

**A CULTURAL RESOURCES SURVEY
OF 640-ACRES PROPOSED FOR
ALTERNATIVE ENERGY EXPLORATION,
NILAND, IMPERIAL COUNTY, CALIFORNIA**

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ABSTRACT

Tierra Environmental Services, Inc (Tierra) has been hired to conduct an archaeological survey of 640-acres of land recently acquired by Ormat Nevada, Incorporated (Ormat) in the Niland area of Imperial County, California. The proposed land use of the area is for the construction of a geothermal power plant, and associated injection and production wells, within 40-acres in the northwest corner of Section 27. Additionally, the remaining portion of Section 27 could be used for a possible solar energy project. Project details are still in the planning phase and the survey of Section 27 was undertaken to provide a constraints analysis based on cultural resources.

The archaeological inventory includes archival and other background studies, in addition to the field survey for the project. The archival research consisted of a literature and records search conducted for the project in addition to an examination of historic maps and historic site inventories. This information was used to identify previously recorded resources and to determine the types of resources that might occur in the survey area.

The intensive survey of the project area was conducted throughout April 6-9, 2010 using parallel transects with 10 to 15 meter intervals. Visibility in the project area was excellent with few hindrances. A total area of 640-acres was surveyed for this project. Eighteen cultural resources (OS27-1 through OS27-18) were identified during the survey. These resources include five prehistoric archaeological sites, three historic can dumps, two trail segments, and eight prehistoric isolates. The prehistoric sites are ceramic and lithic scatters or temporary camps. The isolates include cores, flakes, and potsherds.

By definition, the eight isolates lack qualities and characteristics that would make them eligible for nomination to the California Register and are considered non-significant resources. Additionally, the three can dumps are considered non-significant resources. One of the prehistoric sites has been so disturbed as to have lost its integrity and is thus considered a non-significant resource. No further work is recommended for this resource.

Impacts to the two trail segments and the four intact prehistoric archaeological sites should be avoided. This can be accomplished by establishing a 20m buffer around the sites and flagging the buffer once project construction begins. Based on the surface expression of artifacts and associated features, the four sites may possess the characteristics and qualities necessary for inclusion on the California Register. If impacts to sites OS27-12, OS27-14, OS27-15, and OS-16 cannot be avoided, the sites will need to be tested and evaluated for their eligibility for the California Register.

Additionally, archaeological and Native American monitors should be present for initial earth disturbing activities within the recorded boundaries of sites OS27-12, OS27-14, OS27-15, and OS-16.

I. INTRODUCTION

A. PROJECT DESCRIPTION

Tierra Environmental Services, Inc (Tierra) conducted an archaeological survey of 640-acres of land recently acquired by Ormat Nevada, Incorporated (Ormat) in the Niland area of Imperial County, California (Figure 1). The proposed land use of the area is for the construction of a geothermal power plant, and associated injection and production wells, within 40-acres in the northwest corner of Section 27. Additionally, the remaining portion of Section 27 could be used for a possible solar energy project. Project details are still in the planning phase and the survey of Section 27 was undertaken to provide a constraints analysis based on cultural resources.

The project area is located in Township 10 South, Range 14 East on the Wister and Iris Wash USGS 7.5' Quadrangles, Section 27 (Figure 2). Cultural resource work was conducted in accordance with the California Environmental Quality Act (CEQA) and its respective guidelines and regulations. The County of Imperial serves as the lead agency for CEQA compliance.

B. PROJECT PERSONNEL

The cultural resource inventory has been conducted by Tierra, whose cultural resources staff meet Federal, State, and local requirements. Mr. Patrick McGinnis served as Principal Investigator for the project. Mr. McGinnis has an MA in Archaeology and Heritage from the University of Leicester and also meets the Secretary of the Interior's standards for qualified archaeologists. The survey of the project area was conducted by Mr. McGinnis, Ms. Hillary Murphy, Dr. Jackson Underwood, Ms. Eliza McMichael, Mr. James Amick, Mr. Aaron Cruz, and Mr. Martin Nienstadt during April 6-9, 2010. Resumes of lead project personnel are included in Appendix A.

C. STRUCTURE OF THE REPORT

This report follows the State Historic Preservation Office's guidelines for Archaeological Resource Management Reports (ARMR). The report introduction provides a description of the project and associated personnel. Section II provides background on the project area and previous research. Section III describes the research design and survey methods while Section IV describes the inventory results. Section V provides a summary and recommendations.

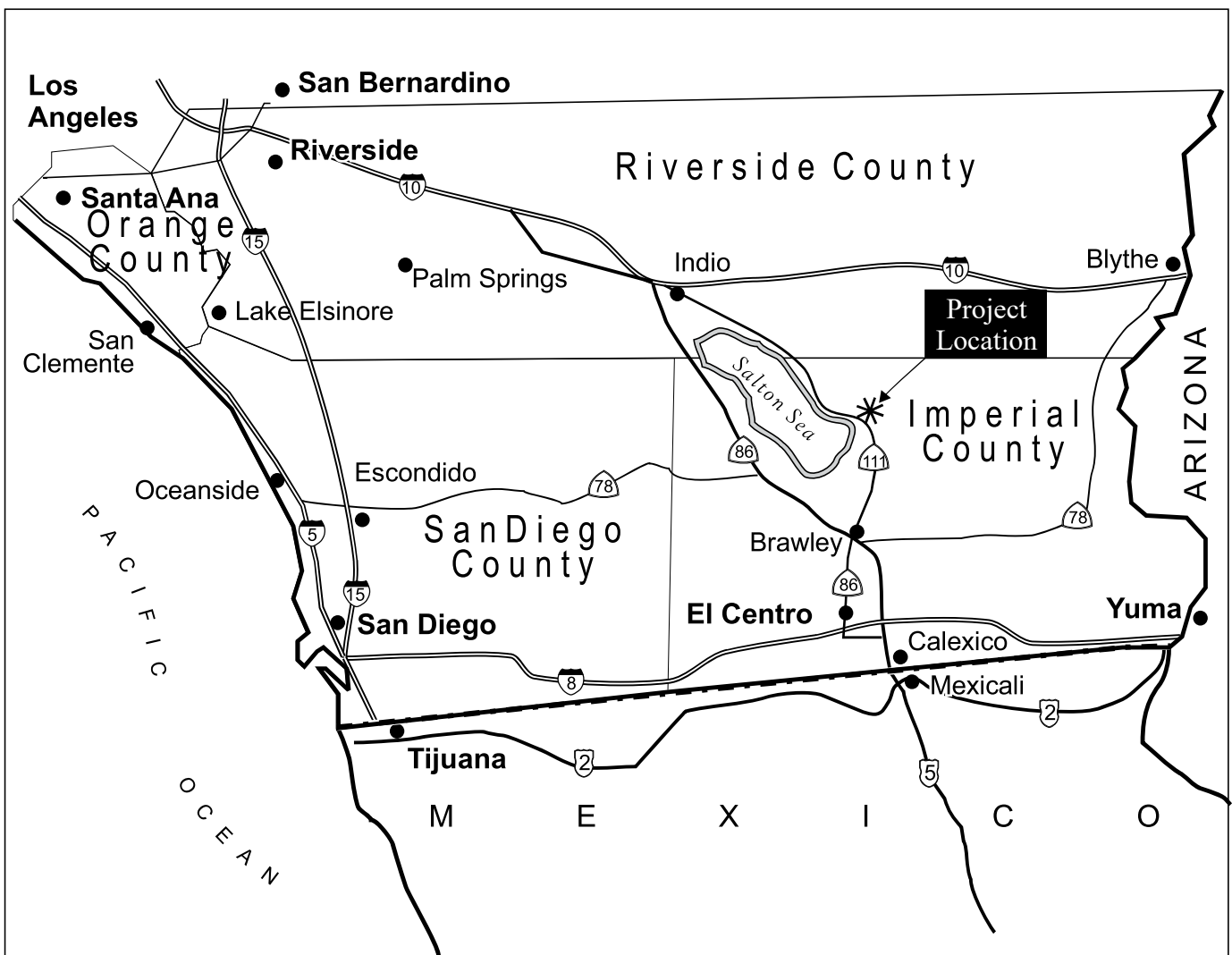
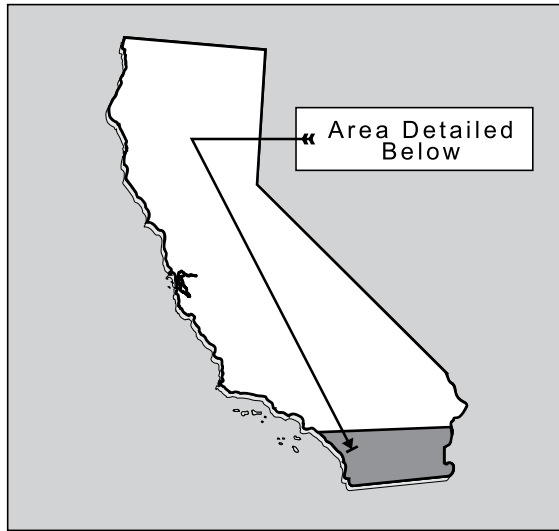
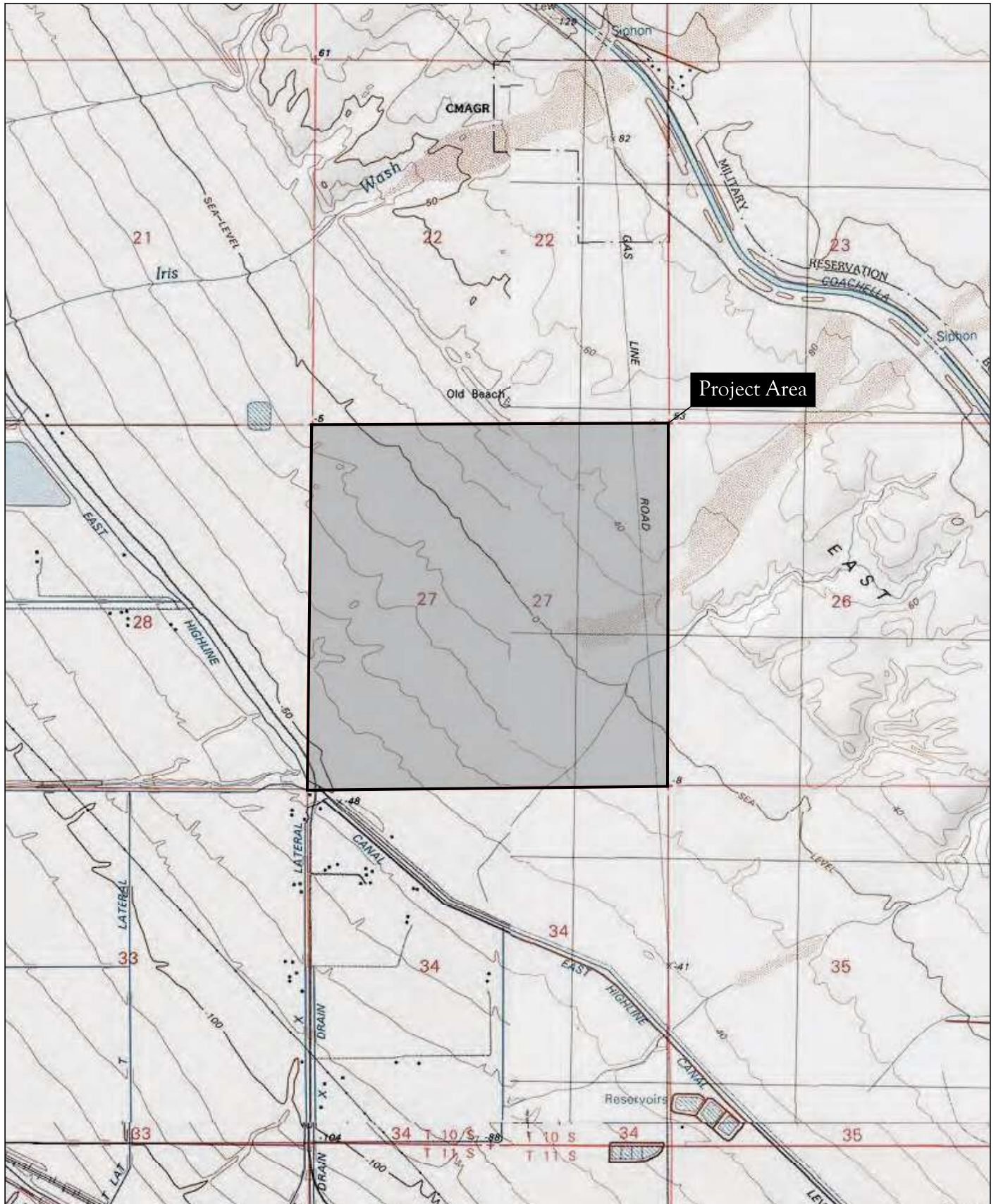


Figure 1
Regional Location Map





USGS 7.5' Quadrangle: Iris Wash and Wister, CA

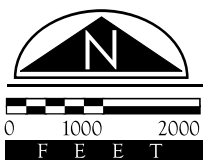


Figure 2. Project Location Map



II. NATURAL AND CULTURAL SETTING

The following environmental and cultural background provides a context for the cultural resource inventory.

A. NATURAL SETTING

The project area is located in the Wister area of Imperial County, approximately 5.5 miles east of the Salton Sea. It is on the eastern side of the San Jacinto Mountains on the margin of the Salton Trough in the Coachella Valley. The landscape of the project area is largely a product of the region's geology.

During the late Cretaceous (>100 million years ago) a granitic and gabbroic batholith was being formed under and east of the project area. This batholith was uplifted and forms the granitic rocks and outcrops of the San Jacinto Mountains. At about the same time as these mountains were being uplifted, the Salton Trough was dropping, reaching points well below sea level. The Salton Trough had been slowly filling with sediments from the adjacent mountains and from the Colorado River, which shifted on its delta occasionally forming freshwater Lake Cahuilla which stretched more than 60 miles long in the lowest portion of the basin. Lake Cahuilla was a resource that had profound effects on the Cahuilla, Kamia and other groups in the surrounding region. This lake probably last existed in the 1650s (Schaefer 1994). It supplied the southern Coachella Valley and the Imperial Valley with not only water but other lacustrine resources such as freshwater mussels, waterfowl, and fish. Native Americans in the region rapidly took advantage of these resources designing "U" shaped fish traps along the shoreline and leaving behind large deposits of mussel shell as well as bird and fish bone (Wilke 1978). Cahuilla oral history tells of both the filling and drying of this lake and its important influence on the region. Even without the support of direct flow from the Colorado River, the Salton Basin, Borrego, and other dry lake basins would sometimes contain seasonal shallow ponds supplying additional water resources (Bean 1972).

The project area is located on what was once the bottom of Lake Cahuilla and includes the margins of the eastern ancient shoreline. Within the project area, the terrain gently slopes down to the southwest, with an elevation of between 10 feet above and 50 feet below mean sea level. The project consists of Holocene age alluvium. Soils are made up of fine grained silts and sand. The soils within the project area belong to the Niland soil series and include Niland gravelly sand, Niland gravelly sand wet, and Niland Imperial complex wet. Niland series soils are moderately well-drained, non-saline to moderately saline, and are located primarily in basins. Niland soils are found in alluvium derived from mixed sources (USDA 1980).

The project area is currently undeveloped open desert surrounded by reclaimed lands turned into agricultural fields. Road construction, off-road activity and the construction of the Coachella Canal have all disturbed the project area to varying degrees. In previously disturbed survey areas, the vegetation probably consisted of alkali sink scrub vegetation. This community is noted

for the presence of fleshy halophytes (*Allenrolfea*, *Salicornia*, *Atriplex*, and *Suaeda*), Salt Grass (*Distichlis*) and Mesquite (*Prosopis*) (Munz 1974).

Animal resources in the region include occasional deer, fox, skunk, bobcats, coyotes, rabbits, and various rodent, reptile, and bird species. Small game, dominated by rabbits and reptiles, is relatively abundant.

B. CULTURAL SETTING

Paleoindian Period

The earliest well documented prehistoric sites in southern California are identified as belonging to the Paleoindian period, which has locally been termed the San Dieguito complex/tradition. The Paleoindian period is thought to have occurred between 9,000 years ago, or earlier, and 8,000 years ago in this region. Although varying from the well-defined fluted point complexes such as Clovis, the San Dieguito complex is still seen as a hunting focused economy with limited use of seed grinding technology. The economy is generally seen to focus on highly ranked resources such as large mammals and relatively high mobility which may be related to following large game. Archaeological evidence associated with this period has been found around inland dry lakes, on old terrace deposits of the California desert, and near the coast. The San Dieguito complex, as seen in the desert region, is generally comprised of lithic scatters and rock features associated with activities of the hunting economy. Such resources are typically located on desert pavement terraces or along ancient shorelines or major drainages (Apple et al 1997).

Early Archaic Period

Native Americans during the Archaic period had a generalized economic focus on hunting and gathering. In many parts of North America, Native Americans chose to replace this economy with others based on horticulture and agriculture. Southern California economies remained largely based on wild resource use until European contact (Willey and Phillips 1958). Changes in hunting technology and other important elements of material culture have created two distinct subdivisions within the Archaic period in southern California.

The Early Archaic period is differentiated from the earlier Paleoindian period by a shift to a more generalized economy and an increased focus on use of grinding and seed processing technology. At sites dated between approximately 5,000 and 1,500 years before present (B.P.), the increased use of groundstone artifacts and atlatl dart points, along with a mixed core-based tool assemblage, identify a range of adaptations to a more diversified set of plant and animal resources. Variations of the Pinto and Elko series projectile points, large bifaces, manos and portable metates, and core tools are characteristic of this period. However, archaeological evidence for the Archaic period is minimal throughout the desert region and major changes in technology within this relatively long chronological unit appear limited. Several scientists have considered changes in projectile point styles and artifact frequencies within the Early Archaic

period to be indicative of population movements or units of cultural change (Moratto 1984), but these units are poorly defined locally due to poor site preservation.

Late Prehistoric Period

Around 2,000 B.P., Takic-speaking people from the Great Basin region began migrating into southern California, marking the beginning of what is called the Late Prehistoric period in the southern California region. The Late Prehistoric period in this portion of Imperial County is recognized archaeologically by smaller projectile points, the replacement of flexed inhumations with cremation, the introduction of ceramics, and an emphasis on inland plant food collection and processing, especially acorns and mesquite (Kroeber 1925). Inland semi-sedentary villages were established along major water courses and around springs, and montane areas were seasonally occupied to exploit mesquite, acorns, and piñon nuts. Mortars for mesquite and acorn processing increased in frequency relative to seed grinding basins.

The most numerous of the archaeological resources in the Imperial Valley date to the Late Prehistoric period. The majority of sites recorded in the region have been small temporary campsites related to processing food resources or manufacturing tools. Larger habitation sites were less common, but displayed a wider range of activities and longer periods of occupation (Jefferson 1977). Typical artifacts at these sites include Desert Side-notched and Cottonwood Triangular projectile points and Lower Colorado buffware and Tizon brownware ceramics. Lithic artifacts are typically made from chert, volcanic, or quartz material.

Ethnography

The Kamia, or Desert Kumeyaay, are believed to have occupied the project area during this period. However, it is close to the territorial boundary of the Desert Cahuilla and it is possible that both groups may have used the area.

Kamia

The Kamia are a subgroup of the Yuman family of the Hokan stock, and are therefore closely related linguistically to the Mohave, Quechan, Maricopa, Paipai, Cocopa and Kiliwa (Kendall 1983:5). Group size and the degree of social interaction varied over the course of an annual cycle. The basic unit of production was the family, which was capable of great self-sufficiency, but Kamia/Kumeyaay families, like other hunter-gatherers, moved in and out of extended family camps or villages opportunistically as problems or opportunities arose. Thus, whereas single families occasionally exploited low-density, dispersed resources on their own, camps or villages of several families formed at other times, particularly when key resources (such as water) were highly localized.

Going beyond the basic social unit of the family, the Kamia were organized by some form of descent system. From the available ethnographic data it is not immediately obvious as to whether they were organized into lineages or clans. Indeed, their features of social organization

appear to have shared some qualities of both systems, and it may be speculated that the society had begun evolving from a lineage system to a clan system prior to the time of Western contact. In any case, the Kamia traced their descent patrilineally (i.e., through one's father), were exogamous at the level of the descent group (i.e., one had to marry outside one's own lineage or clan), and practiced patrilocal residence (i.e., a married woman lived with her husband's father's relatives). Descent groups apparently "owned" land and certain other resources. According to Kroeber, "It would appear that each 'clan' owned a tract and that each locality was inhabited by members of one clan, plus their introduced wives" (1925:720).

Regarding other resources, Spier observed that some "gens" (i.e., clans) owned patches of certain trees and "each gens owned one or more eyries from which eaglets were taken for use in the mourning ceremony" (1923:307). Apparently, however, resource ownership did not extend to the oak groves in the mountains (ibid), which probably reflects the extreme importance placed upon this resource for the adaptation and survival of the entire society. Gifford reported that the Kamia had no clan chiefs and recognized a tribal chief like the Quechan, however this form of leadership may have been introduced after European contact (1931: 50-51).

Important plant foods exploited from the Kamia's diverse habitat included mesquite and screw beans, piñon nuts, and various cacti. Important but less utilized plants included various seeds, wild fruits and berries, tubers, roots, and greens. Women were primarily responsible for the collection and preparation of vegetal foods.

Cahuilla

The Cahuilla are a subgroup of the Takic family of the Uto-Aztecan stock, and are therefore closely related linguistically to the Gabrielino, Luiseño, and Serrano. The extreme diversity of Cahuilla territory nearly reflected the range of environmental habitats allowed in inland southern California. Topographically, their territory ranged from the summit of the San Bernardino Mountains, in excess of 11,000 feet, to the Salton Sink, well below sea level. Ecological habitats included the full range of mountains, valleys, passes, foothills, and desert area. 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 1978). Well-developed trails were used for hunting and travel to other villages. Village houses ranged from brush shelters to large huts 15-20 feet long.

Important plant foods exploited from the Cahuilla's diverse habitat included mesquite and screw beans, piñon nuts, and various cacti. Important but less utilized plants included various seeds, wild fruits and berries, tubers, roots, and greens. Women were instrumental in the collection and preparation of vegetal foods.

Cahuilla culture and society remained stable during the period of missionization on the coast. It was not until the American period that Cahuilla were heavily displaced. The introduction of European diseases, greatly reduced the native population of southern California and further disrupted the way of life of the native inhabitants.

Instrumental in the subsistence of the Kamia and the Cahuilla was the presence in their territory of Lake Cahuilla. Lake Cahuilla was a freshwater lake created when the Colorado River changed course from the delta into the Salton Sink and covered much of the Imperial Valley. Based on the course of the Colorado River, the lake would advance and recede numerous times throughout prehistory. When the lake receded, prehistoric people followed the receding shoreline, leaving remains of their habitation as they went. The lake would have provided the opportunity for nearly year round exploitation of floral and faunal resources and research has shown a heavy representation of shellfish, fish, aquatic birds and plant materials from sites excavated along the edge of the lake (Moratto 1984: 407). According to Cleland et al. (1997):

The most widely accepted chronology for the stands of Lake Cahuilla (Waters 1983) identifies a series of four lake stands occurring over the past 1,500 years. The first is thought to have begun at about A.D. 700 and ended around A.D. 940, with full desiccation. The second interval is not directly dated but based on estimated sedimentation and evaporation rates is inferred to have occurred sometime between A.D. 940 and 1210, again with complete desiccation. The third interval is thought to have begun around A.D. 1210, with a partial recession to about -130 feet below sea level at about A.D. 1430. At this time the lake began to fill again, initiating the fourth interval; this interval is estimated to have terminated around A.D. 1540 based on sedimentation and evaporation rates, as well as the lack of any direct observation of the lake by Spanish explorers traveling through the area after that time. More recently, a fifth interval has been proposed based on archaeological data from a site on a recessional shoreline. This is believed to have been a partial infilling occurring sometime between A.D. 1516 and 1659 (Schaefer 1994).

The overall picture of subsistence around Lake Cahuilla suggest that the Kamia and Cahuilla, along with possibly some of the Colorado River peoples are responsible for the sites located along the lake stand shorelines. Sites excavated on the shoreline tend to be shallow with low artifact quantities and diversity, and are indicative of temporary occupation. It has been suggested that groups came down from the mountains or canyons to the west and seasonally collected and processed fish and other fauna onsite before moving on to other resource locations (Apple et al. 1997).

The extent to which the Kamia practiced agriculture at the time of European contact has not been established. Gifford (1931) felt that agriculture, which had been well established among the Colorado River groups at the time of Western influence, had diffused into the Imperial Valley and was practiced by all of the Kamia lineages. Similarly, Lawton and Bean (1968) have suggested that certain Cahuilla groups cultivated corn, beans, squash and melons, like the neighboring Colorado River tribes.

Kamia culture and society remained stable during the period of missionization on the coast. It was not until the American period that Kamia were heavily displaced. The introduction of European diseases greatly reduced the native population of southern California and further disrupted the way of life of the native inhabitants.

Historic/Contact Period

Cultural activities within Imperial County between the late 1700s and the present provide a record of Native American, Spanish, Mexican, and American control, occupation, and land use. An abbreviated history of the region is presented for the purpose of providing a background on the presence, chronological significance, and historical relationship of cultural resources within the county.

Native American control of the southern California region ended in the political views of western nations with Spanish colonization of the area beginning in 1769. However, Native American control of the majority of California did not end until several decades later. In southern California Euroamerican control was firmly established by the end of the Garra uprising in the early 1850s (Phillips 1975).

The Spanish Period (1752-1821) represents a period of Euroamerican exploration and settlement. The first Europeans to arrive in this region were the Spanish, who traveled along the California Coast by ships establishing settlements and missions to secure their hold on California. Using these same ships, they traveled around the *Golfo de California* and up the Colorado River, establishing additional settlements at inland locations, such as Tubac south of modern Tucson. Communication between the coastal settlements and those in modern Arizona were slow due to the long ocean journey and the Spanish decided to pursue an a shorter and quicker overland route. In 1772, Pedro Fages, *Commandante* of California, pursued several deserters into the arid territory from his headquarters in San Diego. Fages was perhaps the first white person to see the Imperial Valley. At about the same time, Juan Bautista de Anza was *Commandante* of the Spanish settlement of Tubac. In 1774, Anza received permission to explore the Gila and Colorado rivers in search of a trans-desert route. His journey from Tubac to the San Gabriel Mission in California took approximately three months. Portions of Anza's route were used for mail delivery by the Spanish and ran through Imperial Valley to what is now Riverside County and beyond. However, hostilities broke out between the Spanish and Colorado River tribes in 1781 and the route was abandoned (Nixon 2010). The cultural and institutional systems established by the Spanish continued beyond the year 1821, when California came under Mexican rule. During this period the Native American populations of the Colorado Desert remained relatively unaffected due to their isolation from the coast (Bean 1972).

The Mexican Period (1821-1848) includes the retention of many Spanish institutions and laws. During this period the Romero Expedition passed through Cahuilla territory looking for a new route to the Colorado River. They provided some of the earliest records of Cahuilla culture. The mission system was secularized in 1834 which dispossessed many Native Americans and increased Mexican settlement. After secularization, large tracts of land were granted to individuals and families and the rancho system was established. Cattle ranching dominated other agricultural during the early part of this period. The Pueblo of Los Angeles was established during this period and Native American influence and control greatly declined. The Mexican

Period ended when Mexico ceded California to the United States after the Mexican-American War of 1846-48 (Nixon 2010).

The American Period (1848-Present) began following the Mexican-American War, the U.S. assumed control of the area. Not much changed with transfer of governmental power until 1849 when gold was discovered in California. The ensuing gold rush brought an estimated 70,000 people through the desert on their way to the gold fields of northern California. Many of these people traveled along the Southern Emigrant Trail which itself was an appropriation of older Native American trails. Afterwards, gold strikes in the eastern portion of Imperial County during the early 1850s attracted some mining interests. However, few settled in the Imperial Valley.

In the 1870s, interest in the area began to pick up as the U.S. Government sent out surveying parties to investigate the potential agricultural uses of the Colorado River. It was during this time that Southern Pacific Railroad completed its line through the desert to Yuma. During the 1880s and 1890s, Imperial Valley was used as grazing lands for herds that would feed on grasses grown in areas fed by overflow from the Colorado River. However, there were few wells in Imperial Valley and most of the water had to be imported by rail from Coachella Valley. It was not until the shortage of water in the valley was overcome that white settlement in the valley began to rise (Sperry 1975). As early as the 1850s, plans to irrigate the valley using water from the Colorado River had been developed but it wasn't until the turn of the 20th century that work was begun on the Alamo Canal. The Alamo Canal coursed along the U.S-Mexico border, crossing into Mexico then back into the U.S. This required cooperation and permission from both nations' governments. From the completion of the Alamo canal in 1902 to the year 1905, the population of Imperial Valley jumped from a few hundred to 12,000 and arable land increased from 1,500 acres to 67,000 acres (City of El Centro 2010). The new water source helped to establish cities such as El Centro, Imperial, Brawley and Niland.

The Salton Sea was created in 1905 when the Colorado River breached an Imperial Valley diversion channel and began to fill the Salton Sink. Although, catastrophic for some of the residents of the valley, it created a new source of water for residents of the valley. Once the breach was closed in 1907, the population of the valley continued growing. Political instability in Mexico necessitated the construction of another canal built completely on United States soil to ensure a reliable source of water to the farmers of the Imperial Valley. The All-American canal was built to meet this need in years from 1934-1940. The completion of the All-American canal and its four tributaries, the Coachella Canal, East Highline Canal, Central Canal, and Westside Main Canal finally established a stable source of water that would reach throughout the valley. The Coachella Canal, completed in 1949, runs adjacent to portions of the project area. The construction of these canals allowed for the expansion of agriculture and reclamation of the land. Agriculture continues to dominate the region's land use, including neighboring sections.

C. PRIOR RESEARCH

The archaeological inventory includes archival and other background studies, in addition to Tierra's field survey for the project. The archival research consisted of a literature and records search conducted for the project in addition to an examination of historic maps, and historic site inventories. This information was used to identify previously recorded resources and to determine the types of resources that might occur in the survey area. The methods and results of the archival research are described below.

The records search indicated that 10 archaeological studies have been conducted within a one-mile radius of the current project. Five of those studies covered a portion of the project area. Four of these were regional overviews of the general area and only one, Sowell 2005, surveyed a portion of Section 27. This survey covered less than five percent of the project area. See Table 1 for a list of these investigations.

Eighteen previously recorded resources have been identified within a one-mile radius of Section 27. This includes CA-IMP-68, which was originally recorded as site C-20 in 1920 and 1939 by Malcolm Rogers. Since that time seven other resources (CA-IMP-118, CA-IMP-6659, CA-IMP-7866, and CA-IMP-8479 through 8482) were identified nearby and subsumed into the record for CA-IMP-68. The site is located at the edge of West Mesa along the old shoreline of Lake Cahuilla and extending west and below sea level. Rogers identified the resource as a village site, $\frac{3}{4}$ of a mile long along the 10-foot contour line. The site included housepits and freshwater mussel shell deposits. In 1951 Stuart Peck, using Roger's information, further recorded the site. Cremations were located within the site's boundaries along projectile points, knives, scrapers, pottery, shell, bone, metates, manos and painted pebbles. The artifacts were collected and stored at the San Diego Museum of Man. It appears that the site forms were updated in the 1990s using information from a 1951 update to fill in some of the data that was missing when Rogers first recorded the site. The records show the site to be 1400m long east/west and 800m north/south with the sea level contour being its furthest extent west. The site was identified as nearly destroyed at that time and later forms record this as well. CA-IMP-118 is the same as CA-IMP-68 but was erroneously given a new trinomial. It appears that the CA-IMP-68 designation was for Peck's 1951 update and CA-IMP-118 was based on Roger's notes for the same site. Both sets of site forms use the same data with the records from Peck being more complete. For example Roger's did not note the mussel shell midden or cremations that Peck found in 1951. However, the location mapping of the site on the USGS map is different. Neither of the maps are from the original recording of the site but appear to be boundaries based on the field notes and assigned by latter researchers. The remaining sites subsumed under CA-IMP-68 (sites CA-IMP-6659, CA-IMP-7866, and CA-IMP-8479 through 8482) are located in Section 26. With the exception of CA-IMP-6659, the sites were recorded during a BLM survey of land which was transferred to the County of Imperial for the currently operating Niland Landfill in 1999. The sites are comprised of individual sparse lithic and ceramic scatters.

A sensitivity map for cultural resources, prepared by Mr. Jay Von Werlhof in 1990 and presented in the County of Imperial General Plan, indicated that areas along the base of East Mesa to the East Highline Canal are very sensitive for cultural resources. Historic research included an examination of a variety of resources. The current listings of the National Register of Historic Places were checked through the National Register of Historic Places website. The California Inventory of Historic Resources and the California Historical Landmarks were also checked for historic resources.

A letter was sent to Mr. David Singleton at the Native American Heritage Commission to request a search of the sacred lands in regards to the project area on May 11, 2010. Mr. Singleton responded on May 24, 2010 that no previously identified cultural resources were known to be in the vicinity of the project area. He included a list of 11 groups or individuals associated with local Native American Tribes who may have information regarding cultural resources in the area. It is recommended that once specific project locations have been defined that letters to the 11 groups or individuals should be sent out notifying them of the project. The letter to Mr. Singleton and his response are included in Appendix B.

Table 1. Previously Recorded Cultural Investigations Within a One-Mile Radius of the Project Area

Date	Title	Author
1981	Volume I - Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49MW) Environmental Impact Report Draft	Westec
1981	Final Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49MW) Environmental Impact Report Comments and Responses	Westec
1981	Final Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49MW) Environmental Impact Report Volume I	Westec
1983	Archaeological Examinations of the Republic Geothermal, Inc., 49 MW Plant Site Near the Salton Sea	Won Werlhof
1999	Draft Historic and Archaeological Resources Protection (HARP) Plan for the Chocolate Mountain Aerial Gunnery Range, Imperial County, CA	McCorkle-Apple, Cleland
2001	Draft Northern & Eastern Colorado Desert Coordinated Management Plan and Environmental Impact Statement - An Amendment to the California Desert Conservation Area Plan 1980 and Sikes Act Plan with the California Department of Fish and Game	BLM, CA DFG
2002	Evaluation of 24 FARP Archaeological Sites and Assessment of Training Effects, Chocolate Mountains Aerial Gunnery Range, Imperial County, CA	McCorkle-Apple, Deis
2003	Archaeological Survey of the Sniper Range at Camp Billy Machen Chocolate Mountains Aerial Gunnery Range, Imperial County, CA	Underwood
2003	A Class III Cultural Resource Inventory and Evaluation for the Coachella Canal Lining Project: Prehistoric and Historic Sites Along the Northern Shore of Ancient Lake Cahuilla, Imperial and Riverside Counties, CA	Schaeffer et al.
2005*	SCG Class II Project: Pipeline Erosion Repair, Niland, Imperial County	Sowell

* Investigations encompassing portions of the current effort.

Table 2. Previously Recorded Cultural Resources Located Within a One-Mile Radius of the Project Area

Site No.	Description	Recorder	CEQA Eligibility
CA-IMP-00068	Habitation Site: Cremation, Groundstone, Lithic-Pottery Scatters, Shell, Painted Pebbles, Points, Hearths, Slabs	Rogers, Peck	N
CA-IMP-00118	Subsumed under CA-IMP-00068, Shell Midden and House Pits	Rogers	N
CA-IMP-01142	Trail and Lithic Scatter	Ritter	U
CA-IMP-06506	Lithic Scatter	Von Werlhof	U
CA-IMP-06507	Occupation Site	Von Werlhof	U
CA-IMP-06653	Ceramic Scatter	Simmons	N
CA-IMP-06654	Occupation Site	Simmons	N
CA-IMP-06655	Lithic and Ceramic Scatter	Simmons	N
CA-IMP-06656	Lithic Scatter	Simmons	N
CA-IMP-06657	Ceramic Scatter	Simmons	U
CA-IMP-06658	Temporary Campsite	Simmons	N
CA-IMP-06659	Rock Circle with sherd and lithic, Subsumed under CA-IMP-00068	Simmons	U
CA-IMP-06889	Isolate: Lithic	Posner, Broeker	N
CA-IMP-07866	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	U
CA-IMP-08479	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	U
CA-IMP-08480	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	U
CA-IMP-08481	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	U
CA-IMP-08482	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	P
U - Unknown P - Possibly Eligible N - Not Eligible O - On Register			

III. RESEARCH DESIGN AND METHODS

A. SURVEY RESEARCH DESIGN

The initial goal was to identify any cultural resources located within the project area so that effects of the project could be assessed. To accomplish this goal, background information was examined and assessed, and a field survey was conducted to identify cultural remains. The proximity to important water resources and an ethnographic village suggest the potential for prehistoric Native American cultural resources. Both historical and prehistoric resources were the focus of the field survey.

B. SURVEY METHODS

The survey of the project area was conducted by Mr. Patrick McGinnis, Ms. Hillary Murphy, Dr. Jackson Underwood, Ms. Eliza McMichael, Mr. James Amick, Mr. Aaron Cruz, and Mr. Martin Nienstadt during April 6-9, 2010. An intensive survey using parallel transects with 10 to 15 meter intervals was conducted throughout the project area. Visibility in the project area was excellent with few hindrances. Vegetation in the project area was sparse and the ground surface was open with nearly 100 percent visibility. Much of the project area has been disturbed particularly in the eastern half of Section 27, but numerous areas have been previously cut by bulldozers or grubbed and vegetation has only recently begun to re-establish itself. Two GPS units were running during the entire survey and used to maintain transect integrity and record cultural resources locations.

IV. SURVEY RESULTS

A total area of 640-acres was surveyed for this project. Eighteen cultural resources were located during the survey. These resources include five prehistoric archaeological sites, three historic can dumps, two prehistoric trails, and eight prehistoric isolates. The prehistoric sites are ceramic and lithic scatters or temporary camps. The isolates include cores, flakes, and potsherds. Full descriptions of the resources are provided below. Figure 3 illustrates the location of the resources on a USGS topographic map.

Isolates

OS27-1

This resource is an isolated buffware sherd measuring approximately 9.5cm by 7.8cm and 0.4cm thick. The sherd is somewhat reddish in color and was located in a relatively flat and open gravelly wash with creosote scrub habitat.

OS27-2

This resource consists of two isolated pot sherds separated by approximately 25cm that exhibit fire-clouds on their exterior surfaces. The artifacts appear to be from the same vessel. The sherds are reddish in color and located in a relatively flat and open gravelly wash with creosote scrub habitat.

OS27-3

OS27-3 is an isolated chunk of obsidian. The rock does not appear to have been altered but is a manuport brought in from off-site. The obsidian is the Obsidian Butte variety and Obsidian Butte itself is located a little over 10 miles to the southwest.

OS27-5

An isolated potsherd, OS27-5 is small measuring 2.9x2.1x.4cm. It doesn't appear to have been used for cooking as there is no evidence of carbon on its interior. It is located on a gravelly wash just east a dirt access road dividing Sections 27 and 28.

OS27-8

OS27-8 is an isolated flake of reddish basalt. The flake appears to have been struck during the primary reduction phase as it has cortex present on the distal end. It is possibly the result of a cobble test or geofact. The artifact measures 8.4 cm by 7 cm by 3.6 cm thick.

OS27-11

This resource is an isolated jasper core fragment. The fragment measures approximately 2.7 cm by 1.8 cm. The core fragment is located on an alluvial fan with open creosote scrub habitat.

Sites

IMP-68/118

CA-IMP-68/118 no longer appears to exist within Section 27. The collection of the site by Rogers coupled with earthmoving activities related to the construction of the Niland Landfill and Gas Line Road, are likely to have destroyed most, if not all of the site. Roughly, 300 to 500 feet on either side of Gas Line Road has been heavily disturbed and there are numerous large push piles, dump piles of construction materials, cuts, and graded areas adjacent to the road. Based on site record information, the main concentration of the original site was roughly in the area where the Niland Landfill now sits. Additionally, it appears that whoever mapped the site did so based on landform contours, not the actual location of artifacts or midden soils. It appears more likely that the mapped location of the site was based on a recollection of the location rather than mapped in the field. Because of the richness of the site, despite Roger's collecting the site surface in the 1920s, one would still expect to find a number of artifacts, midden soils, and fire-affected rock that would have been exposed in the intervening 70-80 years. Yet, no such evidence of extended long-term occupation was found within recorded sites boundaries located in Section 27. Therefore, it can only be concluded that the portion of the site within Section 27 has either been destroyed or was incorrectly mapped by earlier researchers. Figure 4 shows the disturbed areas within Section 27 along with the boundary of CA-IMP-68 with the section.

During the current effort the survey of the site located three ceramic scatters (OS27-12, OS-14 and OS-17), two isolated potsherds (OS27-9 and OS27-13) and two can dumps (OS-27-10 and OS27-18) within the previously identified boundaries of CA-IMP-68/118. However, none of these resources appear to be associated with one another as a larger site and appear to be independent activity areas. The resources do not appear to be remnants of a previously collected village site and do not possess any midden or other evidence of extended occupation. The sites appear to be short-term campsites at best. The can dumps are not considered part of CA-IMP-68/118, as it was recorded as a prehistoric site. The can dumps are obviously unrelated but within the previously recorded boundaries of CA-IMP-68/118. The remaining resources are discussed with their temporary number designations in the paragraphs immediately below.

OS27-9

This artifact is an isolated buffware body sherd. The sherd has been very eroded by the wind with fire-clouding on the exterior still visible. It was located in a gravelly wash.

OS27-12

This resource is comprised of a ceramic scatter. Twelve brownware sherds, seemingly from the same vessel, are located within four meters on an East/West axis. All of the sherds are body pieces ranging from the smallest (2.3x1.5cm) to the largest (6x4.5cm). None of the sherds are fire-affected and all have a medium to coarse grain temper. This site is located on a gravelly wash among a creosote scrub community.

OS27-13

OS-13 is an isolated buffware body sherd. The sherd is reddish in color and measures 6.7cm by 4cm by 1.1cm thick. The artifact was located in an area of open creosote scrub.

OS27-14

This resource is a large ceramic scatter located on creosote scrub habitat in an open floodplain. The site location is flat. The site contains over 100 sherds that are predominately buffware with a few brownware-like sherds as well. A single rhyolite flake and some burned sandstone were also present within the site's boundaries. Approximately 14 of the sherds were rim sherds and one of these had finger-nail indentations incised on the edge. The site measures approximately 30m by 40 m.

OS27-17

This site is a scatter of seven brownware pot sherds and two buffware sherds along with a few pieces of burned sandstone. The site is located in a very disturbed area west of the Niland landfill and the deposition of the artifacts is secondary as they sit atop a push pile.

Previously Unrecorded Sites**OS27-4**

This resource is a 10 m segment of a prehistoric trail. The trail is approximately 45 cm wide and runs along an east/west axis in a gravelly wash. The rest of the trail appears to have been washed away in the immediate area.

OS27-6

This resource is a light scatter of historic cans and metal fragments extending approximately ten feet in diameter. Specific artifacts include condensed milk cans with side seams (3+), hole in top cans, a metal strap, a leaf spring, and handle. Based on the diagnostic features of the artifacts the site dates to somewhere between the 1930s and the 1950s. The site is located immediately east of the dirt access road that divides Section 28 from 27 at the southern end.

OS27-7

This resource is a 50 m segment of what appears to be a prehistoric trail but maybe more modern in age. The trail is approximately 45 cm wide and runs along an east/west axis along the floodplain in creosote scrub habitat. An ephemeral drainage surrounds the segment and the rest of the trail appears to have been washed away in the immediate area.

OS27-10

This resource consists of a can dump extending 11 feet N/S x 15 feet E/W. The site is located approximately 10 meters northwest of a large drainage and 70 meters west of Gas Line Rd. The historic refuse deposit consists of 30 + vent-hole, sanitary, condensed milk cans. Some had been opened with a church-key, others by a knife. Crimped ends and seams were evident on most of the cans. Additionally, condiment bottles, a ceramic whiteware cup, a sardine can, bottle glass

fragments, and Lakeshore honey bottle fragments with a honeycomb pattern on them were also located on-site.

Fragments of bottles with the Glass Containers Corp. maker's mark were located on site. The company was originally The Long Beach Glass Co. but changed names after being purchased in 1936 to Glass Containers Corp. The company moved from southern California to the San Francisco bay area in 1951. The particular maker's mark found at this site dates from 1945 to 1971. Maywood Glass Co. fragments were also located at this site. Dating from 1930 to 1961, this particular mark denotes fabrication circa 1940 out of Compton, California.

OS27-15

This site is prehistoric camp spread out along finger ridges left behind in the silt floor of Lake Cahuilla as it last receded. These ridges are steep sided, narrow on the top (less than ten meters wide), generally less than 10 meters high and may have multiple branches. OS27-15 runs along three connected branches. The site contains at least 75 buffware sherds and 36 brownware sherds. Of the buffware sherds, 16 are rim fragments. The rim sherds represented a number of vessel types including plate/bowls, wide-mouth ollas, and narrow-mouth ollas. Lithic tools on-site include at least four cores and a utilized flake. Over 125 flakes were located within site boundaries; the largest amount being secondary flakes followed by tertiary, and shatter indicating that materials were being brought to the site after primary reduction had already taken place. The lithic materials include a variety of cherts, metavolcanics, chalcedony, basalt, and quartzite. There are also three cleared circles under 2 meters in diameter in the central and most densely concentrated portion of the site. A fourth cleared circle of the same approximate size is located at the far north end of the site. The cleared circles are, as the name implies, circular areas where the gravels on the surface have been cleared away and form a boundary on the outside of the circle.

OS27-16

This site is located on a finger ridgeline, almost identical to OS27-15, which is located 100 meters to the east. The site is similar to OS-15 in the types and dispersal of artifacts. However, OS27-16 has no cleared circles and less range and density of artifacts than at OS27-15. A total of 75 buffware sherds were identified at the site including three rim sherds. No brownware sherds were identified. Lithics included two cores, an edge modified flake and 23 flakes. The flakes are primarily rhyolite (n=11) and red chert (n=8). Secondary flakes accounted for 15 out of the 23 flakes with primary and tertiary flakes accounting for four each. At the north end of the site a rock ring exists consisting of approximately 25-30 small tabular sandstone rocks set on end and measuring approximately 15cm high. The ring has an inner diameter of approximately 1m and is 2-3 courses of stone thick. The stones are not very embedded into the ground which denotes that the ring may have been made at a later date than the rest of the site.

OS27-18

This resource is a trash dump of historic materials with more modern trash mixed in. The site measures 17 feet by 45 feet. Artifacts on site include aqua bottle glass, clear bottle glass, tin

sardine cans, solder drop cans, condensed milk cans and sanitary cans. At least 50 cans are present. Some, but not all, of the cans have been opened with church-keys. Other refuse includes oil filters, bearings, engine bolts, aerosol cans and rectangular one-quart solvent cans. The site appears to date to sometime after the Second World War and before the late-1960s.

Figure 3. Cultural Resources Within the Project Area Map
(Confidential Figure; Bound Separately)

Figure 4 Disturbed Areas Within Project Area
(Confidential Figure; Bound Separately)

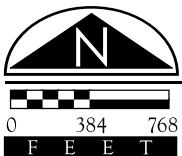


Figure 4. Disturbed Areas Within the Project Area



V. SUMMARY AND RECOMMENDATIONS

A. REGULATORY BACKGROUND

Cultural resource work was conducted in accordance with the California Environmental Quality Act (CEQA) and its respective guidelines and regulations. The County of Imperial serves as the lead agency for CEQA compliance. The importance of cultural resources under State law as defined in CEQA has been refined to coincide with those of the California Register. The criteria used to evaluate cultural resources are specified by recent revisions to CEQA. Specific to cultural resources is Section 15064.5. "Determining the Significance of Impacts to Archeological and Historical Resources."

This section introduces the term "historical resources" defining them as:

- (1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et seq.).
- (2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- (3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:
 - (A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
 - (B) Is associated with the lives of persons important in our past;
 - (C) 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
 - (D) Has yielded, or may be likely to yield, information important in prehistory or history.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

B. SUMMARY

Tierra conducted an archaeological investigation of 640 acres proposed for geothermal and solar energy projects. The survey identified eight isolated artifacts, three historic can dumps, three prehistoric ceramic scatters, two prehistoric trail segments, and two temporary camp sites. A previously recorded site CA-IMP-68/118 was not specifically identifiable within the project area; however, two of the isolates, two of the can dumps, and three of the light ceramic scatters were identified within the previously recorded boundaries of the site.

C. RECOMMENDATIONS

By definition, the eight isolates (OS27-1, OS27-2, OS27-3, OS27-5, OS27-8, OS27-9, OS27-11, and OS27-13) lack qualities and characteristics that would make them eligible for nomination to the California Register and are considered non-significant resources. Additionally, the three can dumps (OS27-6, OS27-10, and OS27-18) lack qualities and characteristics that would make them eligible for nomination to the California Register. The recording of these resources has exhausted any research potential they might have and the three dumps are considered non-significant resources. No further work is recommended for these resources.

One ceramic scatter (OS27-17), located within the boundaries of CA-IMP-68/118 as it was originally recorded, has been displaced from its original setting through earth-moving. Any integrity or potential significance associated with the site was destroyed when the artifacts were moved out of their original and unknown location. Therefore, OS27-17 is not recommended as eligible for the California Register. The ceramic sherds should be collected and no further work is necessary for OS27-17.

Impacts to the two trail segments (OS-27-4 and OS27-7) should be avoided. Should construction be planned within 100m of the sites, measures should be undertaken so that impacts to the trails will not occur. This can be accomplished by establishing a 20m buffer around the sites and flagging the buffer once project construction begins.

Sites, OS27-12, OS27-14, OS27-15, and OS-16 have not been evaluated for their potential eligibility for the California Register. Based on the surface expression of artifacts and associated features the four sites may possess the characteristics and qualities necessary for inclusion on the California Register. As such, impacts to these resources should be avoided and this can be done in the manner outlined for the trail segments above. Should construction be planned within 100m

of the sites, measures should be undertaken so that impacts to the resources will not occur. This can be accomplished by establishing a 20m buffer around the sites and temporarily fencing the buffer once project construction begins. Construction crews should be made aware that the fenced area is sensitive and must be avoided.

If impacts to sites OS27-12, OS27-14, OS27-15, and OS-16 cannot be avoided the sites will need to be tested and evaluated for their eligibility for the California Register. If the testing and evaluation of the sites determines that are eligible for the California Register, a data recovery program will need to be implemented to mitigate for potential impacts.

CA-IMP-68/118 was not relocated within the previously mapped boundaries within Section 27. As the site was not relocated, impacts to the site are currently impossible to determine and a tests and evaluation of the site as it was originally mapped are unfeasible based on the results of the current survey. Mitigation for any possible impacts to the site can be undertaken by the identification and cataloguing of the artifacts collected by Malcolm Rogers in the 1920s. Cataloguing the artifacts would provide a measure of information that may help our understanding of what might have been present in the project area and increase our knowledge of the prehistory of Lake Cahuilla.

Additionally, archaeological and Native American monitors should be present for initial earth disturbing activities within the recorded boundaries of CA-IMP-68 and at sites OS27-12, OS27-14, OS27-15, and OS-16. Should previously unrecorded resources be identified during ground disturbing activities, the monitor(s) should have the authority to halt and redirect such activities until the significance of the find can be determined by the Principal Investigator in consultation with County staff. See Table 3 for resources located within the project area and recommended mitigation measures.

Table 3. Cultural Resources Located Within Section 27 and Recommended Mitigation

Site	Description	Recommended as California Register Eligible	Recommended Mitigation
CA-IMP-68/118	Large habitation/village site	No	Catalog previously collected artifacts, Monitor
OS27-1	Isolate buff pot sherd	No	None
OS27-2	Isolate buff pot sherds	No	None
OS27-3	Obsidian chunk manuport	No	None
OS27-4	Trail segment, 10 meters long	Possibly	Avoidance
OS27-5	Isolate buff pot sherd	No	None
OS27-6	Historic can dump	No	None
OS27-7	Trail segment, 25 meters long	Possibly	Avoidance
OS27-8	Isolate secondary flake	No	None
OS27-9	Isolate buff pot sherd	No	None
OS27-10	Historic can dump	No	None
OS27-11	Isolate jasper core fragment	No	None
OS27-12	Ceramic scatter	Possibly	Avoidance or Test and Evaluate, Monitor
OS27-13	Isolate buff pot sherd	No	None
OS27-14	Large ceramic scatter	Possibly	Avoidance or Test and Evaluate, Monitor
OS27-15	Ceramic and lithic scatter with cleared circles	Possibly	Avoidance or Test and Evaluate, Monitor
OS27-16	Ceramic and lithic scatter with a rock circle	Possibly	Avoidance or Test and Evaluate, Monitor
OS27-17	Ceramic scatter	No	None
OS27-18	Historic can dump	No	None

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APPENDICES

- A. Resumes of Principal Personnel
- B. Native American Contact

CONFIDENTIAL APPENDICES (Bound Separately: Not for Public Review)

- C. Records Search Results
- D. Figure 3
- E. Department of Parks and Recreation Site Forms

APPENDIX A

Resumes of Principal Personnel

PATRICK M. MCGINNIS, M.A., RPA

Senior Archaeologist

Tierra Environmental Services

Education

M.A. Archaeology and Heritage Management , University of Leicester, England,

B.A., Anthropology with a concentration in Archaeology, with honors, University of California, San Diego,

Certificate in Archaeology, San Diego City College

Professional Affiliations

Register of Professional Archaeologists

Society for California Archaeology

San Diego County Archaeological Society (Past Secretary)

San Diego Historical Society

Wheelwright Museum of the American Indian

Archaeological Conservancy

National Trust for Historic Preservation

Qualifications

Mr. McGinnis has more than ten years experience in prehistoric and historic archaeology in southern California and the Southwest. He serves as supervisor and crew for fieldwork including survey, testing, data recovery, monitoring, site recording, in addition to supervising lab analysis, and collections management. He has training in GPS/GIS mapping and spatial analysis and has surveyed and monitored for endangered biological resources including Quino checkerspot butterfly, least Bell's vireo, and California gnatcatcher. He has received training in compliance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA) of 1966. His duties also include report writing and historical research projects.

Professional Experience

2002-present	Senior Archaeologist, Tierra Environmental Services, Inc.
2002	Archaeologist/Environmental Scientist, Anteon Corporation, California
1997 - 2002	Archaeologist, Mooney & Associates, San Diego, California.
1997	Archaeological field and lab crew, Center for Spanish Colonial Archaeology, San Diego, California.
1996 - 1997	Archaeology Field School, Rancho Peñasquitos site, with San Diego City College.

Relevant Projects

City of San Diego Sewer Group 744

Mr. McGinnis served as Project Archaeologist for the replacement or rehabilitation of over 14,000 feet of sewer line in the Barrio Logan community of San Diego. Mr. McGinnis' duties included directing the cultural resources survey, authorship of a historic preservation plan for historic-age sidewalk stamps, and overseeing the daily monitoring of the six-month long project. The monitoring program resulted in the identification of ten cultural resources including prehistoric and historic resources. Mr. McGinnis was responsible for participating in several community and public agency meetings. Duties also included identification, analysis and curation of all artifacts recovered during construction and authorship of the final technical report.

City of San Diego Coastal Low Flow Drainage Project

Mr. McGinnis served Senior Archaeologist and report author for a survey and monitoring report of proposed drain improvements. The project included a portion of a major prehistoric village site and construction monitoring was implemented to address potentially intact portions of this site under an existing street.

I-215/ Van Buren Avenue Interchange Replacement Project

Mr. McGinnis served as Principal Investigator for a cultural resources survey of over 70-acres associated with replacement of the Van Buren Avenue interchange and portions of Interstate 215 in Riverside County. Mr. McGinnis' duties included consultation with interested Native American groups, field direction of the cultural resources survey, and completion of the NEPA and CEQA documents.

Friendship March Restoration Project

Mr. McGinnis served as project archaeologist for a survey and test of 500-acres of land in the Tijuana Estuary for the restoration of the marsh habitat of the area. The survey required permitting and interaction with both State and Federal agencies. Project duties also included directing the excavation of 49 backhoe trenches to locate potentially buried archaeological deposits as index for the project area in general. The survey resulted in the location of ten prehistoric and historic archaeological sites. Sites included prehistoric shell middens and lithic scatters in addition to historic sites; including features related to the use of the area as a naval base during WWII, and historic structures and features related to the period of rural when the area was dominated by ranching and farming. Mr. McGinnis was responsible for the laboratory analysis of the artifacts recovered from the project and directed the cleaning and curation of the assemblages from the identified sites. Mr. McGinnis and served as report co-author of the NEPA and CEQA compliant documents.

Willow Street Bridge Rehabilitation Project

Mr. McGinnis served as Principal Investigator for the rehabilitation of Willow Street Bridge over the Sweetwater River in Bonita, California. In addition to directing the survey and authoring the reports Mr. McGinnis also conducted Native American consultation with local Native American tribes in association with any concerns they may have had regarding implementation of the project.

El Camino Real Bridge Replacement

Mr. McGinnis served as Project Archaeologist for this project directing multiple surveys of over 100-acres of land associated with the replacement of the El Camino Real Bridge over the San Dieguito River. The project included evaluation of prehistoric archaeological sites, historic research and evaluation of a number of historic buildings.

Morongo Reservation Wastewater Treatment Facility and Section 8 Master Plan

As Project Archaeologist, Mr. McGinnis directed a survey of approximately 700-acres on the Morongo Indian Reservation in association with a master plan and proposed wastewater treatment facility for the Morongo Band of Mission Indians. Duties included directing the field survey, site recording and authorship of the report.

Pine Valley Estates

Mr. McGinnis directed a survey of 38-acres for a proposed subdivision in the Pine Valley area of San Diego County. The survey resulted in recording seven prehistoric cultural resources. The sites were mostly large bedrock milling sites with multiple loci. Mr. McGinnis also served as report author for a County and CEQA compliant technical report.

Manzanita Reservation Hazardous Fuels Reduction Project

Mr. McGinnis served as project archaeologist for a survey of 1,000-acres of fee-land for the Manzanita Band of Mission Indians. The survey covered an area proposed for hazardous fuels reduction via prescribed burning and firebreak construction. The project resulted in the discovery of over 40 previously unrecorded archaeological sites and isolated artifacts. These were dominated by lithic scatters, rock cairns, habitation sites, and included rock rooms. Duties also included site recording and report authorship.

Los Coyotes Reservation-Pines Fire Archaeological Survey and Data Recovery Project

Mr. McGinnis served as Project Archaeologist and directed the survey of over 100 miles of bulldozer cuts. In addition to directing the data recovery effort at two National Register eligible sites, CA-SDI-12,006 and CA-SDI-16,834. Duties also included site recording of eight unrecorded cultural resources, historical and archival research and report authorship.

Rincon Reservation Road Improvements

Mr. McGinnis directed test and evaluation of a historic/prehistoric site in association with proposed road improvements on the Rincon Indian Reservation in northern San Diego County. Duties included survey, mapping, excavation, laboratory analysis of recovered artifacts and report authorship.

Jacumba Water System Rehabilitation Project

Mr. McGinnis directed a survey of over 8,500 linear feet for the project. The survey resulted in the recording of four historic and prehistoric archaeological sites including a turn-of-the-century stone house, 1920s hotel, and prehistoric habitation sites. Information from the survey was used to direct the planning effort in order to avoid sensitive cultural resources. Mr. McGinnis also authored the report and supervised monitoring during implementation of the four month project.

Port of San Diego, Harbor Police Facility

Performed archival research and documentation for the historic Port of San Diego, Harbor Police Facility, designed by famed architect William Templeton Johnson including biographical research, title search, architectural assessment and co-authoring the report.

Hartman Residence

Mr. McGinnis conducted a historical assessment of the Hartman Residence in Encinitas, California. The residence is an early-20th century log-house and associated garage. Duties included completion of Department of Parks and Recreation forms for the resource and authorship of the report.

Bureau of Land Management Lawsuit Compliance

Manager for multiple projects for the BLM under this task. Duties included hiring, contract writing, proposal writing and cost estimating. Responsible for multiple employees, data collection, inter-agency communication and coordination, database management and development, and providing the client with weekly and monthly status reports for the project. Subtasks under the contract included monitoring of public land closures for the Ridgecrest and Needles BLM offices, a socio-economic study for a desert conservation area management plan, Saltcedar removal in highly impacted areas, Off-highway vehicle grant writing, construction and soil restoration monitoring and management plans and plant-water studies in the Death Valley Junction area.

Ramona Unified School District

Performed multiple archaeological surveys of school sites for the Ramona Unified School District. Tasks included historic and archival research of the site locations in addition to leading the surveys and co-authoring the reports of the field investigations.

San Diego Unified School District

Conducted field surveys and historic and archival research in association with planned expansion of Lincoln High School in South San Diego. Duties included inventorying and assessment of over 200 homes located within the proposed expansion areas and completion of State Historic Preservation Office forms for the historic resources located within the project area, in addition to contributing to the report.

Sycuan Hazardous Fuels Reduction

Mr. McGinnis served as project archaeologist for a survey of 14-acres of fee-land for the Sycuan Band of Mission Indians. The survey covered an area proposed for hazardous fuels reduction via and firebreak construction. The project resulted in the discovery of a previously unrecorded archaeological sites. Duties included site recording and report authorship.

Barona Indian Reservation. Carried out archival research documenting the history of the Barona Band of Kumeyaay Indians. Covering the period just prior to the eviction from their traditional home at El Capitan to the establishment of the Barona and Viejas reservations. Performed laboratory analysis and cataloguing of extensive collection of prehistoric and historic artifacts purchased for the Barona Museum and Cultural Center.

Ramona Municipal Water District, Mount Woodson Pipeline. Directed Phase I and Phase II testing and evaluation of site in Ramona, CA. Assisted in the laboratory analysis of artifacts. Performed site record and literature research for project's prehistoric and historic components, in addition to historic research of the property. Conducted historic research, including oral interviews, literature searches, and tax and title searches to determine past land use. Completed necessary California Department of Parks and Recreation forms for submittal to the State Historic Preservation Office. Co-authored report.

Gregory Mountain Traditional Cultural Place

Completed National Register Nomination forms for Gregory Mountain as a traditional cultural place for the Luiseño Native American community, including archival research and co-authoring the report.

San Diego County Water Authority

Conducted site record and literature searches for multiple projects throughout the county. Directed multiple Phase I surveys and contributed or co-authored multiple reports.

City of San Diego, San Pasqual Valley Leaseholds. Participated in cultural resource surveys of City-owned parcels in the San Pasqual Valley and subsequently participated in the Phase II archaeological testing of prehistoric sites located within the project area. Performed site record, literature, and historic research including tax assessor records, title searches, oral history and biography, for multiple historic cultural resources within the leaseholds in the valley. Completed necessary California Department of Parks and Recreation forms for submittal to the State Historic Preservation Office. Contributed to authorship of the report.

San Diego Wild Animal Park. Participated in the survey, Phase II testing, Phase III data recovery, and lab analysis for multiple sites within the Wild Animal Park leasehold. Contributed to site analyses and final report.

City of San Diego Water and Wastewater Facilities Department. Provided monitoring services for cultural resources during construction trenching operations in several locations for multiple sewer and water pipeline group jobs.

City of Azusa. Performed historic research and inventory of 120 historic properties for evaluation by the City of Azusa. Tasks included, photography, architectural style identification, and archival literature searches.

San Diego Presidio Archaeology Project. Participated in field excavation and laboratory analysis of Spanish and Mexican period historic artifacts at the San Diego Presidio site, Old Town. Assisted with public education and outreach projects at the excavation.

Santa Barbara Mission. Performed as crew during survey, field excavation, site recording and laboratory analysis of lithic artifacts from the neophyte village at Santa Barbara Mission, Santa Barbara, CA. Participated in recording the historic crypt located beneath the mission. Conducted research using Spanish period records from Mission Santa Barbara archives.

Tubac Presidio Site Field. Performed as crew for excavation and laboratory analysis of prehistoric Hohokam and Spanish Colonial artifacts at the Tubac Presidio site, Tubac, Arizona.

HILLARY MURPHY
Associate Archaeologist
Tierra Environmental Services

Education

Currently working towards Certificate in Archaeology, San Diego City College
B.A., Interior Design with an Art History Minor, California State University, Sacramento
Researching Archaeology graduate programs to earn a Masters degree with the intent of continuing on towards a doctorate program.

Qualifications

Ms. Murphy has a variety of experience in cultural resources management in southern California and Central America. Ms. Murphy has been involved in surveys for a number of infrastructure and development related projects. She has served as crew for fieldwork including survey, testing, data recovery, monitoring, site recording, site and artifact illustration, and lab analysis.

Professional Experience

July 2007- Current	Associate Archaeologist, Tierra Environmental Services, Inc.
June 2007-July 2007	Archaeological field and lab crew, Programme for Belize, Belize
January 2007-June 2007	Archaeology Field School, Rancho Peñasquitos site, CA-SDI-8125 San Diego City College.

Relevant Projects

Campo Homes

Ms. Murphy served as survey crew for six one-acre parcels of land for the prospective new homes of residents in the Campo Indian Reservation. The survey resulted in two sites containing bedrock milling features and lithic scatters. The larger of the two sites containing a massive abundance of both lithic and ceramic scatter, including chalcedony and obsidian. Ms. Murphy authored the site forms and assisted in the preparation of the report.

Santa Ysabel Homes

Served as survey crew for seven parcels of land proposed for the development of single family houses on the Santa Ysabel Indian Reservation. Each parcel surveyed consisted of a one-acre allotment for the housing. One of which resulted in the location of a historic house once used at the Camp Kearny Training Base during World War I, circa 1917-1920. Ms. Murphy assisted in the completion of the report and site forms.

Augustine Land Transfer

Ms. Murphy served as survey crew for the 120-acre land transfer of three parcels on the Augustine Indian Reservation in Coachella, California, which resulted in the location of seven cultural resources including lithic scatters and a potential burial. Historic artifact scatters and deposits was located, as well. Ms. Murphy co-authored the report and site forms.

Truckhaven Geothermal

Ms. Murphy served as survey crew for a survey of 160-acres in the Ocotillo Wells State Vehicle Recreation. The survey resulted in the identification of 64 cultural resources including prehistoric fish traps, World War II era munitions, lithic scatters, historic camp sites, and sherd scatters. Ms. Murphy completed the site forms and assisted in the preparation of the report.

Pine Valley Estates

Ms. Murphy participated in a survey of 38-acres for a proposed subdivision in the Pine Valley area of San Diego County. The survey resulted in recording seven prehistoric cultural resources. The sites were mostly large bedrock milling sites with multiple loci. Ms. Murphy also served as report author for a County and CEQA compliant technical report.

Bergman Subdivision

Ms. Murphy participated in a survey of 10-acres for a proposed subdivision in the Hemet area of Riverside County. The survey resulted in recording two historic cultural resources. The resources included a turn-of-the-century homestead and associated trash deposits. Ms. Murphy also served as report co-author for a County and CEQA compliant technical report.

Jacumba Water System Rehabilitation Project

Ms. Murphy assisted in the survey and monitoring of over 8,500 linear feet for the project. The survey resulted in the recording of seventeen historic and prehistoric archaeological sites including a turn-of-the-century stone house, 1920s hotel, and prehistoric habitation sites. Information from the survey was used to direct the planning effort in order to avoid sensitive cultural resources. Ms. Murphy participated in the laboratory analysis of the artifact collection recovered during monitoring for the project. She was responsible for identification and cataloguing of the artifact assemblage.

Niland Waste Water

Ms. Murphy assisted as crew for surveying two linear miles in preparation of new waste water lines and treatment facility to be implemented. She then assisted in the preparation and completion of the report.

Santiago Sedimentation Basin Project

Served as crew for the survey of 21 acres for a housing development upon which two isolated flakes were observed. Ms. Murphy completed the site forms and assisted in the preparation of the report.

Bishop Water System Upgrade

Ms. Murphy authored site forms and participated in the completion of the report for the survey of a new well and water line project that resulted in the location of seven cultural resources.

Ocotillo RV Project

Ms. Murphy assisted in the survey and monitoring of 5-acres proposed for development as an RV storage center. The survey resulted in the recording of two in-situ lithic scatters. Information from the survey was used to direct the planning effort in order to avoid sensitive cultural resources. Ms. Murphy participated in the laboratory analysis of the artifact collection recovered during monitoring for the project. She was responsible for identification and cataloguing of the artifact assemblage.

Programme for Belize, Blue Creek, Belize

Participated in field excavation and laboratory analysis of the University of Texas, Austen's excavation of the third largest Mayan site in Belize, La Milpa, under the supervision of Dr. Fred Valdez Jr. Attempts have been made to understand the chronology of the sites in the northwest region over a period of 15 years.

Rancho Peñasquitos, CA-SDI-8125

Participated in the field excavation under the supervision of Dr. Steve Bouscaren to unveil an eighteenth century Spanish zanja in hopes of better understanding the early water works, both agricultural and natural elements, at this historic and prehistoric site.

APPENDIX B

Native American Consultation



TIERRA

ENVIRONMENTAL SERVICES

May 11, 2010

Mr. Dave Singleton
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814
(916) 653-4082

Dear Mr. Singleton,

Tierra Environmental Services (Tierra) has been obtained to conduct an intensive archaeological survey of land proposed for geothermal and or solar energy projects. The project area is located northeast of the city of Calipatria in Imperial County, California (Figure 1). The project area is located on the Iris Wash California USGS 7.5' Quadrangles and comprises the entire one-mile square Section 27, in Township 10 South and Range 14 East of the San Bernadino Base Meridian.

In addition to informing you about this project, a major purpose of this letter is to request a search of the sacred lands files in possession of the NAHC. Any information you may have about cultural resources on the property would greatly benefit our study.

If I can provide any additional information, please contact me immediately at (858) 578-9064. Thank you for your assistance.

Sincerely,

Patrick McGinnis, RPA
Senior Archaeologist

Enclosures

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net



May 24, 2010

Mr. Patrick McGinnis, Senior Archaeologist
TIERRA ENVIRONMENTAL SERVICES
9915 Businesspark Avenue, Suite C
San Diego, CA 92131-1120

Sent by FAX to 858-578-3646
No. of Pages: 4

Re: Request for a Sacred Lands File Search and Native American Contacts List for the proposed "Geothermal and Solar Energy Projects" located near the community of Iris; Imperial County, California

Dear Mr. McGinnis:

The Native American Heritage Commission (NAHC), the State of California 'Trustee Agency' for the protection and preservation of Native American cultural resources (c.f. CA Public Resources Code §21070; also c.f. *Environmental Protection Information Center v. Johnson* [198]) 170 Cal App. 3rd 604), was able to perform a record search of its Sacred Lands File (SLF) for the affected project area (APE) requested. The California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the 2007 CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance." The NAHC SLF search did not indicate the presence of Native American cultural resources within one-half mile of the proposed project site (APE). However, there are Native American cultural resources in close proximity to the APE.

Also, this letter includes state and federal statutes relating to Native American historic properties of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Culturally-affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We recommend that you contact persons on the attached list of Native American contacts. Furthermore we suggest that you contact the California Historic Resources Information System (CHRIS) at the Office of Historic Preservation Coordinator's office (at (916) 653-7278, for referral to the nearest Information Center of which there are 10.

Consultation with tribes and Interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f] *et seq.*), 36 CFR Part 800.3 (f) (2), the President's Council on Environmental Quality (CSQ: 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. . The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes*.

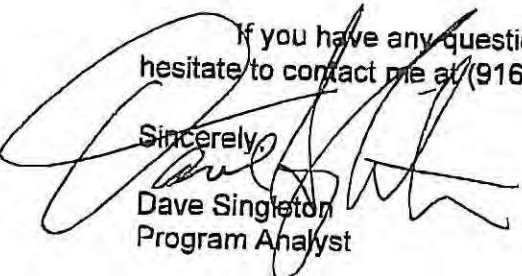
Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery.

Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties.' However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does mandate tribal consultation for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC. Consultation on specific projects must be the result of an on-going relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects.

The response to this search for Native American cultural resources is conducted in the NAHC Sacred Lands Inventory, established by the California Legislature (CA Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10) although Native Americans on the attached contact list may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance" may also be protected under Section 304 of the NHPA or at the Secretary of the Interior's discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C. 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,


Dave Singleton
Program Analyst

Attachment: Native American Contacts

Native American Contacts
May 24, 2010
Imperial County

Ewiiapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road
Alpine, CA 91901
wmicklin@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax

Diegueno/Kumeyaay

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

Manzanita Band of Kumeyaay Nation
Leroy J. Elliott, Chairperson
PO Box 1302
Boulevard, CA 91905
(619) 766-4930
(619) 766-4957 Fax
Kumeyaay

Fort Yuma Quechan Indian Nation
Mike Jackson, Sr., President
PO Box 1899
Yuma, AZ 85366
qitpres@quechantribe.com
(760) 572-0213
(760) 572-2102 FAX
Quechan

Campo Kumeyaay Nation
Monique LaChappa, Chairperson
36190 Church Road, Suite 1
Campo, CA 91906
MLaChappa@campo-nsn.
(619) 478-9046
(619) 478-5818 Fax
Kumeyaay

Torres-Martinez Desert Cahuilla Indians
Diana L. Chihuahua, Cultural Resources
P.O. Box 1160
Thermal, CA 92274
dianac@torresmartinez.org
760) 397-0300, Ext. 1209
(760) 272-9039 - cell (Lisa)
(760) 397-8146 Fax
Cahuilla

Kumeyaay Cultural Heritage Preservation
Paul Cuero
36190 Church Road, Suite 5
Campo, CA 91906
chairman@campo-nsn.gov
(619) 478-9046
(619) 478-9505
(619) 478-5818 Fax
Diegueno/ Kumeyaay

Ewiiapaayp Tribal Office
Will Micklin, Executive Director
4054 Willows Road
Alpine, CA 91901
wmicklin@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax
Diegueno/Kumeyaay

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 Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Geothermal and Solar Energy projects; located near the community of Iris in Imperial County, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contacts
May 24, 2010
Imperial County

Cocopah Museum
Jill McCormick, Tribal Archaeologist
County 15th & Ave. G Cocopah
Sommerton , AZ 85350
culturalres@cocopah.com
(928) 530-2291 - cell
(928) 627-2280 - fax

Quechan Indian Nation
Bridget Nash-Chrabascz, THPO
P.O. Box 1899 Quechan
Yuma , AZ 85366
b.nash@quechantribe.com
(928) 920-6068 - CELL
(760) 572-2423

Ah-Mut-Plpa Foundation
Preston J. Arrow-weed
P.O. Box 160 Quechan
Bard , CA 92222 Kumeyaay
(928) 388-9456

ahmut@earthlink.net

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 Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Geothermal and Solar Energy projects; located near the community of Iris in Imperial County, California for which a Sacred Lands File search and Native American Contacts list were requested.

CONFIDENTIAL APPENDIX
(Not for Public Review)

**A CULTURAL RESOURCES SURVEY
OF 640-ACRES PROPOSED FOR
ALTERNATIVE ENERGY EXPLORATION,
NILAND, IMPERIAL COUNTY, CALIFORNIA**

Prepared for:

The County of Imperial
940 Main Street
El Centro, CA 92243

Ormat Nevada Inc.
6225 Neil Road
Reno, NV 89511
(775) 336-0169

Submitted by:

Tierra Environmental Services
9915 Businesspark Ave., Suite C
San Diego, California 92131-1120
(858) 578-9064

Patrick McGinnis, RPA
Hillary Murphy

May 2010

National Archaeological Data Base Information

Type of Study: Cultural Resource Survey

Sites: OS27-1 through OS27-18, CA-IMP-68

USGS Quadrangles: Wister and Iris Wash 7.5'

Area: 640-Acres

Key Words: Positive Survey, Geothermal, Wister, Imperial County, Salton Buffware, Andesite, Rhyolite, Core, Flakes, Sherds, Lithic scatter, Temporary camp, Ceramic scatter