs in an east-west direction along either side of Merkley Road between Brandt Road and Ease Highline Canal Road. The L Lateral is part of a large lateral distribution system that originates from the East Highline Canal Reach 2, which was constructed ca. 1914. The lateral canal is an open, concrete- and dirt-lined, trapezoidal-shaped channel that has a top width of approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. Based on contractor's date stamp, it appears that portions of the L Lateral were concrete lined in 1969. The lateral has numerous checks/drops, which consist of a single gate with one chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam. The checks/drops have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side.

For most of its length, the L Lateral is flanked on its northern side by a dirt-lined drain that measures approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. The drainage system associated with the L Lateral post-dates the construction of the irrigation canal. Although the exact date of construction cannot be ascertained, it was likely constructed in the late 1920s or 1930s (Dowd 1956:70-71).

CRHR Evaluation

The L Lateral is a part of the IID's East Highline Canal Reach 2 system, which was constructed ca. 1914. The construction and operation of the East Highline Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The extensive canal systems that were built in the early twentieth century significantly increased the agricultural productivity of the area east of the Alamo River. Because the L Lateral can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The L Lateral was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The L Lateral and associated drain are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the L Lateral does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the L Lateral has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the L Lateral. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations including lining portions of the laterals with concrete and the replacement of gates and hardware. As a result of these alterations, L Lateral lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the L Lateral be considered not eligible for inclusion in the CRHR.

M Lateral

The M Lateral is an approximately 8.8-mi-long irrigation canal and associated drain that runs in an east-west direction along either side of Simpson Road. The M Lateral is part of a large lateral distribution system that originates from the East Highline Canal, which was constructed ca. 1914. The lateral canal is an open, concrete- and dirt-lined, trapezoidal-shaped channel that has a top width of approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. Based on a contractor's date stamp, it appears that portions of the M Lateral were concrete lined in 1973. The lateral has numerous checks/drops, which consist of a single gate with one chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam. The checks/drops have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side.

For most of its length, the M Lateral is flanked by a dirt-lined drain that measures approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. The drainage system associated with the M Lateral post-dates the construction of the irrigation canal. Although the exact date of construction cannot be ascertained, it was likely constructed in the late 1920s or 1930s (Dowd 1956:70-71).

CRHR Evaluation

The M Lateral is a part of the IID's East Highline Canal Reach 2 system, which was initially constructed ca. 1914. The construction and operation of the East Highline Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The extensive canal systems that were built in the early twentieth century significantly increased the agricultural productivity of the area east of the Alamo River. Because the M Lateral can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The M Lateral was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The M Lateral and associated drain are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the M Lateral does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the M Lateral has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the M Lateral. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations including lining portions of the laterals with concrete and the replacement of gates and hardware. As a result of these alterations, M Lateral lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the M Lateral be considered not eligible for inclusion in the CRHR.

P-13-014279 (N Lateral)

P-13-014279 was previously recorded as an approximately 1.0-mi-long segment of the N Drain that runs parallel to West Schrimpf Road (Schaefer et al. 2010). The N Drain is part of a large irrigation distribution system that originates from the East Highline Canal, which was constructed ca. 1914. Recorders noted concrete outlets associated with the drain exhibited a 1980 contractor date stamp. The resource was previously evaluated and recommended not eligible for listing in the NRHP (Schaefer et al. 2010).

PaleoWest revisited the previously recorded section of P-13-014279 during the architectural history survey and found it had not changed significantly since the previous documentation in 2010. However, PaleoWest expanded the resource boundary to include the entire length of the drainage channel along with the associated irrigation lateral. Originating at the East Highline Canal, the N Lateral runs in an east-west direction along West Schrimpf Road for a distance of 8.9 mi to terminate at the Alamo River.

The lateral canal is an open, concrete- and dirt-lined, trapezoidal-shaped channel that has a top width of approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. Based on the date stamp, it appears that portions of the N Lateral were concrete lined in 1974. The lateral has numerous checks/drops, which consist of a single gate with one chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam. The checks/drops have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side.

Along most of its length, the irrigation canal is flanked by the N Drain, a dirt-lined drain that measures approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. The drainage system associated with the N Lateral post-dates the construction of the irrigation canal. Although the exact date of construction cannot be ascertained, it was likely constructed in the late 1920s or 1930s (Dowd 1956:70-71).

CRHR Evaluation

The previously recorded segment of the N Drain was recommended not eligible for listing in the NRHP. However, the resource was not evaluated for the CRHR. As part of the current cultural resources assessment, PaleoWest evaluated the entire N Lateral system, including the associated N Drain, for listing as a historical resource on the CRHR.

The irrigation distribution system is a part of the IID's East Highline Canal Reach 2 system, which was initially constructed ca. 1914. The construction and operation of the East Highline Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The extensive canal systems that were built in the early twentieth century significantly increased the agricultural productivity of the area east of the Alamo River. Because the N Lateral can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The N Lateral was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The N Lateral and associated drain are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3.

Finally, the N Lateral does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the N Lateral has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the N Lateral. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations including lining portions of the laterals and drain outlets with concrete and the replacement of gates and hardware. As a result of these alterations, N Lateral lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the N Lateral be considered not eligible for inclusion in the CRHR.

P-13-014278 (O Lateral)

P-13-014278 was previously recorded as an approximately 1.0-mi-long segment of the O Lateral that runs parallel to McDonald Road (Schaefer et al. 2010). The O Lateral is part of a large irrigation distribution system that originates from the East Highline Canal Reach 2, which was constructed ca. 1914. A concrete date stamp of "Ryerson 1981" was found suggesting that the concrete lining of the canal, along with drops, checks, and turnouts, was constructed in the early 1980s. The resource was previously evaluated and recommended not eligible for listing in the NRHP (Schaefer et al. 2010).

PaleoWest revisited the previously recorded section of P-13-014278 during the architectural history survey and found it had not changed significantly since the previous documentation in 2010. However, PaleoWest expanded the resource boundary to include the entire length of the irrigation lateral along with the associated drainage channel. Originating at the East Highline Canal Reach 2, the O Lateral runs in an east-west direction along McDonald Road for a distance of 7.3 mil to terminate at the Alamo River.

The lateral canal is an open, concrete- and dirt-lined, trapezoidal-shaped channel that has a top width of approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. Based on concrete date stamp, it appears that portions of the N Lateral were concrete lined in 1981 and 2011. The lateral has numerous checks/drops, which consist of a single gate with one chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam. The checks/drops have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side.

For most of its length, the O Lateral is flanked on its northern side by a dirt-lined drain that measures approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. The drainage system associated with the O Lateral post-dates the construction of the irrigation canal. Although the exact date of construction cannot be ascertained, it was likely constructed in the late 1920s or 1930s (Dowd 1956:70-71).

CRHR Evaluation

The previously recorded segment of the O Lateral was recommended not eligible for listing in the NRHP. However, the resource was not evaluated for the CRHR. As part of the current

cultural resources assessment, PaleoWest evaluated the entire O Lateral system, including the associated drainage, for listing as a historical resource on the CRHR.

The irrigation distribution system is a part of the IID's East Highline Canal Reach 2 system, which was constructed ca. 1914. The construction and operation of the East Highline Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The extensive canal systems that were built in the early twentieth century significantly increased the agricultural productivity of the area east of the Alamo River. Because the O Lateral can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The O Lateral was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The O Lateral and associated drain are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the O Lateral does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the O Lateral has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the O Lateral. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations in the 1980s including the concrete lining of the canal, along with drops, checks, and turnouts. As a result of these alterations, O Lateral lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the O Lateral be considered not eligible for inclusion in the CRHR.

P Lateral

The P Lateral is an approximately 7.8-mi-long irrigation canal and associated drain that runs in an east-west direction along either side of Hazard Road between Davis Road and Wiest Road. The P Lateral is part of a large lateral distribution system that originates from the East Highline Canal Reach 2, which was initially constructed ca. 1914. The lateral canal is an open, concrete- and dirt-lined, trapezoidal-shaped channel that has a top width of approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. The lateral has numerous checks/drops, which consist of a single gate with one chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam. The checks/drops have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side.

For most of its length, the P Lateral is flanked by a dirt-lined drain that measures approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. The drainage system associated with the P Lateral post-dates the construction of the irrigation canal. Although the exact date of construction cannot be ascertained, it was likely constructed in the late 1920s or 1930s (Dowd 1956:70-71).

CRHR Evaluation

The P Lateral is a part of the IID's East Highline Canal Reach 2 system, which was initially constructed ca. 1914. The construction and operation of the East Highline Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The extensive canal systems that were built in the early twentieth century significantly increased the agricultural productivity of the area east of the Alamo River. Because the P Lateral can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The P Lateral was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The P Lateral and associated drain are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the P Lateral does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the P Lateral has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the P Lateral. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations including lining portions of the laterals with concrete and the replacement of gates and hardware. As a result of these alterations, P Lateral lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the P Lateral be considered not eligible for inclusion in the CRHR.

Q Lateral

The Q Lateral is an approximately 6.8-mi-long irrigation canal and associated drain that runs in an east-west direction along either side of Pound Road between Hazzard Road and Alcott Road. The Q Lateral is part of a large lateral distribution system that originates from the East Highline Canal Reach 2, which was initially constructed ca. 1914. The lateral canal is an open, concrete- and dirt-lined, trapezoidal-shaped channel that has a top width of approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. The lateral has numerous checks/drops, which consist of a single gate with one chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam. The checks/drops have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side.

For most of its length, the Q Lateral is flanked by a dirt-lined drain that measures approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. The drainage system associated with the Q Lateral post-dates the construction of the irrigation canal. Although the exact date of construction cannot be ascertained, it was likely constructed in the late 1920s or 1930s (Dowd 1956:70-71).

CRHR Evaluation

The Q Lateral is a part of the IID's East Highline Canal Reach 2 system, which was initially constructed ca. 1914. The construction and operation of the East Highline Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The extensive canal systems that were built in the early twentieth century significantly increased the agricultural productivity of the area east of the Alamo River. Because the Q Lateral can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The Q Lateral was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The Q Lateral and associated drain are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the Q Lateral does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the Q Lateral has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the Q Lateral. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations including lining portions of the laterals with concrete and the replacement of gates and hardware. As a result of these alterations, Q Lateral lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the Q Lateral be considered not eligible for inclusion in the CRHR.

Vail Canal System

The Vail Canal System consists of a supply canal and network of laterals and drains that provide irrigation water from the East Highline Canal Reach 2 to the area southeast of the Salton Sea. The system irrigates more than 25,000 acres of land west of the Alamo River and north of the New River (IID 1949:35). The water in this canal system originates from the Kakoo Singh Reservoir, which is located immediately west of the East Highline Canal and south of East Albright Road (IID 2000). Water diverted from the reservoir travels in a westward direction within the Vail Supply Canal paralleling East Albright Road for a distance of 10.5 mi. The supply canal then crosses Alamo River at the North End Dam and continues westward for another 7.0 mi to terminate at New River. The portion of the supply canal west of the Alamo River runs along Vail Road.

The Vail Supply Canal exhibits an open, concrete-lined, trapezoidal shape that is approximately 20 ft in width with an unknown depth. A series of concrete-reinforced siphons, drop structures, canal checks, and other miscellaneous structures lies along its course. Ten laterals (Vail Laterals 1, 2, 2-A, 3, 3-A, 4, 4-A, 5, 6, and 7) divert water off the supply canal west of the Alamo River. The laterals extend north from the supply canal at 0.5-mi intervals and range in length from 2.4 to 5.5 mi. Although originally constructed of dirt, Vail Laterals 1-5 and 7 were modified

sometime in the latter half of the twentieth century and now are lined with concrete. Lateral 6 appears to be one of the few canals in the system to retain its original dirt-lined construction. The trapezoidal-shaped laterals have top widths ranging from approximately 8 to 10 ft, a bottom width of approximately 2 ft, and a depth of approximately 4 ft. The laterals have checks/drops, which consist of a single gate that operates with a jack-type lifting mechanism resting on a wooden cross beam.

Most of the laterals have associated dirt-lined drains that serve to transport wastewater from irrigated fields. The drains measure approximately 8 ft in width at its top and up to 4 ft in width at its base with depths ranging from 6 to 8 ft. These lateral drains empty into several larger drainages, including the Vail Cut Off Drain and Pumice Drain, which flow into the Salton Sea. A smaller number of lateral drains empty directly into the Salton Sea or Alamo River.

Although the construction date for the Vail Canal System is not known, it was likely built soon after the completion of the East Highline Canal Reach 2 in the early decades of the twentieth century. Some researchers attribute the construction of the canal system to the Vail family, which owned a ranch in the area (Tennyson and Apple 2009:21). However, it is not clear if the canal was built by the Vail family or if it was named the Vail Canal System because its vicinity to the family's ranch. IDD annual reports dating to the late 1940s indicate that by that time, the Vail Canal System is under the jurisdiction of the IID (1946).

The Vail Canal System has experienced several modifications over the years. The drainage system that is associated with the canal system was constructed in the late 1920s or 1930s (Dowd 1956:70-71). Additionally, as part of the North End Improvement Plan, a number of the water facilities in the canal system were revamped in the late 1940s and early 1950s (IID 1949). These improvements included the construction of several siphons, drop structures, canal checks, and other miscellaneous structures to improve the capacity of the canal distribution system. Finally, various concrete structures have been documented along the laterals that exhibit contractor's stamps dating to the 1990s and 2000s suggesting more recent upgrades to the canal system.

CRHR Evaluation

The Vail Canal System is a part of the IID's East Highline Canal Reach 2 operating system. Although the exact date of construction of the Vail Canal System is not known, it was likely built ca. 1914, soon after the completion of the East Highline Canal Reach 2. The construction and operation of the East Highline Canal and the Vail Canal System can be considered an important event in the early settlement of the Imperial Valley. Water transported through the Vail Canal System irrigated 25,000 acres of land and as such, it significantly increased the agricultural productivity of the area west of the Alamo River and north of New Reiver. Because the Vail Canal System can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. It is not known if the Vail family or the IID was responsible for planning and constructing of the Vail Supply Canal and laterals. Because the construction of the Vail Canal System cannot be associated with a specific person who was important in our past, it does not meet CRHR Criterion 2. The Vail Canal System is simple in design and construction and utilitarian in nature, and its construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the Vail Canal

System does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the Vail Canal System does not appear to have changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Furthermore, although the area has experienced some development over the years, agricultural fields are still prevalent within the immediate vicinity of the canal system. Therefore, the resource also retains integrity of setting and feeling. However, the resource has experienced extensive alterations including lining portions of the laterals with concrete and the replacement of gates and hardware. As a result of these alterations, the Vail Canal System lacks integrity of design, workmanship, and materials and has lost its ability to convey its significance under Criterion 1 as an irrigation system.

Based on these findings, PaleoWest recommends the Vail Canal System be considered not eligible for inclusion in the CRHR.

7 SUMMARY AND RECOMMENDATIONS

7.1 SUMMARY OF RESULTS

The cultural resources assessment included background and archival research, development of a historic context and research design, an intensive pedestrian survey of the archaeological study area and a reconnaissance survey of the architectural history study area, and resources documentation and evaluation. As a result of these efforts, 11 historic period cultural resources were identified in the study area, all of which are built-environment resources (Table 7-1). Five of these resources (K Lateral, L Lateral, P-13-014279 [N Lateral], P Lateral, and Vail Canal System) intersect the Project area. None of the identified resources are recommended eligible for listing on the CRHR.

Table 7-1. Summary of Cultural Resources in Project Study Area

Name	Resource Type	Description	CRHR Recommendation
P-13-018312 (West Sinclair Road)	Building	NWR Administrative building (Quarters 7)	Not eligible
River Alamo, Ponds, and Levees	Structure	Channelized portion of river with four associated ponds and levees	Not eligible
J Lateral	Structure	East-west running irrigation channel and drainage	Not eligible
K Lateral	**Structure**	**East-west running irrigation channel and drainage**	**Not eligible**
L Lateral	**Structure**	**East-west running irrigation channel and drainage**	**Not eligible**
M Lateral	Structure	East-west running irrigation channel and drainage	Not eligible
P-13-014279 (N Lateral)	**Structure**	**East-west running irrigation channel and drainage**	**Not eligible**
P-13-014278 (O Lateral)	Structure	East-west running irrigation channel and drainage	Not eligible
P Lateral	**Structure**	**East-west running irrigation channel and drainage**	**Not eligible**
Q Lateral	Structure	East-west running irrigation channel and drainage	Not eligible
Vail Canal System	**Structure**	**Canal system consisting of a supply channel, laterals, and associated drains**	**Not eligible**

Bold indicates historic built-environment resources in the Project area.

No prehistoric cultural resources were identified within the Project study area. Due to the paucity of available freshwater sources in the vicinity, the low density of known prehistoric archaeological sites in the immediate area, and the presence of extensive farmlands, the sensitivity of the Project area for containing intact buried prehistoric archaeological resources is considered moderate. Furthermore, the lack of intensive development of the Project area during the historic period suggests the potential to encounter buried historic archaeological resources during Project construction is relatively low.

7.2 ENVIRONMENTAL EFFECTS

Appendix G, Environmental Checklist Form of the CEQA guidelines, addresses significance criteria with respect to cultural resources (PRC Sections 21000 et seq.). Appendix G (V) (a, b, d) indicates that an impact would be significant if the Project will have the following effects:

- Cause a substantial adverse change in the significance of a historical resource;
- Cause a substantial adverse change in the significance of an archaeological resource; or
- Disturb any human remains, including those interred outside formal cemeteries.

Impacts to previously unidentified cultural resources are possible during construction and/or operation. Because none of the cultural resources identified in the field surveys were recommended eligible for the CRHR, impacts to those resources are not anticipated.

7.3 MITIGATION MEASURES

7.3.1 Undiscovered Archaeological Sites

No archaeological sites were found during the survey of the Project area. However, nine previously recorded archaeological sites were identified in the records search (three prehistoric archaeological sites and six historic archaeological sites). Thus, it appears that the Project area has a low to moderate sensitivity for containing buried archaeological remains. As a result, PaleoWest recommends the following measures, based on state and agency regulations and guidelines, to mitigate any potential adverse impacts that could occur if there were an inadvertent discovery of buried cultural resources. These measures include the following:

- Designation of a Cultural Resources Specialist (CRS) to investigate any cultural resource finds made during construction
- Implementation of a construction worker training program
- Procedures for halting construction in the event that there is an inadvertent discovery of archaeological deposits or human remains
- Procedures for evaluating an inadvertent archaeological discovery
- Procedures to mitigate adverse impacts on any inadvertent archaeological discovery determined significant

Designated Cultural Resources Specialist

The Project proponent will retain a designated CRS who will be available during the earth-disturbing portion of the construction periods to inspect and evaluate any finds of buried archaeological resources that might occur during the construction phase. The CRS will meet the minimum qualifications for Principal Investigator on federal projects under the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. The CRS will be qualified, in addition to site detection, to evaluate the significance of the deposits, consult with regulatory agencies, and plan site evaluation and mitigation activities.

If there is a discovery of archaeological remains during construction, the CRS, in conjunction with the construction superintendent and environmental compliance manager, will make certain

that construction activity stops in the immediate vicinity of the find until the find can be evaluated. The CRS will inspect the find and evaluate its potential significance in consultation with CEC staff and the CEC compliance project manager (CPM). The CRS will make a recommendation as to the significance of the find and any measures that will mitigate adverse impacts of construction on a significant find. Once this process has been completed, construction within the area of the find can be resumed.

Construction Worker Training

The CRS will prepare a construction worker sensitivity training program to ensure implementation of procedures to be followed if cultural resources are discovered during construction. This training will be provided to each construction worker as part of their environmental, health, and safety training. The training will include photographs of various types of historic and prehistoric artifacts, and it will describe the specific steps to be taken in the event of an unanticipated discovery of cultural material, including human remains. It will explain the importance of, and legal basis for, the protection of significant archaeological resources. The training also will be presented in the form of a written brochure.

Emergency Discovery

If construction staff or others identify archaeological resources during construction, they will immediately notify the CRS and the site superintendent, who will halt construction in the immediate vicinity of the find, if necessary. The archaeological monitor or CRS will use flagging tape, rope, or other means as necessary to delineate the area of the find within which construction will halt. This area will include the excavation trench from which the archaeological finds came and any piles of dirt or rock spoil from that area. Construction will not occur within the delineated find area until the CRS, in consultation with the CEC staff and CEC CPM, can inspect and evaluate the find.

Site Recording and Evaluation

The CRS will follow accepted professional standards in recording any find and will submit the standard Form DPR 523 and location information to the CHRIS at the at the SCIC. If the CRS determines that the find is not significant and the CEC CPM concurs, construction will proceed without further delay. If the CRS determines that further information is needed to determine whether the find is significant, the designated CRS will, in consultation with the CEC, prepare a plan and a timetable for evaluating the find.

Mitigation Planning

If the CRS and CPM determine that the find is significant, the CRS will prepare and conduct a mitigation plan in accordance with state guidelines. This plan will emphasize the avoidance, if possible, of significant archaeological resources. If avoidance is not possible, recovery of a sample of the deposit from which archaeologists can define scientific data to address archaeological research questions will be considered an effective mitigation measure for damage to or destruction of the deposit.

The mitigation program, if necessary, will be carried out as soon as possible to avoid construction delays. Construction will resume at the site as soon as the field data collection phase of any data recovery efforts is completed. The CRS will verify the completion of field

data collection by letter to Project proponent and the CPM so that they can authorize construction to resume.

Curation

The CRS will arrange for curation of archaeological materials collected during an archaeological data recovery mitigation program. Curation will be performed at a qualified curation facility meeting the standards of the California Office of Historic Preservation. The CRS will submit field notes, stratigraphic drawings, and other materials developed as part of the data recovery/mitigation program to the curation facility along with the archaeological collection, in accordance with the mitigation plan.

Report of Findings

If a data recovery program is planned and implemented during construction as a mitigation measure, the CRS will prepare a detailed scientific report summarizing results of the excavations to recover data from an archaeological site. This report will describe the site soils and stratigraphy, describe and analyze artifacts and other materials recovered, and draw scientific conclusions regarding the results of the excavations. This report will be submitted to the curation facility with the collection.

7.3.2 Inadvertent Discovery of Human Remains

If human remains are found during construction, Project officials are required by the California Health and Safety Code (Section 7050.5) to contact the Imperial County Coroner. If the coroner determines that the find is Native American, he or she must contact the NAHC. The NAHC, as required by PRC Section 5097.98, determines and notifies the Most Likely Descendant with a request to inspect the burial and make recommendations for treatment or disposal.

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For General Inquiries:
T: 886.563.2536
T: 602.254.6280
info@paleowest.com

Los Angeles, California
T: 626.408.8006
517 S. Ivy Avenue
Monrovia, CA 91016
info@paleowest.com

www.paleowest.com

Appendix 5.3A-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 land 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 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 archeologists. 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 suvey 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

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

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 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

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

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

EVAN MILLS, M.A., R.P.A

Associate Archaeologist

EDUCATION

M.A., Applied Archaeology, California State University San Bernardino, San Bernardino, CA, 2018

B.A., Anthropology, California State University San Bernardino, San Bernardino, CA, 2008

YEARS OF PROFESSIONAL EXPERIENCE

12

YEARS W/ FIRM

<1

REGISTRATIONS / CERTIFICATIONS

Register of Professional Archaeologist

Evan Mills is familiar in all aspects of field work including Survey, Site Testing, Data Recovery, Field Director, Crew Chief, Total Station, 3D Photogrammetry in field data collection, Site Mapping, GIS Mapping, Construction Monitoring, Technical document preparation, Lab, Health and Safety documentation and Training. Mr. Mill's is fluent in Technical Report Writing for CEQA Phase I, Phase II, Section 106 Class I, Class III and Caltrans Documentation. He is also proficient in field GPS (Trimble [Terrasync], Collector, Survey 123, Total Station) and in GIS (novice skill level in ArcMap and beginner level in ArcPro).

Mr. Mills is permitted as a Field Director in multiple BLM districts in California. He has over 12 years of experience working with numerous federal agencies in California include the BLM and USFS.

SELECT PROJECT EXPERIENCE

Confidential Solar Class III Survey Project, Riverside County, CA. *Field Director (2020-Present).* Responsible for directing a Class III archaeological survey and resource documentation in the Project's Area of Potential Effects. Client: Aspen Environmental Group.

Athos Renewable Energy Project, Riverside County, CA. *Field Director (2018-2020).* Supervised a 4,000 acre of survey of BLM and private land for a proposed renewable energy project near Desert Center in Riverside County. Work efforts also included supervising Phase I and Phase II studies for the Project. Numerous other projects working in various roles. Client: Aspen Environmental, Inc.

Ten West Link, Blythe, CA. *Field Director (2017-2018).* Conducted a Class III survey of an approximately 5-mile-long transmission line corridor near Blythe in Riverside County. Client: Ten West Link.

Crowder Canyon Data Recovery, San Bernardino County, CA. *Field Supervisor (2015-2016).* Responsible for all site mapping, 3D-photogramattrey and, excavation of human remains for a large data recovery project located on USFS lands in San Bernardino County. The project was undertaken by the California Department of Transportation and required compliance with Section 106 of the National Historic Preservation Act.

Blythe Solar Power Project, Blythe, CA. *Archaeological Technician (Mar. – May 2015).* Conducted construction monitoring for a large renewable energy project in Riverside County. Client: NextEra Energy Resources, LLC.

Crimson Solar, Blythe, CA. *Crew Chief (2014-2017).* Responsible for supervising a field crew as part of a 3600-acre survey on BLM lands near Blythe, California.

Mojave Solar Project, Riverside County, CA. *Cultural Monitoring Coordinator, Field Director (Oct. 2011- Jan. 2013).* 1800-acre monitoring project. Mass Grading, multiple forms of drilling,

trenching, fence installation, and demolition (over 2400 hours of construction monitoring). Also, site excavation found during monitoring. Client: AECOM

Genesis Solar Project, City, CA. *Archaeological Technician (Mar. 2013- Dec. 2014).* Conducted construction monitoring throughout the project. Client: NextEra Energy Resources, LLC.

Ocotillo Express Wind Project, Ocotillo, CA. *Crew Chief (Nov. 2010- Aug. 2011).* Approximately 18,000-acre survey. Survey and site documentation, Oct 2010 to Aug 2011, Client: Tierra Environmental Services, Inc

San Bernardino National Forest Healthy Forest Project, San Bernardino, CA. *Crew Chief (Sep. 2008- Oct. 2009, Jul. 2010- Nov. 2010).* 79,000-acre fuel reduction survey under GANDA. Mr. Mills also returned to 1000 cultural resources found on survey to install datums and verify site records. Client: San Bernardino National Forest.

Solar Millennium Project, Blythe, CA. *Archaeological Technician (Mar. 2010- Apr. 2010).* Class III survey in Blythe, CA. Client: AECOM

Owens Lake Dust Mitigation Project Owens Valley, Inyo Counay CA. *Archaeological Technician (Apr. 2010).* Cultural compliance for LADWP in Owens Valley, CA. Multiple locations in Owens Valley. Client: GANDA

Sterling Transmission Line Project, Riverside county, CA. *Crew Chief (May 2010- Jul. 2010).* 90-mile power line survey from Barstow to Hesperia. Client: AECOM

Desert Sunlight Solar Project, Desert Center, CA. *Archaeological Technician (Dec. 2009 – Feb. 2010).* 5,500-acre survey in Desert Center CA. Client: ECORP Consulting, Inc.

KURT MCLEAN, A.A.

Associate Archaeologist

EDUCATION

A.A., Anthropology/Archaeology, San Diego City College, 1996

YEARS OF PROFESSIONAL EXPERIENCE

20+

PERMITS / LICENSURE

Principal Investigator, CA BLM Statewide Cultural Resources Use Permit CA-21-22, expires 08/19/24

Mr. McLean has more than 20 years of field experience as an archaeologist and has participated in major projects throughout California. His investigations have been conducted for a wide variety of development and resource management projects including renewable energy projects, water resource facilities, transportation projects, commercial and residential development, transmission line construction and national parks management. He has conducted the complete range of technical studies including archaeological overviews, surveys, test excavation, historical research, data recovery programs, environmental compliance monitoring projects and report preparation. He is familiar with the requirements of the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA), as well as the Native American Graves Protection and Repatriation Act (NAGPRA).

SELECT PROJECT EXPERIENCE

Palen (Maverick) Solar, Riverside County, CA. *Field Director (2018-Present).* Field Director for cultural staff supporting monitoring of ground disturbing activities, resource documentation, site testing and coordination with project proponent's management team and tribal partners to ensure environmental compliance during construction of a 500 megawatt solar photovoltaic project on 3,140 acres of BLM lands in the Chuckwalla Valley near Desert Center, CA. Client: EDF Renewables, Inc.

Desert Harvest Solar Project, Riverside County, CA. *Field Director (2018-2020).* Field Director for cultural staff supporting monitoring of ground disturbing activities and coordination with project proponent's management team and tribal partners to ensure environmental compliance during construction of a A150 megawatt solar photovoltaic project on 1,200 acres of BLM lands in the Chuckwalla Valley near Desert Center, CA. Client: EDF Renewables, Inc.

Enclave at Baristo Project, Riverside County, CA. *Archaeological Monitor (2018).* Archaeological Monitor during the construction monitoring phase for a residential development project on Aqua Caliente Band of Cahuilla Indians Reservation lands near Palm Springs, CA. Client: Enclave at Baristo, LLC

Topock Final Remedy Project, San Bernardino County, CA. *Crew Chief (2018).* As Crew Chief on the Project, Mr. McLean was responsible for the supervision and scheduling of on-site monitors, participation in the project specific Environmental Release to Construction (ERTC) work plans, field visits for consultation with consulting tribes and agencies, and work-site inspections. Client: PG&E

Truckhaven Geothermal Survey, Imperial County, CA. *Crew Chief (2018).* Conducted archaeological survey near western shore of Salton Sea on private land. Documented numerous habitation sites situated along the recessional shorelines. Client: Power Engineers and Ormat

Crimson Solar Project, Riverside County, CA. *Field Director (2017).* Field Director leading a BLM Class III Archaeological Survey for the proposed Crimson Solar Project. Responsibilities included overseeing several survey teams in identifying and recording archaeological sites and

assessing them for eligibility for listing on the National Register of Historic Places. Client: Recurrent Energy

Aurora Solar Project, San Bernardino County, CA. *Field Director (2016-2017).* Conducted Archaeological Survey to identify and document sites in support of a proposed solar project near Lucerne Valley. Responsibilities included coordination of field staff, communication with project management staff, and reporting to results to agency personnel. Client: Aspen Environmental

State Route 38 Realignment Project, San Bernardino County, CA. *Field Director (2016-2017).* Implemented an extensive Phase III archaeological data recovery program and salvage recovery during construction program and archaeological site documentation. Client: Caltrans District 8

La Jolla Sewer Replacement Project, San Diego County, CA. *Field Supervisor (2014-2016).* Coordinated large scale, off-site water-screening operation associated with controlled archaeological and bulk recovery excavations at SDI-20130 and SDI-39 located in the community of La Jolla and within the City of San Diego. Client: City of San Diego

Whitewater River Project, Riverside County, CA. *Field Director (2012).* Conducted Phase I archaeological survey and archaeological site documentation. Client: Coachella Valley Water District

Rugged, LanEast, LanWest and Tierra del Sol Solar Projects, San Diego County, CA. *Field Director (2011).* Conducted a Phase I Archaeological Survey and detailed site documentation.

Rising Tree Wind Project, Kern County, CA. *Crew Chief (2011).* Conducted a BLM Class III Archaeological Survey. Client: Rising Tree Energy

Ocotillo Wind Express Project, Imperial County, CA. *Crew Chief (2010-2011).* Performed a variety of duties, including leading pedestrian surveys, site documentation, site mapping, data entry, background research and editing of DPR forms for final Cultural Resources Report. Client: Pattern Energy and Tierra Environmental Services

Mojave Transmission Line Project, San Bernardino County, CA. *Field Technician (2010).* Conducted a BLM Class III Archaeological Survey of an 80-mile linear alignment from Barstow to Kramer Junction to Victorville, CA. Client: Southern California Edison (SCE)

Vulcan Materials Project, Imperial County, CA. *Crew Chief (2020).* Conducted intensive pedestrian survey and site documentation of prehistoric architectural features (fish traps, shelter foundations and others) along the shoreline and within the basin of Ancient Lake Cahuilla located on the Torres-Martinez Cahuilla Reservation near Salton Beach, CA. Client: Vulcan Sand

Imperial Valley Solar Project, Imperial County, CA. *Crew Chief (2008-2010).* Conducted a BLM Class III Archaeological Survey on BLM lands near Plaster City, CA. Client: Sterling Energy Systems

Calico Solar Project, Imperial County, CA. *Crew Chief (2008-2010).* Conducted a BLM Class III Archaeological Survey on BLM lands near Newberry Springs, CA. Client: Sterling Energy Systems

ANDREW BURSAN, M.C.R.P.

Senior Planner and Architectural Historian

EDUCATION

Master of City and Regional Planning (MCRP), California Polytechnic State University, San Luis Obispo, CA, 2005

Bachelor of Arts – History, Political Science Minor University of California, Los Angeles (UCLA)

2002

YEARS OF PROFESSIONAL EXPERIENCE

14

Andrew Bursan is PaleoWest Architectural Historian and Urban Planner with 14 years' experience in historic preservation, historic research, report writing, land planning, and project management. Mr. Bursan meets the Secretary of the Interior's Professional Qualification Standards in History and Architectural History.

He has worked with the California Department of Transportation (Caltrans), Los Angeles County Metropolitan Transportation Authority, City of Pasadena, City of Santa Monica, City of Los Angeles, City of Santa Barbara, and the City of Arroyo Grande, among others. His experience includes architectural surveys, reconnaissance-level surveys, historical assessments, and extensive historical research. He has prepared historic context statements, technical reports, and impact analysis for cultural resources in environmental impact reports (EIRs). His breadth of work includes major transportation projects, intensive archival research, citywide surveys, and analysis of individual properties under the California Environmental Quality Act (CEQA), Section 106, Section 4(f), and the National Environmental Policy Act.

SELECT PROJECT EXPERIENCE

Historical Resource Assessment Report for 672 San Pedro Street Self-Storage, Los Angeles, CA. *Architectural Historian (2022).* complete a Historical Resource Assessment Report, under City designation criteria and integrity requirements, for two (2) commercial properties over 45 years old at 611 E. 7th Street and 640-644 S. San Pedro Street in Los Angeles, California. The properties were evaluated for historical significance in consideration of potential impacts to historical resources under the CEQA. As a result of the evaluation, both properties were determined not eligible for inclusion in the NRHP, CRHR, or the Los Angeles Historic-Cultural Monument list. Client: Johnson Development Associates

Cultural Resources Survey Report for the Self-Storage and Junkyard Redevelopment Project, Carlsbad, CA. *Senior Architectural Historian (2022).* The property was evaluated for historical significance in consideration of potential impacts to historical resources under the CEQA. As a result of the evaluation, the existing storage facility and two office buildings were found ineligible for inclusion in the NRHP, *Senior Architectural Historian* CRHR, and the local register due to a lack of significant historical associations and architectural merit. Client: H.G. Fenton Company

Built Environment Inventory and Evaluation Report for the Derby Mixed Use Project, Arcadia, CA. *Senior Architectural Historian (2022).* Built Environment Inventory and Evaluation Report for the Derby Mixed Use Project. The Derby restaurant was evaluated for historical significance in consideration of potential impacts to historical resources under the CEQA. As a result of the evaluation, the Derby restaurant was found ineligible for inclusion in the NRHP, CRHR, and City of Arcadia landmark designation due to a lack of significant historical associations, integrity, and architectural merit. Client: Top Commercial Realty

Built Environment Inventory and Evaluation Report for the Buddhist Town at Holy Heavenly Lake Project, Hesperia, CA. *Senior Architectural Historian (2021).* Completed a Built

Environment Inventory and Evaluation Report for the Buddhist Town at Holy Heavenly Lake Project in Hesperia, California. Dudek recorded and evaluated two (2) agricultural properties with buildings on the project site for historical significance in consideration of potential impacts to historical resources under the CEQA. As a result of the evaluation, the properties were found ineligible for the for inclusion in the NRHP, CRHR, and local registered. Client: Buddhist Town LLC

Historical Resource Evaluation Report for 820 A Avenue, Coronado, CA. *Senior Architectural Historian (2022).* Prepared a Cultural Resources Survey Report for the Self-Storage and Junkyard Redevelopment Project in Carlsbad, California. The property was evaluated for historical significance in consideration of potential impacts to historical resources under the CEQA. As a result of the evaluation, the existing storage facility and two office buildings were found ineligible for inclusion in the NRHP, CRHR, and the local register due to a lack of significant historical associations and architectural merit. Client: City of Coronado

Historical Resources Technical Report for the 5146-5148 Dehesa Road Project, Dehesa, CA. *Senior Architectural Historian (2021).* Completed a Historical Resources Technical Report (HRTR) in support of the proposed 5146-5148 Dehesa Road Project. The site was originally developed with two existing single-family residences (each more than 45 years old) located within the southern portion of the project area. The property at 5146-5148 Dehesa Road was evaluated for historical significance in consideration of potential impacts to historical resources under the CEQA, the County of San Diego Historic Preservation Ordinance, the County of San Diego Resource Protection Ordinance (RPO), and Section 106 of the National Historic Preservation Act (NHPA). As a result of the evaluation, the property was recommended not eligible for inclusion in the NRHP, CRHR, and San Diego County Local Register of Historical Resources under all designation criteria due to a lack of significant associations and compromised integrity. Client: Carlin Law Group

Historical Resource Assessment Report for the 1280 Pacific Coast Highway Mixed-Use Development Project, Harbor City (Los Angeles), CA. *Senior Architectural Historian (2021).* Historical Resource Assessment Report for the proposed 1280 Pacific Coast Highway Mixed-Use Development Project (Project) in Harbor City, a community in the City of Los Angeles, California. The proposed project consisted of the redevelopment of a mobile home park known as the A-1 Trailer Park at 1280 Pacific Coast Highway and an adjacent vacant surface parking lot. The A-1 Trailer Park property was found ineligible under the NRHP, CRHR, and City of Los Angeles designation criteria due to a lack of significant historical associations and architectural merit. Client: Confidential

La Canada Soundwalls Phase IV, La Canada Flintridge, CA *Senior Architectural Historian (2021).* Prepare a Historic Property Survey Report (HPSR) for the La Canada Flintridge I-210 Soundwall Improvement Project. The project calls for an intensive pedestrian survey of the project Area of Potential Effect (APE) (both direct and indirect) for both archaeological and built environment resources.

ALEX BETHKE, M.A.

Principal Investigator, Senior Historian

EDUCATION

M.A., Public History, Arizona State University, 2007

B.A., History, University of San Diego, 2004

YEARS OF PROFESSIONAL EXPERIENCE

15

DOD EXPERIENCE

Navy, Marine Corps

PROFESSIONAL AFFILIATIONS

Society of American Military Engineers (SAME)

Mr. Bethke has almost twenty-years years of professional historical and cultural resources management experience. For more than a decade, Mr. Bethke served within Navy Region and NAVFAC Southwest as an installation Cultural Resource Manager (Historian), project historian, and regional Cultural Resources Program Manager (CRM) to support Navy and Marine Corps warfighters. During his tenure at NAVFAC Southwest, Mr. Bethke was responsible for overseeing installation management throughout the region – identifying and ensuring regulatory compliance of both historic and archaeological properties. This position afforded him the opportunity to lead complex NHPA and NAGPRA consultations as well as direct unique historical, archaeological, and special initiative best management practices projects.

At PaleoWest, Mr. Bethke imparts his federal CRM expertise to federal projects to ensure they meet the client's regulatory needs.

Mr. Bethke earned his M.A. in History (Public History) from Arizona State University in 2007 and his B.A. in History and Political Science from the University of San Diego in 2004. His qualifications exceed those set forth by the Secretary of the Interior's Standards and Guidelines for History and Architectural History (36 CFR 61).

SELECT HISTORICAL/CRM EXPERIENCE

Barking Sands Integrated Cultural Resources Plan, Kauai, HI. *Author (2020).* Responsible for overhauling and re-writing the ICRMP and developing new archaeological sensitivity zones based on a comprehensive and programmatic approach to a resource-rich (including human remains) environment. Client: NAVFAC Hawaii (Navy)

Environmental Management Systems Audit: Cultural Resources, Southwest. *Regional Lead CRM Auditor (2014-2020).* Developed and executed a useful method of conducting program audits to assist installation cultural resources programs identify strengths, weaknesses, opportunities, and threats from a comprehensive and holistic perspective.

Naval Base Coronado Historical Signage, Coronado, CA. *DoN Project Manager (2020).* Project to implement signage recommendation of the NASNI Interpretive Plan. With a role that involved heavy editing and re-writing of the draft signs, this project ultimately created 12 thematic signs (and brochures) to place at strategic locations across the installation for passive interpretation. Client: UltraSystems

Navy Region Southwest Suite of ICRMP Updates, Southwest. *DoN Project Manager (2020).* Responsible for re-developing the region's ICRMP template to both meet DoN policy while striving to be functional to a range of installation and external stakeholders with a focus on sensitivity. With a new template in hand, I managed the contracted effort to implement the template at six installations as well as serving as the government's primary technical point of contact and contracting officer's representative (COR). Client: Navy Region Southwest Installations. Client: UltraSystems

MCB Camp Pendleton Historic Buildings Rehabilitation Cooperative Agreement, Camp Pendleton, CA. *DoN Project Manager (2009-2020).* Managed the long-term effort to rehabilitate (and even restore) two NHL adobe Mexican Period ranch houses on Camp Pendleton, Las

Flores and Santa Margarita. Served as the government's primary technical point of contact and contracting officer's representative (COR). Client: MCB Camp Pendleton

Detachment Norco NRHP Survey/Evaluation and Consultation. *DoN Project Manager (2010) and DoN Consultation Lead (2010-2020).* Initially managed the contracted effort to survey and evaluate the built-environment properties across the Detachment for inclusion on the National Register throughout three possible periods of significance. Once the contracted effort was completed, Mr. Bethke served as the DoN technical point of contact for the contentious SHPO consultation that spanned nearly a decade and ultimately involved the ACHP and the Assistant Secretary of the Navy. Served as the government's primary technical point of contact and contracting officer's representative (COR). Client: NAVWPNSTA Seal Beach

Former NAS Barbers Point Disposal, Oahu, HI. *DoN (BRAC) Consultation Lead (2019).* Approached mid-consultation to resolve a floundering consultation to dispose of federal property that included numerous historic and archaeological properties. Consultation included regular interaction with ACHP, SHPO, and Assistant Secretary of the Navy. Client: Navy BRAC

Naval Base Coronado NRHP World War II Survey/Evaluation, Coronado, CA. *DoN Project Manager* (2016). Contractor: HDR. Managed a project to survey and evaluate all built properties constructed during World War II across the installation, completing 95 site forms in total. Client: Naval Base Coronado

Naval Air Station North Island Interpretive Plan, Coronado, CA. *DoN Project Manager* (2016). Contractor: ASM Affiliates. Project to identify and evaluate interpretive tools on an active military installation like NASNI and then to compose a historic signage plan and walking tour script. Client: Naval Base Coronado

Wullenweber Antennae Array LiDAR Documentary. *DoN Project Manager* (2016). Contractor: HDR. Served as the COR and installation CRM for this mitigation project to demolish the NRHP-eligible Wullenweber Antennae Array on the Silver Strand Training Complex. The project utilized LiDAR technology to produce a detailed virtual model set against historical photos and HABS-like documentation to produce a state-of-the-art documentary. Client: Naval Base Coronado

Fort Emory Bunker 99 HABS, Coronado, CA. *DoN Project Manager* (2016). Contractor: JRP. Project documented in a HABS-like format a World War II coastal defense bunker in advance of its demolition as required per the Section 106 MOA as mitigation. Client: Naval Base Coronado

NAS Fallon Hangar 7 Historic Building Maintenance Plan, Fallon, NV. *DoN Project Manager* (2016). Contractor: JRP Historical Consultants. Project to identify character-defining features of the NRHP-eligible Hangar 7 and necessary maintenance of those features with a particular eye towards proposed tenant re-use. Served as the government's primary technical point of contact and contracting officer's representative (COR). Client: Naval Air Station Fallon

MCB Camp Pendleton World War II Historical NRHP Survey/Evaluation Update, Camp Pendleton, CA. *DoN Project Manager* (2015). Contractor: HDR. Project re-evaluated 150 buildings, structures, and objects and newly evaluated the potential for several possible historic districts across the installation. Served as the government's primary technical point of contact and contracting officer's representative (COR). Client: MCB Camp Pendleton

Hunters Point NRHP Nomination and HABS, San Francisco, CA. *DoN Project Manager (2012).* Project fulfilled the mitigation requirement in the Section 106 MOA for the disposal of the federal property to document the historic district within the former installation. Client: Navy BRAC

Building 1133 and Building 51811 Historic Structure Reports, Camp Pendleton, CA. *DoN Project Manager (2011).* Project to assess the condition of two National Register-eligible properties,

identify character-defining features, and how to account for the necessary maintenance of those features for the installation Cultural Resource Manager. Served as the government's primary technical point of contact and contracting officer's representative (COR). Client: MCB Camp Pendleton

Herrmann Hall Historic Building Maintenance Plan, Monterey, CA. *DoN Project Manager (2010).* Project to identify character-defining features of the NRHP-eligible former Del Monte Hotel main building and how to account for the necessary maintenance of those features with a particular eye towards proposed re-use. Served as the government's primary technical point of contact and contracting officer's representative (COR). Client: NSA Monterey

City of San Diego Historical Resources Board, San Diego, CA. *Board Member (2009-2014).* Filled one of two seats reserved for Historians on the board and Chaired the Design Assistance Subcommittee during this period as well.

The Flanders Hotel NRHP Nomination, Ocean City, NJ. *Author (2009)*. Researched, composed, and presented a completed National Register of Historic Places nomination for this 1920s property. The nomination passed the State Resources Board unanimously in late 2009. Client: The Flanders Hotel.

Laveen Village Historical Resources Survey/Evaluation, Phoenix, AZ. *Author (2007)*. Conducted research to compose a thorough historic context statement and conduct a detailed historical resources survey and evaluation of some forty built properties within the Laveen Village Planning area of Phoenix. Client: The City of Phoenix.

SELECT AWARDS

Secretary of the Navy (SECNAV) Environmental Award

- CRM, Small Installation: Naval Weapons Station Seal Beach (2019)
- CRM, Large Installation: NAS Fallon (2016)

Chief of Naval Operations (CNO) Environmental Award

- Cultural Resources Management Team: Naval Support Activity Monterey (2012)
- Cultural Resources Management, Installation: NAS Fallon (2012)

Appendix 5.3A-B
Records Search Results Maps

This Appendix is filed under a request for confidential designation

Appendix 5.3A-B, Records Search Report, have been provided under a request for confidentiality.

Appendix 5.3A-C
Sacred Lands File Search Results and Correspondence with Native American Groups and Local Historical Societies

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95501
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: D3597702 BHER- Black Rock

County: Imperial County, CA

USGS Quadrangle

Name: See attached map

Township: _____ Range: _____ Section(s): _____

Company/Firm/Agency:

PaleoWest Archaeology

Contact Person: Kyle Knabb

Street Address: 517 S. Ivy Avenue

City: Monrovia Zip: 91016

Phone: (626) 376-6729 Extension: _____

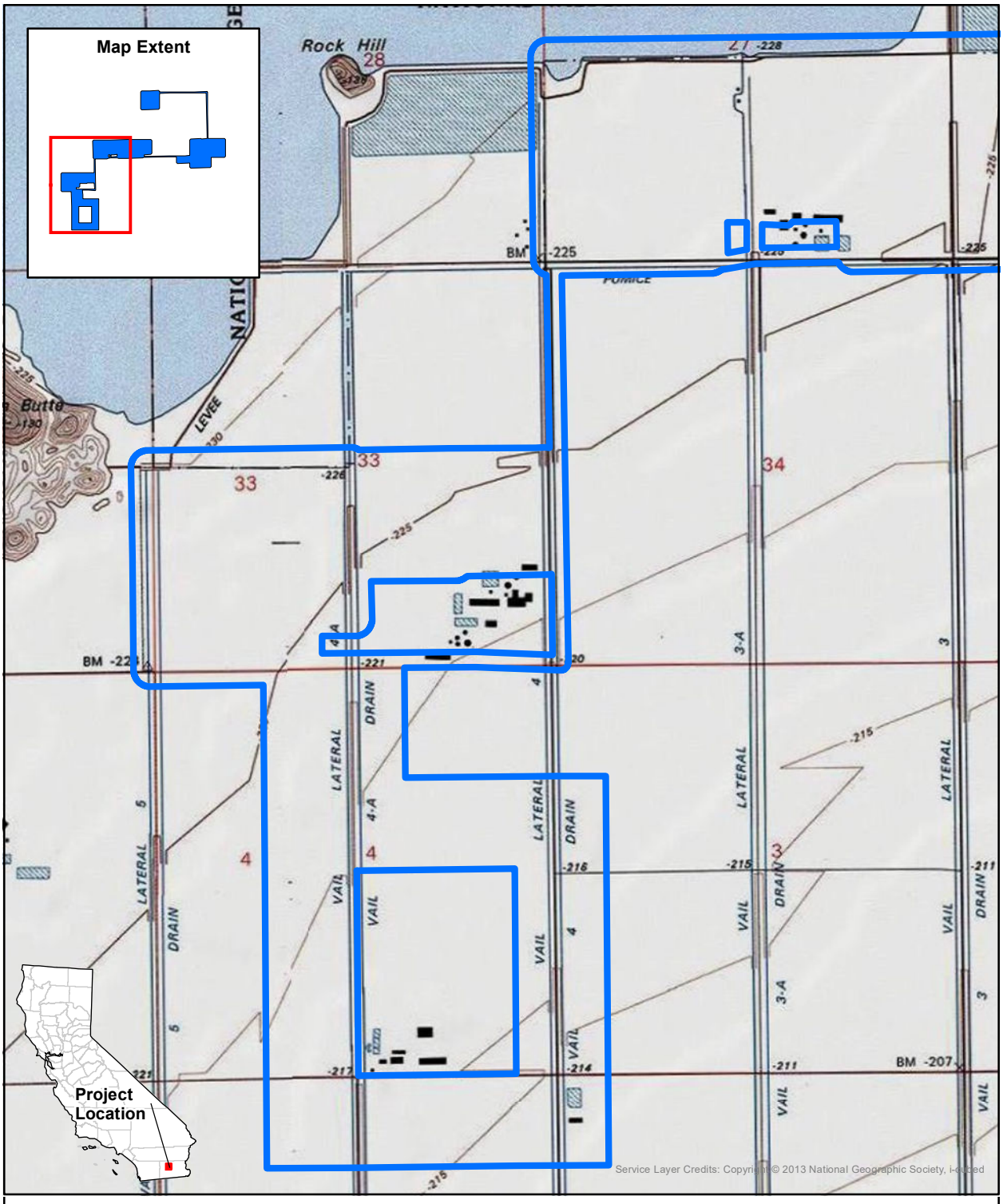
Fax: _____

Email: kknabb@paleowest.com

Project Description:

The Project involves the construction of three thermal extraction sites with associated transmission lines, pipelines, and laydown areas.

☑ Project Location Map is attached



PALEO WEST

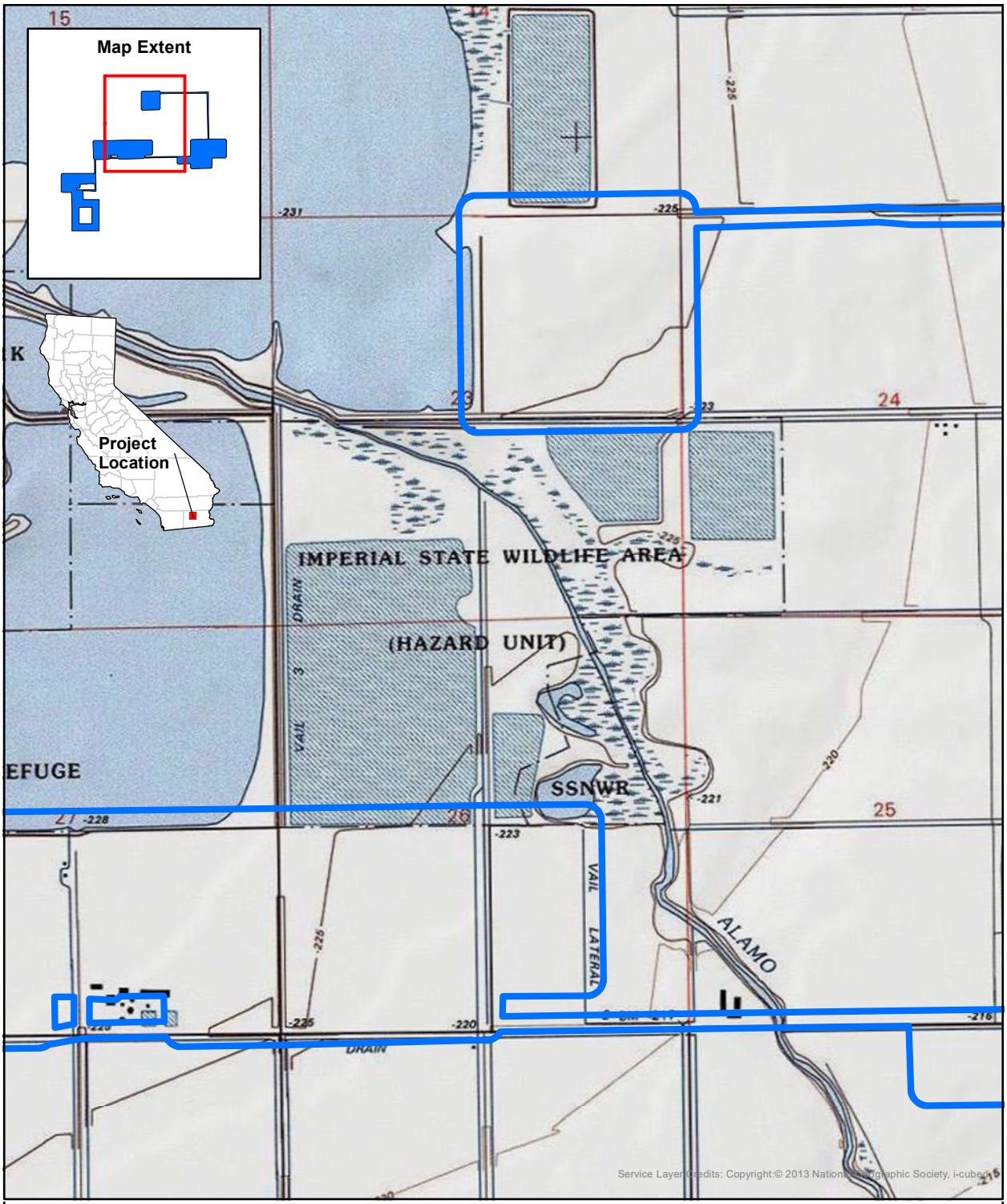
0 feet 2,000

0 meters 500

1:24,000

Project Location Map: Black Rock - A
USGS 7.5' Quadrangle:
Obsidian Bute, CA (1960) & Niland, CA (1960)
T11S R13E Sec 13-14, 23-28, 32-36;
T11S R14E Sec 19, 29-32;
T12S R13E Sec 3-5, 9-10
SBBM

Project Area



PALEO WEST

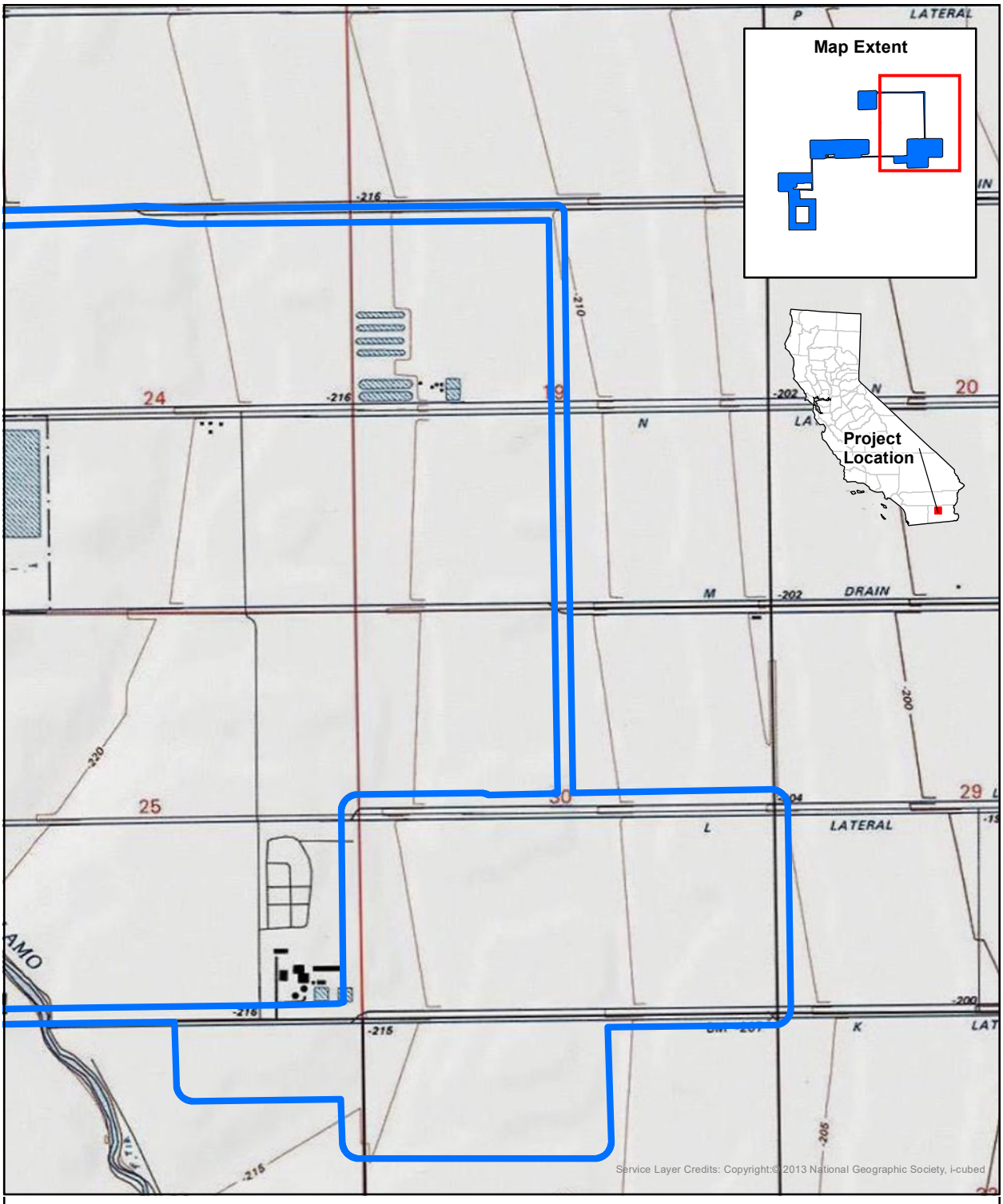
0 feet 2,000

0 meters 500

1:24,000

Project Location Map: Black Rock - B
USGS 7.5' Quadrangle:
Obsidian Bute, CA (1960) & Niland, CA (1960)
T11S R13E Sec 13-14, 23-28, 32-36;
T11S R14E Sec 19, 29-32;
T12S R13E Sec 3-5, 9-10
SBBM

Project Area



PALEO WEST

0 feet 2,000

0 meters 500

1:24,000

Project Location Map: Black Rock - C
USGS 7.5' Quadrangle:
Obsidian Bute, CA (1960) & Niland, CA (1960)
T11S R13E Sec 13-14, 23-28, 32-36;
T11S R14E Sec 19, 29-32;
T12S R13E Sec 3-5, 9-10
SBBM

Project Area

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 12, 2022

Kyle Knabb
PaleoWest

Via Email to: kknabb@paleowest.com

Re: D3597702 BHER- Black Rock Project, Imperial County

Dear Mr. Knabb:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the tribes on the attached list for more information. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Imperial County
10/12/2022

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Reid Milanovich, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919
laviles@aguacaliente.net

Barona Group of the Capitan Grande
Raymond Welch, Chairperson
1095 Barona Road — Diegueno
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
counciloffice@barona-nsn.gov

Campo Band of Diegueno Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Diegueno
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 368 - 4382
Fax: (619) 445-9126
ceo@ebki-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 933 - 2200
Fax: (619) 445-9126
michaelg@leaningrock.net

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
clint@redtailenvironmental.com

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Inaja-Cosmit Band of Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Diegueno
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Lisa Cumper, Tribal Historic Preservation Officer
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4855
lcumper@jiv-nsn.gov

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed D3597702 BHER- Black Rock Project, Imperial County.

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 Kwaaymii
Pine Valley, CA, 91962 Diegueno
Phone: (619) 709 - 4207

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 Diegueno
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

Mesa Grande Band of Diegueno Mission Indians
Michael Linton, Chairperson
P.O Box 270 Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899 Quechan
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

San Pasqual Band of Diegueno Mission Indians
Allen Lawson, Chairperson
P.O. Box 365 Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

San Pasqual Band of Diegueno Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed D3597702 BHER- Black Rock Project, Imperial County.

Native American Heritage Commission
Native American Contact List
Imperial County
10/12/2022

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Sycuan Band of the Kumeyaay Nation
Kristie Orosco, Kumeyaay Resource Specialist
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 6917

Sycuan Band of the Kumeyaay Nation
Cody Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Viejas Band of Kumeyaay Indians
John Christman, Chairperson
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

Viejas Band of Kumeyaay Indians
Ernest Pingleton, Tribal Historic Officer, Resource Management
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 659 - 2314
epingleton@viejas-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed D3597702 BHER- Black Rock Project, Imperial County.

PALEOWEST

T: 626.408.8006
info@paleowest.com

LOS ANGELES COUNTY
517 S. Ivy Avenue
Monrovia, CA 91016

August 9, 2022

John Christman, Chairperson
Viejas Band of Kumeyaay Indians
1 Viejas Grade Road
Alpine, CA, 91901

RE: Cultural Resource Investigation for the Berkshire Hathaway Energy (BHE) Black Rock Project, Imperial County, California

Dear Mr. Christman,

PaleoWest, LLC (PaleoWest), on behalf of Jacobs Project Management Company (Jacobs) is conducting a cultural resource investigation for BHE Black Rock Project (Project) in Imperial County, California. The Project is located within Sections 13-14, 23-28, 32-36, Township 11 South, Range 13 East, Sections 19, 29-32, Township 11S, Range 14 East, and Sections 3-5, 9-10, Township 12 South, Range 13 East, San Bernardino Baseline and Meridian (SBBM), as depicted on the Obsidian Butte and Niland, CA 7.5' U.S. Geological Survey (USGS) topographic quadrangle maps (see attached maps: Black Rock A-C). The Black Rock Project area totals approximately 2,356 acres. The Project is subject to the California Environmental Quality Act and the California Energy Commission is the lead agency.

A cultural resource records search and literature review was completed at the South Coastal Information Center (SCIC) of the California Historical Resource Information System housed at San Diego State University. The records search indicated that twenty-one cultural resources were identified within one-half-mile of the Project area. Of the twenty-one resources, two historic-period built environment resources intersect the Project area, both of which are irrigation canals. The SCIC records search did not indicate that any previously recorded prehistoric resources are located within the Project area.

As part of the cultural resource investigation for the Project, PaleoWest requested a search of the Native American Heritage Commission's (NAHC's) *Sacred Lands File*. The NAHC has not yet responded but it is anticipated that they recommend we contact you for comment. If your records show that cultural resources exist within or near the Project area (see enclosed map), please contact me at (626) 376-6729 or kknabb@paleowest.com.

Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Sincerely,

Kyle A. Knabb

Kyle Knabb, Ph.D., RPA
Senior Archaeologist
PaleoWest

Summary of Tribal and Local Historical Society Outreach and responses

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
Agua Caliente Band of Cahuilla Indians Patricia Garcia-Plotkin, Director	5401 Dinah Shore Drive Palm Springs, CA, 92264 Phone: (760) 699 - 6907 Fax: (760) 699-6924 ACBCI-THPO@aguacaliente.net	12/7/22 via email; 12/21/22 via phone call	Called and left voicemail for Ms. Garcia-Plotkin
Agua Caliente Band of Cahuilla Indians Lacy Padilla, Operations Manager, THPO	5401 Dinah Shore Drive Palm Springs, CA, 92264 Phone: (760) 699 - 6907 Fax: (760) 699-6924	See above	Ms. Padilla responded via email on January 9th, 2022 stating that the project lies within the Tribe's Traditional Use Area. Ms. Padilla requested a copy of the cultural resources report and associated documentation and the presence of an approved cultural resources monitor during ground disturbing activities.
Agua Caliente Band of Cahuilla Indians Reid Milanovich, Chairperson	5401 Dinah Shore Drive Palm Springs, CA, 92264 Phone: (760) 699 - 6800 Fax: (760) 699-6919 laviles@aguacaliente.net	12/7/22 via email; 12/21/22 via phone call	Called and left voicemail for Reid Milanovich

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
Barona Group of the Capitan Grande Raymond Welch, Chairperson	1095 Barona Road Lakeside, CA, 92040 mnavarro@barona-nsn.gov	8/9/22 via email; 8/25/22 via email; 12/7/22 via email	New email provided 10/13/22 from NAHC (counciloffice@barona-nsn.gov). Email sent 12/7/22. No response/comment.
Campo Band of Diegueno Mission Indians Marcus Cuero, Chairperson	36190 Church Road, Suite 1 Campo, CA, 91906 Phone: (619) 478 - 9046 Fax: (619) 478-5818 marcuscuero@campo-nsn.gov	8/9/22 email; 8/25/2022 via telephone and email	No response/comment
Campo Band of Diegueno Mission Indians Ralph Goff, Chairperson	36190 Church Road, Suite 1 Campo, CA, 91906 Phone: (619) 478 - 9046 Fax: (619) 478-5818 rgoff@campo-nsn.gov	8/9/22 email; 8/25/2022 via telephone and email	No response/comment
Ewiiaapaayp Band of Kumeyaay Indians Robert Pinto, Chairperson	4054 Willows Road Alpine, CA 91901 wmicklin@leaningrock.net	8/9/22 via email; 8/25/22 via email	No response/comment
Ewiiaapaayp Band of Kumeyaay Indians Michael Garcia, Vice Chairperson	4054 Willows Road Alpine, CA 91901 michaelg@leaningrock.net	8/9/22 via email; 8/25/22 via email	No response/comment
Iipay Nation of Santa Ysabel Virgil Perez, Chairperson Bernice Paipa, Chairperson	P.O. Box 130 Santa Ysabel, CA 92070 Phone: (760) 765 - 0845 Fax: (760) 765-0320 bpaipa@iipaynation-nsn.gov	8/9/22 email; 8/25/2022 via telephone and email	No response/comment

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
Iipay Nation of Santa Ysabel Clint Linton, Director of Cultural Resources	P.O. Box 507 Santa Ysabel, CA 92070 Phone: (760) 803 - 5694 cjlinton73@aol.com	8/9/22 email; 8/25/2022 via telephone	No response/comment
Inaja-Cosmit Band of Indians Rebecca Osuna, Chairperson	2005 S. Escondido Blvd. Escondido, CA, 92025 Phone: (760) 737 - 7628 Fax: (760) 747-8568 inaja_cosmit@hotmail.com	8/9/22 email; 8/25/2022 via telephone	No response/comment
Jamul Indian Village Erica Pinto, Chairperson	P.O. Box 612 Jamul, CA 91935 Phone: (619) 669 - 4785 Fax: (619) 669-4817 epinto@jiv-nsn.gov	8/9/22 email; 8/25/2022 via telephone and email	No response/comment
Jamul Indian Village Lisa Cumper, Tribal Historic Preservation Officer	P.O. Box 612 Jamul, CA 91935 Phone: (619) 669 - 4855 lcumper@jiv-nsn.gov	8/9/22 email; 8/25/2022 via telephone and email	Email response received 8/23/2022 form Ms. Lisa Cumper stating that she would review the documents and respond at a later time. Ms. Cumper responded again via email on 11/16/2022 stating that portions of the Project within Obsidian Butte are positive for cultural sensitivity.

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
Kwaaymii Laguna Band of Mission Indians Carmen Lucas	P.O. Box 775 Pine Valley, CA, 91962 Phone: (619) 709 - 4207	8/9/2022 via USPS	Ms. Lucas responded via telephone on August 29, 2022 and stated that she has serious concerns with the Project. She noted that the entire Project area is considered sacred with many cultural resources present in the vicinity. Resources and cultural landscapes in the area include Obsidian Butte, multiple mudholes, and the Ancient Lake Cahuilla cultural landscape. Ms. Lucas explained that obsidian from Obsidian Butte is found across southern California, including as far west as La Jolla, and that mudholes represent the heartbeat of mother earth. Ms. Lucas expects adverse impacts would occur to Obsidian Butte, the mudholes in the area, and the Ancient Lake Cahuilla cultural landscape. She expressed opposition to all three projects.
Courtney Ann Coyle Attorney at Law 1609 Soledad Ave La Jolla, CA 92037	Phone: 858-454-8687 Fax:858-454-8493 Email: CourtCoyle@aol.com	8/10/22 via email; 8/25/22 via telephone	Ms. Courtney Coyle, attorney for Ms. Carmen Lucas (Kwaaymii Laguna Band of Mission Indians) responded via email on August 25, 2022 requesting additional information regarding the Project location and the scope of work to be conducted.

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
La Posta Band of Diegueno Mission Indians Gwendolyn Parada, Chairperson	8 Crestwood Road Boulevard, CA 91905 LP13boots@aol.com	8/9/22 via email; 8/25/22 via email	No response/comment
La Posta Band of Diegueno Mission Indians Javaughn Miller, Tribal Administrator	8 Crestwood Road Boulevard, CA 91905 Phone: (619) 478 - 2113 Fax: (619) 478-2125 jmiller@LPtribe.net	8/9/22 via USPS; 8/25/2022 via telephone	No response/comment
Manzanita Band of Kumeyaay Nation Angela Elliott Santos, Chairperson	P.O. Box 1302 Boulevard, CA 91905 (619) 766 – 4930 ljbirdsinger@aol.com	8/9/22 email; 8/25/2022 via telephone and email	No response/comment
Mesa Grande Band of Diegueno Mission Indians Michael Linton, Chairperson	P.O Box 270 Santa Ysabel, CA 92070 mesagrandeband@msn.com	8/9/22 via email and USPS; 8/25/2022 via email	No response/comment
Quechan Tribe of the Fort Yuma Reservation H. Jill McCormick, Historic Preservation Officer	P.O. Box 1899 Yuma, AZ 85366 Phone: (760) 572 - 2423 historicpreservation@quechantribe.com	8/9/22 via email; 8/25/22 via email	No response/comment
Quechan Tribe of the Fort Yuma Reservation Manfred Scott, Acting Chairman Kw'ts'an Cultural Committee	P.O. Box 1899 Yuma, AZ 85366 Phone: (928) 750 - 2516 scottmanfred@yahoo.com	8/9/22 via email; 8/25/22 via email	No response/comment

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
San Pasqual Band of Diegueno Mission Indians Stephen Cope, Chairperson	P.O. Box 365 Valley Center, CA, 92082 Phone: (760) 749 - 3200 Fax: (760) 749-3876 stevenc@sanpasqualtribe.org	8/9/22 email; 8/25/2022 via telephone and email	No response/comment
San Pasqual Band of Diegueno Mission Indians John Flores, Environmental Coordinator	P. O. Box 365 Valley Center, CA 92082 Phone: (760) 749 - 3200 Fax: (760) 749-3876 johnf@sanpasqualtribe.org	8/9/22 email; 8/25/2022 via telephone	No response/comment
Santa Rosa Band of Cahuilla Indians Lovina Redner, Tribal Chair	P.O. Box 391820 Anza, CA, 92539 Phone: (951) 659 - 2700 Fax: (951) 659-2228 lsaul@santarosa-nsn.gov	12/7/22 via email; 12/21/22 via phone	No response/comment
Soboba Band of Luiseno Indians Isaiah Vivanco, Chairperson	P. O. Box 487 San Jacinto, CA, 92581 Phone: (951) 654 - 5544 Fax: (951) 654-4198 ivivanco@soboba-nsn.gov	12/7/22 via email; 12/21/22 via phone	No response/comment

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
Soboba Band of Luiseno Indians Joseph Ontiveros, Cultural Resource Department	P.O. BOX 487 San Jacinto, CA, 92581 Phone: (951) 663 - 5279 Fax: (951) 654-4198 jontiveros@soboba-nsn.gov	12/7/22 via email; 12/21/22 via phone	Mr. Ontiveros responded via telephone on 12/21/2022 and stated that the Tribe defers to more local Tribes, including Torres-Martinez Desert Cahuilla Indians and Quechan Tribe of the Fort Yuma Reservation
Sycuan Band of the Kumeyaay Nation Kristie Orosco, Kumeyaay Resource Specialist	1 Kwaaypaay Court El Cajon, CA, 92019 Phone: (619) 445 - 6917	8/9/22 via USPS; 8/25/22 via telephone	No response/comment
Sycuan Band of the Kumeyaay Nation Cody Martinez, Chairperson	1 Kwaaypaay Court El Cajon, CA, 92019 ~~ssilva@sycuan-nsn.gov~~ Alexis Vargas at avargas@sycuan-nsn.gov	8/9/22 via email; 8/25/22 via email	No response/comment
Torres-Martinez Desert Cahuilla Indians Michael Mirelez, Cultural Resource Coordinator	P.O. Box 1160 Thermal, CA, 92274 Phone: (760) 399 - 0022 Fax: (760) 397-8146 mmirelez@tmdci.org	8/9/22 via USPS; 8/25/22 via telephone and email	No response/comment

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
Viejas Band of Kumeyaay Indians John Christman, Chairperson	1 Viejas Grade Road Alpine, CA, 91901 Phone: (619) 445 - 3810 Fax: (619) 445-5337	8/9/22 via USPS; 8/25/22 via telephone	No response/comment
Viejas Band of Kumeyaay Indians Ernest Pingleton, Tribal Historic Officer, Resource Management	1 Viejas Grade Road Alpine, CA, 91901 Phone: (619) 659 - 2314 epingleton@viejas-nsn.gov	8/9/22 via email	Ray Teran of the Viejas Band of Kumeyaay Indians responded via email on August 10, 2022 and stated that the Project has cultural significance that is tied to the Tribe, and that cultural resources have been located within or adjacent to the Project area. The Tribe requests that a Kumeyaay Cultural Monitor be on site for ground disturbing activities and to be informed of any new discoveries such as inadvertent discovery of cultural artifacts, cremation sites, or human remains. Lastly, Mr. Teran stated that if another Tribe in a closer proximity to the Project area requests to perform cultural monitoring, then the Viejas would defer to them.

Recommended Contacts (Name and Affiliation)	Contact Info	Outreach attempts	Comments/Notes
Imperial County Historical Society 373 East Aten Road Imperial, California, 92251	Phone: 760-352-3211 Alt. Phone: 760-352-1165 Fax: 760-352-5411 Email: curator@pioneermuseum.net	1/3/23 via email and telephone	No response/comment
Fort Gaston Historical Society 7 Ben Hulse Highway Palo Verde, California, 92266	Phone: 760-791-7893	1/3/23 via telephone	No response/comment
Palo Verde Historical Society Brian Alexander and Mara-Lee Port 150 North Broadway Blythe, California, 92225	Phone: 760-922-8770 Email: NZBMA@yahoo.com	1/3/23 via email and telephone	Brian Alexander responded via Telephone on January 3, 2023 and stated that he would relay any relevant information. On 1/12/23 Marilee Harkinson emailed us to report the absence of any known cultural resources in the Project Area.

From:	Kyle Knabb
To:	COURTNEY COYLE
Cc:	Tiffany Clark
Subject:	RE: Cultural Resources Investigations in Imperial County, CA
Date:	Thursday, September 8, 2022 12:39:00 PM
Attachments:	image002.png image003.png image004.png image005.png

Dear Ms. Coyle,

Thank you for your response to our request for information. We have forwarded your email to the lead agency.

Best wishes,
Kyle

Kyle Knabb, PhD, RPA | Senior Archaeologist
kknabb@paleowest.com
626.376.6729
www.paleowest.com

Los Angeles Office
517 S. Ivy Ave.
Monrovia, CA, 91016

From: COURTNEY COYLE <courtcoyle@aol.com>
Sent: Thursday, August 25, 2022 6:13 PM
To: Gena Granger <GGranger@paleowest.com>
Cc: Kyle Knabb <kknabb@paleowest.com>
Subject: Re: Cultural Resources Investigations in Imperial County, CA

Hello Kyle and Gena,

Thank you for sending both Carmen Lucas (Kwaaymii Laguna) and me the information below on the three Projects.

In your letter, you asked the question of whether our records show that cultural resources exist within or near the Project areas. However, your letter did not relate whether any positive hits are indicated from your Sacred Lands File search at the NAHC. That information is very valuable to tribes and should be conveyed in writing to affiliated tribes in a timely way as it can elevate their engagement. Please also know that the Project areas are in or near the Southeast Lake Cahuilla Active Volcanic Cultural District. This district encompasses several features with tribal cultural value including the Obsidian Butte area, the two sets of mud pots, and other features.

In the meantime, we request the following information to be able to respond further to your request:

1. Your scope of work including whether you are doing all of the following: archaeological survey, tribal cultural resource identification, and consideration of cultural landscapes.

2. The qualifications of your team to perform the appropriate scope.

3. Whether the protocols you are using (i.e. transect width, presence of qualified tribal monitors) are sufficient to make relevant identifications.

4. One graphic that shows all three Project areas and land ownership.

5. Providing us both copies of any previous cultural surveys/studies within the Project areas.

6. Any reports that might indicate precontact trails related to the Project areas.

Once the above information is provided, an initial meeting to discuss these items should be scheduled as well as a site visit. It may make sense for all the consulting tribes to participate in both, in addition to any individual consultative meetings that may occur.

We hope this information is useful to you.

I expect to be back in the office after Labor Day should you have questions.

Courtney Coyle
Attorney for
Carmen Lucas
(Kwaaymii Laguna)

Copy to client

Courtney Ann Coyle
Attorney at Law

Held-Palmer House

1609 Soledad Avenue
La Jolla, CA 92037-3817

"Protecting, Preserving, and Restoring Tribal, Cultural, Biological, and Park Resource Landscapes"

ph: 858.454.8687
fx: 858.454.8493
e: CourtCoyle@aol.com

On Aug 10, 2022, at 1:39 PM, Gena Granger <GGranger@paleowest.com> wrote:

Please see the attached letters and maps for three separate Projects: Cultural Resource Investigations for the BHER Black Rock Project, BHER Elmore North Project, and the Morton Bay Project all within Imperial County, California.

Best,

<image001.jpg>

Gena Severen (Granger), MA, RPA | Associate Archaeologist
PaleoWest
ggranger@paleowest.com
mobile: 562-310-0153
www.paleowest.com
Los Angeles, California
517 S. Ivy Avenue
Monrovia, CA 91016
<image002.png> <image003.png><image004.png><image005.png>

<Coyle_BHER Elmore North.pdf><Coyle_BHER Black Rock.pdf><Coyle_BHER Morton Bay.pdf>

From: Ray Teran
To: Gena Granger; Kyle Knabb
Cc: Ernest Pingleton
Subject: RE: Cultural Resource Investigations in Imperial County, CA
Date: Wednesday, August 10, 2022 9:25:15 AM

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this time we have determined that the project site has cultural significance or ties to Viejas. Cultural resources have been located within or adjacent to the APE-DE of the proposed project.

Viejas Band request that a Kumeyaay Cultural Monitor be on site for ground disturbing activities and to inform us of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains.

If you wish to utilize Viejas cultural monitors (Viejas rate is $54.15/hr. plus GSA mileage), please call Ernest Pingleton at 619-655-0410 or email, epingleton@viejas-nsn.gov, for contracting and scheduling. Thank you.

If a Tribe, having a closer proximity to the Project, requests to perform cultural monitoring, Viejas will differ to them.

From: Ernest Pingleton <epingleton@viejas-nsn.gov>
Sent: Wednesday, August 10, 2022 7:08 AM
To: Ray Teran <rteran@viejas-nsn.gov>
Subject: Fwd: Cultural Resource Investigations in Imperial County, CA

Sent from my iPhone

Begin forwarded message:

> **From:** Gena Granger <GGranger@paleowest.com>
> **Date:** August 9, 2022 at 8:43:52 PM PDT
> **To:** Ernest Pingleton <epingleton@viejas-nsn.gov>
> **Cc:** Kyle Knabb <kknabb@paleowest.com>
> **Subject: Cultural Resource Investigations in Imperial County, CA**
>
> Please see the attached letters and maps for three separate Projects: Cultural Resource Investigations for the BHER Black Rock Project, BHER Elmore North Project, and the Morton Bay Project all within Imperial County, California.
>
> Best,

Gena Severen (Granger), MA, RPA | Associate Archaeologist

PaleoWest

ggranger@paleowest.com

mobile: 562-310-0153

www.paleowest.com

Los Angeles, California
517 S. Ivy Avenue
Monrovia, CA 91016

PALEOWEST

T: 602.261.7253
info@paleowest.com

Los Angeles County
517 S. Ivy Avenue
Monrovia, CA 91016

August 29, 2022

Carmen Lucas
Kwaaymii Laguna Band of Mission Indians
P.O. Box 775
Pine Valley, CA 91962

RE: Record of Telephone Conversation in reply to Tribal Outreach Letters for the Black Rock, Morton Bay, and Elmore North Projects.

This memo is a record of a telephone conversation that occurred on August 29, 2022 with Ms. Carmen Lucas of the Kwaaymii Laguna Band of Mission Indians. Ms. Lucas was responding to a letter sent on August 15, 2022 requesting information on resources in the vicinity of the proposed Projects.

Ms. Lucas stated that she has serious concerns with project. The entire area is sacred with many cultural resources present. Resources and cultural landscapes in the area include Obsidian butte, multiple mudholes, and the Ancient Lake Cahuilla cultural landscape. Ms. Lucas explained that obsidian from Obsidian Butte is found across southern California, including as far west as La Jolla, and that mudholes represent the heartbeat of mother earth. Ms. Lucas expects adverse impacts would occur to obsidian butte, mudholes in the area, and the Ancient Lake Cahuilla cultural landscape, and expressed opposition to all three projects.

Sincerely,

PALEOWEST

Kyle A. Knabb

Kyle Knabb, Ph.D., RPA | Senior Archaeologist

From: Lisa Cumper
To: Gena Severen
Subject: Re: Cultural Resources Investigations in Imperial County, CA
Date: Wednesday, November 16, 2022 10:23:08 AM
Attachments: image002.png
image003.png
image004.png
image005.png

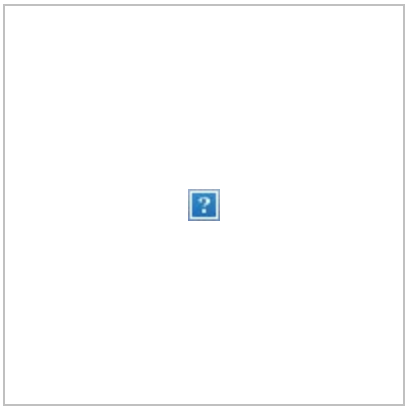
Hi Gena,

Upon review, Obsidian Butte is positive for cultural sensitivity.

Black rock is negative, no further information

Elmore North is also negative, no further information

Kindest Regards,



Lisa K. Cumper, THPO
Tribal Historic Preservation Officer
Cultural Resources Manager,
The Jamul Indian Village of California
Secretary, KCRC, Kumeyaay Nation
Secretary, KHPC, Kumeyaay Nation

P.O. Box 612, Jamul CA 91935
desk: 619.669.4855
cell: 619.928.8689
fax: 619.669.4817

email: lcumper@jiv-nsn.gov
web: www.jamulindianvillage.com

The ground on which we stand is sacred ground, it is the blood of our ancestors. Chief Plenty Coups, Crow

On Tue, Aug 9, 2022 at 8:19 PM Gena Granger <GGranger@paleowest.com> wrote:

> Please see the attached letters and maps for three separate Projects: Cultural Resource Investigations for the BHER Black Rock Project, BHER Elmore North Project, and the Morton Bay Project all within Imperial County, California.
>
> Best,
>
> PALEOWEST
>
> **Gena Severen (Granger), MA, RPA** | Associate Archaeologist
>
> PaleoWest
>
> ggranger@paleowest.com
>
> mobile: 562-310-0153
>
> www.paleowest.com
>
> **Los Angeles, California**
> **517 S. Ivy Avenue**
> **Monrovia, CA 91016**

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

02-007-2022-001

January 09, 2023

[VIA EMAIL TO:kknabb@paleowest.com]
PaleoWest Archaeology
Mr. Kyle Knabb
517 S. Ivy Ave.
Monrovia, California 91016

Re: Berkshire Hathaway Energy (BHE) Black Rock Project

Dear Mr. Kyle Knabb,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Black Rock project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*A cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area.

*A copy of the records search with associated survey reports and site records from the information center.

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

*The presence of an approved Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing and surveys). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6956. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

Lacy Padilla
Operations Manager
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

From: Marilee Harkinson
To: Heather Landazuri
Subject: RE: Historical Resource/Individual records search/access
Date: Thursday, January 12, 2023 8:10:43 AM
Attachments: image007.png
image008.png
image009.png
image010.png
image011.png

Good morning,

The Palo Verde Historical Museum does not have any historical information on any of the areas described in your maps.

Marilee Harkinson
President

From: Heather Landazuri [mailto:hlandazuri@paleowest.com]
Sent: Wednesday, January 11, 2023 7:06 PM
To: Marilee Harkinson
Subject: RE: Historical Resource/Individual records search/access

Hi Marilee,

I apologize for the late hour. My supervisor was able to compress the maps even further and I am attaching them here. Let me know if you continue to have trouble accessing them.

Cheers,

Heather

From: Marilee Harkinson <msharkinson@cif-blythe.com>
Sent: Wednesday, January 11, 2023 8:33 AM
To: Heather Landazuri <hlandazuri@paleowest.com>
Subject: RE: Historical Resource/Individual records search/access

Good morning,

In order to access the maps it's asking me to sign in. I don't have a sign in. Can you send them another way?

Marilee

From: Heather Landazuri [mailto:hlandazuri@paleowest.com]
Sent: Tuesday, January 10, 2023 5:25 PM
To: Msharkinson@cif-blythe.com
Subject: Historical Resource/Individual records search/access

Hello!

Thank you for returning my call this afternoon. Attached are the maps of the project area that I mentioned during our call. We (PaleoWest) are checking to make sure we have a record of all possible historical resources within a 1/2-mile radius of the project area. If you are aware of or have records of any resources within these areas, please let us know. I appreciate your assistance with this effort and look forward to working with you!

All best,

Heather

22-0425 Study Area Black Rock.pdf 22-0425 Study Area Morton Bay.pdf 22-0425 Study Area Elmore North.pdf

Heather Landázuri | Associate Archaeologist

hlandazuri@paleowest.com

805-403-4795

Los Angeles Office

517 S. Ivy Ave.

Monrovia, CA, 91016

Appendix 5.3A-D
Map Showing Location of Survey Area and Identified Cultural Resources within Project Area

This Appendix is filed under a request for confidential designation

Appendix 5.3A-D, Location of Survey Area and identified cultural resources in survey area, have been provided under a request for confidentiality.

Appendix 5.3A-E
DPR Forms

This Appendix is filed under a request for confidential designation

Appendix 5.3A-E, DPR Forms, have been provided under a request for confidentiality.

Appendix 5.3A-F
Previous Studies Conducted within 0.25 Mile of Project Area

This Appendix is filed under a request for confidential designation

Appendix 5.3A-F, Previous studies conducted within 1/4 mile of Project site, have been provided under a request for confidentiality.