A PHASE I AND II CULTURAL RESOURCES ASSESSMENT FOR THE DECKER PARCELS II PROJECT

PLANNING CASE NO. 36962
RIVERSIDE COUNTY, CALIFORNIA

APNs 314-020-010, 314-020-017, and 314-020-019-4

Project Site Location: Section 2, Township 4 South, Range 4 West of the *Steele Peak* USGS Quadrangle Topographic Map

Prepared on Behalf of:

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June 24, 2015; Revised April 29, 2016

Fieldwork Performed: December 29, 2014 and January 14 through February 27, 2015
Key Words: Approximately 35.47 acres; positive; three prehistoric milling sites (RIV-1330/H, RIV-8901, and RIV-11,874); no significant resources identified.

Archaeological Report Summary Information

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Lead Agency Identifier: Planning Case No. 36962

USGS Quadrangle: Section 2, Township 4 South, Range 4 West of the *Steele Peak* USGS topographic quadrangle map

Study Area: Approximately 35.47 acres

Key Words: Archaeological survey and testing program; positive; three prehistoric milling sites (RIV-1330/H, RIV-8901, and RIV-11,874); County of Riverside; project area is approximately 35.47 acres; *Steele Peak* USGS Quadrangle; significance testing; no significant resources identified; milling features recorded; residue analysis conducted at RIV-1330/H.

Table of Contents

Table of Contents (continued)

Appendices

**Deleted for public review and bound separately in the Confidential Appendix*

List of Figures

List of Figures (continued)

Figure **Page**

**Deleted for public review and bound separately in the Confidential Appendix*

List of Plates

Plate **Page**

List of Plates (continued)

List of Tables

List of Tables (continued)

1.0 MANAGEMENT SUMMARY/ABSTRACT

The following report describes the results of the cultural resources survey and significance testing program conducted by Brian F. Smith and Associates, Inc. (BFSA) for the Decker Parcels II Project. The survey and testing program included approximately 35.47 acres located in an area referred to as Mead Valley, generally southwest of March Air Force Base, within an unincorporated area of western Riverside County, California. The project is a planned industrial building site proposed by Trammell Crow Southern California Development, Inc. located southwest of the intersection of Decker Road and Oleander Avenue. Specifically, this project may be found in Section 2 of the USGS 7.5-minute *Steele Peak, California* topographic map, Township 4 South, Range 4 West. The project area includes Assessor's Parcel Numbers (APNs) 314-020-010, 314-020-017, and 314-020-019-4. This study by BFSA was conducted in compliance with the California Environmental Quality Act (CEQA) and the environmental guidelines of the County of Riverside to locate and record any cultural resources present within the project.

The property is currently vacant and has been used in the past for agriculture and grazing. Past use of the property has resulted in a very barren appearance, with very few plants growing and trees that are limited to the drainage area on the west side of the property. Very little of the property has not been affected by modern or historic uses, but disturbance is generally superficial and associated with repeated disking. BFSA conducted the assessment to locate and record any cultural resources present within the project area in compliance with CEQA and following County of Riverside Cultural Resource Guidelines (Draft). During the survey, two previously recorded prehistoric bedrock milling sites (RIV-1330/H and RIV-8901) were identified and one previously unrecorded prehistoric bedrock milling station (RIV-11,874) was discovered. A significance testing program completed at all three cultural resources has resulted in the determination that the milling sites do not have any associated subsurface deposits and only RIV-1330/H has a very sparse surface artifact scatter. With the recordation of all milling features, collection of surface artifacts, and subsurface tests, the research potential of all three sites has been exhausted and the sites are evaluated as not unique cultural resources as defined by CEQA, and are therefore, not CEQA-significant.

1.1 Purpose of Investigation

The purpose of this investigation was to complete a records search of previously recorded archaeological sites on or near the property, survey the project acreage, identify any archaeological resources within the project, and test and evaluate any cultural resources that may be impacted by the proposed development. This study was completed for the property owner prior to the submittal of a project application to the County of Riverside; however, all efforts completed follow the County's archaeological protocols and report requirements. The project development map (see Figure 2.0–3) shows the configuration of the industrial building proposed

on this parcel.

1.2 Major Findings

The records searches for the project identified two previously recorded cultural resources (RIV-1330/H and RIV-8901) on the project. Both of these sites are located on the western edge of the property where the topography changes from the flat lands on the eastern three-quarters to hills and drainages where bedrock exposures are present. Both of the sites are recorded as continuing off the project to adjacent properties. As a result of the Phase I survey, these sites were relocated. In addition, one prehistoric milling station site was discovered on the eastern edge of the property. Department of Parks and Recreation (DPR) primary site record forms have been prepared for the discovered prehistoric milling station (RIV-11,874) and site update forms have been prepared for sites RIV-1330/H and RIV-8901. The new and updated site record forms were submitted to the Eastern Information Center (EIC) at the University of California at Riverside (UCR) (Appendix B). A site significance testing program was undertaken to evaluate RIV-1330/H, RIV-8901, and RIV-11,874 under CEQA criteria for significance.

Site RIV-1330/H was recorded in 1978 by J. Swenson as a milling site with a possible rock art panel that was defaced by spray paint and a man-made cave. In 1992, Christopher Drover was hired by the Riverside County Transportation Department to study RIV-1330/H as part of the County of Riverside's construction of a new 8.4-MG water tank project on a hilltop that included part of the site. According to Drover's archaeological study, the site was described as a multicomponent site of prehistoric milling features and a historic cistern and "tunnel." Drover reported 18 boulders with milling surfaces and conducted subsurface testing (17 test units) within the new water tank property at the southwest corner of the Decker Parcels II property. Drover indicated that a centralized midden deposit was present in the area of the proposed water tank, but noted a lack of surface artifacts that he attributed to pothunters. The tunnel reported by both Swenson and Drover is a known as the Val Verde Tunnel and was constructed as part of the Colorado River aqueduct project, but is abandoned at this time (Riverside Press-Enterprise: June 25, 1992). The portion of this site associated with Drover's study has been destroyed by the construction of the modern water tank on a hill immediately adjacent to the southwest corner of the project. The tunnel has been filled and portions of the site have been disturbed by the construction process. The current study was able to relocate 13 milling features within the Decker Parcels II property, all of which were recorded and photographed. Per a request from the County of Riverside, multiple bedrock milling features were also subjected to pollen and protein residue analysis. The results of this analysis are provided in Appendix F. Surface visibility was excellent; however, only three surface artifacts, a mano and two metate fragments, were observed and collected during the field study. During the testing program, 34 shovel test pits (STPs) were placed in the vicinity of the bedrock milling features that are scattered along the drainage course and associated slopes. All STP excavations were negative for cultural materials. Although no subsurface cultural materials were

encountered during these excavations, Drover's study was positive for cultural materials so two test units were placed within the prerecorded boundaries of RIV-1330/H to verify that the midden soil had indeed been removed from the site by grading activities. The test unit excavations were also negative for cultural materials. In addition, no evidence of the possible pictograph reported by Swenson in 1978 could be found. Because Site RIV-1330/H did not produce any evidence of subsurface cultural deposits, it was evaluated as not significant under CEQA criteria due to a lack of both a subsurface deposit and the ability to provide any further research potential.

Site RIV-8901 was initially recorded by Jean Keller in 1994 as three groups of milling stations that were recorded separately as RIV-5364, RIV-5365, and RIV-5366. The boundaries of RIV-8901 were expanded southward as part of the Decker Parcels II Project. Keller's work was completed in 1994 for the proposed Riverside Grand Prix facility. Within the 245.57-acre proposed development, Keller identified 41 milling stations that lacked any associated midden or artifacts. Subsequently, CRM Tech conducted an updated study for a new project and lumped the three milling features (RIV-5364, RIV-5365, and RIV-5366) into one site as RIV-8901. The current study of the Decker Parcels II Project identified a continuation of RIV-8901 south of the area of the CRM Tech study into the Decker Parcels II property. An updated site form has been prepared for RIV-8901 to denote the boundary change and additional milling features. The studies by Keller and CRM Tech indicated that the land north of the Decker Parcels II property contains approximately 60 milling sites (primarily single milling features) that collectively represent a dispersed prehistoric activity area with minimal use milling surfaces and marginal artifact scatters. The testing program for RIV-8901 consisted of recording 10 bedrock milling features located within the project boundaries and conducting subsurface investigations. The majority of this recorded site lies to the north and west of the Decker Parcels II Project. During the testing program, 24 STPs were placed in the vicinity of the bedrock milling features. No subsurface cultural materials were encountered during testing. Because the study of Site RIV-8901 did not produce any artifacts or evidence of a subsurface deposit, it was evaluated as not significant under CEQA criteria due to a lack of both a subsurface deposit and the ability to provide any further research potential.

The testing program for RIV-11,874 consisted of recording the single bedrock milling feature with one slick. No surface artifacts were observed during the field survey or significance testing. During the testing program, three STPs were placed adjacent to the bedrock milling feature. No subsurface cultural materials were encountered during testing. Because the study of Site RIV-11,874 did not produce any artifacts or subsurface deposits, this site was evaluated as not significant, or not unique, under CEQA criteria due to a lack of both a subsurface deposit and the ability to provide any further research potential.

A copy of this report will be permanently filed with the EIC at UCR. All notes, photographs, and other materials related to this project will be curated at the archaeological laboratory of BFSA in Poway, California.

1.3 Recommendation Summary

The Decker Parcels II Project will result in direct impacts to recorded cultural resources RIV-1330/H, RIV-8901, and RIV-11,874. These sites have been evaluated as not CEQA-significant and site-specific mitigation measures are not required. However, the milling features are considered sensitive to the Native American tribal groups in this area, and an attempt will be made to relocate any of these milling features that can reasonably be moved during the grading process. Boulders that are too large to be moved will not be included in the relocation effort and no unreasonable procedures will be part of the relocation effort by the project applicant.

Because of the presence of cultural resources that document the prehistoric use of this property, the potential exists that other cultural resources may exist on the property and these unidentified resources may be exposed during grading. In order to identify any cultural resources uncovered by the development of this parcel, all earthwork (grading or trenching) within the first three feet of the current surface of the ground shall be monitored by an archaeologist and a Native American representative.

2.0 INTRODUCTION

BFSA was retained by Trammell Crow Southern California Development, Inc. to conduct a cultural resource survey of the proposed Decker Parcels II Project in Mead Valley near March Air Force Base. The archaeological survey was conducted in order to comply with CEQA and County of Riverside Cultural Resource Guidelines (Draft) with regards to development-generated impacts to cultural resources. At the time of the cultural resources study, the project had not been formally submitted to the County of Riverside for a development application review; however, all aspects of the cultural resources study were conducted as though this report would eventually be submitted to the County for review. The project is located in an area of moderate cultural resource sensitivity, as is suggested by known site density and predictive modeling. Sensitivity for cultural resources in a given area is usually indicated by known settlement patterns, which in the western Riverside County area are focused around environments with accessible food and water.

The Decker Parcels II Project is planned as a commercial building site. The project is an approximately 35.47-acre property located near March Air Force Base in western Riverside County, California. The project area includes APNs 314-020-010, 314-020-017, and 314-020-019-4. The project is situated southwest of the intersection of Oleander Avenue and Decker Road, just west of Interstate 215. The project is located in Section 2 of the USGS 7.5-minute *Steele Peak, California* topographic map, Township 4 South, Range 4 West (Figures 2.0–1 and 2.0–2). The project, as proposed by the applicant, will consist of a distribution warehouse and associated parking (Figure 2.0–3).

Principal Investigator Brian F. Smith directed the cultural resources study for the project and conducted the pedestrian survey and testing program with assistance from field archaeologists Kyle Coulter, David Grabski, Clarence Hoff, Stephanie Nelson, James Shrieve, and Richard Savitch. The technical report was prepared by Brian F. Smith and Jennifer Kraft. Tracy Stropes created the report graphics and Elena Buckley conducted technical editing and report production. Qualifications of key personnel are provided in Appendix A.

2.1 Previous Work

The records search for the property from the EIC at UCR reported that 75 cultural resource sites have been recorded within a one-mile radius of the project, two of which (RIV-1330/H and RIV-8901) have been recorded within the project boundaries. A discussion of the complete records search is provided in Section 4.1 of this report. Site RIV-1330/H was first studied in 1978, and subsequently in 1992 as part of the construction of the 8.4-MG water tank located on the southwest edge of the Decker Parcels II property. Site RIV-8901 has also been previously studied, first in 1994, and most recently in 2008, and is characterized as a widespread series of milling features recorded under various site designations. The majority of RIV-8901 is located north of the project. The Decker Parcels II property has not been previously surveyed.

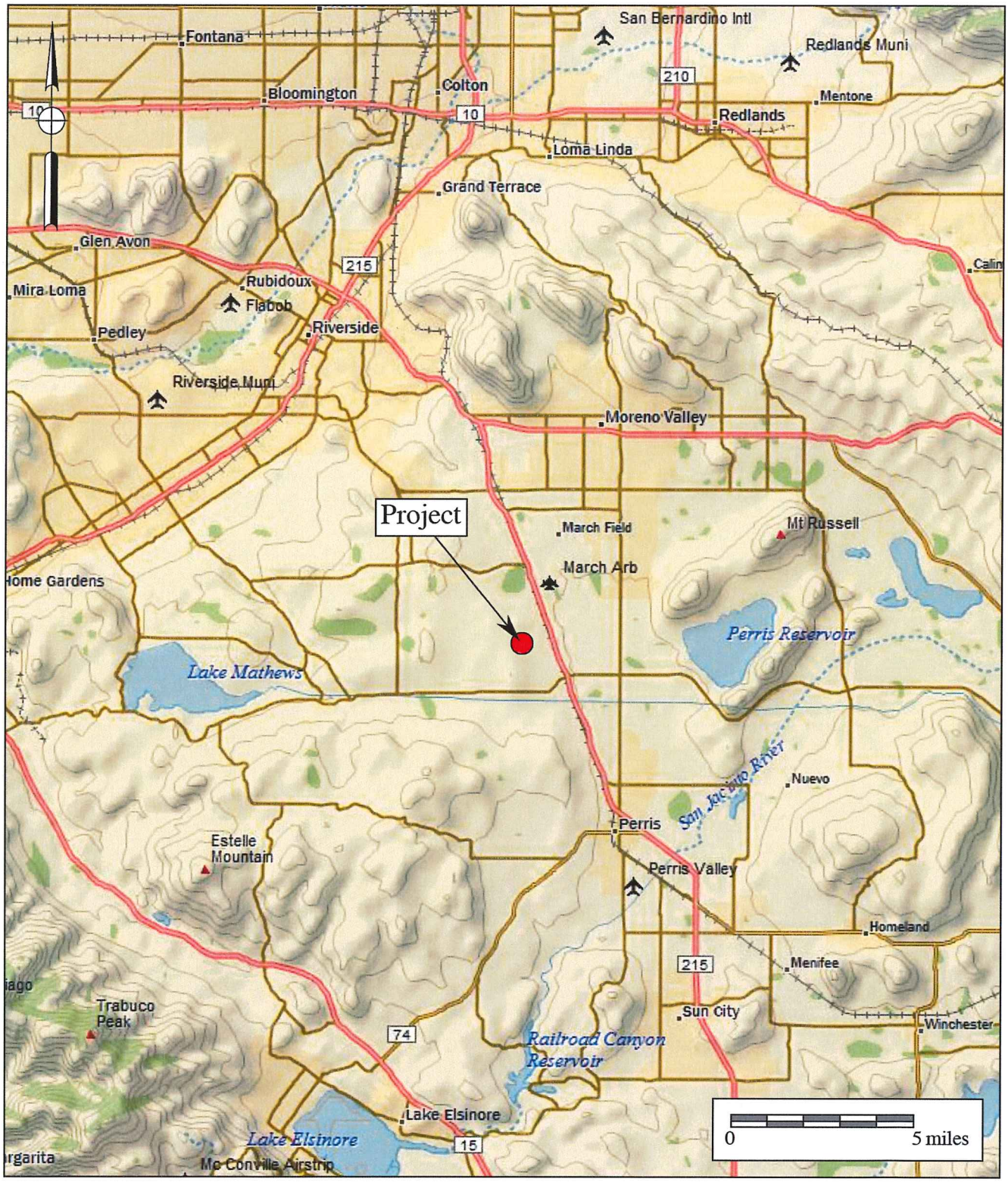


Figure 2.0–1

General Location Map

The Decker Parcels II Project

(Scale 1:250,000 series)

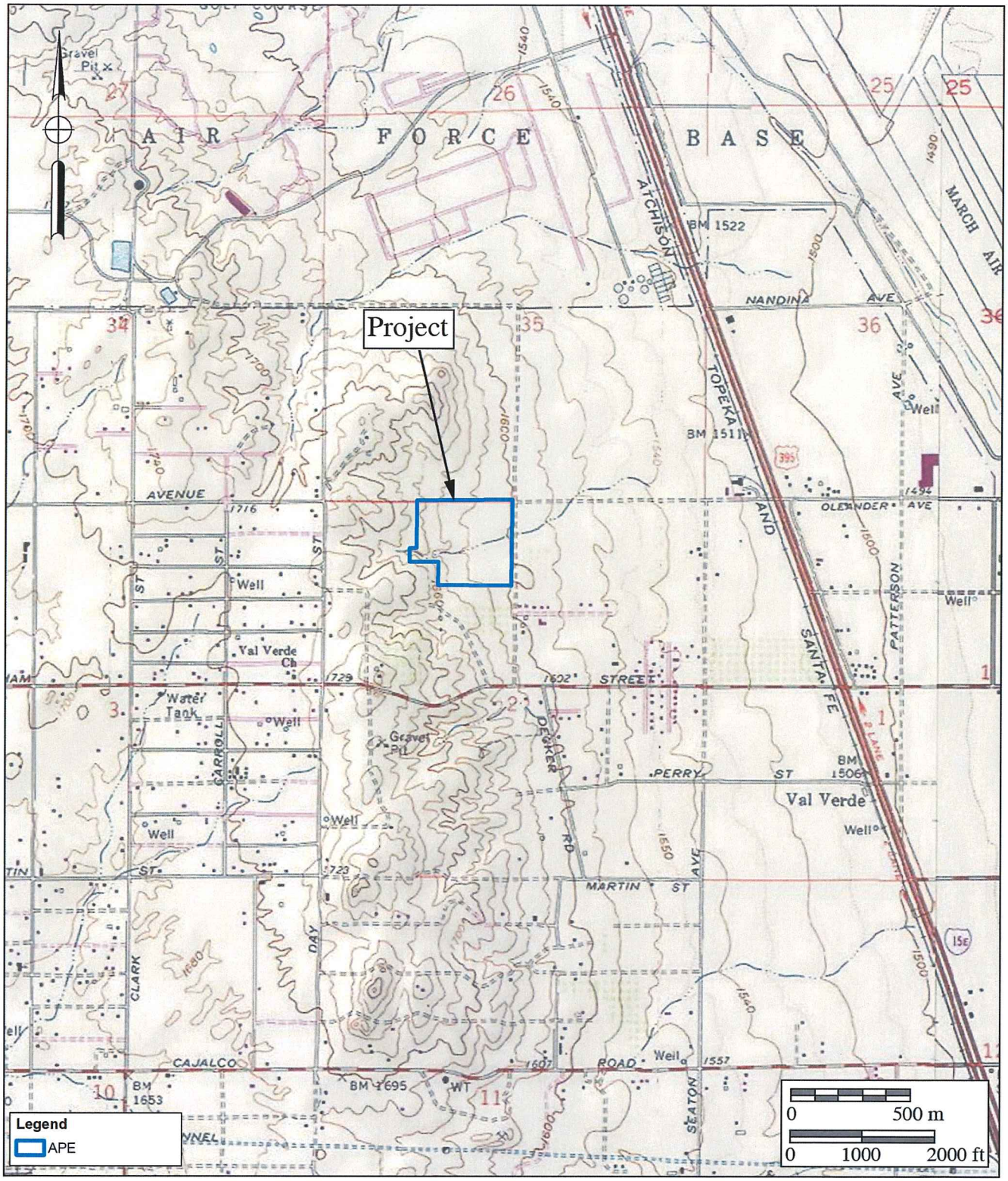
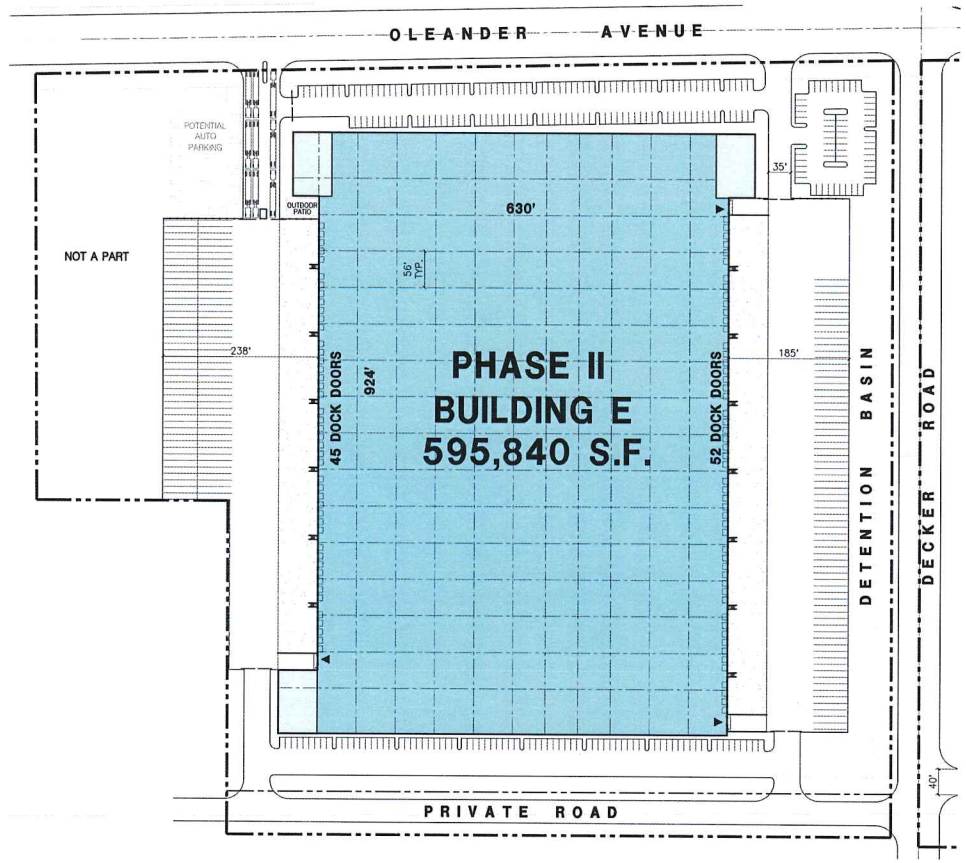


Figure 2.0–2

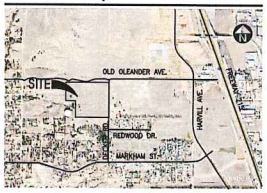
Project Location Map

The Decker Parcels II Project

USGS *Steele Peak* Quadrangle (7.5-minute series)



Aerial Map



Legend

- POTENTIAL OFFICE
- WAREHOUSE
- ▼ DRIVE THRU DOOR

Tabulation

SITE AREA	BUILDING E	**ZONING ORDINANCE FOR CITY**	
in sq. ft.	1,399,473 s.f.	Current Zoning Designation :	
in acres	32.1 acres	Rural Residential (R-R)	
BUILDING AREA		Manufacturing Medium (M-M)	
Office	15,000 s.f.	Industrial Park (I-P)	
Warehouse	580,840 s.f.	Proposed Zoning:	
Total	595,840 s.f.	Industrial Park (I-P)	
COVERAGE	42.6%	**MAXIMUM FLOOR AREA RATIO**	
AUTO PARKING REQUIRED		F.A.R. .60	
Office @ 1/250 s.f.	60 stalls	**BUILDING HEIGHT ALLOWED**	
Whse @ 1/2,000 s.f.	291 stalls	Height - 50'	
TOTAL	351 stalls	**SETBACKS**	
AUTO PARKING PROVIDED		Street Side = 25'	
Standard (9'x18')	274 stalls	Side = 5'	
Potential parking	53 stalls	Rear = 5'	
TOTAL	327 stalls	Abuts R zone /commercial zone = 50'	
TRAILER PARKING PROVIDED			
Trailer (10'x53')	155 stalls		

Note: This is a conceptual plan. It is based on preliminary information which is not fully verified and may be incomplete. It is meant as a comparative aid in examining alternate development strategies and any quantities indicated are subject to revision as more reliable information becomes available.

north

1" = 60'
0 60 120 180

HPA architecture

Conceptual Site Plan - Building E

KNOX LOGISTICS CENTER PHASE II

TrammellCrowCompany

2.0-4

Figure 2.0–3

Site Plan

The Decker Parcels II Project

Brian F. Smith and Associates, Inc. Environmental Consultants

2.2 Project Setting

The subject property is located in the Peninsular Ranges Geologic Province of southern California. The range, which lies in a northwest to southeast trend through the county, extends some 1,000 miles from the Raymond-Malibu Fault Zone in western Los Angeles County to the southern tip of Baja California. The subject property is located upon gentle slopes that lie east of the Santa Ana Mountain. The project area is relatively flat, with the property's lowest point located at its southeast corner and its highest point located at its southwest corner, adjacent to the existing water tank. Elevations within the project area range from approximately 1,607 to 1,673 feet above mean sea level (AMSL). Geomorphically, the project site is located on the gentle eastern slope of the unnamed foothills that descend to the alluvial Perris Valley below to the east. Geologically, the entire project area is underlain by Cretaceous granitic rocks (biotite-hornblende tonalite) of the Val Verde pluton (Morton 2001). Over 90 percent of the project area has been disturbed by previous periodic plowing and disking and the construction of the off-site water tank. Highly weathered and deteriorating bedrock outcrops are scattered throughout the western portion of the property.

Vegetation within the project area is characterized as including non-native grasses and minimal shrubs and some trees along the drainage in the southwest corner of the property. Mammals within the region include mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), ground squirrel (*Otospermophilus beecheyi*), and quail (*Dipodomys*); birds include hawks and eagles (Falconidae), owls (Tytonidae), (*Callipepla californica*), mourning dove (*Zenaida macroura*), mockingbird (*Mimus polyglottos*), jay (*Garrulus glandarius*), heron (*Ardeidae*), crow (*Corvus*), finch (*Fringillidae*), and sparrow (*Passer domesticus*). Currently, the property is vacant and appears to be used as grazing land.

2.3 Cultural Setting

Paleo Indian, Archaic Period Milling Stone Horizon, and the Late Prehistoric Shoshonean groups are the three general cultural periods represented in western Riverside County. Since these culture sequences have been used to describe archaeological manifestations in the region, the following discussion of the cultural history of western Riverside County references the Western Pluvial Lakes Tradition (WPLT), San Dieguito Complex, Encinitas Tradition, Milling Stone Horizon, La Jolla Complex, Pauma Complex, Sayles Complex, and San Luis Rey Complex. The Late Prehistoric component in the area of western Riverside County was represented by the Luiseño with influences from the Gabrielino, Cahuilla, and Serrano Indians.

Absolute chronological information, where possible, will be incorporated into this discussion to examine the effectiveness of continuing to use these terms interchangeably. Reference will be made to the geological framework that divides the culture chronology of the area into four segments: the late Pleistocene (20,000 to 10,000 years before the present [YBP]), the early Holocene (10,000 to 6,650 YBP), the middle Holocene (6,650 to 3,350 YBP), and the

late Holocene (3,350 to 200 YBP). The use of a geological framework in describing Riverside County prehistory is advantageous over other frameworks as it allows comparisons to be made with other geographic regions, relies on absolute dating methods, and can be used to examine climatic and/or environmental change. Additionally, for sites where cultural affiliation or complex cannot be determined, a geological framework is useful. Table 2.3–1 provides a summary of the regional chronologies in relationship to the geological framework.

2.3.1 Late Pleistocene / Paleo Indian Period (11,500 to circa 9,000 YBP)

The Paleo Indian Period is associated with the terminus of the late Pleistocene (12,000 to 10,000 YBP). The environment during the late Pleistocene was cool and moist, which allowed for glaciation in the mountains and the formation of deep, pluvial lakes in the deserts and basin lands (Moratto 1984). However, by the terminus of the late Pleistocene, the climate became warmer, which caused the glaciers to melt, sea levels to rise, greater coastal erosion, large lakes to recede and evaporate, extinction of Pleistocene megafauna, and major vegetation changes (Moratto 1984; Martin 1967, 1973; Fagan 1991). The coastal shoreline at 10,000 YBP, depending on the particular area of the coast, was near the 30-meter isobath, or two to six kilometers further west than its present location (Masters 1983).

In North America, the Paleo Indian Period began at approximately 11,500 YBP with what is known as the Clovis Culture. Large, fluted points particularly characterize the Clovis Culture in addition to knives, scrapers, choppers, perforators, and casual flake tools that dominate later Pleistocene sites (Fagan 1991; Moratto 1984). Clovis peoples are typically thought of as big game hunters due to the association of fluted points with extinct megafauna such as mammoths, which have been found at kill sites throughout the Plains and Rocky Mountains. Additionally, during the late Pleistocene, plants did not appear to be as important in subsistence due to the lack of ground stone tools and other artifacts typically associated with plant gathering. Clovis sites have not been identified in the project area, although in southern California isolated, Clovis-like fluted points have been found in a variety of settings including passes in the Cuyamaca and Tehachapi mountains, valleys in the Mojave Desert and Owens Valley, and shorelines of Little Lake, Searles Lake, Panamint Lake, and ancient Lake Mojave (Davis 1973; Glennan 1971). The recovery of isolated, fluted points would suggest that at the end of the Pleistocene, small groups of people sharing Clovis-like traits were present in southern California. The recovery of fluted points in a variety of settings would suggest that Paleo Indians were likely attracted to multiple habitat types including mountains, marshlands, estuaries, and lakeshores.

Rather than being big-game hunters, these people likely subsisted using a more generalized hunting, gathering, and collecting adaptation utilizing a variety of resources including birds, mollusks, and large and small mammals (Colten and Erlandson 1991; Moratto 1984; Moss and Erlandson 1995).

Table 2.3–1
Summary of Prehistoric Culture Chronologies
for Southern California*

<table>
<tr><th colspan="3"></th><th colspan="2">Coastal San Diego County</th><th colspan="2">Interior San Diego County
Northern Southern</th><th colspan="2">Syntheses</th></tr>
<tr><th>Year
YBP</th><th>Geologic
Era</th><th>Years
A.D./B.C.</th><th>Rogers
1939, 1945</th><th>Moriarty
1966</th><th>Meighan 1954</th><th>True
1958, 1966,
1970</th><th colspan="2">Warren 1968</th><th>Gallegos 2002
Reddy 2000</th></tr>
<tr><td>Present</td><td rowspan="5">Late
Holocene</td><td>1950</td><td>Yuman III
Culture</td><td rowspan="4"></td><td>Luiseño</td><td>Diegueño</td><td rowspan="2">Yuman</td><td rowspan="2">Shoshonean</td><td rowspan="2">Late Prehistoric/Kumeyaay
or Late Period
(A.D. 1300 to Present)
Other Names:
Diegueño/Yuman
Cuyamaca Complex
San Luis Rey I, II</td></tr>
<tr><td></td><td>1500</td><td>Yuman II
Culture</td><td>San Luis Rey I
San Luis Rey II</td><td rowspan="2">Cuyamaca
Complex</td></tr>
<tr><td>1,000</td><td>1000</td><td>Yuman I
Culture</td><td>Shoshonean Intrusion</td><td colspan="2" rowspan="3">Encinitas Tradition</td><td rowspan="3">Archaic or
Early Period

Other Names:
Pauma Complex
Encinitas Tradition
La Jolla Complex

San Dieguito</td></tr>
<tr><td>2,000</td><td>A.D. 500
0
500 B.C.</td><td></td><td colspan="2">Transition or Hiatus?</td></tr>
<tr><td>3,000</td><td>1000</td><td rowspan="4">La Jolla II
Culture</td><td rowspan="2">La Jolla III</td><td rowspan="3">Milling Stone Substratum
(La Jolla/Pauma Complexes)</td></tr>
<tr><td></td><td>1500</td></tr>
<tr><td>4,000</td><td rowspan="4">Middle
Holocene</td><td>2000
2500</td><td rowspan="2">La Jolla II</td></tr>
<tr><td>5,000</td><td>3000</td><td rowspan="3">La Jolla I
Culture</td></tr>
<tr><td></td><td>3500</td></tr>
<tr><td>6,000</td><td>4000
4500</td><td rowspan="2">La Jolla I</td></tr>
<tr><td>7,000</td><td>5000</td></tr>
<tr><td></td><td rowspan="3">Early
Holocene</td><td>5500</td><td rowspan="3">San Dieguito
Culture</td><td rowspan="3">San Dieguito</td><td rowspan="3">San Dieguito</td><td colspan="2" rowspan="3">San Dieguito
Tradition</td><td rowspan="3">Paleo Indian</td></tr>
<tr><td>8,000</td><td>6000
6500</td></tr>
<tr><td>9,000</td><td>7000
7500</td></tr>
<tr><td>10,000</td><td></td><td>8000
8500</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>Pleistocene</td><td>9000</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

(Adapted from Moratto 1984 and Gallegos 2002)

The lack of sites with late Pleistocene and/or early Holocene subsurface assemblages hinders our understanding of the Paleo Indian Period in the greater region (True and Bouey 1990).

2.3.2 Early and Middle Holocene / Archaic Period (circa 9,000 to 1,300 YBP)

The Archaic Period of prehistory begins with the onset of the Holocene around 9,000 YBP. The paleoenvironmental record for the inland valleys where the project is located is poorly understood, as most of the paleoenvironmental reconstructions have been along the coast and further east in the desert. It would be a mistake to assume that the changes in the inland valleys were exactly the same as those that occurred along the coast or further east in the desert, as hydrologic changes differed in duration and intensity in various areas (Grenda 1997). Nonetheless, the transition from the Pleistocene to the Holocene was a period of major environmental change throughout North America (Antevs 1953; Van Devender and Spaulding 1979). This general warming trend caused sea levels to rise, lakes to evaporate, and drainage patterns to change. In turn, these changes impacted flora, fauna, and the humans that relied on them for subsistence.

In southern California, the general climate at the beginning of the early Holocene is marked by cool/moist periods and an increase in warm/dry periods and sea levels. The coastal shoreline at 8,000 YBP, depending on the particular area of the coast, was near the 20-meter isobath, or one to four kilometers further west than its present location (Masters 1983). In Arizona and southern California, the juniper woodlands below approximately 5,300 feet AMSL persisted into the early Holocene, but above approximately 6,000 feet AMSL, conifer forests gave way to modern vegetation types (Van Devender and Spaulding 1979). Several researchers have documented the recession of the once abundant coniferous forests during the early Holocene (Axelrod 1967; Heusser 1978).

Rising sea levels during the early Holocene created rocky shorelines and bays along the coast by flooding valley floors and eroding the coastline (Curray 1965; Inman 1983). Shorelines were primarily rocky with small littoral cells, as sediments were deposited at bay edges that rarely discharged into the ocean (Reddy 2000). These bays eventually evolved into lagoons and estuaries, providing a rich habitat for mollusks and fish. In particular, *Argopecten* and *Chione* seem to dominate the mollusks gathered by prehistoric people during this time (Gallegos 1992). The warming trend and rising sea levels generally continued until the late Holocene (4,000 to 3,500 YBP).

At the beginning of the late Holocene, sea levels stabilized, rocky shores declined, lagoons filled with sediment, and sandy beaches became established (Gallegos 1985; Inman 1983; Masters 1994; Miller 1966; Warren and Pavesic 1963). Many former lagoons became saltwater marshes surrounded by coastal sage scrub by the late Holocene (Gallegos 2002). The sedimentation of the lagoons is significant in that it had profound effects on the types of resources available to prehistoric peoples. Habitat was lost for certain mollusks, namely *Chione* and *Argopecten*, but habitat was gained for other mollusks, particularly *Donax* (Gallegos 1985;

Reddy 2000). The larger mollusks, *Chione* and *Argopecten,* are found in lagoons and estuaries, but the smaller mollusk, *Donax,* prefers gentle, sloping beaches. Several researchers have documented the shift in use from *Chione* and *Argopecten* during the end of the late Holocene by prehistoric occupants (Laylander and Saunders 1993, 2005). In northern San Diego County, *Donax* has been found in significant quantities in Late Prehistoric deposits along the coast and inland, whereas in earlier deposits, *Donax* is rare or nonexistent (Cardenas and Robbins-Wade 1985; Corum 1991; Hector 1983; Quintero 1987). The decline in larger shellfish, loss of drinking water, and a reduction in the availability of Torrey Pine nuts resulted in a major depopulation of the coast as people shifted inland to reliable freshwater sources and intensified their exploitation of terrestrial small game and plants, including acorns (originally proposed by Rogers 1929; Gallegos 2002).

The Archaic Period in southern California is associated with a number of different cultures, complexes, traditions, or horizons including Western Pluvial Lakes, San Dieguito, La Jolla, Encinitas, Milling Stone, Pauma, and Sayles. The following is a summary of the Archaic Period, beginning with an examination of the WPLT and the San Dieguito Complex, followed by a discussion of the La Jolla/Encinitas/Milling Stone Horizon, the Pauma Complex, and the Sayles Complex. Many of these cultures have overlapping and similar characteristics.

Western Pluvial Lakes Tradition (WPLT)

The WPLT has been described as a culture with a distinctive lithic assemblage that seemed to be adapted to wetland or riparian environments (Moratto 1984). The WPLT extends from northeastern California to the Mojave Desert and the San Diego coastal area (Bedwell 1970) and includes cultures labeled San Dieguito and Lake Mojave. Bedwell (1970:232) suggested that the WPLT dated to the period between 11,000 and 8,000 YBP. Some scholars suggest that the WPLT developed in situ from the antecedent Paleo Indian or Fluted-Point Tradition, while others suggest that interior desert groups migrated to coastal areas to avoid Altithermal conditions (Grenda 1997:18). Typically, WPLT sites are positioned around pluvial lakes in the Great Basin and California, and surface WPLT assemblages have been found on fossil lakeshores in the Colorado Desert, the Mojave Desert, Death Valley, the San Joaquin Valley, the western Great Basin, and in the North Coast Ranges (Moratto 1984:103). Other WPLT sites occur along the courses of old streams and rivers and include the San Dieguito-type site, or the Harris Site (described in detail below).

San Dieguito

The San Dieguito Complex is probably the least understood cultural manifestation in the region because of a lack of concise radiocarbon dates on stratigraphically intact, undisturbed San Dieguito deposits or sites. Most San Dieguito sites, or sites with San Dieguito-like artifacts, are surface assemblages, and those with subsurface deposits have usually been disturbed by faunalturbation or modern agricultural activities. Some scholars view the San Dieguito as the

earliest cultural complex in southern California prehistory (Warren and True 1961; Warren 1967), whereas other researchers suggest that the San Dieguito Complex represents an inland hunting component of a generalized Holocene hunting and gathering culture, grouping it in with the La Jolla and Pauma complexes (Kaldenberg 1982; Norwood and Walker 1980; Gallegos 1991). Still further, other researchers (Bull 1987; Raven-Jennings and Smith 1999a, 1999b) propose that the phases of the San Dieguito (I, II, and III) represent different stages of lithic tool procurement and production, and that the presence of hunting-type tools represents use of inland terrestrial resources (Berryman and Berryman 1988; Gallegos 1987).

Malcolm Rogers was the first to refer to the earliest artifact assemblages as belonging to the San Dieguito Complex. Beginning in the 1920s, Rogers conducted investigations of archaeological sites located along the southern California and Baja California coast and surveyed the San Dieguito Plateau and the Colorado Desert (Rogers 1966). In 1920, Rogers stated that he "discovered the San Dieguito Industry at what is now known as the C.W. Harris Site" (Rogers 1939:70; Warren 1966). The Harris Site (SDM-W-198/SDI-149) became known as a San Dieguito-type site through investigations by Rogers (1939) and later by Warren and True (1961). Interestingly, however, Rogers never published his research at the site. His research at the Harris Site and his conclusions on the San Dieguito Complex would later be compiled and edited by Claude Warren, H.M. Wormington, E.L. Davis, and Clark Brott in 1966.

Rogers (1929, 1939) did, however, author the results of his archaeological investigations concerning the surface examination of San Dieguito sites in San Bernardino, Inyo, and San Diego counties, including several San Dieguito sites in eastern Riverside County located along the Colorado River. Generally, most San Dieguito sites lack midden and are often eroded, although the Harris Site is a notable exception, as discussed below (Rogers 1929). Artifacts designated by Rogers (1929 and 1939) as diagnostic indicators of the San Dieguito Complex are tools typically associated with hunting, tool manufacture, and animal procurement and processing. These artifacts include Teshoa flakes, beveled flakes, notched cobbles, cores, hammerstones, cleavers, choppers, pulping planes, scraper planes, leaf-, lancelote-, and triangular-shaped bifaces and knives, amulets or crescents, a variety of scrapers (ovoid, keeled, domed, flake, side, and end), spokeshaves, reamers (drills and gravers), and borers (Rogers 1939). These tools were often made from fine-grained metavolcanic material (FGM). These early lithic industries were at first labeled Malpais, Scraper-Makers, and Playa; however, these terms were eventually subsumed under the broader San Dieguito Complex (Rogers 1939), which would be later divided into San Dieguito I, II, and III.

In 1920, Rogers discovered the Harris Site (SDM-W-198/SDI-149 and SDI-316) located on a low terrace of the San Dieguito River. The Harris Site is best characterized as a series of loci with different subsurface components, which is now referred to as the Harris Site Complex (Carrico et al. 1991). Subsequent investigations of the Harris Site by Rogers (1939) and Warren and True (1961) provided the first stratigraphic evidence to place the San Dieguito Complex as the earliest cultural complex in San Diego County. The San Dieguito component of the Harris

Site is a deeply buried deposit below the La Jolla and Yuman artifact assemblages (approximately seven feet below the modern surface).

Rogers (1939, 1958) originally believed that the San Dieguito culture lasted approximately 2,000 to 3,000 years, from 2000 to 1000 B.C., through A.D. 800. Rogers based this assumption on the observation that the artifacts were found associated with a cultural complex earlier than the Yuman or Shoshonean complexes, given that the San Dieguito artifacts displayed patina, desert varnish, and sandblasting, whereas the Yuman assemblages, besides containing additional artifacts like pottery, did not show patina, desert varnish, or sandblasting (Rogers 1966). Furthermore, Rogers (1939, 1958), citing Antevs' 1938 climatic study, stated that San Dieguito-like artifacts found around the shorelines of extinct desert lakes offered evidence that these sites were inhabited during a cooler/moister climatic period that occurred around 2000 B.C. (4,000 YBP). According to Warren (1966:18), before the death of Rogers and after dates of La Jolla coastal sites yielded evidence of occupation at 6,000 YBP, Rogers decided that the San Dieguito Complex was much older than 2000 B.C.

In 1959, Claude Warren and D.L. True directed a University of California at Los Angeles (UCLA) archaeological survey team in excavations at the Harris Site (SDI-149 and SDI-316), specifically in what Rogers referred to as the multicomponent Locus I. Investigations by Warren and True (1961) led to an update of the cultural sequence of San Diego prehistory, making the San Dieguito Complex the earliest culture in the region. Warren and True (1961) characterized San Dieguito sites as settlements located on mesas and ridges, small in size, lacking midden, and often heavily eroded.

Warren and True (1961), and then later, Warren (1967), identified San Dieguito artifact assemblages as including leaf- and lancelote-shaped knives, knife blanks (bifaces), projectile points (occasional stemmed), a variety of scrapers (ovoid side, keeled side, and end, rectangular side, rectangular end, triangular end, domed, and flake), crescent amulets (eccentric Type 5 crescents; Fenenga 1984) or eccentric crescents, engraving tools (gravers), choppers (crude), hammerstones (pebble), core hammers, and cores. Pottery is absent and ground stone is extremely rare, if present at all, in San Dieguito sites (Warren and True 1961). Lithic tool assemblages of the San Dieguito Complex include percussion-flaked and pressure-flaked tools made of locally available felsitic materials (SPV volcanics) and to a lesser extent, other local fine-grained volcanics and imported stone. Warren and True (1961) concluded that the San Dieguito Complex represents an early population, relatively small in number, whose primary subsistence was hunting.

Warren and True (1961) submitted two samples for radiocarbon analysis. The first was conducted on shell (*Chione californiensis*) collected by Rogers in 1938 from the San Dieguito III component identified in Stratum M. The sample (LJ-136) resulted in a radiocarbon date of 4,720 ± 160 YBP (calibrated to 2770 B.C. ± 160). The second sample submitted was carbonized wood and seeds collected from what was called a La Jolla feature (Feature 5–possible hearth or roasting pit). This sample (LJ-202) yielded a date of 6,300 ± 200 YBP (calibrated to 4350 B.C.

± 240). The first date of 4,720 ± 160 YBP from Rogers' San Dieguito III component was dismissed by Warren and True (1961) because the sample had been collected 21 years before it was assayed. Moreover, the La Jolla component of the Harris Site yielded an older radiocarbon date, with a series of radiocarbon dates (7,370 ± 100 YBP, 7,300 ± 200 YBP, and 5,460 ± 100 YBP) from coastal La Jolla sites that yielded even older dates (Hubbs et al. 1960; Moriarty et al. 1959). They reasoned that since the La Jolla Feature 5 was separated by the San Dieguito III component by 32 inches of consolidated and partially cemented river silt, as well as the fact that the San Dieguito component was positioned in deposits below the La Jolla component, the San Dieguito had to pre-date the La Jolla. They reasoned that since the La Jolla component on the coast had been given an initial date of approximately 7,500 YBP (5500 to 6000 B.C.), the San Dieguito had to date to at least 8,000 YBP (6000 B.C.). Additional charcoal and carbonaceous earth samples collected from within the San Dieguito component during further excavations in 1965 by Warren (1967) yielded calibrated radiocarbon dates of 6540 B.C. ± 400 (A-724 and A-725) and 7080 B.C. ± 350 (A-722A). These dates led Warren (1967) to suggest an age of over 8,000 YBP for the San Dieguito Complex and, given San Dieguito-type artifacts found further east around the lakeshores of Pleistocene lakes, a date "probably in the neighborhood of 10,000 YBP" was assigned for the earliest complexes (in reference to San Dieguito I).

Artifacts considered diagnostic of the San Dieguito Complex are similar to artifact assemblages located further east in the Great Basin and American Southwest. San Dieguito artifacts are also similar to artifact assemblages found around presumed late Pleistocene shorelines of Lake Mojave (Campbell et al. 1937), Tonopah Lake (Campbell 1949), Panamint Basin (Davis et al. 1969), and Owens Lake (Antevs 1938; Campbell 1949). Furthermore, San Dieguito tool assemblages resemble those of the Western Lithic Co-Tradition (Davis et al. 1969) and the WPLT (Bedwell 1970; Moratto 1984). Excavations conducted at Danger Cave in Utah (Jennings 1957), Ventana Cave in Arizona (Haury 1950), and Newberry Cave in the Mojave Desert (Smith et al. 1957) provide additional stratigraphic evidence in support of an early date for San Dieguito. The results of these studies, together with investigations of the Harris Site by Warren and True (1961), suggest that the earliest phase of the San Dieguito Complex dates to 10,000 YBP (Warren 1967), and given the lack of Clovis sites, has led to the conclusion that San Dieguito artifact assemblages represent the earliest cultural complex in southern California prehistory. The San Dieguito Complex has since become synonymous with the Paleo Indian Period, and for many current researchers remains a viable Paleo Indian cultural complex (Reddy 2000).

The basis for the identification of the San Dieguito Complex has been through lithic artifact morphology (as described by Rogers [1939], Warren [1966], and Davis et al. [1969]) and the recognition of local FGM used in tool manufacture. However, given the lack of organic material at these sites, very few absolute dates have been confirmed. Thus, many archaeologists continue to debate whether the San Dieguito Complex continued to occupy southern California or was replaced by the Milling Stone Horizon circa 8,000 YBP (SDCAS 1987). There are only a

few sites in Riverside County that have been labeled as San Dieguito or that are early Holocene in age (Grenda 1997:289). Several sites positioned around the edge of Lake Elsinore show occupation beginning around 8,500 YBP (Grenda 1997:279). The lithic assemblages (which include crescents, Lake Mojave points, and large bifaces) from these early Holocene sites more closely resemble coastal San Dieguito assemblages than those from the Great Basin. Additionally, most subsistence appears to have been based upon rabbits and seeds, although a variety of terrestrial and riparian plants and animals were utilized. The presence of shell beads and the similarity of lithics between coastal southern California sites and the Lake Elsinore sites suggest that coastal resources were also exploited (Grenda 1997:279). The paucity of early Holocene archaeological sites in Riverside County may relate to a variety of factors, including the rareness of pluvial lakes and major rivers, dearth of archaeological investigations, and failure to recognize sites with early Holocene components due to soil formation and other factors.

There have been several sites in San Diego County that have been reported as being early Holocene (circa 9,000 to 7,000 YBP) in age and/or that contain San Dieguito components. These include the Agua Hedionda (UCLJ-M-15 and SDI-10,695, W-131; Koerper et al. 1986), Rancho Park North (SDM-W-49; Kaldenberg 1982), Batiquitos Lagoon (Gallegos 1992), San Dieguito Lagoon/River Valley (Norwood 1980; Norwood and Walker 1980; Smith 1986, 1987; Warren 1967), San Elijo Lagoon (Gallegos 1992), Peñasquitos Lagoon (Smith and Moriarty 1985), La Jolla/University of California at San Diego (UCSD) (Moriarty et al. 1959; Shumway et al. 1961), and Tijuana Lagoon/Otay Mesa (Bingham 1978; Breschini et al. 1990) sites. Recently, however, there have been sites that have been reported as having a San Dieguito component or San Dieguito-like artifacts, but date to the middle and late Holocene. An investigation of the San Dieguito Scraper Hill Site (SDI-8330/W-240) by Raven-Jennings and Smith (1999a) provides support for Rogers' (1939) original age estimation of the San Dieguito dating between 4,000 and 2,800 YBP. Similar assemblages have also been found in the Otay region of southern San Diego County in contexts younger than 5,000 YBP (Smith and Moriarty 1985; Gallegos and Kyle 1990). Clearly, more research is needed regarding the temporal placement and definition of the San Dieguito Complex.

Encinitas Tradition / Milling Stone Horizon / La Jolla Complex

The Encinitas Tradition (Warren 1968), Milling Stone Horizon (Wallace 1955), and La Jolla Complex (Shumway et al. 1961) are all part of a similar prehistoric cultural complex that appears around 8,000 YBP along the southern California coast. A focus on coastal resources, which resulted in deeply stratified shell middens located primarily around bays and lagoons, appeared along the southern California coast at the end of the early Holocene. Some of the oldest sites of this expression are located at Newport Bay, Topanga Canyon, Agua Hedionda Lagoon, and on some of the Channel Islands. Generally, the La Jolla Complex refers to coastal Archaic sites in San Diego County, whereas the Milling Stone Horizon and Encinitas Tradition refer to coastal Archaic sites in Orange and Los Angeles counties. In the following discussion, it

should be noted that these three cultural traditions are considered basically inseparable in terms of assemblage characteristics.

The La Jolla Complex is best recognized for its pattern of large coastal sites, shell middens, basin metates, manos, cobble-based tools, discoidals, and flexed human burials (Shumway et al. 1961; Smith and Moriarty 1985). While scrapers are the most recognized tool type, coastal Archaic sites also contain large quantities of utilized flakes, which were likely used to pry open marine mollusks, and large numbers of manos and metates. Assemblages at coastal sites indicate a subsistence pattern focused on mollusk collection and nearshore fishing, suggesting an incipient maritime adaptation with regional similarities to more northern sites of the same period (Koerper et al. 1986). The presence of Coso obsidian at La Jolla sites is another attribute of the Archaic Period in San Diego and Orange counties (Koerper et al. 1986; Ericson et al. 1989; McDonald 1992). The Coso obsidian source is located several hundred miles northeast of San Diego County and quarried obsidian was likely obtained through trade with groups situated further north. Shellfish was the dietary staple, although nuts and grasses were also important parts of the diet. The La Jolla Complex is considered distinct and different from the previous San Dieguito Complex due to the fact that it was more focused on gathering activities that emphasized the collection of shellfish, plants, and fish, than on hunting activities focused on killing large terrestrial game.

The earliest sites from this period are found mostly in northern San Diego County and represent the same sites as those reported for the San Dieguito Complex, including Harris (Rogers 1966; Warren 1967), Rancho Park North (Kaldenberg 1982), Agua Hedionda (Koerper et al. 1986), Batiquitos Lagoon (Gallegos 1992), La Jolla/UCSD (Moriarty et al. 1959; Shumway et al. 1961; Gallegos et al. 1989), Tijuana Lagoon/Otay Mesa (Gallegos 1992), and Ballast Point/San Diego Bay (Gallegos and Kyle 1988). Most lagoon sites exhibit continuous occupation from 9,000 to 3,500 YBP (Gallegos 1992), and in northern San Diego County, coastal lagoons supported large populations circa 6,000 YBP, as is shown by numerous radiocarbon dates from many sites adjacent to these lagoons (Carrico et al. 1991). The collection of shellfish and seeds, fishing, and hunting terrestrial game and marine animals has been documented through the archaeological investigation of coastal lagoon sites. The distribution of radiocarbon dates suggests that coastal adaptations supported a sustainable population density during the middle Holocene between 7,500 and 3,500 YBP (Masters and Gallegos 1997). Archaeological investigations of Ballast Point (Gallegos and Kyle 1988) indicate that a larger portion of the human diet was filled with marine rather than terrestrial resources. Evidence from dietary analyses and the study of fishing tools (gorges, composite fishhooks, and the implied use of boats) suggests an intensification of the San Diego maritime subsistence pattern in the middle Holocene—one that more resembles the Santa Barbara Channel maritime tradition (Masters and Gallegos 1997).

In Orange County, the majority of Milling Stone Horizon populations were located in the vicinity of Newport Bay beginning at approximately 8,000 YBP. Occupation of Newport Bay

continued until approximately 3,350 YBP when the number of habitation sites suddenly diminished (Koerper et al. 2001). This date coincides with transitions noted farther south in San Diego County. In addition, the marine terraces of the Newport coast were no longer occupied after approximately 4,000 YBP (Mason et al. 1997); however, new evidence shows that the Newport area was reoccupied by approximately 3,400 YBP (Koerper et al. 2001). Bolsa Chica Bay was continuously occupied, with no apparent abandonment at this time (Koerper et al. 2001). An increase in the use of mortars and pestles, coupled with a decrease in the use of manos and metates, has been documented at sites in Orange County that date to the end of the Archaic Period (Koerper 1979). The single-piece, circular shell fishhook appeared at this time, corresponding with a decrease in the use of fish gorges at the end of the Archaic Period (Koerper et al. 1988). Ceremonial items are frequently recovered from Orange County Encinitas Tradition sites; the most notable are cogged stones, granite spheres, large ceremonial blades, discoidals, and quartz crystals. Long-distance trade between coastal Orange County and the Great Basin, Gulf of California, and as far northeast as Oregon, is evident by the middle of the Milling Stone Horizon (Macko et al. 2005).

In northern San Diego County between 4,000 and 3,000 YBP, the lagoons filled with sediment, the most important resources (particularly mollusks and fish) were lost, and many of the coastal sites were abandoned. The paucity of archaeological sites dating from 3,000 to 1,300 YBP in northern San Diego County supports this abandonment scenario at the end of the Archaic Period (Gallegos 1992). However, more recent investigations at coastal lagoon and inland sites indicate that populations aggregated at specific localities along the coast and further inland. For instance, a late Archaic site (2,700 YBP) in Oceanside (SDI-15,889) shows a continuation of Milling Stone site characteristics, including burial of the dead and a large quantity of ground stone tools such as manos, metates, and hammerstones used to sharpen ground stone surfaces (Tuma 2002). At Site SDI-15,889, there was less focus on marine mollusks and a greater variety of terrestrial, marine, and freshwater resources, suggesting that a wide variety of environments were being exploited at the end of the Archaic Period. Trade was not an important feature of life at Site SDI-15,889 as local resources were almost always used, suggesting that populations were relatively isolated (Tuma 2002). In another example, the Ballast Point site in southern San Diego County along San Diego Bay shows continuous occupation throughout the period between 6,600 and 1,300 YBP (Gallegos and Kyle 1988). San Diego Bay, being larger and influenced by tidal flushing, did not fill with sediment, as did northern San Diego lagoons and estuaries (Masters 1988). Furthermore, Byrd and Reddy (2002) demonstrate the presence of late Holocene residential sites (shell middens) along San Diego Bay, Mission Bay, Los Peñasquitos Lagoon, and the Sorrento Valley. Additional data from the inland Scripps Poway Parkway Site (SDI-4608) reveals an increased intensity in the use of inland terrestrial resources, notably deer and rabbits, by the end of the Archaic Period (Smith and Raven-Jennings 1999b). These changes are viewed as settlement shifts from coastal sites to inland valley centers.

Pauma Complex

Diminishing marine resources, as previously discussed, may have prompted a shift in subsistence and settlement strategies to a more terrestrial focus. Populations shifted inland to river valleys and exploitation of terrestrial animals and plants intensified (Rogers 1929). Inland La Jolla sites have been reported in transverse valleys and sheltered canyons, and have been termed the "Pauma Complex" in northern San Diego County (True 1958; Warren et al. 1961; Meighan 1954). Pauma Complex sites, as proposed by True and others, represented inland manifestations of the coastal La Jolla occupation and were considered distinct from earlier coastal sites given their lack of subsurface deposits, marine shell, and bone. By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), a lack of mollusks, and greater tool variety (including atlatl dart points and quarry-based tools), as well as seeming to express a more sedentary lifestyle with a broader range of utilized resources than sites from the earlier San Dieguito period. True (1958) initially suggested that inland Pauma Complex sites were similar to San Dieguito sites based upon the presence of crescentics, bifaces, and projectile points. A dependence on terrestrial resources, as suggested for the Pauma Complex, is seen by some investigators as representing a Campbell-like subsistence focus based upon the hunting of large and small mammals and the collection of hard seeds and roots (True 1958; Gallegos 1985). Subtle modifications in the artifact assemblage are interpreted as a response to changing environmental conditions, which required an increasingly diversified economy focused on terrestrial resources.

Sayles Complex

The Sayles Complex is another inland pattern dating to the late Archaic Period that is based upon the investigations of a site in the Cajon Pass area of San Bernardino County (Kowta 1969). The Sayles assemblage was notable for its high proportion of projectile points, fairly abundant unifacial tools (scrapers) of various sorts, fairly abundant manos and mutates (but a lack of mortars and pestles), and the presence of cogged stones. In particular, Kowta (1969) argued that scraper planes occurred during periods of optimal agave and yucca growth, and that decreasing use of scraper planes was correlated with periods of acorn and mollusk abundance, as is noted by increased frequencies of mortars and shell.

Summary of the Archaic Period

In summary, archaeological research indicates that southern California was occupied between 9,000 and 1,300 YBP by population(s) that utilized a wide range of both marine and terrestrial resources. Overlapping radiocarbon dates and artifact types between sites identified as Western Pluvial Lakes, San Dieguito, La Jolla, Encinitas, Milling Stone, Sayles, and/or Pauma suggest a generalized hunting and gathering pattern that was employed for over 8,000 years. Rather than separate and distinct cultural complexes, these complexes likely represent differences in site types and uses of marine and terrestrial resources. The nomenclature using

San Dieguito, La Jolla, Pauma, Sayles, Encinitas, and Milling Stone for an 8,000-year period of prehistory should be redefined to recognize a wider variety of site types such as shell dumps, coastal lagoon sites, inland hunting camps, and quarry sites (Gallegos 1992). The large amount of marine shell and fish, along with some mammal bone, as found in early and middle Holocene sites next to coastal lagoons, changes as one moves inland. An increase in flakes, tools, and bone is seen at these sites along with a decrease in shell (Gallegos 1992; Smith 1986). This transition in sites and artifact assemblages likely reflects the same people moving along drainages between the coast and mountains, exploiting both marine (fish and mollusks) and terrestrial (small and large game, plants, and lithic materials) resources. Future analysis of inland sites will eventually provide a more complete assessment of the subsistence and settlement strategies employed by inhabitants of Riverside County during the Archaic Period and likely the dismissal in use of terms such as San Dieguito and Pauma as defining separate cultural complexes.

2.3.3 Late Holocene / Late Prehistoric / San Luis Rey Period (1,300 YBP to 1769)

Approximately 1,350 YBP, a Shoshonean-speaking group from the Great Basin region moved into Riverside County, marking the transition to the Late Prehistoric Period. This period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period with the continued growth of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, yet effective, technological innovations. Technological developments during this period include the introduction of the bow and arrow between A.D. 400 and 600. Smaller arrow points such as the Cottonwood series replaced atlatl darts. Other hallmarks of the Late Prehistoric Period include cremation of the dead and extensive trade networks as far-reaching as the Colorado River Basin.

The period is divided into two phases, San Luis Rey I and San Luis Rey II, and the division is based upon the introduction of pottery (Meighan 1954). Through radiocarbon dating, the introduction of pottery and the initiation of San Luis Rey II began at approximately A.D. 1300. San Luis Rey I is characterized by the use of portable, shaped or unshaped slab metates, and non-portable bedrock milling features. Manos and pestles can also be shaped or unshaped. Cremations, bone awls, and stone and shell ornaments are also prominent in the material culture. Ceramic cooking and storage vessels, cremation urns, and polychrome pictographs augment the later San Luis Rey II assemblage. The fluorescence of rock art likely appeared as the result of increased populations and sedentism (True et al. 1974). Flaked stone dart points are dominated by the Cottonwood Triangular series, but Desert Side-Notched and Dos Cabazas Serrated styles also occur. Subsistence is thought to have focused on the utilization of acorns, a storable species that allowed for relative sedentism and increased population densities.

2.3.4 Late Holocene / Protohistoric Period / Ethnographic Groups (1790 to Present)

Ethnohistoric and ethnographic evidence indicates that three Shoshonean-speaking groups occupied portions of Riverside County including the Cahuilla, the Gabrielino, and the Luiseño (Figure 2.3–1). The geographic boundaries between these groups in pre- and proto-historic times are difficult to place, but the project is located well within the borders of ethnographic Luiseño territory. This group was a seasonal hunting and gathering people with cultural elements that were very distinct from Archaic Period peoples. These distinctions include cremation of the dead, the use of the bow and arrow, and exploitation of the acorn as a main food staple (Moratto 1984). Along the coast, the Luiseño made use of available marine resources by fishing and collecting mollusks for food. Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for Luiseño groups. Elaborate kinship and clan systems between the Luiseño and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian and other resources from the eastern deserts, as well as steatite from the Channel Islands.

According to Charles Handley (1967), the primary settlements of Late Prehistoric Luiseño Indians in the San Jacinto Plain were represented by *Ivah* and *Soboba* near Soboba Springs, *Jusipah* near the town of San Jacinto, *Ararah* in Webster's Canyon en route to Idyllwild, *Pahsitha* near Big Springs Ranch southeast of Hemet, and *Corova* in Castillo Canyon. These locations share features such as the availability of food and water resources. Features of this land use include petroglyphs and pictographs, as well as widespread milling, which is evident in bedrock and portable implements. Ethnographic data for the Luiseño is presented in the following discussion.

Luiseño

When contacted by the Spanish in the sixteenth century, the Luiseño occupied a territory bounded on the west by the Pacific Ocean, on the east by the Peninsular Range mountains at San Jacinto (including Palomar Mountain to the south and Santiago Peak to the north), on the south by Agua Hedionda Lagoon, and on the north by Aliso Creek in present-day San Juan Capistrano. The Luiseño were a Takic-speaking people more closely related linguistically and ethnographically to the Cahuilla, Gabrielino, and Cupeño to the north and east, rather than the Kumeyaay who occupied territory to the south (see Figure 2.3–1). The Luiseño differed from their neighboring Takic speakers in having an extensive proliferation of social statuses, a system of ruling families that provided ethnic cohesion within the territory, a distinct worldview that stemmed from the use of *datura* (a hallucinogen), and an elaborate religion that included the creation of sacred sand paintings depicting the deity *Chingichngish* (Bean and Shipek 1978; Kroeber 1925).

Figure 2.3–1

Ethnographic Map (circa 1770)

The Decker Parcels II Project

Subsistence and Settlement

The Luiseño occupied sedentary villages that were most often located in sheltered areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were located near water sources to facilitate acorn leaching, as well as in areas that offered thermal and defensive protection. Villages were composed of areas that were publicly and privately (by family) owned. Publicly owned areas included trails, temporary campsites, hunting areas, and quarry sites. Inland groups had fishing and gathering sites along the coast that were used intensively from January to March when inland food resources were scarce. During October and November, most of the village would relocate to mountain oak groves to harvest acorns. The Luiseño remained at village sites, where food resources were within a day's travel, for the remainder of the year (Bean and Shipek 1978; Kroeber 1925).

The most important food source of the Luiseño was the acorn, of which six different species were used (*Quercus californica, Quercus agrifolia, Quercus chrysolepis, Quercus dumosa, Quercus engelmannii,* and *Quercus wislizenii*). Seeds, particularly of grasses (Gramineae), composites (Compositae), and mints (Labiatae), were also heavily exploited. Seed-bearing species were encouraged through controlled burns, which were conducted at least every third year. A variety of other stems, leaves, shoots, bulbs, roots, and fruits were also collected. Hunting augmented this vegetal diet. Animal species taken included deer, rabbit (*Sylvilagus* spp.), hare (*Lepus californicus*), woodrat (*Neotoma* spp.), ground squirrel, antelope (*Antilocapra americana*), quail (*Callipepla californica* and *Oreortyx pictus*), duck (Anatidae), freshwater fish from mountain streams, marine mammals, and other sea creatures such as fish, crustaceans, and mollusks (particularly abalone, or *Haliotis* sp.). In addition, a variety of snakes, small birds, and rodents were eaten (Bean and Shipek 1978; Kroeber 1925).

Social Organization

Social groups within the Luiseño nation consisted of patrilinear families or clans, which were politically and economically autonomous. Several clans comprised a religious party, or *nota,* which was headed by a chief who organized ceremonies and controlled economics and warfare. The chief had assistants who specialized in particular aspects of ceremonial or environmental knowledge and who, with the chief, were part of a cultic social group with special access to supernatural power, particularly that of *Chingichngish*. The positions of chief and assistants were hereditary and the complexity and multiplicity of these specialists' roles likely increased in coastal and larger inland villages (Bean and Shipek 1978; Kroeber 1925; Strong 1929).

Marriages were arranged by the parents, often made to forge alliances between lineages. Useful alliances included those between groups of differing ecological niches and those that resulted in territorial expansion. Residence was patrilocal (Bean and Shipek 1978; Kroeber 1925). Women were primarily responsible for plant gathering and men principally hunted, although at times, particularly during acorn and marine mollusk harvests, there was no division

of labor. Elderly women cared for children and elderly men participated in rituals, ceremonies, political affairs, and were responsible for manufacturing hunting and ritual implements. Children were taught subsistence skills at the earliest age possible (Bean and Shipek 1978; Kroeber 1925).

Material Culture

House structures were conical, partially subterranean, and thatched with reeds, brush, or bark. Ramadas were rectangular, protected workplaces for domestic chores such as cooking. Ceremonial sweathouses were important in purification rituals; these were round and partially subterranean thatched structures covered with a layer of mud. Another ceremonial structure was the *wámkis* (located in the center of the village, serving as the place of rituals), where sand paintings and other rituals associated with the *Chingichngish* cult were performed (Bean and Shipek 1978; Kroeber 1925).

Clothing was minimal; women wore a cedar-bark and netted twine double apron and men wore a waist cord. In cold weather, cloaks or robes of rabbit fur, deerskin, or sea otter fur were worn by both sexes. Footwear included deerskin moccasins and sandals fashioned from yucca fibers. Adornments included bead necklaces and pendants made of bone, clay, stone, shell, bear claw, mica, deer hooves, and abalone shell. Men wore ear and nose piercings made from cane or bone, which were sometimes decorated with beads. Other adornments were commonly decorated with semiprecious stones including quartz, topaz, garnet, opal, opalite, agate, and jasper (Bean and Shipek 1978; Kroeber 1925).

Hunting implements included the bow and arrow. Arrows were tipped with either a carved, fire-hardened wooden tip or a lithic point, usually fashioned from locally available metavolcanic material or quartz. Throwing sticks fashioned from wood were used in hunting small game, while deer head decoys were used during deer hunts. Coastal groups fashioned dugout canoes for nearshore fishing and harvested fish with seines, nets, traps, and hooks made of bone or abalone shell (Bean and Shipek 1978; Kroeber 1925).

The Luiseño had a well-developed basket industry. Baskets were used in resource gathering, food preparation, storage, and food serving. Ceramic containers were shaped by paddle and anvil and fired in shallow open pits, and were used for food storage, cooking, and serving. Other utensils included wooden implements, steatite bowls, and ground stone manos, metates, mortars, and pestles (Bean and Shipek 1978; Kroeber 1925). Additional tools such as knives, scrapers, choppers, awls, and drills were also used. Shamanistic items include soapstone or clay smoking pipes and crystals made of quartz or tourmaline (Bean and Shipek 1978; Kroeber 1925).

Groups in the vicinity of the project neighboring the Luiseño include the Cahuilla and the Gabrielino. A description of this interaction sphere is given below.

Cahuilla

At the time of Spanish contact in the sixteenth century, the Cahuilla occupied territory that included the San Bernardino Mountains, Orocopia Mountain, and the Chocolate Mountains to the west, Salton Sea and Borrego Springs to the south, Palomar Mountain and Lake Mathews to the west, and the Santa Ana River to the north. The Cahuilla are a Takic-speaking people closely related to their Gabrielino and Luiseño neighbors, although relations with the Gabrielino were more intense than with the Luiseño. They differ from the Luiseño and Gabrielino in that their religion is more similar to the Mohave tribes of the eastern deserts than the *Chingichngish* cult of the Luiseño and Gabrielino. The following is a summary of ethnographic data regarding this group (Bean 1978; Kroeber 1925).

Subsistence and Settlement

Cahuilla villages were typically permanent and located on low terraces within canyons in proximity to water sources. These locations proved to be rich in food resources and also afforded protection from prevailing winds. Villages had areas that were publicly owned as well as areas that were privately owned by clans, families, or individuals. Each village was associated with a particular lineage and series of sacred sites that included unique petroglyphs and pictographs. Villages were occupied throughout the year; however, during a several-week period in the fall, most of the village members relocated to mountain oak groves to take part in acorn harvesting (Bean 1978; Kroeber 1925).

The use of plant resources by the Cahuilla is well documented. Plant foods harvested by the Cahuilla included Valley oak acorns (*Quercus lobata*) and single-leaf pinyon pine nuts (*Pinus monophylla*). Other important plant species included bean and screw mesquite (*Prosopis* spp.), agave (*Agave* sp.), Mohave yucca (*Yucca schidigera*), cacti (*Opuntia* sp.), palm (*Washingtonia filifera*), chia (*Salvia columbariae*), quail brush (*Atriplex lentiformis*), yellowray goldfield (*Lasthenia glabrata*), goosefoot (*Chenopodium fremontii*), manzanita (*Arctostaphylos* spp.), catsclaw (*Acacia greggii*), desert lily (*Hesperocallis undulata*), mariposa lily (*Calochortus kennedyi*), and a number of other species such as grass seed (Gramineae). A number of agricultural domesticates were acquired from the Colorado River tribes including corn, bean, squash, and melon grown in limited amounts. Animal species taken included deer, bighorn sheep (*Ovis canadensis*), pronghorn antelope, rabbit, hare, rat, quail, dove (*Zenaida* sp.), duck, roadrunner (*Geococcyx californianus*), and a variety of rodents, reptiles, fish, and insects (Bean 1978; Kroeber 1925).

Social Organization

The Cahuilla was not a political nation, but rather a cultural nationality with a common language. Two non-political, non-territorial patrimoieties were recognized, the Wildcats (túktem) and the Coyotes (?ístam). Lineage and kinship were memorized at a young age among the Cahuilla, providing a backdrop for political relationships. Clans were composed of three to

10 lineages; each lineage owned a village site and specific resource areas. Lineages within a clan cooperated in subsistence activities, defense, and rituals (Bean 1978; Kroeber 1925).

A system of ceremonial hierarchy operated within each lineage. The hierarchy included the lineage leader, who was responsible for leading subsistence activities, guarding the sacred bundle, and negotiating with other lineage leaders in matters concerning land use, boundary disputes, marriage arrangements, trade, warfare, and ceremonies. The ceremonial assistant to the lineage leader was responsible for organizing ceremonies. A ceremonial singer possessed and performed songs at rituals and trained assistant singers. The shaman cured illnesses through supernatural powers, controlled natural phenomena, and was the guardian of ceremonies, keeping evil spirits away. The diviner was responsible for finding lost objects, telling future events, and locating game and other food resources. Doctors were usually older women who cured various ailments and illnesses with their knowledge of medicinal herbs. Finally, certain Cahuilla specialized as traders, who ranged as far west as Santa Catalina and as far east as the Gila River (Bean 1978; Kroeber 1925).

Marriages were arranged by parents from opposite moieties. When a child was born, an alliance formed between the families, which included frequent reciprocal exchanges. The Cahuilla kinship system extended to relatives within five generations. Important economic decisions, primarily the distribution of goods, operated within this kinship system (Bean 1978; Kroeber 1925).

Material Culture

Cahuilla houses were dome-shaped or rectangular thatched structures. The home of the lineage leader was the largest, located near the ceremonial house and situated near the best access to water. Other structures within the village included the men's sweathouse and granaries (Bean 1978; Kroeber 1925).

Cahuilla clothing, like other groups in the area, was minimal. Men typically wore a loincloth and sandals; women wore skirts made from mesquite bark, animal skin, or tules. Babies wore mesquite bark diapers. Rabbit skin cloaks were worn in cold weather (Bean 1978; Kroeber 1925).

Hunting implements included the bow and arrow, throwing sticks, and clubs. Grinding tools used in food processing included manos, metates, and wooden mortars. The Cahuilla were known to use long, wooden grinding implements to process mesquite beans; the mortar was typically a hollowed wooden log buried in the ground. Other tools included steatite arrow shaft straighteners (Bean 1978; Kroeber 1925).

Baskets were made from rush (*Juncus* sp.), deer grass (*Muhlenbergia rigens*), and skunkbush (*Rhus trilobata*). Different species and leaves were chosen for different colors in the basket design. Coiled-ware baskets were either flat (for plates, trays, or winnowing), bowl-shaped (for food serving), deep, inverted cone-shaped (for transporting), or rounded and flat-bottomed for storing utensils and personal items (Bean 1978; Kroeber 1925).

Cahuilla pottery was made from a thin, red-colored ceramic ware that was often painted and incised. Four basic vessel types are known for the Cahuilla: small-mouthed jars, cooking pots, bowls, and dishes. Additionally, smoking pipes and flutes were fashioned from ceramic (Bean 1978; Kroeber 1925).

Gabrielino

At the time of Spanish contact, the territory of the Gabrielino, also known ethnographically as the Tongva, covered much of present-day Los Angeles and Orange counties. The southern extent of this culture area is bounded by Aliso Creek, the eastern extent is located east of present-day San Bernardino along the Santa Ana River, the northern extent includes the San Fernando Valley, and the western extent includes portions of the Santa Monica Mountains. The Gabrielino also occupied several Channel Islands including Santa Barbara Island, Santa Catalina Island, San Nicholas Island, and San Clemente Island. Because of their access to certain resources, including a steatite source from Santa Catalina Island, this group was among the wealthiest and most populous aboriginal groups in all of southern California. Trade of materials and resources controlled by the Gabrielino extended as far north as the San Joaquin Valley, as far east as the Colorado River, and as far south as Baja California (Bean and Smith 1978; Kroeber 1925).

Subsistence and Settlement

The Gabrielino lived in permanent villages and smaller, resource gathering camps occupied at various times of the year depending on the seasonality of the resource. Larger villages were comprised of several families or clans, while smaller, seasonal camps typically housed smaller family units. The coastal area between San Pedro and Topanga Canyon was the location of primary subsistence villages, while secondary sites were located near inland sage stands, oak groves, and pine forests. Permanent villages were located along rivers and streams, as well as in sheltered areas along the coast. As previously mentioned, the Channel Islands were also the locations of relatively large settlements (Bean and Smith 1978; Kroeber 1925).

Resources procured along the coast and on the islands were primarily marine in nature and included tuna (*Thunnus* spp.), swordfish (*Xiphias gladius*), ray and shark (Chondrichthyes), California sea lion (*Zalophus californianus*), Stellar sea lion (*Eumetopias jubatus*), harbor seal (*Phoca vitulina*), northern elephant seal (*Mirounga angustirostris*), sea otter (*Enhydra lutris*), dolphin and porpoise (Delphinidae and Phocoenidae), various waterfowl species, numerous fish species, purple sea urchin (*Strongylocentrotus purpuratus*), and mollusks, such as rock scallop (*Crassadoma gigantea*), California mussel (*Mytilus californianus*), and limpet (Fissurellidae and Acmaeidae). Inland resources included oak acorn, pine nut, Mohave yucca, cacti, sage (*Salvia* sp.), grass nut (*Triteleia laxa*), deer, rabbit, hare, rodent (Rodentia), quail, duck, and a variety of reptiles such as western pond turtle (*Clemmys marmorata*) and numerous different snakes (Bean and Smith 1978; Kroeber 1925).

Social Organization

The social structure of the Gabrielino is little known; however, there appears to have been at least three social classes: 1) the elite, which included the rich, chiefs, and their immediate family; 2) a middle class, which included people of relatively high economic status or long-established lineages; and 3) a class of people that included most other individuals in the society. Villages were politically autonomous units comprised of several lineages. During times of the year when certain seasonal resources were available, the village would divide into lineage groups and move out to exploit them, returning to the village between forays (Bean and Smith 1978; Kroeber 1925).

Each lineage had its own leader, with the village chief coming from the dominant lineage. Several villages might be allied under a paramount chief. Chiefly positions were of an ascribed status, most often passed to the eldest son. Chiefly duties included providing village cohesion, leading warfare and peace negotiations with other groups, collecting tribute from the village(s) under his jurisdiction, and arbitrating disputes within the village(s). The status of the chief was legitimized by his safekeeping of the sacred bundle, a representation of the link between the material and spiritual realms and the embodiment of power (Bean and Smith 1978; Kroeber 1925).

Shamans were leaders in the spirit realm. The duties of the shaman included conducting healing and curing ceremonies, guarding of the sacred bundle, locating lost items, identifying and collecting poisons for arrows, and making rain (Bean and Smith 1978; Kroeber 1925).

Marriages were made between individuals of equal social status and, in the case of powerful lineages, marriages were arranged to establish political ties between the lineages (Bean and Smith 1978; Kroeber 1925).

Men conducted the majority of the heavy labor, hunting, fishing, and trading with other groups. Women's duties included gathering and preparing plant and animal resources, and making baskets, pots, and clothing (Bean and Smith 1978; Kroeber 1925).

Material Culture

Gabrielino houses were domed, circular structures made of thatched vegetation. Houses varied in size and could house from one to several families. Sweathouses—semicircular, earth-covered buildings—were public structures used in male social ceremonies. Other structures included menstrual huts and a ceremonial structure called a *yuvar*, an open-air structure built near the chief's house (Bean and Smith 1978; Kroeber 1925).

Clothing was minimal; men and children most often went naked, while women wore deerskin or bark aprons. In cold weather, deerskin, rabbit fur, or bird skin (with feathers intact) cloaks were worn. Island and coastal groups used sea otter fur for cloaks. In areas of rough terrain, yucca fiber sandals were worn. Women often used red ochre on their faces and skin for adornment or protection from the sun. Adornment items included feathers, fur, shells, and beads (Bean and Smith 1978; Kroeber 1925).

Hunting implements included wooden clubs, sinew-backed bows, slings, and throwing clubs. Maritime implements included rafts, harpoons, spears, hook and line, and nets. A variety of other tools included deer scapulae saws, bone and shell needles, bone awls, scrapers, bone or shell flakers, wedges, stone knives and drills, metates, mullers, manos, shell spoons, bark platters, and wooden paddles and bowls. Baskets were made from rush, deer grass, and skunkbush. Baskets were fashioned for hoppers, plates, trays, and winnowers for leaching, straining, and gathering. Baskets were also used for storing, preparing, and serving food, and for keeping personal and ceremonial items (Bean and Smith 1978; Kroeber 1925).

The Gabrielino had exclusive access to soapstone, or steatite, procured from Santa Catalina Island quarries. This highly prized material was used for making pipes, animal carvings, ritual objects, ornaments, and cooking utensils. The Gabrielino profited well from trading steatite since it was valued so much by groups throughout southern California (Bean and Smith 1978; Kroeber 1925).

2.3.5 Ethnohistoric Period (1769 to Present)

European exploration along the California coast began in 1542 with the landing of Juan Rodriguez Cabrillo and his men at San Diego Bay. Sixty years after the Cabrillo expeditions, an expedition under Sebastian Viscaíno made an extensive and thorough exploration of the Pacific coast. Although the voyage did not extend beyond the northern limits of the Cabrillo track, Viscaíno had the most lasting effect on the nomenclature of the coast. Many of the names he gave to various locations have survived, whereas practically every one of the names given by Cabrillo has faded from use. For instance, Cabrillo gave the name of "San Miguel" to the first port at which he stopped in what is now the United States; 60 years later, Viscaíno changed it to "San Diego" (Rolle 1969). The early European voyages observed Native Americans living in villages along the coast but did not make any substantial, long-lasting impact. At the time of contact, the Luiseño population was estimated to have ranged from 4,000 to as many as 10,000 individuals (Bean and Shipek 1978; Kroeber 1925).

2.3.6 Historic Period

The historic background of the project area began with the Spanish colonization of Alta California. The first Spanish colonizing expedition reached southern California in 1769 with the intention of converting and civilizing the indigenous populations, as well as expanding the knowledge of and access to new resources in the region (Brigandi 1998). In the late eighteenth century, the San Gabriel (Los Angeles County), San Juan Capistrano (Orange County), and San Luis Rey (San Diego County) missions began colonizing southern California and gradually expanded their use of the interior valley (into what is now western Riverside County) for raising grain and cattle to support the missions (Riverside County n.d.). The San Gabriel Mission claimed lands in what is now Jurupa, Riverside, San Jacinto, and the San Gorgonio Pass, while the San Luis Rey Mission claimed land in what is now Lake Elsinore, Temecula, and Murrieta

(American Local History Network: Riverside County, California 1998). The indigenous groups who occupied these lands were recruited by missionaries, converted, and put to work in the missions (Pourade 1964). Throughout this period, the Native American populations were decimated by introduced diseases, a drastic shift in diet resulting in poor nutrition, and social conflicts due to the introduction of an entirely new social order (Cook 1976).

In the mid- to late 1770s, Juan Bautista de Anza passed through much of Riverside County while searching for an overland route from Sonora, Mexico to San Gabriel and Los Angeles, describing fertile valleys, lakes, and sub-desert areas (American Local History Network: Riverside County, California 1998; Riverside County n.d.). In 1797, Father Presidente Lausen, Father Norberto de Santiago, and Corporal Pedro Lisalde led an expedition from Mission San Juan Capistrano through southwestern Riverside County in search of a new mission site before constructing Mission San Luis Rey in northern San Diego County (Brigandi 1998).

While no missions were ever built in what would become Riverside County (American Local History Network: Riverside County, California 1998), many mission outposts, or *asistencias,* were established in the early years of the nineteenth century to extend the missions' influence to the backcountry (Brigandi 1998). Two outposts that were located in Riverside County include San Jacinto and Temecula.

Mexico gained independence in 1822 and desecularized the missions in 1832, signifying the end of the Mission Period (Brigandi 1998; Riverside County n.d.). By this time, the missions owned some of the best and most fertile land in southern California. In order for California to develop, the land would have to be made productive enough to turn a profit (Brigandi 1998). The new government began distributing the vast mission holdings to wealthy and politically connected Mexican citizens. The "grants" were called "ranchos," of which Jurupa, El Rincon, La Sierra, El Sobrante de San Jacinto, La Laguna (Lake Elsinore), Santa Rosa, Temecula, Pauba, San Jacinto Nuevo y Potrero, and San Jacinto Viejo were located in present-day Riverside County. Many of these ranchos have lent their names to modern-day locales (American Local History Network: Riverside County, California 1998). Rancho Jurupa, the first grant located in present-day Riverside County, was given to Juan Bandini in 1838. These ranchos were all located in the valley environments typical of western Riverside County.

The treatment of Native Americans grew worse during the Rancho Period. Most of the Native Americans were forced off of their land or put to work on the now privately owned ranchos, most often as slave labor. In light of the brutal ranchos, the degree to which Native Americans had become dependent on the mission system becomes evident when, in 1838, a group of Native Americans from the San Luis Rey Mission petitioned government officials in San Diego to relieve suffering at the hands of the rancheros:

> We have suffered incalculable losses, for some of which we are in part to be blamed for because many of us have abandoned the Mission … We plead and beseech you … to grant us a Rev. Father for this place. We have been

> accustomed to the Rev. Fathers and to their manner of managing the duties. We labored under their intelligent directions, and we were obedient to the Fathers according to the regulations, because we considered it as good for us. (Brigandi 1998:21)

Native American culture had been disrupted to the point where they could no longer rely on prehistoric subsistence and social patterns. Not only does this illustrate how dependent the Native Americans had become on the missionaries, but it also indicates a marked contrast in the way the Spanish treated the Native Americans compared to the Mexican and United States ranchers. Spanish colonialism (missions) is based upon utilizing human resources while integrating them into their society. The ranchers, both Mexican and American, did not accept Native Americans into their social order and used them specifically for the extraction of labor, resources, and profit. Rather than being incorporated, they were either subjugated or exterminated (Cook 1976).

In 1846, war erupted between Mexico and the United States. In 1848, with the signing of the Treaty of Guadalupe Hidalgo, the region was annexed as a territory of the United States, leading to California becoming a state in 1850. These events generated a steady flow of settlers into the area, including gold miners, entrepreneurs, health seekers, speculators, politicians, adventurers, seekers of religious freedom, and individuals desiring to create utopian colonies.

In early 1852, the Native Americans of southern Riverside County, including the Luiseño and the Cahuilla, thought they had signed a treaty resulting in their ownership of all lands from Temecula to Aguanga, east to the desert, including the San Jacinto Valley and the San Gorgonio Pass. The Temecula Treaty also included food and clothing provisions for the Native Americans. However, Congress never ratified the treaties, and the promise of one large reservation was rescinded (Brigandi 1998).

With the completion of the transcontinental railroad in 1869, land speculators, developers, and colonists began to invest in southern California. The first colony in what was to become Riverside County was Riverside itself. Judge John Wesley North, an abolitionist from Tennessee, brought a group of associates and co-investors out to southern California and founded Riverside on part of the Jurupa Rancho. A few years after, the navel orange was planted and found to be such a success that it quickly became the agricultural staple of the region. (American Local History Network: Riverside County, California 1998).

By the late 1880s and early 1890s, there was growing discontent between Riverside and San Bernardino, its neighbor 10 miles to the north, due to differences in opinion concerning religion, morality, the Civil War, politics, and fierce competition to attract settlers. After a series of instances in which charges were claimed about unfair use of tax monies to the benefit of the city of San Bernardino only, several people from Riverside decided to investigate the possibility of a new county. In May of 1893, voters living within portions of San Bernardino County (to the north) and San Diego County (to the south) approved the formation of Riverside County. Early

business opportunities were linked to the agricultural industry but commerce, construction, manufacturing, transportation, and tourism also provided a healthy local economy. By the time of Riverside County's formation, Riverside had grown to become the wealthiest city per capita in the country due to the successful cultivation of the navel orange (American Local History Network: Riverside County, California 1998; Riverside County n.d.).

2.4 Research Goals

The primary goal of the research design is to attempt to understand the way in which humans have used the land and resources within the project area through time, as well as to aid in the determination of resource significance. For the current project, the study area under investigation is the western portion of Riverside County. The scope of work for the archaeological program conducted for the Decker Parcels II Project included the survey of approximately 35.47 acres and the subsequent evaluation of cultural resources. Given the area involved and the narrow focus of the cultural resources study, the research design for this project was necessarily limited and general in nature. Since the main objective of the investigation was to identify the presence of, significance of, and potential impacts to cultural resources, the goal here is not necessarily to answer wide-reaching theories regarding the development of early southern California, but to investigate the role and importance of the identified resources. Nevertheless, the assessment of the significance of a resource must take into consideration a variety of characteristics, as well as the ability of the resource to address regional research topics and issues.

Although initial site evaluation investigations are limited in terms of the amount of information available, several specific research questions were developed that could be used to guide the initial investigations of any observed cultural resources. The basic research effort employed for this project was focused upon the gathering of sufficient data to determine the boundaries of each resource, the depth, stratigraphy, and contents of any subsurface deposits, and the overall integrity of the site. Testing and recordation of the contents of the site would provide the basis to complete an analysis of spatial relationships of artifacts, features, and natural resources. Ultimately, this information forms the foundation to determine the cultural affiliation of the site, the period of occupation, site function, and potential to address more focused research questions. The following research questions take into account the small size and location of the project area discussed above.

Research Questions:

- Can located cultural resources be situated with a specific time period, population, or individual?
- Do the types of located cultural resources allow a site activity/function to be determined from a preliminary investigation? What are the site activities? What is the site function? What resources were exploited?

- How do the located sites compare to others reported from different surveys conducted in the area?
- How do the located sites fit existing models of settlement and subsistence for valley environments of the region?

Data Needs

At the survey level, the principle research objective is a generalized investigation of changing settlement patterns in both the prehistoric and historic periods within the study area. The overall goal is to understand settlement and resource procurement patterns of the project area occupants. Therefore, adequate information on site function, context, and chronology from an archaeological perspective is essential for the investigation. The fieldwork and archival research was undertaken with these primary research goals in mind:

1) To identify cultural resources occurring within the project area;
2) To determine, if possible, site type and function, context of the deposit, and chronological placement of each cultural resource identified;
3) To place each cultural resource identified within a regional perspective; and
4) To provide recommendations for the treatment of each of the cultural resources identified.

3.0 METHODOLOGY

The archaeological program for the Decker Parcels II Project consisted of an institutional records search, an intensive pedestrian survey of the approximately 35.47-acre project area, significance testing of three prehistoric milling sites, and preparation of a technical study. This archaeological study conformed to County of Riverside Cultural Resource Guidelines (Draft), although at time of the preparation of this study, the project had not been submitted to the County as a development application and the property ownership requested this study to determine the potential impacts of cultural resources upon the development potential of the project. Statutory requirements of CEQA and subsequent legislation (Section 15064.5) were followed in evaluating the significance of cultural resources. Specific definitions for archaeological resource type(s) used in this report are those established by the State Historic Preservation Office (SHPO March, 1995).

3.1 Archaeological Records Search

The records search conducted by the EIC at UCR was reviewed for an area of one mile surrounding the project in order to determine the presence of any previously recorded sites. Results of the records search are provided in Appendix C and discussed in Section 4.1. The EIC also provided the standard review of the National Register of Historic Places and the Office of Historic Preservation Historic Property Directory. Land patent records, held by the Bureau of Land Management (BLM) and accessible through the BLM General Land Office (GLO) website, were also reviewed for pertinent project information. In addition, the BFSA research library was consulted for any relevant historical information.

3.2 Field Methodology

Archaeological records search results indicated that the project had not been previously surveyed, although studies have been completed for several adjoining and nearby properties. In accordance with County CEQA review requirements, an intensive pedestrian reconnaissance was conducted that employed a series of parallel survey transects spaced at five- to 15-meter intervals to locate archaeological sites within the project. The archaeological survey of the project was conducted on December 29, 2014. CEQA significance testing of identified resources within the project area was conducted from January 14, 2015 to February 27, 2015. The entire project was covered by the survey process. Photographs were taken to document project conditions during the survey (see Section 4.3). Ground visibility throughout the property ranged from good to excellent with minimal ground cover. The survey resulted in the relocation of two previously recorded sites (RIV-1330/H and RIV-8901) and the identification of one previously unrecorded prehistoric site, which was given the designation of RIV-11,874.

The cultural resource test strategy employed for RIV-1330/H, RIV-8901, and RIV-11,874 consisted of detailed recordation of the bedrock milling features and collection of any

surface artifacts, completion of subsurface investigations, and a significance evaluation. All milling features and any surface artifacts within the project boundaries were mapped using a Trimble Geo XT Global Positioning System (GPS) unit equipped with TerraSync software. The testing program also included the detailed recordation of all milling features within the three prehistoric sites. Documentation of milling features included mapping each feature with the GPS instrument and recording the measurements of each bedrock feature and milling surface. The attributes of each surface were recorded on data forms developed specifically for the recordation of milling surfaces; the length, width, and depth of each surface was noted, in addition to the general overall characteristic of the surface (*i.e.,* slick, oval, mortar, etc.). In certain areas of the site, accumulated soils were removed from the surface of bedrock features so that the entire surface of each feature was exposed. The features were sketched and photographed as part of the recordation process.

Subsurface testing was completed at prehistoric sites RIV-1330/H, RIV-8901, and RIV-11,874 to evaluate the CEQA significance at each prehistoric milling site. Each site was subjected to the testing program because of the potential to be directly or indirectly impacted by development. Subsurface examination of the three milling sites was conducted through the excavation of a series of STPs. The excavations were completed to determine if cultural deposits were present. Placement of the STPs was dependent upon the locations of the milling features and previously recorded midden boundaries. The shovel test series consisted of 30x30-centimeter excavations, which proceeded in decimeter levels downward a minimum depth of 30 centimeters where sufficient soils remained. Given that the results of the 2015 testing of RIV-1330/H did not reflect the results of Drover's 1992 study, two additional test unit excavations were placed in locations adjacent to Drover's units. The test units consisted of one-square-meter units placed within the previously recorded midden boundary. All excavated soils were sifted through one-eighth-inch mesh hardware cloth.

3.3 Laboratory Methods

In keeping with generally accepted archaeological procedures and utilizing a classification system commonly employed in this region, the collected artifacts were categorized as to artifact class, material class, and technological class. Comparative collections at the BFSA laboratory were employed in identifying the unusual or highly fragmentary specimens as necessary. After cataloging and identification, the collections were marked with the appropriate provenience and catalog information, and then packaged for permanent curation. No radiocarbon dating or other specialized studies were conducted based upon the limits of the materials recovered from across the project area for the current phase of the project.

3.4 Report Preparation and Recordation

This report contains information regarding previous studies, statutory requirements for the project, a brief description of the setting, research methods employed, and the overall results of the survey. The report includes all appropriate illustrations and tabular information needed to make a complete and comprehensive presentation of these activities, including the methodologies employed and the personnel involved. A copy of this report will be placed at the EIC at UCR. Any newly recorded sites or sites requiring updated information will be recorded on the appropriate DPR forms, which will be filed with the EIC.

3.5 Native American Consultation

The analysis of site components and artifacts did not indicate Native American religious, ritual, or other special activities at this location. In addition, BFSA requested a review of the Sacred Lands File (SLF) by the Native American Heritage Commission (NAHC) to determine if any recorded Native American sacred sites or locations of religious or ceremonial importance are present within one mile of the project. The NAHC SLF search did not indicate the presence of a sacred site within the search radius. A list of Native American contacts was also provided by the NAHC. Original correspondence is provided in Appendix D. In light of potential project concerns regarding cultural resources within the project APE, Neil Holdridge, the project proponent representative from Trammel Crow Southern California Development, Inc., requested a preliminary meeting with the Pechanga Band of Luiseño Indians (PBLI). The meeting was conducted at the Pechanga Cultural Center on June 10, 2015 and included representatives from Trammel Crow, BFSA, and the PBLI. During the course of the meeting, the PBLI expressed their concerns with regards to potential on-site and off-site impacts to cultural resources. Additionally, the PBLI requested site data in the form of GIS files and site data plotted on project development maps. Since the time of the meeting, this data has been provided to the PBLI for their consideration.

3.6 Applicable Regulations

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of Riverside County in history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance. Specifically, criteria outlined in CEQA provide the guidance for making such a determination. The following sections detail the CEQA criteria that a resource must meet in order to be determined important.

3.3.1 California Environmental Quality Act

According to CEQA (§15064.5a), the term "historical resource" includes the following:

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 (Public Resources 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 of 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 (Public Resources Code SS5024.1, Title 14, 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 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 Section 5020.1(j) or 5024.1.

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change as:

1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
2) The significance of an historical resource is materially impaired when a project:

    a) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; 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 Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, 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 an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects on archaeological sites and contains the following additional provisions regarding archaeological sites:

1) When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).
2) If a lead agency determines that the archaeological site is an historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, Section 15126.4 of the guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.
3) If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21803.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.

4) If an archaeological resource is neither a unique archaeological nor historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) & (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

(d) When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code SS5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the NAHC. Action implementing such an agreement is exempt from:

1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5).
2) The requirement of CEQA and the Coastal Act.

4.0 RESULTS

4.1 Records Search Results

An archaeological records search for the project and the surrounding area within a one-mile radius was conducted by the EIC at UCR. The EIC reported that two cultural resources (RIV-1330/H and RIV-8901) are located within the subject property and 73 cultural resources are located within a one-mile radius. Site RIV-1330/H is a multicomponent site with a historic water tank surrounded by a prehistoric milling site and RIV-8901 was recorded as bedrock milling stations generally north of the current study property line. The 73 sites located within a one-mile radius of the project include 64 bedrock milling sites, two historic railroad tracks, one historic debris site, three historic residences, one World War II barracks, one historic trash deposit, and one historic steel pipeline. Brief descriptions of the 75 recorded sites located within one mile of the project area are provided in Table 4.1–1 and the complete records search results are provided in Appendix C.

The records search also indicated that there have been a total of 50 cultural resource studies conducted within a one-mile radius of the proposed project area (Table 4.1–2). The EIC reviewed the following historic sources:

- The National Register of Historic Places Index
- The Office of Historic Preservation, Archaeological Determinations of Eligibility
- The Office of Historic Preservation, Directory of Properties in the Historic Property Data File
- The 15' USGS *Riverside* topographic map (1901)
- The 15' USGS *Riverside* topographic map (1942)
- The 30' USGS *Elsinore* topographic map (1901)

BFSA also requested a records search of the SLF of the NAHC. The NAHC SLF search did not indicate the presence of a sacred site within the search radius. A list of Native American contacts was also provided by the NAHC. Original correspondence is provided in Appendix D.

Table 4.1–1
Archaeological Sites Located Within One Mile
of the Decker Parcels II Project

Site(s)	Description
RIV-1263, RIV-1336, RIV-2013, RIV-2725, RIV-3500, RIV-3501, RIV-5356, RIV-5357, RIV-5358, RIV-5359, RIV-5360, RIV-5361, RIV-5362, RIV-5363, RIV-5364, RIV-5365, RIV-5366, RIV-5367,	Bedrock milling sites

Site(s)	Description
RIV-5368, RIV-5369, RIV-5370, RIV-5371, RIV-5372, RIV-5373, RIV-5374, RIV-5375, RIV-5376, RIV-5377, RIV-5378, RIV-5379, RIV-5380, RIV-5381, RIV-5382, RIV-5383, RIV-5384, RIV-5385, RIV-5386, RIV-5387, RIV-5389, RIV-5390, RIV-5391, RIV-5392, RIV-5393, RIV-5394, RIV-5824, RIV-5825, RIV-6663, RIV-6664, RIV-7465, RIV-7466, RIV-7467, RIV-7468, RIV-7469, RIV-7549, RIV-8401, RIV-8402, RIV-8884, RIV-8885, RIV-8886, RIV-8887, RIV-8888, RIV-8889, RIV-8890, RIV-8900, and RIV-8901	
RIV-1330/H	Historic concrete water tank with a well tunnel and a prehistoric milling site with a midden deposit
RIV-1183 and RIV-8196	Historic railroad tracks
RIV-4767	Historic debris
P-33-7639, P-33-8702, and RIV-8390	Historic residences
P-33-7650	Historic 1941 World War II barracks
RIV-5826/H	Historic trash deposit
P-33-8701	Historic steel pipeline

Table 4.1–2
Previous Studies Conducted Within One Mile
of the Decker Parcels II Project

Alexandrowicz, John Stephen
2006 "An Historical Resources Investigation at the Rocha's Farm, 21550 Corson Avenue, Perris, Riverside County, California." Archaeological Consulting Services. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Bean, Lowell John, Sylvia Brakke Vane, Matthew C. Hall, Harry Lawton, Richard Logan, Lee Gooding Massey, John Oxendine, Charles Rozaire, and David P. Whistler
1979 "Cultural Resources and the Devers-Mira 500 kV Transmission Line Route (Valley to Mira Loma Section)." Cultural Systems Research, Incorporated, Menlo Park, CA. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Billat, Lorna
2005 "New Tower ("NT") Submission Packet FCC Form 620 (Project Chelsea Project No. CA-5365C)." Earth Touch, Inc., Layton, UT. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Bourscaren, Stephen
1981 "Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 16378, Val Area of Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Cotterman, Cary D., Evelyn N. Chandler, and Roger D. Mason
2005 "Cultural Resources Survey of A 1-Acre Parcel in Perris, Riverside County, CA (APN 314-110-030." ECORP Consulting, Inc. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Doolittle, Christopher and Susan Hogan-Conrad
2007 Archaeological Survey Report for Southern California Edison's Barnes/Perry Street Project, City of Perris, Riverside County, California." Earth Tech, Inc. Submitted to Private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Drover, Christopher
1989 "A Cultural Resource Inventory: Oakwood Industrial Park – Tentative Parcel Map 24110, Near Perris, California." Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1992a "Environmental Impact Evaluation: An Archaeological Test Phase, CFD 88-8, 8.4 MG [Million-Gallon] Water Tank Site; Archaeological Site RIV-1330, Woodcrest, California." Submitted to Riverside County Transportation Department Traffic Division. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1992b "An Archaeological Assessment of 'A' Street North and South Improvements and Proposed EMWD Pump Station Site, Riverside County Transportation Department, North of Perris, California." Submitted to Private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Earth Touch, Inc.
2009 "Verizon Colo Jet." Earth Touch, Inc., Layton, Utah. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

George, Joan and Vanessa Mirro
2013 "Cultural Resources Construction Monitoring: Knox Logistics Center Project, Riverside County." Applied Earth Works, Inc. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Hogan, Michael, Bai Tang, and Josh Smallwood
2004 "Historical/Archaeological Resources Survey Report, Specific Plan No. 341/EIR 466, Near the City of Perris, Riverside County, California." CRM Tech, Riverside, CA. Submitted to private. Unpublished report on file at the Eastern Information Center, University of

California at Riverside, Riverside, California 92521.

Hogan, Michael, Bai Tang, Josh Smallwood, and Dicken Everson
2004 Archaeological Testing and Site Evaluations, Specific Plan No. 341/466, Near the City of Perris, Riverside County, California." CRM Tech, Riverside, CA. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Hogan, Michael, Bai Tang, Josh Smallwood, and John J. Eddy
2004 "Historical/Archaeological Resources Survey Report, Assessor's Parcel Numbers 314-100-077, Near the City of Perris, Riverside County, California." CRM Tech. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Hoover, Anna M., Kristie R. Blevins, and Hugh Wagner
2005 "A Phase I Archaeological and Paleontological Survey Report on the Oleander Property, APNs 295-310-001, -048 & -052, 69.41 acres, County of Riverside, California." L&L Environmental, Inc. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Keller, Jean S.
1988 "An Archaeological Assessment of Plot Plan 10,873, Riverside County, California." Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1994 "A Phase I Cultural Resources Assessment of Riverside Grand Prix, 245.57 Acres of Land Near Perris, Riverside County, California." Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

2013 "A Phase I Cultural Resources Assessment of Tentative Parcel Map 36512, APN 314-170-005, 013 through 016; 314-140-056; 314-180-001, 007, 009, 010, 011, 013, 014." Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Leonard, Nelson N., III and Donna Belligio
1977 "An Archaeological Evaluation of the Proposed Road Improvements in the Mead Valley Vicinity, Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Love, Bruce and Bai "Tom" Tang
1999 "Identification and Evaluation of Historic Properties Perris Valley Industrial Corridor Infrastructure Project Near the City of Perris, Riverside County, California." CRM Tech. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Love, Bruce, Bai Tom Tang, and Melissa Hernandez
2005 "Identification and Evaluation of Historic Properties, March ARB Wastewater Treatment

Plant Expansion and Recycled Water Pipeline, Near March Air Reserve Base, Riverside County, CA." ERM Tech. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Love, Bruce, Bai "Tom" Tang, Daniel Ballester, and Mary Hillis Shockley
2001 "Historical/Archaeological Resources Survey Report, March ARB Wastewater Treatment Plant Expansion, Near March Air Reserve Base, Riverside County, California." CRM Tech. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Macko, Michael E.
1991 "Archaeological Assessment of the Proposed Oak Park Commerce Center, Parcel Map 25101, ASA #18, With Related Plot Plans 12468 and 12470, Riverside County, California." Macko Archaeological Consulting. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Manley, William
1995 "Historic Building Inventory and Evaluation, March Air Force Base." Earth Tech and William Manley Consulting. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

McDonald, Meg and Barb Giacomini
1996 "An Intensive Survey of Approximately 2,500 Acres of March Air Force Base, Riverside County, California." ASM Affiliates, Inc. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

McGinnis, Patrick
2007 "Archaeological Survey Report of the I-215/Van Buren Boulevard Interchange Project, Riverside County, California." Tierra Environmental Services. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

McKenna, Jeanette A.
2006 "A Phase I Cultural Resources Investigation of the Associated Ready Mix Project Area (2.5 ac.) in the City of Perris, Riverside County, California." McKenna et al. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Moreno, Adrian Sanchez
2007 "Archaeological Survey Report for Southern California Edison Company, Pulliam Commercial Building Project on the Tava 12KV Circuit, Riverside County, California (WO#6877-2404, AI# 7-2301)." Jones & Stokes. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Oxendine, Joan
1979a "Archaeological Assessment of PM 13082." Riverside County Planning Department.

Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1979b "Archaeological Assessment of PM 14880." Riverside County Planning Department. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1979c "Archaeological Assessment of PM 14881." Riverside County Planning Department. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1980 "Archaeological Assessment of PM 14882." Riverside County Planning Department. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Parr, Robert E.

1989a "An Archaeological Assessment of Assessor's Parcel 314-100-001 Located Near Val Verde in Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1989b "An Archaeological Assessment of Assessor's Parcel 314-050-006 Located Near Val Verde in Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1989c "An Archaeological Assessment of Assessor's Parcel 314-040-004, Located Near Val Verde in Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1989d "An Archaeological Assessment of Assessor's Parcel 314-040-006, Located Near Val Verde in Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1989e "An Archaeological Assessment of Assessor's Parcel 314-040-020-023, Located Near Val Verde in Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1989f "An Archaeological Assessment of Assessor's Parcel 314-110-001, Located Near Val Verde in Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

1989g "An Archaeological Assessment of Assessor's Parcel 314-120-009, Located Near Val Verde in Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center,

University of California at Riverside, Riverside, California 92521.

1989h "An Archaeological Assessment of Assessor's Parcel 314-100-002, Located Near Val Verde in Western Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Peak and Associates

1990 "Part III, Addendum To: Cultural Resources Assessment of AT&T's Proposed San Bernardino to San Diego Fiber Optic Cable, San Bernardino, Riverside, and San Diego Counties, California." Peak and Associates. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Pollack, Katherine H.

2007 "Archaeological Assessment of the Southern Half of Hammock 33kV Overhead DSP Project, March Air Reserve Base, Riverside County, California." Southern California Edison. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Salpas, Jean A.

1983 "An Archaeological Assessment of Parcel 19359." Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Sanders, Jay K.

2010 "Archaeological Survey for Southern California Edison Poles Replacement Project: Riverside County, California." Chambers Group, Inc. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Schultze, Carol A. and John R. Cook

1996 "A Cultural Resource Survey of Landfill Remediation Area IRP-24Y, Riverside County, California." ASM Affiliates, Encinitas Blvd. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Tang, Bai "Tom"

2012 "Letter Report: Historical/Archaeological Resources Analyses: Discount Tire Cross Dock Facility; a Portion of Specific Plan Co. 341-EIR 466." CRM Tech. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Tang, Bai "Tom," Michael Hogan, Clarence Bodmer, Josh Smallwood, and Melissa Hernandez

2007 "Cultural Resources Technical Report, North Perris Industrial Specific Plan, City of Perris, Riverside County, California." CRM Tech. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Taskiran, Ayse
1992 "Cultural Resources Assessment: Tentative Parcel 26697, Located in the Perris Area of Riverside County, California." Archaeological Research Unit, UC Riverside. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Tsunoda, Koji
2007 "Archaeological Survey Report for Southern California Edison Company Service Extension Project on the Pinewood 12kV Circuit in Riverside County, California (WO#6677-1339, AI# 7-1214, JO#6102-0468)." Jones & Stokes. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

Workman, James E.
2001 "Cupules A Type of Petroglyphic Rock Art. A Study of the Pitted Boulders in the San Jacinto Wildlife Area and the Lake Perris State Recreational Area." Indian Rock Art Specialist. Submitted to private. Unpublished report on file at the Eastern Information Center, University of California at Riverside, Riverside, California 92521.

4.2 Results of the Field Survey

The archaeological survey of the project was conducted on December 29, 2014. All elements of the survey were directed by Principal Investigator Brian F. Smith with field archaeologist Clarence Hoff. The archaeological survey of the property was an intensive reconnaissance consisting of a series of parallel survey transects spaced at approximately five- to 15-meter intervals. The entire property was accessible with approximately 95 percent ground visibility, which was only affected by occasional ground vegetation. Nearly the entire project has been disturbed by past agricultural use. The property topography is characterized by an east-facing slope on the west side of the project and a seasonal drainage in the southwest corner. With the exception of the east-facing slope, the rest of the property is relatively flat.

During the pedestrian survey, the observation was made that the majority of the property has been cleared and tilled in the past. This characterization of a disturbed agricultural landscape is relevant to the consideration of the presence of cultural resources within the project area. Many areas in and around the property have been disturbed by agricultural use and to a lesser extent, by the construction of the water tank adjacent to the southwest corner of the property. Photographs were taken to document project conditions at the time of the survey.

Plate 4.2–1: Project overview, facing east.

The survey resulted in the relocation of two previously recorded bedrock milling sites (RIV-1330/H and RIV-8901) and the identification of one unrecorded prehistoric site (RIV-11,874) characterized as a bedrock milling site. The locations of the cultural resources on the project have been illustrated on Figure 4.2–1.

Site RIV-1330/H was recorded in 1978 by J. Swenson as a milling site with a possible rock art panel that was defaced by spray paint, a historic water tank, and a man-made cave. In 1992, Christopher Drover was hired by the Riverside County Transportation Department to study RIV-1330/H as part of the County of Riverside's construction of a new 8.4-MG water tank project on a hilltop that included part of the site. According to Drover's archaeological study, the site was described as a multicomponent site of prehistoric milling features and a historic cistern and "tunnel." Drover reported 18 boulders with milling surfaces and conducted subsurface testing (17 test units) within the new water tank property at the southwest corner of the Decker Parcels II property.

Figure 4.2–1
Cultural Resource Location Map

(Deleted for Public Review; Bound Separately)

Drover indicated that a centralized midden deposit was present in the area of the proposed water tank, but noted a lack of surface artifacts that he attributed to pothunters. The tunnel reported by both Swenson and Drover is known as the Val Verde Tunnel and was constructed as part of the Colorado River aqueduct project (the tunnel is abandoned at this time) (Riverside Press-Enterprise: June 25, 1992). The historic cistern was filled with soil by 1992. The portion of this site associated with Drover's study has been destroyed by the construction of the modern water tank on a hill immediately adjacent to the southwest corner of the project. The tunnel has been filled and portions of the site have been disturbed by the construction process. The current study was able to relocate 13 milling features within the Decker Parcels II property, all of which were recorded and photographed. Surface visibility was excellent; however, only three surface artifacts, a mano and two metate fragments, were observed and collected during the field study. During the testing program, 34 STPs were placed in the vicinity of the bedrock milling features that are scattered along the drainage course and associated slopes. All STP excavations were negative for cultural materials. Although no subsurface cultural materials were encountered during these excavations, Drover's study was positive for cultural materials so two test units were placed within the prerecorded boundaries of RIV-1330/H to verify that the midden soil had indeed been removed from the site by grading activities. The test unit excavations were also negative for cultural materials. In addition, no evidence of the possible pictograph reported by Swenson in 1978 could be found. Because Site RIV-1330/H did not produce any evidence of subsurface cultural deposits, it was evaluated as not significant under CEQA criteria due to a lack of both a subsurface deposit and the ability to provide any further research potential.

Site RIV-8901 was initially recorded by Keller in 1994 as three groups of milling stations that were recorded separately as RIV-5364, RIV-5365, and RIV-5366. The boundaries of RIV-8901 were expanded southward as part of the Decker Parcels II Project. Keller's work was completed in 1994 for the proposed Riverside Grand Prix facility. Within the 245.57-acre proposed development, Keller identified 41 milling stations that lacked any associated midden or artifacts. Subsequently, CRM Tech conducted an updated study for a new project and lumped the three milling features (RIV-5364, RIV-5365, and RIV-5366) into one site as RIV-8901. The current study of the Decker Parcels II Project identified a continuation of RIV-8901 located south of the area of the CRM Tech study, extending into the Decker Parcels II property. An updated site form has been prepared for RIV-8901 to denote the boundary change and additional milling features. The studies by Keller and CRM Tech indicated that the land north of the Decker Parcels II property contains approximately 60 milling sites (primarily single milling features) that collectively represent a dispersed prehistoric activity area with minimal use milling surfaces and marginal artifact scatters. The testing program for RIV-8901 consisted of recording 10 bedrock milling features located within the project boundaries and conducting subsurface investigations. The majority of this recorded site lies to the north and west of the Decker Parcels II Project. During the testing program, 24 STPs were placed in the vicinity of the bedrock milling features. No subsurface cultural materials were encountered during testing. Because the

study of Site RIV-8901 did not produce any artifacts or evidence of a subsurface deposit, it was evaluated as not significant under CEQA criteria due to a lack of both a subsurface deposit and the ability to provide any further research potential.

The testing program for RIV-11,874 consisted of recording the singular bedrock milling feature with one slick. No surface artifacts were observed during the field survey or significance testing. During the testing program, three STPs were placed adjacent to the bedrock milling feature. No subsurface cultural materials were encountered during testing. Because the study of Site RIV-11,874 did not produce any artifacts or subsurface deposits, this site was evaluated as not significant under CEQA criteria due to a lack of both a subsurface deposit and the ability to provide any further research potential.

4.3 Results of Significance Testing – Site RIV-1330/H

The investigation of RIV-1330/H was initiated with an intense review of the surface of the site to locate all milling features and any prehistoric artifacts, as well as to determine if any historic features or artifacts might be associated with the concrete water tank and "tunnel" reported in 1978. A photograph of the current setting of RIV-1330/H is provided in Plate 4.3–1.

Plate 4.3–1: Overview of Site RIV-1330/H, facing west.

Within the property boundaries, the BFSA field crew identified 13 bedrock milling features (BMFs A through M) with a total of 33 slicks, four mortars, one basin, and four rubs. The milling features and general boundary for RIV-1330/H are illustrated on Figure 4.3–1. All milling features were mapped using sub-meter GPS instruments. For each milling feature within the project, all milling surfaces were outlined with chalk, measured, and sketched (Plates 4.3–2 through 4.3–14 and Figures 4.3–2 through 4.3–14). The type and dimensions of each milling surface are provided in Table 4.3–1.

Figure 4.3–1
Excavation Location Map
Site RIV-1330/H

(Deleted for Public Review; Bound Separately)

Plate 4.3–2: Overview of BMF A at Site RIV-1330/H, facing north.

Figure 4.3–2: Overview sketch of BMF A at Site RIV-1330/H, facing north.

Plate 4.3–3: Close-up of Slick 1, BMF B at Site RIV-1330/H, facing north.

Figure 4.3–3: Overview sketch of BMF B at Site RIV-1330/H, facing north.

Plate 4.3–4: Overview of BMF C at Site RIV-1330/H, facing northwest.

Figure 4.3–4: Overview sketch of BMF C at RIV-1330/H, facing north.

Plate 4.3–5: Overview of BMF D at RIV-1330/H, facing northeast.

Figure 4.3–5: Overview sketch of BMF D at RIV-1330/H, facing north.

Plate 4.3–6: Overview of BMF E at RIV-1330/H, facing north.

Figure 4.3–6: Overview sketch of BMF E at RIV-1330/H, facing north.

Plate 4.3–7: Overview of BMF F at RIV-1330/H, facing northeast.

Figure 4.3–7: Overview sketch of BMF F at RIV-1330/H, facing north.

Plate 4.3–8: Overview of BMF G at RIV-1330/H, facing west.

Figure 4.3–8: Overview sketch of BMF G at RIV-1330/H, facing north.

Plate 4.3–9: Overview of BMF H at RIV-1330/H, facing east.

Figure 4.3–9: Overview sketch of BMF H at RIV-1330/H, facing north.

Plate 4.3–10: Overview of BMF I at RIV-1330/H, facing south.

Figure 4.3–10: Overview sketch of BMF I at RIV-1330/H, facing north.

Plate 4.3–11: Overview of BMF J at RIV-1330/H, facing east.

Figure 4.3–11: Overview sketch of BMF J at RIV-1330/H, facing north.

Plate 4.3–12: Overview of BMF K at RIV-1330/H, facing north.

Figure 4.3–12: Overview sketch of BMF K at RIV-1330/H, facing north.

Plate 4.3–13: Overview of BMF L at RIV-1330/H, facing north.

Figure 4.3–13: Overview sketch of BMF L at RIV-1330/H, facing north.

Plate 4.3–14: Overview of BMF M at RIV-1330/H, facing northeast.

Figure 4.3–14: Overview sketch of BMF M at RIV-1330/H, facing north.

Table 4.3–1
Bedrock Milling Feature Data
Site RIV-1330/H

Feature	Surface	Type	Dimensions (cm)
A	1	Slick	34x24.5x0.1
B	1	Basin	30x18x4
C	1	Slick	24x20x0.1
D	1	Slick	19x21x0.1
	2	Slick	55x48x0.1
	3	Slick	30x25x1
	4	Slick	50x24x.10
E	1	Slick	26x30x0.01
	2	Slick	103.5x54x3
F	1	Slick	30x15x0.1
	2	Slick	46x20x0.1
G	1	Rub	16x15x0.1
H	1	Slick	46x26x0.1
	2	Rub	48x40x0.1
I	1	Slick	38x20x1
J	1	Rub	114x97x0.1
	2	Slick	30x25x0.1
	3	Slick	30x27x0.1
	4	Slick	43x31x0.1
	5	Slick	23x13x0.5
	6	Slick	26x14x0.1
	7	Slick	48x14x0.1
	8	Slick	26x19x0.1
	9	Slick	33x15x0.1
	10	Mortar	17x17x7
	11	Slick	14x11x0.1
	12	Slick	14x15x0.1
	13	Mortar	23x16x10
	14	Mortar	21x26x11
	15	Mortar	23x23x9
	16	Rub	73x134x0.1
	17	Slick	33x17x0.1
K	1	Slick	60x25x0.1
	2	Slick	30x13x0.1
	3	Slick	68x25x.30
	4	Slick	20x23x0.1

Feature	Surface	Type	Dimensions (cm)
	5	Slick	20x19x0.1
	6	Slick	27x26x0.1
	7	Slick	13x13x0.1
L	1	Slick	29x24x0.1
	2	Slick	34x22x0.1
M	1	Slick	26x24x0.1

The current study was able to relocate 13 milling features within the project, all of which were recorded and photographed. The milling features are scattered on various bedrock outcrops exposed on the slopes adjacent to [redacted]. It was not possible to correlate Drover's reported milling features during the current study because Drover's site map only depicted the locations of the test units he excavated. It is assumed that the reason the current study has fewer recorded milling features is due to the destruction of a large portion of this site by the modern construction of the existing County of Riverside water tank.

Surface visibility was excellent during the survey and testing process; however, only three surface artifacts, a mano and two metate fragments, were observed and collected during the field study. In 1992, Drover indicated that no surface artifacts were detected (Drover 1992a: Page 5). Drover noted the likelihood of the extensive collection of artifacts by pothunters and area residents. No evidence of the possible pictograph reported by Swenson in 1978 could be found, nor had Drover mentioned relocating the pictograph in his 1992 study of the site. The historic concrete water tank recorded by Swenson in 1978 and Drover in 1992a, which is described as having 10 meters of depth, is present, but is currently filled with dirt and only the very top edge is visible. Aside from trash and debris, presently, there are no historic elements or features visible (or that were noted by Drover) to which some association could be drawn as to the ownership and use of the water tank or cistern. Given the proximity of this cistern to the tunnel that is associated with the Val Verde Tunnel and the Colorado River aqueduct project, the most logical conclusion is that the cistern is part of that project. The Val Verde Tunnel is actually a series of channels, tunnels, and syphons that were constructed in the early 1930s to carry water from San Jacinto west toward the intersection of El Sobrante and Cajalco roads (Dever and Whitson 2007). The tunnel reported by Swenson in 1978 and Drover in 1992 has since been filled in and closed. The tunnel does not appear to have served as a functional element of the Val Verde Tunnel, as it is described as roughly excavated and did not contain any concrete lining or linkage to other elements of the water line.

Drover's testing of RIV-1330/H focused on the excavation of 17 one-square-meter test units. The sketch map provided in Drover's report was used to attempt to correlate the Drover data with current site maps. This process was able to determine that eight of Drover's test units

were located within the portion of RIV-1330/H that remains within the Decker Parcels II property. Drover's Test Units 6, 7, 8, 9, 14, 15, 16, and 17 have been noted on the BFSA site excavation location map (Figure 4.3–1). A summary of the recovery of these specific units within the Decker Parcels II property is provided in Table 4.3–2.

Table 4.3–2
Test Unit Excavation Data From Drover's
1992 Study of Site RIV-1330/H

Test Unit	Depth (cm)	Quantity	Weight (g)	Item	Material
6	0-10	2	-	0.22 Shell	-
		-	-	0.22 Bullet	-
		1	0.55	Projectile point	Basalt
		1	0.43	Debitage	Quartzite
		3	2.91	Debitage	Quartzite
		8	14.5	Debitage	Basalt
		5	0.85	Small mammal	Bone
	10-20	1	13.19	Ceramic	-
		1	14.29	Ceramic	-
		10	27.15	Debitage	Quartzite
		3	1.45	Debitage	Quartzite
		5	2.47	Debitage	Basalt
		2	2.43	Debitage	Chert
		1	46.95	Debitage	Quartzite
		4	1.27	Small mammal	Bone
		1	0.60	Projectile point	Basalt
		1	>200.00	Metate	Granite
		1	>200.00	Metate	Granite
	20-30	1	-	0.22 Shell ("U")	-
		6	11.45	Debitage	Basalt
		2	0.70	Debitage	Quartzite
		9	17.31	Debitage	Quartzite
		1	7.06	Debitage	Chert
		1	>200.00	Metate	Granite
		1	195.50	Metate	Granite
		24	10.26	Small/large mammals	Bone
		1	114.24	Metate	Granite
		1	39.31	Metate	Granite
		1	6.53	Metate	Granite
	30-40	1	60.47	Metate	Granite
		5	19.88	Debitage	Quartzite

Test Unit	Depth (cm)	Quantity	Weight (g)	Item	Material
		1	51.42	Debitage	Basalt
		45	15.34	Small/large mammals	Bone
		1	10.74	Projectile point	Chert
	40-50	11	6.65	Small/large mammals	Bone
		2	0.56	Debitage	Quartzite
		2	0.69	Debitage	Basalt
		1	0.37	Debitage	Chert
7	0-10	4	-	Debitage	Mixed
		1	0.10	Bone	-
8	0-10	8	-	Debitage	Mixed
	10-20	7	0.94	Bone	-
		19	-	Debitage	Mixed
		1	10.36	Projectile point	Chert
	20-30	11	-	Debitage	Mixed
		15	2.08	Bone	-
9	0-10	20	-	Debitage	Mixed
		5	1.68	Bone	-
	10-20	1	0.50	Projectile point	Quartzite
		14	-	Debitage	Mixed
		23	6.79	Bone	-
	20-30	41	-	Debitage	Mixed
		26	6.45	Bone	-
	30-40	10	-	Debitage	Mixed
		33	6.02	Bone	-
	40-50	4	-	Debitage	Mixed
		15	4.26	Bone	-
	50-80	12	-	Debitage	Mixed
		34	7.77	Bone	-
14	0-10	42	-	Debitage	Mixed
		1	10.53	Projectile point	-
		30	9.46	Bone	-
	10-20	25	-	Debitage	Mixed
		54	11.09	Bone	-
	20-30	22	-	Debitage	Mixed
		84	15.72	Bone	-
		1	187.00	Possible mano	Milled stone
		1	>200.00	Metate	Milled stone
15	0-10	13	-	Debitage	Mixed
		16	3.17	Bone	-
		1	32.00	Projectile point	Mixed

Test Unit	Depth (cm)	Quantity	Weight (g)	Item	Material
	10-20	51	-	Debitage	Mixed
		55	16.09	Bone	-
		4	-	Projectile	Mixed
	20-30	54	-	Debitage	Mixed
		202	40.31	Bone	-
		1	46.46	Core (battered)	-
16	0-10	12	-	Debitage	Mixed
		17	3.75	Bone	-
	10-20	28	-	Debitage	Mixed
		38	10.23	Bone	-
		2	-	Projectile point	Mixed
	20-30	24	-	Debitage	Mixed
		57	14.29	Bone	-
		1	65.78	Metate	Milled stone
		1	0.26	Mammal tooth	Dentin
		1	0.37	Bead	*Olivella* sp., side-drilled
		1	1.12	Pipe (frag)	Ceramic
	30-100	39	-	Debitage	Mixed
		-	-	Bone	-
		1	10.40	Projectile point	Basalt
		1	>200.00	Pestle	Basalt
17	0-10	1,450	-	Bone	-
		197	-	Debitage	Mixed
		1	0.77	Projectile point	Quartzite
	10-20	286	1.0	Debitage	Mixed
		4	-	Projectile point	Mixed
		2,769	96.80	Bone	-
	20-30	-	7.70	Charcoal	Wood
		1	82.90	Metate	Milled stone
		1,847	83.32	Bone	-
		1	5.87	Biface	Basalt
		159	-	Debitage	Mixed

During the current testing program, 34 STPs and two test units were placed judgmentally around the perimeter of each bedrock milling feature scattered along the drainage course and associated slopes to determine if subsurface cultural evidence was present. All STPs were excavated to 30 centimeters where possible to achieve at least two sterile levels with no recovery. STPs 5, 6, 9, 10, 16, 24, 27, 29, and 34 were stopped at 20 centimeters due to a soil change of compact decomposing granite. STP 32 was stopped at 10 centimeters for the same

reason. No subsurface cultural materials were encountered during these excavations. The STP results are provided in Table 4.3–3 and the locations of the STPs are provided on Figure 4.3–1.

Table 4.3–3
Shovel Test Excavation Data
Site RIV-1330/H

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
1	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
2	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
3	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
4	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
5	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
6	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
7	0-10	Light brown (10 YR 5/3) semi-compact	No Recovery				

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
		silty sand with granite inclusions					
	10-20	Increased granite inclusions					
	20-30						
8	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
9	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
10	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
11	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
12	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
13	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
14	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
15	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
16	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
17	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
18	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
19	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
20	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
21	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
22	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
	10-20	Increased granite inclusions					
	20-30						
23	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
24	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
25	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
26	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
27	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
28	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
29	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
30	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite	No Recovery				

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
		inclusions					
	10-20	Increased granite inclusions					
	20-30						
31	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
32	0-10	Decomposed granite formational soil	No Recovery				
33	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
34	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					

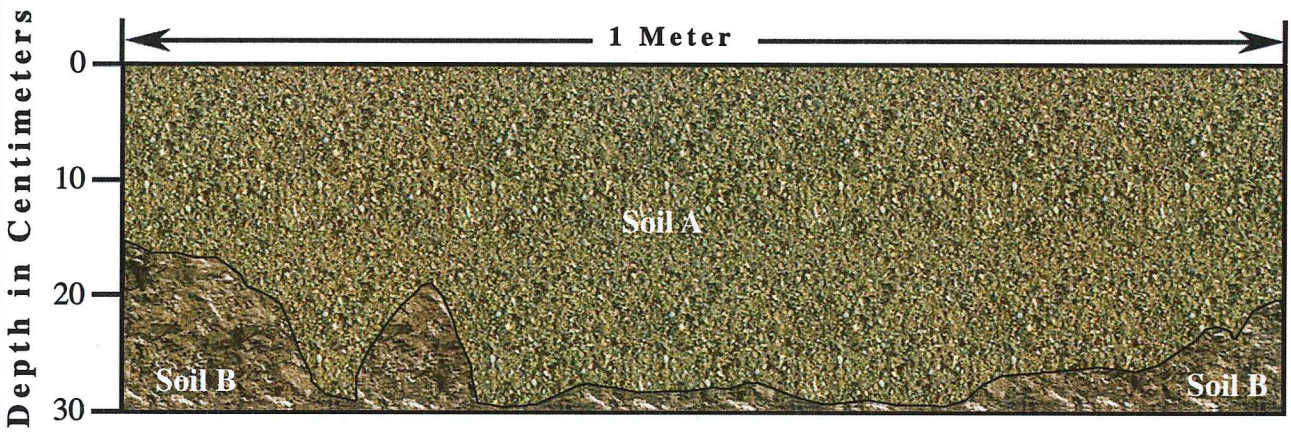
Given that the results of the 2015 testing of RIV-1330/H did not reflect the results of Drover's 1992 study, additional test unit excavations were placed in locations adjacent to Drover's units. Neither of the two 2015 test units resulted in the recovery of any artifacts and the units were terminated at shallow depths when hard-packed decomposed granite soil was encountered. The results of the test unit excavations are provided in Table 4.3–4 and the test unit locations are provided on Figure 4.3–1. Overviews of the two excavated test units are provided in Plates 4.3–15 and 4.3–16 and a soil profile of Test Unit 2 is provided in Figure 4.3–15.

Table 4.3–4
Test Unit Excavation Data
Site RIV-1330/H

Test Unit	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
1	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-25	Solid decomposed granite formational soil at 25 cm					
2	0-10	Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20						
	20-30	Decomposed granite formational soil					

Plate 4.3–15: Overview of Test Unit 1 at RIV-1330/H, zero to 25 centimeters, facing north.

Plate 4.3–16: Overview of Test Unit 2 at RIV-1330/H, zero to 30 centimeters, facing north.



Soil Types

A Light brown (10 YR 5/3) semi-compact silty sand with granite inclusions

B Decomposed granite formational soil

Figure 4.3–15

North Wall Profile, Test Unit 2

Site RIV-1330/H

The Decker Parcels II Project

Due to the fact that all subsurface tests were negative and long berms of mounded dirt are located along [redacted] the site, the conclusion was reached that grading and clearing work conducted in conjunction with the site preparation for the new water tank resulted in the scraping away of the topsoil within RIV-1330/H to create soil berms downslope of the water tank. These berms were apparently intended to be erosion control features. The grading of the topsoil within RIV-1330/H into berms resulted in the removal of any artifact-containing soil in areas where Drover had indicated artifacts were discovered. Photographs of the berms and other grading disturbances are provided in Plates 4.3–17 and 4.3–18.

Plate 4.3–17: Ground conditions east of the water tank at Site RIV-1330/H, facing west.

Plate 4.3–18: Ground conditions east of the water tank at Site RIV-1330/H, facing north.

Because Site RIV-1330/H did not produce any evidence of subsurface cultural deposits as part of the current study, it was evaluated as not significant under CEQA criteria due to a lack of both a subsurface deposit and the ability to provide any further research potential. The difference in test data between the Drover and BFSA studies is due to the landform modification associated with the new County of Riverside water tank construction process that appears to have included superficial grading and relocation of large rocks to reduce erosion. No subsurface elements of RIV-1330/H could be relocated during this investigation.

4.3.1 Results of Pollen and Protein Residue Analysis

As part of the Mitigation Monitoring and Reporting Program (MMRP) for the project, the County of Riverside has required that, prior to the initiation of any grading at the project, pollen and protein residue analyses should be conducted for the existing bedrock milling features (see Appendix F). Although superficially, the milling features at RIV-1330/H appear to be poor candidates for this type of test, this analysis was completed to assure the Native American community that all possible research efforts have been exhausted prior to the removal or

relocation of the milling features during development of the property. Where archaeological studies are concerned, these studies may be used to identify the presence of prehistoric and historic foods and plants that may have been exploited by the native inhabitants of a given site. The pollen and protein residues identified by the process include those present in plant tissues and animals. These studies are ideally suited to use in the analysis of milling stone. For the current project, samples were tested for the presence of pollens, plant proteins, and animal proteins.

For Site RIV-1330/H, pollen and protein residue analyses were selected to investigate potential evidence of floral remains, plant proteins, and animal proteins still present on the milling features identified within the site boundaries. The goal of this was to provide paleoenvironmental and dietary data for the site. Thirteen milling features were identified at RIV-1330/H with a total of 42 separate milling elements. These elements include four mortars, one basin, four rubs, and 33 slicks. Based upon the frequency of milling features and the condition of those features, Heather Thomson of the Riverside County Planning Department proposed the sampling of eight milling elements (BMF-B-1, BMF-E-2, and BMF-J-10 through BMF-J-15) and a single milling artifact (*i.e.*, a mano).

All sampling was conducted by BFSA and the resulting samples were submitted to PaleoResearch Institute, Inc. in Golden, Colorado for analysis. Pollen records from RIV-1330/H provide environmental information, which suggests that local vegetation included large quantities of poison oak or a similar plant, plants in the goosefoot/amaranth family, various plants in the sunflower family including ragweed/marsh elder, plants in the mustard and pink families, wild buckwheat, spurge, geranium, honeysuckle, a member of the evening primrose family, grasses, and a member of the rose family. Trees represented include maple, walnut, juniper, pine, plane, oak, and elm.

Geranium and honeysuckle (Lonicera) pollen were observed only in milling feature washes. The co-occurrence of these two pollens in the washes from BMF-J-11 and BMF-J-14 suggests the interpretation that they might have been used in medicinal preparations; however, this can only be speculative. Recovery of only honeysuckle pollen in the wash from BMF-B-1 suggests the possibility that BMF B was used to prepare honeysuckle with other ingredients as a sweetener. Recovery of starches in BMF-J-11 and BMF-J-13 suggests the grinding of grass seeds in BMF J. Mustard family seeds might have been ground using element BMF-J-11. These may have been used during medicinal preparation or may have been ground for culinary use. Pollen analysis from BMF E (BMF-E-2) produced only a sparse amount of pollen, yielding only single grains of *Juniperus* and *Pinus* pollen, which indicates the presence of juniper and pine trees, as well as a large quantity of microscopic charcoal. The control sample for BMF-E-2 (CBMF-E) yielded single grains of Amaranthaceae, High-Spine Asteraceae, and Poaceae pollen, representing a member of the goosefoot/amaranth family, a plant in the sunflower family, and grasses.

Protein residue testing of wash samples from the mano, eight milling slicks, and three

associated controls at RIV-1330/H produced substantiated positive reactions of varying strengths for six of the samples, including: the mano (1 RIV-1330), washes from BMF B (BMF-B-1 and CBMF-B [the control for BMF B-1]), and washes from BMF J (BMF-J-11, BMF-J-12, and CBMF-J [the control for the BMF J sample elements]). Positive results are dependent upon the method of extraction, retention of proteins on an artifact's surface, and protein reactivity to the tested antisera. Protein degradation is the mostly likely cause of negative results; however, if any proteins that are present are not represented by the tested antisera, or proteins are absent due to tool reshaping/resharpening after use, one can expect negative results.

The mano wash (1 RIV-1330) produced a questionable positive reaction against goat antiserum at the 1:3 dilution and a positive reaction at the 1:5 dilution. The artifact wash also produced a very weak positive reaction against rabbit antiserum at the 1:3 dilution and a positive reaction at the 1:5 dilution. Without an associated sediment control, it is difficult to identify whether these reactions reflect tool use or environmental contamination. However, the presence of Sporormiella in the sample wash, identified during pollen analysis, indicates that feces from a grazing animal were in contact with the artifact's surface. Therefore, it is likely that positive reactions to goat antiserum reflect protein transfer from feces rather than tool use. Likewise, it is possible that feces from a member of Leporidae also came into contact with the mano.

Both the milling slick wash (BMF-B-1) and the control wash (CBMF-B) from BMF B produced positive results to rabbit antiserum. A very weak positive reaction was observed between the milling slick wash and rabbit antiserum at the 1:3 dilution and a positive reaction occurred at the 1:5 dilution. The control sample also produced a positive reaction against the rabbit antiserum at a 1:5 dilution. These results indicate that substantiated positive reactions likely represent either false positives due to environmental factors such as compounds in the soil (chlorophyll, bacteria, and metal cations such as manganese, copper, and iron oxide), which transferred to the outcrop surface, or proteins introduced in the form of feces and/or urine as a byproduct of animal activity in the area.

The milling slick wash from element BMF-J-11 produced substantiated positive reactions against rabbit antiserum (very weak positive at the 1:3 dilution and positive at the 1:5 dilution), while the milling slick wash from element BMF-J-12 and the control wash (CBMF-J) produced positive reactions against rabbit antiserum and positive reactions of varying strengths against bovine antiserum. The questionable positive and probable positive results between BMF-J-12 and bovine antiserum are not sufficiently definitive for protein identification. Also, the probable positive reaction for the associated control (CBMF-J) against bovine antiserum and the positive reaction against rabbit antiserum suggest reactions observed between the milling element washes and antisera are likely the product of non-cultural processes.

For BMF E, there were no replicable positive results observed between the protein residue wash (BMF-E-2) or the control wash (CBMF-E) and the available antisera.

4.4 Results of Significance Testing – Site RIV-8901

The portion of RIV-8901 that extends into the Decker Parcels II property consists of 10 bedrock milling features (BMFs A through J) situated on a moderate, east-facing slope. The location of the site is illustrated in the Cultural Resource Location Map (Figure 4.2–1). The elements of RIV-8901 previously identified off-site to the north were recorded with the same characteristics as scattered bedrock outcrops with occasional evidence of minimal prehistoric milling use. A photograph of the general setting of RIV-8901 is provided in Plate 4.4–1.

Plate 4.4–1: Overview of Site RIV-8901, facing west.

The investigation of RIV-8901 was initiated with an inspection of the site to search for any surface artifacts. Aside from the milling features observed, no surface artifacts or evidence of potential cultural deposits were detected. This is consistent with the information for the portion of the site north of the property line where neither Keller nor CRM Tech reported any surface artifacts. The 10 milling features on the project contain 22 slicks and two rubs. The locations of each milling feature are illustrated on Figure 4.4–1. For each milling feature within the project, all milling surfaces were outlined with chalk, measured, and sketched (Plates 4.4–2 through 4.4–11 and Figures 4.4–2 through 4.4–11). The recordation of the dimensions of each milling surface is provided on Table 4.4–1.

Figure 4.4–1
Excavation Location Map
Site RIV-8901

(Deleted for Public Review; Bound Separately)

Plate 4.4–2: Overview of BMF A at Site RIV-8901, facing north.

Figure 4.4–2: Overview sketch of BMF A at Site RIV-8901, facing north.

Plate 4.4–3: Overview of BMF B at Site RIV-8901, facing southwest.

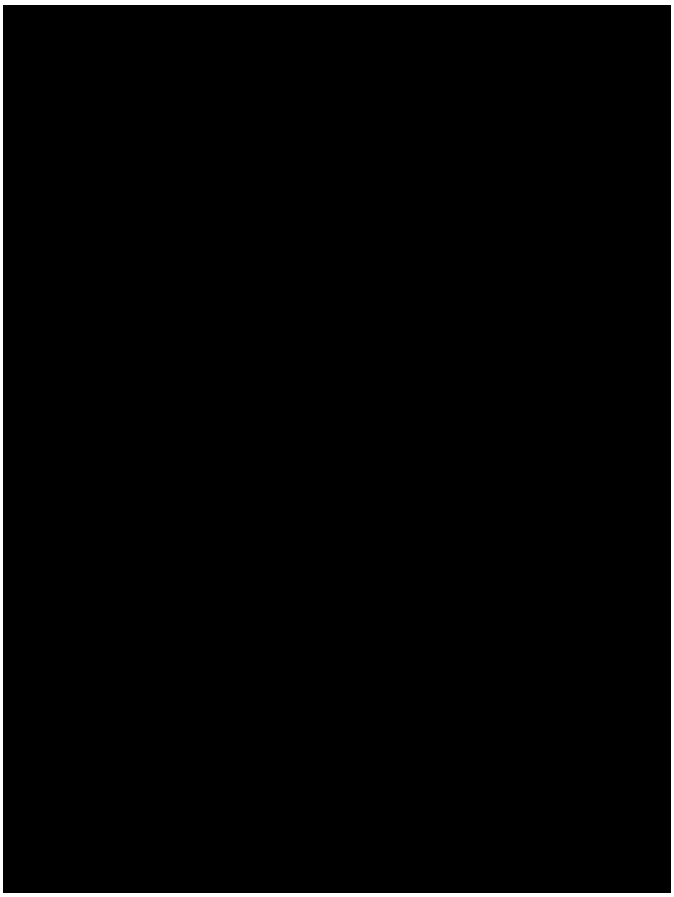


Figure 4.4–3: Overview sketch of BMF B at Site RIV-8901, facing north.

Plate 4.4–4: Overview of BMF C at Site RIV-8901, facing northwest.

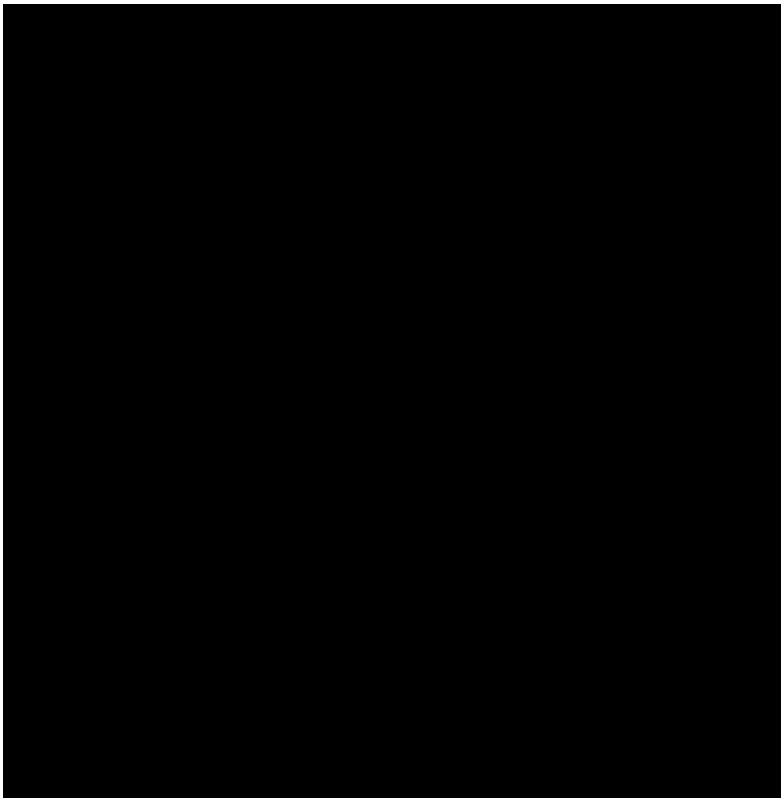


Figure 4.4–4: Overview sketch of BMF C at Site RIV-8901, facing north.

Plate 4.4–5: Overview of BMF D at Site RIV-8901, facing northeast/east.

Figure 4.4–5: Overview sketch of BMF D at Site RIV-8901, facing north.

Plate 4.4–6: Overview of BMF E at Site RIV-8901, facing north.

Figure 4.4–6: Overview sketch of BMF E at Site RIV-8901, facing north.

Plate 4.4–7: Overview of BMF F at Site RIV-8901, facing northwest.

Figure 4.4–7: Overview sketch of BMF F at Site RIV-8901, facing north.

Plate 4.4–8: Overview of BMF G at Site RIV-8901, facing northwest.

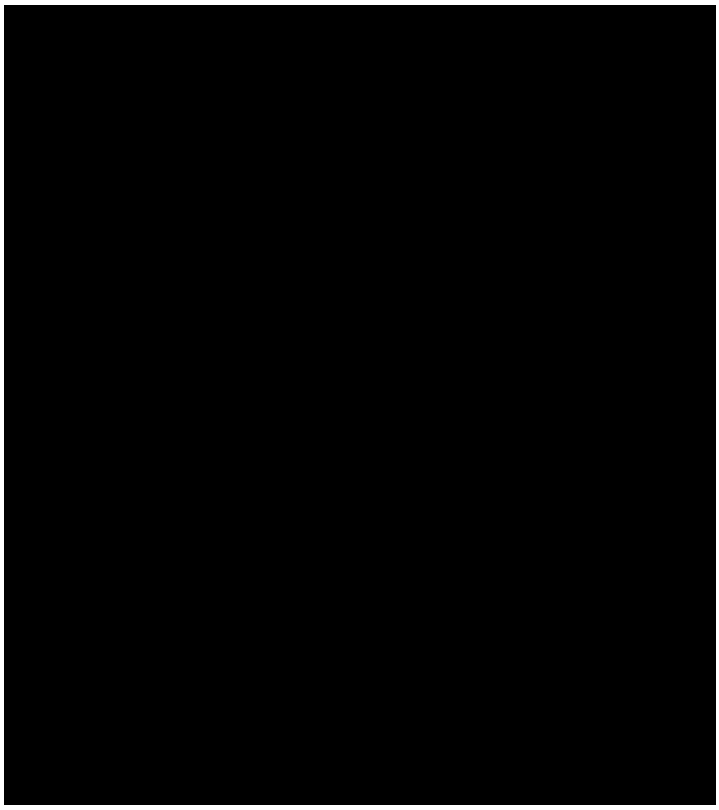


Figure 4.4–8: Overview sketch of BMF G at Site RIV-8901, facing north.

Plate 4.4–9: Overview of BMF H at Site RIV-8901, facing northwest.

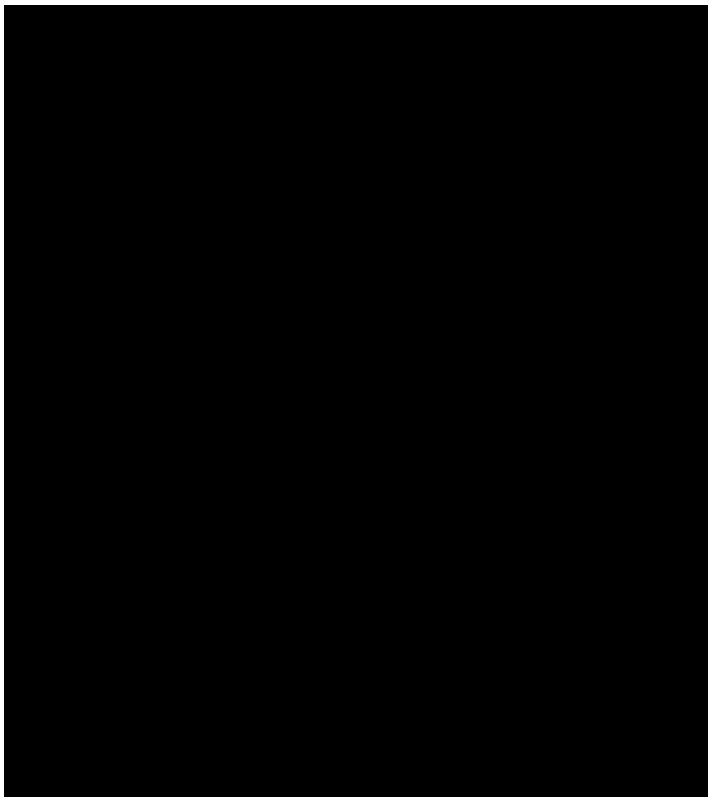


Figure 4.4–9: Overview sketch of BMF H at Site RIV-8901, facing north.

Plate 4.4–10: Overview of BMF I at Site RIV-8901, facing east.

Figure 4.4–10: Overview sketch of BMF I at Site RIV-8901, facing north.

Plate 4.4–11: Overview of BMF J at Site RIV-8901, facing southeast.

Figure 4.4–11: Overview sketch of BMF J at Site RIV-8901, facing northeast.

Table 4.4–1
Bedrock Milling Feature Data
Site RIV-8901

Feature	Surface	Type	Dimensions (cm)
A	1	Slick	32x27x0.1
B	1	Slick	58x34x0.1
	2	Slick	29x13x0.1
	3	Rub	65x38x0.1
C	1	Slick	75x32x0.1
D	1	Slick	40x15x0.1
	2	Slick	39x22x0.1
	3	Slick	33x18x0.1
	4	Slick	33x14x0.1
E	1	Slick	26x30x0.1
	2	Slick	103.5x54x3
	3	Slick	29x18x0.1
	4	Slick	44x37x0.1
	5	Rub	67x58x0.1
	6	Slick	34x22x0.1
F	1	Slick	40x22x0.1
G	1	Slick	49x20x0.1
H	1	Slick	31x24x0.01
	2	Slick	28x12x0.01
I	1	Slick	27x20x0.01
J	1	Slick	27x25x0.01
	2	Slick	36x39x0.01
	3	Slick	44x36x0.01
	4	Slick	32x17x0.01

A series of 24 STPs were excavated around the milling features in order to determine if any associated subsurface deposits were present. The locations of the STPs are illustrated on Figure 4.4–1 and the shovel test excavation data is provided in Table 4.4–2. The majority of shovel tests were excavated to a depth of 30 centimeters before a dense decomposed granite soil or bedrock was encountered. None of the shovel tests produced any artifacts or evidence of a subsurface cultural deposit. A test unit was not necessary due to the absence of any cultural materials. Based upon the surface inspection across the site and the STP results, the site is characterized as a temporary seasonal milling location that lacks any evidence of encampment or long-term use. This type of site is common to the Late Prehistoric subsistence pattern for this region and matches the pattern of milling stations to the north and east of this property.

Table 4.4–2
Shovel Test Excavation Data
Site RIV-8901

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
1	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
2	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
3	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
4	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
5	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
6	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
7	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite					

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
		formational soil					
8	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
9	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
10	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
11	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
12	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
13	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
14	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Decomposed granite formational soil					
15	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20						

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
	20-30	Increased granite inclusions					
16	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
17	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
18	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
19	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
	30-40						
	40-50						
20	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
	30-40						
	40-50						
21	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
	30-40						
	40-50						
22	0-10	Light brown (10YR	No Recovery				

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
		5/3) semi-compact silty sand with granite inclusions					
	10-20	Increased granite inclusions					
	20-30						
	30-40						
	40-50						
23	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
	30-40	Decomposed granite formational soil					
24	0-10	Light brown (10YR 5/3) semi-compact silty sand with granite inclusions	No Recovery				
	10-20	Increased granite inclusions					
	20-30						
	30-40						
	40-50	Decomposed granite formational soil					

4.5 Results of Significance Testing – Site RIV-11,874

Site RIV-11,874 is an isolated milling station that is part of the pattern of milling stations reported in the surrounding area, particularly in the adjacent property to the north. This site is located on a single bedrock exposure along the eastern property boundary of the Decker Parcels II property. The location of the site is illustrated in the Cultural Resource Location Map (Figure 4.2–1). A photograph of the general setting of RIV-11,874 is provided in Plate 4.5–1.

Plate 4.5–1: Overview of Site RIV-11,874, facing west.

The investigation of RIV-11,874 was initiated with an inspection of the site for any surface artifacts. Aside from the milling feature observed, no surface artifacts or evidence of potential cultural deposits were detected. This is consistent with the information for Site RIV-8901 to the north and east, where milling stations lacked any associated artifact collection. The single milling feature at RIV-11,874 contained a single slick. The location of the milling feature is illustrated on Figure 4.5–1. For the single milling feature within the project, the slick was outlined with chalk, measured, and sketched (Plate 4.5–2 and Figure 4.5–2). The dimensions of the single milling surface are provided in Table 4.5–1.

Figure 4.5–1
Excavation Location Map
Site RIV-11,874

(Deleted for Public Review; Bound Separately)

Plate 4.5–2: Overview of BMF A at Site RIV-11,874, facing north.

Figure 4.5–2: Overview sketch of BMF A at Site RIV-11,874, facing north.

Table 4.5–1
Bedrock Milling Feature Data
Site RIV-11,874

Feature	Surface	Type	Dimensions (cm)
A	1	Slick	20x15x0.1

Three STPs were excavated around the milling feature in order to determine if any subsurface deposits were present. The locations of the STPs are illustrated on Figure 4.5–1 and the shovel test excavation data is provided in Table 4.5–2. The shovel tests were excavated to a depth of 30 centimeters before a dense decomposed granite soil or bedrock was encountered. Modern trash was present in all of the STPs. None of the shovel tests produced any artifacts or evidence of a subsurface cultural deposit. A test unit was not necessary due to the absence of any cultural materials. Based upon the surface inspection across the site and the results of the shovel tests, the site is characterized as a temporary seasonal milling location that lacks any evidence of encampment or long-term use. This type of site is common to the Late Prehistoric subsistence pattern for this region and matches the pattern of milling stations to the north and east of this property.

Table 4.5–2
Shovel Test Excavation Data
Site RIV-11,874

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
1	0-10	Modern trash mixed in with topsoil	No Recovery				
	10-20						
	20-30	Decomposed granite formational soil					
2	0-10	Modern trash mixed in with topsoil	No Recovery				
	10-20						
	20-30	Decomposed granite formational soil					
3	0-10	Modern trash mixed in with topsoil	No Recovery				

Shovel Test	Depth (cm)	Soils Encountered	Quantity	Category	Item	Material	Cat. No(s).
	10-20						
	20-30	Decomposed granite formational soil					

4.6 Summary of Field Investigations

As a result of the records search analysis and field surveys, three prehistoric cultural resources were identified within the project. The prehistoric sites are characterized as bedrock milling stations that do not have any associated subsurface deposits. Only three surface artifacts, a mano and two metate fragments, were observed and collected during the field study at Site RIV-1330/H. Site RIV-1330/H had been reported in 1992 as containing a shallow subsurface deposit; however, no evidence of any cultural deposits was noted during the current study and this status is due to the effects of grading associated with the water tank construction after 1992. The information gleaned from the field investigations indicates that the prehistoric use of these locations was minimal and reflective of a resource collection and food processing area. The absence of any artifacts associated with the milling features leads to the conclusion that the milling process was a transient activity lacking any associated occupation or multiple use functions. The majority of milling surfaces recorded at the three prehistoric sites had very little depth and typify the use wear of only occasional use. Only RIV-1330/H contained any mortars or deeper, well used milling surfaces. The dispersed nature of the milling features across the valley floor suggests that the environment for prehistoric use consisted of food resources that were also dispersed and not concentrated. The disturbed nature of the property, which is characterized by roads, grading for the water tank, and agricultural use, may have affected the distribution of cultural resources on the property. Based upon the data collected, RIV-1330/H, RIV-8901, and RIV-11,874 fall into a resource category consisting of collection and processing sites that have shallow or no subsurface component, have reduced integrity due to modern disturbance, and have no research potential. Therefore, RIV-1330/H, RIV-8901, and RIV-11,874 do not meet the minimum threshold to be considered significant under CEQA guidelines.

5.0 SIGNIFICANCE

The cultural resources study of the proposed project resulted in the identification of three prehistoric sites, one of which had a small historic component. The cultural resources (RIV-1330/H, RIV-8901, and RIV-11,874) were tested as part of the CEQA significance evaluation process and found to be not significant. Sites RIV-8901 and RIV-11,874 clearly have no research potential following the documentation of the milling surfaces. These two sites are classified as resource collection and food processing sites with no subsurface component, reduced integrity due to agricultural use of the surrounding land, and therefore, no further research potential.

Site RIV-1330/H was studied extensively by Drover in 1992. At that time, Drover recovered an artifact collection that consisted of flaked lithic reduction debris, projectile points, ceramics, and ecofacts. Drover concluded that his work was adequate to permit the grading of the site to construct the modern water tank, and no additional mitigation measures other than monitoring were recommended (Drover 1992a). The investigations by BFSA in 2015 documented that the soil horizon tested by Drover in 1992 that contained artifacts has, for the most part, been graded away during the construction of the modern water tank. No subsurface artifacts were recovered from the shovel tests or test units excavated in 2015 within RIV-1330/H. Further study of a selection of milling features identified a range of potential protein residues and pollens, which were prehistorically present within the project APE (see Appendix F). Given that the current study of RIV-1330/H did not identify any significant subsurface deposits, the updated evaluation of the site has concluded that the site is not CEQA-significant and no further archaeological study is recommended.

The historic component of RIV-1330/H is not considered significant. The concrete cistern that is now barely visible and is filled with dirt could not be linked with the Val Verde Tunnel feature or with any adjacent historic land use. The age of the feature could also not be confirmed, but it was present in 1978 when Swenson identified the prehistoric site. The projection by Drover that the "tunnel" feature was part of the Val Verde Tunnel project could not be substantiated. The actual location of the Val Verde Tunnel is approximately one mile south of the Decker Parcels II property. It could not be deduced if the "tunnel" feature had been excavated as part of that project but never used, or abandoned altogether. At this point in time, the "tunnel" is a hole approximately four feet in diameter that extended approximately 100 feet into the hillside but is now filled with dirt and inaccessible. Lacking any clear association with the water conduit system, the "tunnel" on the property has no linkage with the historic water project and is therefore not considered to be CEQA-significant.

6.0 RECOMMENDATIONS

The cultural resources study for the Decker Parcels II Project was positive for the presence of archaeological sites. In accordance with CEQA and County of Riverside Cultural Resource Guidelines (Draft), the potential impacts associated with the proposed development of the project were evaluated. This study was conducted for the property owner prior to the submittal of any development applications; nevertheless, the archaeological study was completed in accordance with County of Riverside report guidelines and CEQA significance evaluation criteria. This evaluation process included the recordation of all surface features and the investigation for potential subsurface deposits.

Significance testing revealed that prehistoric sites RIV-1330/H, RIV-8901, and RIV-11,874 lacked any surface artifacts, subsurface deposits, or any further research potential. All three prehistoric milling sites were evaluated as not significant, or not unique, under CEQA criteria. The historic component of RIV-1330/H was also determined to be not significant.

With the evaluation of the three sites as non-significant (not unique) cultural resources, the proposed development will not represent a significant adverse impact to cultural resources. Because these sites do not retain any further research potential, no site-specific mitigation measures will be recommended as a condition of approval for the project.

Table 6.0–1
Cultural Resources Significance Evaluation Summary

Resource	Evaluation	Impacted	Mitigation Required
RIV-1330/H	Not Significant	Yes – Direct	None
RIV-8901	Not Significant	Yes – Direct	None
RIV-11,874	Not Significant	Yes – Direct	None

As stated previously, the majority of the subject property has been disturbed in the past. When land is cleared, disked, or otherwise disturbed, evidence of surface artifact scatters is commonly obscured. The past use of the property may have affected the potential to discover cultural resources due to clearing, disking, and the construction of the water tank. Given the prior disturbance within the project that might mask archaeological deposits and the moderate frequency of cultural resources within the property, there is a potential that buried archaeological materials may be present. Therefore, a cultural resources MMRP will be included as a condition of approval for this property. The scope of the MMRP is presented in Section 6.1.

6.1 Mitigation Monitoring

Monitoring during ground-disturbing activities, such as grading or trenching, by a qualified archaeologist is recommended to ensure that if buried features (*i.e.,* human remains,

hearths, or historic deposits) are present, they will be handled in a timely and proper manner. The scope of the monitoring program is provided below.

Mitigation Monitoring and Reporting Program

A MMRP to mitigate potential impacts to undiscovered buried cultural resources within the Project shall be implemented to the satisfaction of the lead agency. This program shall include, but not be limited to, the following actions:

1) Prior to issuance of a grading permit, the applicant shall provide written verification that a certified archaeologist has been retained to implement the monitoring program. This verification shall be presented in a letter from the project archaeologist to the lead agency.
2) The project applicant shall enter into an agreement with the Pechanga Tribe to provide Native American monitoring during grading. The Native American monitor shall work in concert with the archaeological monitor to observe ground disturbances and search for cultural materials.
3) The certified archaeologist shall attend the pre-grading meeting with the contractors to explain and coordinate the requirements of the monitoring program.
4) Prior to the start of grading, prehistoric milling features within the grading envelope shall be reviewed to identify which features can be relocated and preserved. The grading of the project will include direct impacts to prehistoric sites RIV-1330/H, RIV-8901, and RIV-11,874. Within each of these sites, prehistoric milling features were recorded. Although these features are not evaluated under CEQA as significant, the Native American tribal groups from this area consider these features as important links to their ancestors. Therefore, an attempt shall be made to relocate as many features as reasonably possible during the grading process.
5) During the original cutting of previously undisturbed deposits, the archaeological monitor(s) and tribal representative shall be on-site, as determined by the consulting archaeologist, to perform periodic inspections of the excavations. The frequency of inspections will depend on the rate of excavation, the materials excavated, and the presence and abundance of artifacts and features. The consulting archaeologist shall have the authority to modify the monitoring program if the potential for cultural resources appears to be less than anticipated.
4) Isolates and clearly non-significant deposits will be minimally documented in the field so the monitored grading can proceed.
5) In the event that previously unidentified cultural resources are discovered, the archaeologist shall have the authority to divert or temporarily halt ground disturbance operation in the area of discovery to allow for the evaluation of potentially significant cultural resources. The archaeologist shall contact the lead agency at the time of

discovery. The archaeologist, in consultation with the lead agency, shall determine the significance of the discovered resources. The lead agency must concur with the evaluation before construction activities will be allowed to resume in the affected area. For significant cultural resources, a Research Design and Data Recovery Program to mitigate impacts shall be prepared by the consulting archaeologist and approved by the lead agency before being carried out using professional archaeological methods. If any human bones are discovered, the county coroner and lead agency shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant (MLD), as identified by the NAHC, shall be contacted in order to determine proper treatment and disposition of the remains.

6) Before construction activities are allowed to resume in the affected area, the artifacts shall be recovered and features recorded using professional archaeological methods. The archaeological monitor(s) shall determine the amount of material to be recovered for an adequate artifact sample for analysis.
7) All cultural material collected during the grading monitoring program shall be processed and curated according to the current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility, to be accompanied by payment of the fees necessary for permanent curation.
8) A report documenting the field and analysis results and interpreting the artifact and research data within the research context shall be completed and submitted to the satisfaction of the lead agency prior to the issuance of any building permits. The report will include DPR Primary and Archaeological Site Forms.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

April 29, 2016

Brian F. Smith
Principal Investigator
County of Riverside Registration #168

Date

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APPENDIX A

Qualifications of Key Personnel

Brian F. Smith, MA

Owner, Principal Investigator
Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: bsmith@bfsa-ca.com

Education

Master of Arts, History, University of San Diego, California 1982

Bachelor of Arts, History and Anthropology, University of San Diego, California 1975

Experience

Principal Investigator 1977–Present

Brian F. Smith and Associates, Inc.

Brian F. Smith is the owner and principal historical and archaeological consultant for Brian F. Smith and Associates. In the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Brian Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Crops of Engineers (USACE), the Bureau of Land Management (BLM), Bureau of Reclamation (BR), the Department of Defense (DOD), and Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts which have added significantly to the body of knowledge concerning the prehistoric lifeways of cultures once present in the southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large number of downtown San Diego mitigation and monitoring projects submitted to the Centre City Development Corporation, some of which included Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade. 2000-2007.

The Navy Broadway Complex: Architectural and historical assessment of over 25 structures that comprise the Naval Supply Depot, many of which have been in use since World War I and were used extensively during World War II. The EIR/EIS which was prepared included National Register evaluations of all structures. The archaeological component of the project involved the excavation of backhoe trenches to search for evidence of the remains of elements of the historic waterfront features that characterized the bay front in the latter half of the 19th century. This study was successful in locating portions of wharves and shanties that existed on the site prior to capping of this area after construction of the sea wall in the early 20th century.

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the City of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the City of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs which document this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the City and County of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the City. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the City showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Midbayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the City. The study included the analysis of some potentially historic features and numerous prehistoric sites.

Cultural resources survey and test of sites within the proposed development of the Audie Murphy Ranch, Riverside County, California: Project Manager/Director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—included project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February-September 2002.

Cultural resources evaluation of sites within the proposed development of the Otay Ranch Village 13 Project, San Diego County, California: Project Manager/Director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural resources survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project Manager/Director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural resources survey and test of sites within the proposed development of the Menifee West GPA, Riverside County, California: Project Manager/Director of the investigation of nine sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Mitigation of a Archaic cultural resource for the Eastlake III Woods Project for the City of Chula Vista, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. September 2001-March 2002.

Cultural resources survey and test of sites within the proposed French Valley Specific Plan/EIR, Riverside County, California: Project Manager/Director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural resources survey and test of sites within the proposed Lawson Valley Project, San Diego County, California: Project Manager/Director of the investigation of 28 prehistoric and two historic sites—included project coordination; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural resource survey and geotechnical monitoring for the Mohyi Residence Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; field survey; assessment of parcel for potentially buried cultural deposits; monitoring of geotechnichal borings; authoring of cultural resources project report. Brian F. Smith and Associates, San Diego, California. June 2000.

Enhanced cultural resource survey and evaluation for the Prewitt/Schmucker/Cavadias Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; direction of field crews; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. June 2000.

Cultural resources survey and test of sites within the proposed development of the Menifee Ranch, Riverside County, California: Project Manager/Director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage mitigation of a portion of the San Diego Presidio identified during water pipe construction for the City of San Diego, California: Project Archaeologist/Director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced cultural resource survey and evaluation for the Tyrian 3 Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced cultural resource survey and evaluation for the Lamont 5 Project, Pacific Beach, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced cultural resource survey and evaluation for the Reiss Residence Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage mitigation of a portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and testing of two prehistoric cultural resources for the Airway Truck Parking Project, Otay Mesa, California: Project Archaeologist/Director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural resources Phase I and II investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project along the International Border, San Diego County, California: Project Manager/Director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a prehistoric cultural resource for the Westview High School Project for the City of San Diego, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a prehistoric cultural resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project Archaeologist/Director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of grading for the Herschel Place Project, La Jolla, California: Project Archaeologist/ Monitor—included monitoring of grading activities associated with the development of a single-dwelling parcel. September 1999.

Survey and testing of an historic resource for the Osterkamp Development Project, Valley Center, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and testing of a prehistoric cultural resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project Manager/Director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and evaluation of cultural resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project Archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and evaluation of cultural resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project Manager/Director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural resources Phase I, II, and III investigations for the Immigration and Naturalization Services Triple Fence Project along the International Border, San Diego County, California: Project Manager/Director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997-January 2000.

Phase I, II, and II investigations for the Scripps Poway Parkway East Project, Poway California: Project Archaeologist/Project Director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis; coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.

Archaeological evaluation of cultural resources within the proposed corridor for the San Elijo Water Reclamation System Project, San Elijo, California: Project Manager/Director —test excavations; direction of artifact identification and analysis; graphics production; coauthorship of final cultural resources report. December 1994-July 1995.

Evaluation of Cultural Resources for the Environmental Impact Report for the Rose Canyon Trunk Sewer Project, San Diego, California: Project Manager/Director —direction of test excavations; identification and analysis of prehistoric and historic artifact collections; data synthesis; co-authorship of final cultural resources report, San Diego, California. June 1991-March 1992.

Reports/Papers

Author, coauthor, or contributor, to over 2,500 cultural resources management publications, a selection of which are presented below.

2012 A Phase I Cultural Resource Study for the Payan Property Project, San Diego, CA

2012 Phase I Archaeological Survey of the Rieger Residence, 13707 Durango Drive, Del Mar, California 92014, APN 300-369-49

2011 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading / January 30, 2012 / Brian Smith

2011 Mitigation Monitoring Report for the 1887 Viking Way Project, La Jolla, California

2011 Cultural Resource Monitoring Report for the Sewer Group 714 Project

2011 Results of archaeological monitoring at the 10th Avenue Parking Lot Project, City of San Diego, California (APNs 534-194-02 and 03), August 12, 2011, Brian F. Smith

2011 Archaeological Survey of the Pelberg Residence for a Bulletin 560 Permit Application; 8335 Camino Del Oro; La Jolla, California 92037 APN 346-162-01-00 / November 9, 2011 / Brian F. Smith

2011 A Cultural Resources Survey Update and Evaluation for the Robertson Ranch West Project and an Evaluation of National Register Eligiblity of Archaeologoical sites for Sites for Section 106Review (NHPA) / 10/10/11 / Brian F. Smith & Clarence Hoff

2011 Mitigation Monitoring Report for the 43rd and Logan Project; June 7, 2012; Tracy A. Stropes and Brian F. Smith

2011 Mitigation Monitoring Report for the Sewer Group 682 M Project, City of San Diego Project #174116

2011 A Phase I Cultural Resource Study for the Nooren Residence Project, 8001 Calle de la Plata, La Jolla, California, Project No. 226965

2011 A Phase I Cultural Resource Study for the Keating Residence Project, 9633 La Jolla Farms Road, La Jolla, CA 92037

2010 Mitigation Monitoring Report for the 15th & Island Project, City of San Diego; APNs 535-365-01, 535-365-02 and 535-392-05 through 535-392-07

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Sewer and Water Group 772 Project, San Diego, California, W.O. Nos. 187861 and 178351

2010 Pottery Canyon Site Archaeological Evaluation Project, City of San Diego, California, Contract No. H105126

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Racetrack View Drive Project, San Diego, California; Project No. 163216; Larry J. Pierson; October 22, 2010

2010 A Historical Evaluation of Structures on the Butterfield Trails Property

2010 Historic Archaeological Significance Evaluation of 1761 Haydn Drive, Encinitas, California (APN 260-276-07-00)

2010 Results of Archaeological monitoring of the Heller/Nguyen Project, TPM 06-01, Poway, CA

2010 Cultural Resource Survey and Evaluation Program for the Sunday Drive Parcel Project, San Diego County, California, APN 189-281-14

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Emergency Garnet Avenue Storm Drain Replacement Project, San Diego, California, Project No. B10062

2010 An Archaeological Study for the 1912 Spindrift Drive Project

2009 Cultural Resource Assessment of the North Ocean Beach Gateway Project City of San Diego #64A-003A; Project #154116.

2009 Archaeological constraints study of the Morgan Valley Wind Assessment Project, Lake County, California.

2008 Results of an archaeological review of the Helen Park Lane 3.1-acre Property (APN 314-561-31), Poway, California.

2008 Archaeological Letter Report for a Phase I Archaeological Assessment of the Valley Park Condominium Project, Ramona, California; APN 282-262-75-00.

2007 Archaeology at the Ballpark. Brian F. Smith and Associates, San Diego, California. Submitted to the Centre City Development Corporation.

2007 Result of an Archaeological Survey for the Villages at Promenade Project (APNs 115-180-007-3,115-180-049-1, 115-180-042-4, 115-180-047-9) in te City of Corona, Riverside County.

2007 Monitoring Results for the Capping of Site CA-SDI-6038/SDM-W-5517 within the Katzer Jamul Center Project; P00-017.

2006 Archaeological Assessment for The Johnson Project (APN 322-011-10), Poway, California.

2005 Results of archaeological monitoring at the El Camino Del Teatro Accelerated Sewer Replacement Project (Bid No. K041364; WO # 177741; CIP # 46-610.6.

2005 Results of archaeological monitoring at the Baltazar Draper Avenue Project (Project No. 15857; APN: 351-040-09).

2004 TM 5325 ER #03-14-043 Cultural Resources.

2004 An Archaeological Survey and an Evaluation of Cultural Resources at the Salt Creek Project. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Assessment for the Hidden Meadows Project, San Diego County, TM 5174, Log No. 99-08-033. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Survey for the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Investigations at the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Monitoring of Geological Testing Cores at the Pacific Beach Christian Church Project. Report on file at Brian F. Smith and Associates.

2003 San Juan Creek Drilling Archaeological Monitoring. Report on file at Brian F. Smith and Associates.

2003 Evaluation of Archaeological Resources Within the Spring Canyon Biological Mitigation Area, Otay Mesa, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Otay Ranch Village 13 Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Audie Murphy Ranch Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 Results of an Archaeological Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County, California . Brian F. Smith and Associates, San Diego, California.

2002 A Cultural Resources Survey and Evaluation for the Proposed Robertson Ranch Project, City of Carlsbad . Brian F. Smith and Associates, San Diego, California.

2002 Archaeological Mitigation of Impacts to Prehistoric Site SDI-7976 for the Eastlake III Woods Project, Chula Vista, California . Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29777, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29835, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Survey and Evaluation of a Cultural Resource for the Moore Property, Poway. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Report for the Mitigation, Monitoring, and Reporting Program at the Water and Sewer Group Job 530A, Old Town San Diego. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Impact Survey for the High Desert Water District Recharge Site 6 Project, Yucca Valley. Brian F. Smith and Associates, San Diego, California.

2001 Archaeological Mitigation of Impacts to Prehistoric Site SDI-13,864 at the Otay Ranch SPA-One West Project. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Survey and Site Evaluations at the Stewart Subdivision Project, Moreno Valley, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the French Valley Specific Plan/EIR, French Valley, County of Riverside. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and the Evaluation of Cultural Resources at The TPM#24003–Lawson Valley Project. Brian F. Smith and Associates, San Diego, California.

2000 Archaeological Mitigation of Impacts to Prehistoric Site SDI-5326 at the Westview High School Project for the Poway Unified School District. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the Menifee Ranch Project. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Survey and Evaluation of Cultural Resources for the Bernardo Mountain Project, Escondido, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Nextel Black Mountain Road Project, San Diego, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Rancho Vista Project, 740 Hilltop Drive, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Poway Creek Project, Poway, California. Brian F. Smith and Associates, San Diego, California.

2000 Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/ Cavadias Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project. Brian F. Smith and Associates, San Diego, California.

2000 Salvage Excavations at Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project, Carlsbad, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 A Report for an Archaeological Evaluation of Cultural Resources at the Otay Ranch Village Two SPA, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Evaluation of Cultural Resources for the Airway Truck Parking Project, Otay Mesa, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and Evaluation of a Resource for the Tin Can Hill Segment of the Immigration and Naturalization and Immigration Service Border Road, Fence, and Lighting Project, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey of the Home Creek Village Project, 4600 Block of Home Avenue, San Diego, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey for the Sgobassi Lot Split, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Evaluation of Cultural Resources at the Otay Ranch Village 11 Project . Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological/Historical Survey and Evaluation of a Cultural Resource for The Osterkamp Development Project, Valley Center, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California . Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of a Cultural Resource for the Proposed College Boulevard Alignment Project . Brian F. Smith and Associates, San Diego, California.

1999 Results of an Archaeological Evaluation for the Anthony's Pizza Acquisition Project in Ocean Beach, City of San Diego (with L. Pierson and B. Smith). Brian F. Smith and Associates, San Diego, California.

1996 An Archaeological Testing Program for the Scripps Poway Parkway East Project . Brian F. Smith and Associates, San Diego, California.

1995 Results of a Cultural Resources Study for the 4S Ranch . Brian F. Smith and Associates, San Diego, California.

1995 Results of an Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System . Brian F. Smith and Associates, San Diego, California.

1994 Results of the Cultural Resources Mitigation Programs at Sites SDI-11,044/H and SDI-12,038 at the Salt Creek Ranch Project . Brian F. Smith and Associates, San Diego, California.

1993 Results of an Archaeological Survey and Evaluation of Cultural Resources at the Stallion Oaks Ranch Project . Brian F. Smith and Associates, San Diego, California.

1992 Results of an Archaeological Survey and the Evaluation of Cultural Resources at the Ely Lot Split Project . Brian F. Smith and Associates, San Diego, California.

1991 The Results of an Archaeological Study for the Walton Development Group Project . Brian F. Smith and Associates, San Diego, California.

Professional Memberships

Society for California Archaeology

Jennifer R. Kraft, BA

Project Archaeologist, Faunal Analyst
Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 484-0915 • Fax: (858) 679-9896 • E-Mail: jenni.kraft@gmail.com

Education

Master of Science, Cultural Resource Management Archaeology — **In Progress**
Saint Cloud State University, Saint Cloud, Minnesota — **2015**

Bachelor of Arts, Anthropology — **2004**
University of California, Santa Cruz

Specialized Education/Training

Archaeological Field School — **2014**

Pimu Catalina Island Archaeology Project

Research Interests

California Coastal Archaeology

Medical Anthropology

Human Behavioral Ecology

Zooarchaeology

Historical Archaeology

Taphonomic Studies

Experience

Project Archaeologist, Faunal Analyst — **November 2006–Present**
Brian F. Smith and Associates, Inc.

Duties include report writing, editing and production; construction monitoring management; coordination of field survey and excavation crews; laboratory and office management. Currently conducts faunal, prehistoric, and historic laboratory analysis and has conducted such analysis for over 500 projects over the past 7 years. Knowledgeable in the most recent archaeological and paleontological monitoring requirements for all Southern California lead agencies, as well as Native American monitoring requirements.

UC Santa Cruz Monterey Bay Archaeology Archives Supervisor **December 2003–March 2004**
Santa Cruz, California

Supervising intern for archaeological collections housed at UC Santa Cruz. Supervised undergraduate interns and maintained curated archaeological materials recovered from the greater Monterey Bay region.

Faunal Analyst, Research Assistant **June 2003–December 2003**
University of California, Santa Cruz

Intern assisting in laboratory analysis and cataloging for faunal remains collected from CA-MNT-234. Analysis included detailed zoological identification and taphonomic analysis of prehistoric marine and terrestrial mammals, birds, and fish inhabiting the greater Monterey Bay region.

Archaeological Technician, Office Manager **January 2000-December 2001**
Archaeological Resource Management

Conducted construction monitoring, field survey, excavation, report editing, report production, monitoring coordination and office management.

Certifications

City of San Diego Certified Archaeological and Paleontological Monitor

40-Hour Hazardous Waste/Emergency Response OSHA 29 CFR 1910.120 (e)

Technical Reports

Kennedy, George L., Todd A. Wirths and Jennifer R. **Kraft**

2013 *Negative Paleontological, Archaeological, and Native American Monitoring and Mitigation Report, Tri-City Christian High School, 302 North Emerald Drive, Vista, San Diego County, California (APN 166-411-75).* Prepared for Tri-City Christian School. Report on file at the California South Coastal Information Center.

Kraft, Jennifer R.

2012 *Cultural Resources Monitoring Report for the Pottery Court Project (TPM 36193) City of Lake Elsinore*. Prepared for BRIDGE Housing Corporation. Report on file at the California Eastern Information Center.

Kraft, Jennifer R. and Brian F. Smith

2013 *Archaeological Monitoring Report for the Webster Residence, La Jolla, California.* Prepared for KW Building and Development. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Alvarado Trunk Sewer Phase III Project, City of San Diego.* Prepared for Ortiz Corporation General Engineering Contractors. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Alvarado Trunk Sewer Phase IIIA Project, City of San Diego.* Prepared for TC Construction, Inc. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Coral Mountain Apartments Project, City of La Quinta, California*. Prepared for Coral Mountain Apartments, LP. Report on file at the California Eastern Information Center.

2013 *Cultural Resource Monitoring Report for the F Street Emergency Water Main Replacement Project, City of San Diego*. Prepared for Orion Construction. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Harbor Drive Trunk Sewer Project, City of San Diego*. Prepared for Burtech Pipeline. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Hyde Residence.* Prepared for Dr. Paul Hyde. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Juniper Street Sidewalk Project, City of San Diego*. Prepared for Palm Engineering Construction Company, Inc. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Kates Residence Project.* Prepared for Brad and Shannon Kates. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Pump Station 84 Upgrade and Pump Station 62 Abandonment Project.* Prepared for TC Construction, Inc. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Sewer and Water Group 781 Project*. Prepared for TC Construction, Inc. Report on file at the California South Coastal Information Center.

2013 *Cultural Resource Monitoring Report for the Woolf Residence Project*. Prepared for A.J. Woolf Family Trust. Report on file at the California South Coastal Information Center.

2013 *Cultural Resources Study of the Fairway Drive Project.* Prepared for CV Communities, LLC. Report on file at the California Eastern Information Center.

2013 *Cultural Resource Monitoring Report for the Old Town Community Church Project, 2444 Congress Street, San Diego, California 92110.* Prepared for Soltek Pacific, Inc. Report on file at the California South Coastal Information Center.

2013 *Historic Structure Assessment, 161 West San Ysidro Boulevard, San Diego, California (APN 666-030-09)*. Prepared for Blue Key Realty. Report on file at the California South Coastal Information Center.

2013 *Historic Structure Assessment, 2603 Dove Street, San Diego, California (APN) 452-674-32).* Prepared for Barzal and Scotti Real Estate Corporation. Report on file at the California South Coastal Information Center.

2013 *Historic Structure Assessment at the Western Christian School, 3105 Padua Avenue, Claremont, California 91711 (APN 8671-005-053).* Prepared for Western Christian School. Report on file at the City of Claremont.

2013 *Mitigation Monitoring Report for the 7th and F Street Parking Project, City of San Diego*. Prepared for DZI Construction. Report on file at the California South Coastal Information Center.

2013 *Mitigation Monitoring Report for the 1919 Spindrift Drive Project*. Prepared for V.J. and Uma Joshi. Report on file at the California South Coastal Information Center.

2013 *Mitigation Monitoring Report for the Knight Residence Project, 7970 Roseland Avenue, La Jolla, California*. Prepared for Mr. Dennis Knight. Report on file at the California South Coastal Information Center.

2013 *Mitigation Monitoring Report for the Sewer Group 799-750 Project.* Prepared for Burtech Pipeline. Report on file at the California South Coastal Information Center.

2013 *Negative Cultural Resource Monitoring Report for the Citywide Pump Station Upgrades Group II Project.* Prepared for Ortiz Corporation General Engineering Contractors. Report on file at the California South Coastal Information Center.

2013 *Negative Cultural Resource Monitoring Report for the Citywide Pump Station Upgrades Group III Project, City of San Diego*. Prepared for TC Construction, Inc. Report on file at the California South Coastal Information Center.

2013 *Phase I Cultural Resource Study for the 3364 Randy Lane Project, Chula Vista, California*. Prepared for H&M Construction. Report on file at the California South Coastal Information Center.

2013 *Phase I Cultural Resources Survey for the Ecos Diamond Valley Project, Community of Winchester, County of Riverside.* Prepared for Ecos Energy, LLC. Report on file at the California Eastern Information Center.

2013 *Phase I Cultural Resources Survey for the Ecos Nuevo Project, Community of Nuevo, County of Riverside*. Prepared for Ecos Energy, LLC. Report on file at the California Eastern Information Center.

2012 *Cultural Resource Monitoring Report for the Sewer and Water Group 754 Project, City of San Diego (Project No. 177711/187301)*. Prepared for S.C. Valley Engineering, Inc. Report on file at the California South Coastal Information Center

2012 *Cultural Resource Monitoring Report for the Sewer Group 714 Project.* Prepared for Burtech Pipeline. Report on file at the California South Coastal Information Center.

2012 *Cultural Resource Monitoring Report for the Sewer and Water Group 780 Project*. Prepared for Burtech Pipeline. Report on file at the California South Coastal Information Center.

2012 *Mitigation Monitoring of the 47th Street Warehouse Project, San Diego, California.* Prepared for Aardema Development. Report on file at the California South Coastal Information Center.

2012 *Mitigation Monitoring Report for the Florida Street Apartments Project (The Kalos Project).* Prepared for Florida Street Housing Associates. Report on file at the California South Coastal Information Center.

2012 *Mitigation Monitoring Report for the Pacific Highway Trunk Sewer Project*. Prepared for HPS Mechanical. Report on file at the California South Coastal Information Center.

2011 *Phase I Cultural Resource Study for the Wesley Palms Retirement Community Project, San Diego, California.* Prepared for Front Porch Development Company. Report on file at the California South Coastal Information Center.

Kraft, Jennifer R. and Tracy A. Stropes

2013 *Phase I Cultural Resources Survey for the Orange Street Project.* Prepared for Mike Lesle. Report on file at the California Eastern Information Center.

2012 *Mitigation Monitoring Report for the 13th & Market Project*. Prepared for The Hanover Company. Report on file at the California South Coastal Information Center.

2012 *Mitigation Monitoring Report for the T-Mobile West, LLC Telecommunications Candidate SD02867C (Presidio Park).* Prepared for Michael Brandmann Associates. Report on file at the California South Coastal Information Center.

Kraft, Jennifer R., Tracy A. Stropes, and Brian F. Smith

2013 *Mitigation Monitoring Report for the Ariel Suites Project*. Prepared for Ariel Suites, LP. Report on file at the California South Coastal Information Center.

Smith, Brian F., Claire M. Allen, Mary M. Lenich, and Jennifer R. **Kraft**

2013 *Phase I and Phase II Cultural Resource Assessment for the Citrus Heights II Project, TTM 36475, Riverside County, California*. Prepared for CV Communities, LLC. Report on file at the California Eastern Information Center.

Smith, Brian F. and Jennifer R. **Kraft**

2013 *Cultural Resources Study for the Los Peñasquitos Adobe Drainage Project.* Prepared for HELIX Environmental Planning, Inc. Report on file at the California South Coastal Information Center.

2013 *Cultural Resources Study for the Rancho Peñasquitos Adobe Drainage MND Project, San Diego County, California (CSD-04.03).* Prepared for HELIX Environmental Planning, Inc. Report on file at the California South Coastal Information Center.

Contributing Author /Analyst

2011 Faunal Analysis and Report Section for *A Cultural Resource Data Recovery Program for SDI-4606 Locus B for St. Gabriel's Catholic Church, Poway, California* by Brian F. Smith and Tracy A. Stropes. Prepared for St. Gabriel's Catholic Church. Report on file at the California South Coastal Information Center.

2010 Faunal Analysis and Report Section for *An Archaeological Study for the 1912 Spindrift Drive Project, La Jolla, California* by Brian F. Smith and Tracy A. Stropes. Prepared for Island Architects. Report on file at the California South Coastal Information Center.

2010 Faunal Analysis and Report Section for *Results of a Cultural Mitigation and Monitoring Program for Robertson Ranch: Archaic and Late Prehistoric Camps near the Agua Hedionda Lagoon* by Brian F. Smith. Prepared for McMillan Land Development. Report on file at the California South Coastal Information Center.

2009 Faunal Identification for "An Earlier Extirpation of Fur Seals in the Monterey Bay Region: Recent Findings and Social Implications" by Diane Gifford-Gonzalez and Charlotte K. Sunseri. *Proceedings of the Society for California Archaeology, Vol. 21, 2009*

APPENDIX B

Updated and New Site Record Forms

(Deleted for Public Review; Bound Separately)

APPENDIX C

Archaeological Records Search Results

(Deleted for Public Review; Bound Separately)

APPENDIX D

NAHC Sacred Lands File Search Results

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

January 10, 2015

For: Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, California 95814

From: Tracy A Stropes, M.A., RPA
Brian F. Smith and Associates
14010 Poway Rd. Suite A
Poway, CA 92064

Re: Request for a Sacred Lands File records search for the Decker Project, Riverside County, California.

I am writing to request a record search of the Sacred Lands File and a list of appropriate Native American contacts for the Decker Project. The location of this project is near the City of Perris in the County of Riverside, California. The northeast corner of the project area can be found near the intersection of Decker Road and Old Oleander Avenue. The project location is in Section 2 of the USGS 7.5 minute *Steele Peak*, California topographic map, Townships 4 south, Range 4 west. A copy of the project map, with the project area depicted thereon, has been included for your records.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
Phone: 858-484-0915
Email: tstropes@bfsa-ca.com

Attachments:
USGS 7.5 *Steele Peak,* California topographic maps with project area delineated.

Sacred Lands File & Native American Contacts List Request
NATIVE AMERICAN HERITAGE COMMISSION
915 Capitol Mall, RM 364 Sacramento, CA 95814 (916) 653-4082
(916) 657-5390 – Fax
nahc@pacbell.net

Information Below is Required for a Sacred Lands File Search

Project: The Decker Project

County: Riverside

USGS Quadrangle Name: *Steele Peak*

Township: 4S Range: 4W projected

Company/Firm/Agency: Brian F. Smith & Associates

Contact Person: Tracy A. Stropes, RPA

Street Address: 14010 Poway Road, Suite A

City: Poway Zip: 92064

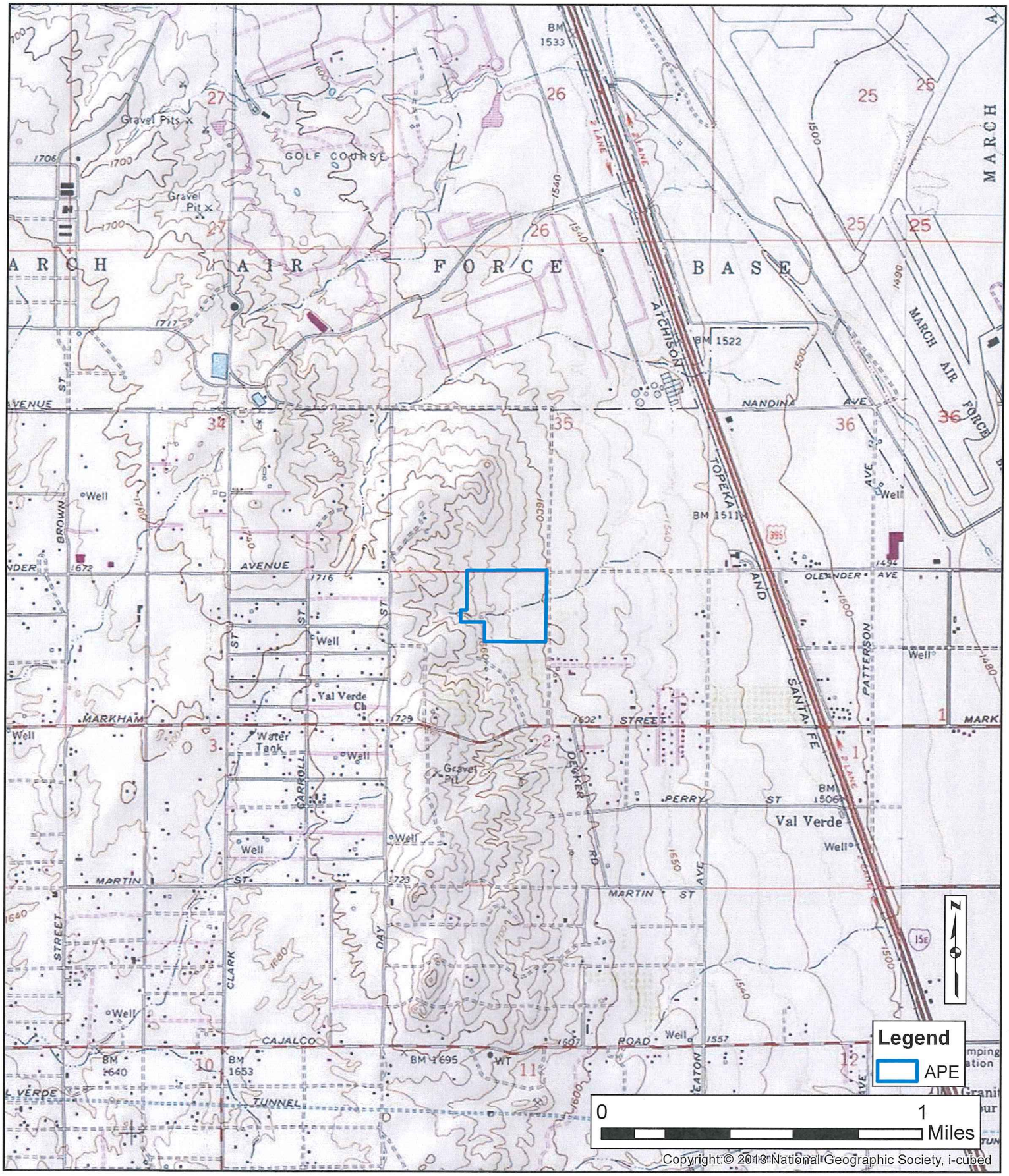
Phone: 858-484-0915

Fax: 858-679-9896

Email: tstropes@bfsa-ca.com

Project Description:

The project is for Phase I archaeological survey. The location of this project is near the City of Perris in the County of Riverside, California. The northeast corner of the project area can be found near the intersection of Decker Road and Old Oleander Avenue. The project location is in Section 2 of the USGS 7.5 minute *Steele Peak*, California topographic map, Townships 4 south, Range 4 west. A copy of the project map, with the project area depicted thereon, has been included for your records.



Sacred Lands File Search Map
The Decker 2 Project
Riverside County, California
USGS Steele Peak 7.5-minute Quadrangle

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

March 13, 2015

Tracy A. Stropes
Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, CA 92064

Sent by Fax: (858) 679-9896
Number of Pages: 4

Re: The Decker Project, Riverside County.

Dear Mr. Stropes,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. 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 or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

Katy Sanchez
Associate Government Program Analyst

Native American Contact List
Riverside County
March 10, 2015

Pala Band of Mission Indians
Shasta Gaughen, PhD, THPO
PMB 50, 35008 Pala-Temecula Luiseno
Pala , CA 92059 Cupeno
sgaughen@palatribe.com
(760) 891-3515

(760) 742-3189 Fax

Pauma & Yuima Reservation
Randall Majel, Chairperson
P.O. Box 369 Luiseno
Pauma Valley CA 92061
(760) 742-1289 ext 317

(760) 742-3422 Fax

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resources Manager
P.O. Box 1477 Luiseno
Temecula , CA 92593
pmacarro@pechanga-nsn.gov
(951) 770-8100

(951) 506-9491 Fax

Rincon Band of Mission Indians
Vincent Whipple, Tribal Historic Pres. Officer
1 West Tribal Road Luiseno
Valley Center, CA 92082
vwhipple@rincontribe.org
(760) 297-2635

(760) 297-2639 Fax

Soboba Band of Mission Indians
Rosemary Morillo, Chairperson; Attn: Carrie Garcia
P.O. Box 487 Luiseno
San Jacinto , CA 92581
carrieg@soboba-nsn.gov
(951) 654-2765

(951) 654-4198 Fax

Pauma Valley Band of Luiseño Indians
Bennae Calac
P.O. Box 369 Luiseno
Pauma Valley CA 92061
bennaecalac@aol.com
(760) 617-2872

(760) 742-3422 Fax

Pauma & Yuima
ATTN: EPA
P.O. Box 369 Luiseno
Pauma Valley CA 92061
kymberli_peters@yahoo.com
(760) 742-1289

(760) 742-3422 Fax

Rincon Band of Mission Indians
Bo Mazzetti, Chairperson
1 West Tribal Road Luiseno
Valley Center, CA 92082
bomazzetti@aol.com
(760) 749-1051

(760) 749-8901 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the 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.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Decker Project, Riverside County.

Native American Contact List
Riverside County
March 10, 2015

San Luis Rey Band of Mission Indians
Tribal Council
1889 Sunset Drive Luiseno
Vista , CA 92081
cjmojado@slrmissionindians.org
(760) 724-8505

(760) 724-2172 Fax

San Luis Rey Band of Mission Indians
Cultural Department
1889 Sunset Drive Luiseno
Vista , CA 92081 Cupeno
cjmojado@slrmissionindians.org
(760) 724-8505

(760) 724-2172 Fax

Kupa Cultural Center (Pala Band)
Shasta Gaughen, Assistant Director
PMB 50, 35008 Pala-Temecula Luiseno
Pala , CA 92059
sgaughen@palatribe.com
(760) 891-3515

(760) 742-4543 Fax

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula , CA 92593
mgoodhart@pechanga-nsn.
(951) 770-6100

(951) 695-1778 Fax

William J. Pink
48310 Pechanga Road Luiseno
Temecula , CA 92592
wjpink@hotmail.com
(909) 936-1216
Prefers e-mail contact

La Jolla Band of Mission Indians
Lavonne Peck, Chairwoman
22000 Highway 76 Luiseno
Pauma Valley CA 92061
Rob.roy@lajolla-nsn.gov
(760) 742-3771

(760) 742-1704 Fax

Pauma & Yuima Reservation
Charles Devers, Cultural Committee
P.O. Box 369 Luiseno
Pauma Valley CA 92061
(760) 742-1289

(760) 742-3422 Fax

Pechanga Cultural Resources Department
Anna Hoover, Cultural Analyst
P.O. Box 2183 Luiseño
Temecula , CA 92593
ahoover@pechanga-nsn.gov
(951) 770-8104

(951) 694-0446 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the 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.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Decker Project, Riverside County.

Native American Contact List
Riverside County
March 10, 2015

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 Luiseno
San Jacinto , CA 92581
jontiveros@soboba-nsn.gov
(951) 663-5279
(951) 654-5544, ext 4137
(951) 654-4198 Fax

Pala Band of Mission Indians
Robert H. Smith, Chairperson
PMB 50, 35008 Pala-Temecula Luiseno
Pala , CA 92059 Cupeno
dhuss@palatribe.com
(760) 891-3500

(760) 742-3189 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the 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.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Decker Project, Riverside County.

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

William J. Pink
48310 Pechanga Road
Temecula, California 92592

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Mr. Pink:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is near Perris, in Riverside County, California. The northeast corner of the project area can be found near the intersection of Decker Road and Old Oleander Avenue. Specifically, this project is located in Section 2 of the USGS 7.5-minute *Steele Peak, California* topographic quadrangle (Township 4 South, Range 4 West). Please find enclosed sections of the USGS *Steele Peak* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate Decker Parcels Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact the County of Riverside directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Steele Peak, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Vincent Whipple
Tribal Historic Preservation Officer
Rincon Band of Mission Indians
1 West Tribal Road
Valley Center, California 92082

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Mr. Whipple:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is near Perris, in Riverside County, California. The northeast corner of the project area can be found near the intersection of Decker Road and Old Oleander Avenue. Specifically, this project is located in Section 2 of the USGS 7.5-minute *Steele Peak, California* topographic quadrangle (Township 4 South, Range 4 West). Please find enclosed sections of the USGS *Steele Peak* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate Decker Parcels Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact the County of Riverside directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Steele Peak, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Shasta Gaughen, Ph.D.
Tribal Historic Preservation Officer
Pala Band of Mission Indians
35008 Pala Temecula Road, PMB 50
Pala, California 92059

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Ms. Gaughen:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate Decker Parcels Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact the County of Riverside directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Steele Peak, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Shasta Gaughen
Assistant Director
Kupa Cultural Center (Pala Band)
35008 Pala Temecula Road, PMB 50
Pala, California 92059

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Ms. Gaughen:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Steele Peak, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

San Luis Rey Band of Mission Indians
Tribal Council
1889 Sunset Drive
Vista, California 92081

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

To Whom It May Concern:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Steele Peak, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

San Luis Rey Band of Mission Indians
Cultural Department
1889 Sunset Drive
Vista, California 92081

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Rosemary Morillo, Chairperson
c/o Carrie Garcia
Soboba Band of Mission Indians
P.O. Box 487
San Jacinto, California 92581

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Ms. Morillo:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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tstropes@bfsa-ca.com

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Robert H. Smith
Chairperson
Pala Band of Mission Indians
35008 Pala Temecula Road, PMB 50
Pala, California 92059

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Mr. Smith:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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tstropes@bfsa-ca.com

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Randall Majel
Chairperson
Pauma and Yuima Reservation
P.O. Box 369
Pauma Valley, California 92061

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Mr. Majel:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Pauma and Yuima Reservation
Attn: EPA
P.O. Box 369
Pauma Valley, California 92061

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

To Whom It May Concern:

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tstropes@bfsa-ca.com

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Paul Macarro
Cultural Resources Manager
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, California 92593

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Mr. Macarro:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Mark Macarro
Chairperson
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, California 92593

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Lavonne Peck
Chairwoman
La Jolla Band of Mission Indians
22000 Highway 76
Pauma Valley, California 92061

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Ms. Peck:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Joseph Ontiveros
Cultural Resource Department
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, California 92581

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Mr. Ontiveros:

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tstropes@bfsa-ca.com

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Charles Devers
Cultural Committee
Pauma and Yuima Reservation
P.O. Box 369
Pauma Valley, California 92061

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Mr. Devers:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Bo Mazetti
Chairperson
Rincon Band of Mission Indians
1 West Tribal Road
Valley Center, California 92082

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Mr. Mazetti:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Bennae Calac
Pauma Valley Band of Luiseño Indians
P.O. Box 369
Pauma Valley, California 92061

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Ms. Calac:

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 27, 2015

Anna Hoover
Cultural Analyst
Pechanga Cultural Resources Department
P.O. Box 2183
Temecula, California 92593

Subject: Information regarding Native American cultural resources on or near the Decker Parcels Project, Perris, Riverside County, California

Dear Ms. Hoover:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Decker Parcels Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Steele Peak, California* topographic map with project area delineated

Tracy Stropes

From: Cultural [Cultural@pauma-nsn.gov]
Sent: Wednesday, April 01, 2015 12:18 PM
To: tstropes@bfsa-ca.com
Cc: Dixon, Patti; Jeremy Zagarella
Subject: Decker Parcels Project

Mr. Stropes,

The Pauma Band of Luiseno Indians has received your March 27 notice for the Decker Parcels Project in Perris. We are unaware of any cultural sites or resources on or near the proposed project. Please copy us on any culturally related studies that have or will be completed for the project.

Thank you,

Chris Devers
Cultural Clerk
Pauma Band of Luiseno Indians

RINCON BAND OF LUISEÑO INDIANS

Culture Committee

1 W. Tribal Road · Valley Center, California 92082 ·
(760) 297-2621 or·(760) 297-2622 & Fax:(760) 749-8901

April 2, 2015

Tracy A. Stropes
Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, CA 92064

Re: Decker Parcels Project

Dear Ms. Stropes:

Thank you for inviting us to submit comments on the Decker Parcels Project. This letter is written on behalf of the Rincon Band of Luiseño Indians. Rincon is submitting these comments concerning your projects potential impact on Luiseño cultural resources.

The Rincon Band has concerns for impacts to historic and cultural resources and the finding of items of significant cultural value that could be disturbed or destroyed and are considered culturally significant to the Luiseño people. This is to inform you, your identified location is within the Aboriginal Territory of the Luiseño people, but is not within Rincon's Historic boundaries. We defer you to the Pechanga Band of Luiseño Indians or Soboba Band of Luiseño Indians who are closer to your project area

Please contact the Native American Heritage Commission and they will assist with a referral to other tribes in the project area.

Thank you for the opportunity to protect and preserve our cultural assets.

Sincerely,

Rose Duro
Rincon Culture Committee Chairman

PALA TRIBAL HISTORIC PRESERVATION OFFICE

PMB 50, 35008 Pala Temecula Road
Pala, CA 92059
760-891-3510 Office | 760-742-3189 Fax

PALA THPO

April 29, 2015

Tracy A. Stropes
Brian F. Smith & Associates, Inc.
14010 Poway Rd. Suite A
Poway, CA 92064

Re: Decker Parcels Project

Dear Mrs. Stropes:

The Pala Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Robert Smith, Tribal Chairman.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized Pala Indian Reservation. The project is also beyond the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Therefore, we have no objection to the continuation of project activities as currently planned and we defer to the wishes of Tribes in closer proximity to the project area.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 760-891-3515 or by e-mail at sgaughen@palatribe.com.

Sincerely,

Shasta C. Gaughen, PhD
Tribal Historic Preservation Officer
Pala Band of Mission Indians

ATTENTION: THE PALA TRIBAL HISTORIC PRESERVATION OFFICE IS RESPONSIBLE FOR ALL REQUESTS FOR CONSULTATION. PLEASE ADDRESS CORRESPONDENCE TO **SHASTA C. GAUGHEN** AT THE ABOVE ADDRESS. IT IS NOT NECESSARY TO ALSO SEND NOTICES TO PALA TRIBAL CHAIRMAN ROBERT SMITH.

SOBOBA BAND OF LUISEÑO INDIANS
EST. JUNE 19, 1883

May 21, 2015

Attn: Tracy A. Stropes, Senior Project Archaeologist
Brian Smith and Associates
14010 Poway Road, Ste. A
Poway, California 92064

Re: Decker Parcels Project, Perris, Riverside County
Located near the intersection of Decker Road and Oleander Avenue

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas. It is in proximity to other known sites and is a shared use area that was used in ongoing trade between the various tribal bands, not considered as a location occupied by one existing band. For these reasons the site is regarded as sensitive to the people of Soboba.

Soboba Band of Luiseño Indians is requesting the following:

1. To initiate a consultation with the project proponents and lead agency.

2. The transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.

3. Soboba Band of Luiseño Indians continues to act as a consulting tribal entity for this project.

4. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.

5. Request that proper procedures be taken and requests of the tribe be honored (Please see the attachment)

Sincerely,

Joseph Ontiveros, Director of Cultural Resources
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

Treatment and Disposition of Remains.

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact

Coordination with County Coroner's Office. The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

Non-Disclosure of Location Reburials. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

APPENDIX E

Confidential Maps

(Deleted for Public Review; Bound Separately)

APPENDIX F

Pollen and Protein Residue Analysis of Bedrock Milling Features, Site RIV-1330/H

(Prepared by PaleoResearch Institute, Inc.)

POLLEN AND PROTEIN RESIDUE ANALYSIS OF BEDROCK MILLING FEATURES, SITE RIV-1330/H, RIVERSIDE COUNTY, CALIFORNIA

By

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INTRODUCTION

Bedrock milling site (RIV-1330/H) is located in an area containing boulders, many of which had been used for milling. Boulder surfaces evidenced ground areas that varied in size, shape, and depth. Milling features were scattered on various bedrock outcrops between Lake Mathews and Mt. Russell. Eight wash samples collected from bedrock milling features and one wash sample from a mano were examined for both pollen and protein signatures of use. In addition, three control samples were examined for their pollen record to provide a control against which to interpret the pollen records from the bedrock milling features and mano, as well as to provide controls for interpretation of the protein samples.

METHODS

Groundstone Washes for Pollen and Starch

Use of groundstone in processing plants and animals may leave evidence on the artifact surface that includes concentrations of pollen and starch, which can be recovered by washing the ground surfaces. Bedrock milling features and the mano were washed by Brian F. Smith and Associates personnel, who submitted the liquid wash samples to PaleoResearch Institute for pollen analysis.

Upon receipt at PaleoResearch Institute, the pollen wash samples were centrifuged at 3,000 rpm to concentrate the organic fraction in the bottom of the tube. These pollen-rich organic fractions were rinsed with reverse osmosis de-ionized (RODI) water prior to receiving a short (25 minute) treatment in hot hydrofluoric acid to remove inorganic particles. The samples were acetylated for 10 minutes to remove extraneous organic matter and then rinsed with RODI water to neutral. Following this, a few drops of potassium hydroxide (KOH) and safranin stain were added to each sample.

A light microscope was used to count the pollen at a magnification of 500x. Pollen preservation in these samples varied from good to poor. Comparative reference material collected at the Intermountain Herbarium at Utah State University and the University of Colorado Herbarium was used to identify the pollen to the family, genus, and species level, where possible.

Pollen diagrams were produced using Tilia 2.0 and TGView 2.0.2. Aggregates are clumps of a single type of pollen and may be interpreted to represent either pollen dispersal over short distances or introduction of portions of the plant represented into an archaeological setting. Aggregates were included in the pollen counts as single grains, as is customary. The presence of aggregates is noted by an "A" next to the pollen frequency on the percentage pollen diagram. A plus (+) on the pollen diagram indicates the pollen type was observed outside the regular count while scanning the remainder of the microscope slide. Total pollen concentrations were calculated in Tilia using the measurement of the ground/use surface washed in cm^2, the quantity of exotics (spores) added to the sample, the quantity of exotics counted, and the total pollen counted and expressed as pollen per cm^2 of use surface.

"Indeterminate" pollen includes pollen grains that are folded, mutilated, or otherwise distorted beyond recognition. These grains were included in the total pollen count since they are part of the pollen record. The microscopic charcoal frequency registers the relationship between pollen and charcoal. The total estimated number of microscopic charcoal fragments was divided by the pollen sum, resulting in a charcoal frequency that reflects the quantity of microscopic charcoal fragments observed, normalized per 100 pollen grains. This number is presented on the pollen diagram.

Pollen analysis also included observation and recording starch granules and, if they were present, their assignment to general categories. We did not, however, search for starches outside the pollen count. An additional search for starches is performed only when starch analysis is part of the suite of analyses performed. Starch granules are a plant's mechanism for storing carbohydrates. Starches are found in numerous seeds, as well as in starchy roots and tubers. Primary categories of starches include the following: with or without visible hila, hilum centric or eccentric, hila patterns (dot, cracked, elongated), and shape of starch (angular, ellipse, circular, or lenticular). Some of these starch categories are typical of specific plants, while others are more common and tend to occur in many different types of plants.

Protein Residue

Successful recovery of proteins from lithic artifacts relies on the biological activity of those proteins (Hyland, et al. 1990:105) and recovery method. Protein residue analysis for bedrock milling features used counter immunoelectrophoresis (CIEP). We note that both cross-over and counter are used in the literature to describe this type of immunoelectrophoresis. This method is based on an antigen-antibody reaction, where a known antibody (immunoglobulin) is used to detect an unknown antigen (Bog-Hansen 1990).

Culliford's (1971; 1964) forensic CIEP methods used at the Royal Canadian Mounted Police Serology Laboratory, Ottawa, and the Centre of Forensic Sciences, Toronto, were modified by Newman and Julig (1989) for use on archaeological materials. Subsequently, PaleoResearch Institute enacted changes following the advice of Dr. Richard Marlar of the Thrombosis Research Laboratory, VA Medical Center, Denver, and the Health Sciences Center, University of Colorado. Although several different protein detection methods have been employed in archaeological analyses, including enzyme-linked immunosorbent assay (ELISA) and radioimmunoassay (RIA), the CIEP test is demonstrated to be extremely sensitive, with the detection of 10^{-8} g of protein possible (Culliford 1964:1092). Testing unknowns against non-immunized animal serum screens for the presence of reactive proteins that bind indiscriminately with numerous antisera, but are not species, genera, family, or group specific. Sediment controls are necessary to address the potential for false positives caused by compounds in sediments, including chlorophyll; bacteria; and metal cations, i.e. manganese, copper and iron oxide (Evershed, et al. 1996); or proteins from modern animal activity, such as feces and urine.

Proteins preserved on stone tools of considerable age have been detected by researchers using CIEP at unrelated institutions (Gerlach, et al. 1996; Hogberg, et al. 2009; Kooyman, et al. 2001; Seeman, et al. 2008; Yost and Cummings 2008). For example, Gerlach et al. (1996) reported 45 positive reactions obtained on 40 of the 130 stone tools tested from an early North American Paleoindian site (ca. 11,200–10,800 years BP). In an archaeological context, an antigen is the unknown protein adhering to an artifact after its use. Although ancient

proteins break down into small fragments over time, antibodies can recognize small regions of antigens (Marlar, et al. 1995). Sensabaugh, Wilson, and Kirk (1971:566) demonstrate that proteins undergo chemical and physical modification, breaking down into smaller molecules (polydispersing), and contributing to high molecular weight aggregates of dried blood's insoluble fraction. Hyland et al. (1990:105) hypothesized "protein molecules may be conjoined with fatty tissues, resulting in an insoluble complex" resistant to water's disintegrative properties. Although the mechanism for protein preservation is not fully understood, proteins demonstrate a remarkable ability "to retain a level of biological activity over a long period of time" (1990:106). They also demonstrate an affinity for adhering to silica (Marlar, et al. 1995), which likely assists with preservation.

Protein residue washes were collected by Brian F. Smith and Associates using PaleoResearch Institute, Inc. (PRI) guidelines. Each milling surface was washed lightly with de-ionized water that was removed using paper towels. The cleaned surface was washed using a sonicating toothbrush with a new head and 1–2 ml of Tris/NaCl/Triton solution (0.02M Tris hydrochloride, 0.5M sodium chloride, and 0.5% Triton X-100) and de-ionized water. The solution was recovered from each milling surface using a new plastic pipette, then transferred into a new plastic centrifuge tube of appropriate size for shipment to PRI. After the protein washes were centrifuged using a short-duration spin (10 seconds at 3000 rpm) to remove sediments, they were decanted into Centriprep-10 centrifugal concentrators. The concentrators are equipped with a 10,000 molecular weight cut-off membrane that removes most of the water and small fragments of proteins (with molecular weights less than 10,000), concentrating the larger proteins in the remaining 1 ml of solution.

Because the surfaces of the milling areas might have been exposed to contaminants from surrounding sediments or animal urine and/or feces that can cause false positive results, control samples from non-use areas on the bedrock also were tested. Each control wash underwent the same sediment removal and concentration process as the milling wash samples. No sediment controls accompanied the wash samples.

The first step tests all residue washes extracted from artifacts and the sediment controls, when present, against pre-immune goat serum (serum from a non-immunized animal) to screen for the presence of non-specific, indiscriminate binding of proteins. All of the protein residue washes tested negative against pre-immune serum. Next, the samples were tested against prepared animal antisera obtained from a variety of commercial and private sources. Appropriate positive and negative controls were run for each antiserum. The blood of an animal for which the antiserum tests positively constitutes the positive control while negative controls use the serum or blood of the type of animal in which the antiserum was raised, either rabbit or goat.

Agarose gel poured onto GelBond® film acts as the medium for CIEP. Four columns of paired wells (2 mm in diameter separated by 3 mm of gel) organized in a series of eight rows were punched into the gel. The anodic (-) well contained the antiserum while the cathodic (+) well held the artifact's protein extraction. The sample was electrophoresed in Barbital buffer (pH 8.6) for 45 minutes at 130 V to drive the antigens and antibodies toward each other. Overnight, a 1 M NaCl bath removed extraneous proteins from the gel. The next morning the gel was pressed for 10 minutes, rinsed with RODI water for an hour, and then pressed for an additional 10 minutes to remove extraneous water and provide a rinse to remove the NaCl. A Fisher Isotemp 500 Series oven at 48 °C finished drying the gel samples.

Positive reactions appear as a vertical line of precipitation between the two wells. Coomassie Blue stain was used to make the line of precipitation easier to see in the gel. Initial positive reactions between the artifact wash and the antisera at the 1:3 dilution were retested with dilute antisera, at a concentration of 1:5. Sediment controls also were tested (at a concentration of 1:5) against antisera that produced positive reactions at any level for the artifact at the 1:3 dilution. Retests distinguish between true and false positives, identifying a true positive when they replicate the initial positive reaction. Positive reactions obtained after the second test with dilute antisera were reported.

Many archaeological samples do not produce the expected clear vertical lines of precipitation that are observed with positive blood-based controls. Therefore, descriptions, based on the presence and pattern of precipitation lines, and reaction strengths for each dilution level were recorded to help monitor consistency and viability of the reactions between antisera and archaeological proteins. A recorded "positive" result displays a clear vertical precipitation line between the antiserum and the sample (antigen), indicating the sample wash contained proteins related to the animal represented by the antiserum, or a member of its family group/order. A "very weak positive" demonstrates a faint vertical precipitation line. This suggests presence of deteriorated proteins similar to the antiserum animal's family or order. "Probable positive" samples produce a curved precipitation line or curved concentrated cloud of stain during testing. These reactions suggest the presence of degraded proteins related to the animal represented by the antiserum. However, this reaction cannot be assigned as a definitive positive. Reactions lacking vertical precipitation lines, such as a dense cloud of stain concentrated between the anodic and cathodic wells, are recorded as "questionable positives." These results suggest the sample washes contain proteins, but do not definitively identify their presence. If there is no visible reaction, the sample is categorized as "negative," indicating the absence of proteins related to animals represented by the antiserum in the sample wash. All reactions are recorded during testing to better guide retesting. Substantiated positive results are reported.

Identification of animals represented by positive results is usually made to the family level. All mammalian species share serum protein antigenic determinations (epitopes or sites on the surface of an antigen molecule to which the antibody binds); therefore, some cross-reactions occur between closely and sometimes distantly related animals (Gaensslen 1983:241). Examples of closely related reactivity include bovine antiserum reacting with bison blood, as well as deer antiserum reacting with other members of the Cervidae (deer) family, such as elk and moose. Positive reactions between distantly related (at the order level) animals include guinea pig antiserum reacting with squirrel blood. This similarity in epitopes (binding sites) is the reason that all labs test their antisera against the blood of many animals, not simply the one to which the antiserum was created. This testing builds lists of animals whose blood is recognized by each antiserum.

ETHNOBOTANIC REVIEW

Archaeological studies reference ethnographically documented plant uses as indicators of possible, or even probable, plant uses in pre-Columbian times. The ethnobotanic literature provides evidence for both broad and specific historic exploitation of numerous plants. Multiple ethnographic sources evidencing a plant's exploitation suggest its widespread historic use and

an increased likelihood of the same or a similar plant's use in the past. We consulted a broad range of ethnographic sources both inside and outside the study area to permit a more exhaustive review of potential plant uses. Ethnographic sources document historic use of some plants enduring from the past. Most likely medicinal plant use persisting into the historic period originated in pre-Columbian times. Unfortunately, due to changes in subsistence practices and European food introduction, a loss of plant knowledge likely occurred. The ethnobotanic literature serves only as a guide for potential uses in pre-Columbian times, not as conclusive proof of those uses. When compared with the material culture (artifacts and features) recovered by the archaeologists, pollen, phytoliths, starch, and macrofloral remains can become use indicators. We provide the following ethnobotanic background to discuss plants identified during pollen analysis.

Native Plants

Brassicaceae (Mustard Family)

The Brassicaceae (mustard family) is a large family comprising 375 genera and 3200 species of annual to perennial herbs or, rarely, small shrubs containing watery, acrid sap (Fernald 1950; Hickey and King 1981:150). None of the mustards are poisonous, although all are pungent-tasting. Flowers are uniform, consisting of four separate sepals arranged like a cross. The young leaves are rich in vitamins A, B1, B2, and C and often are boiled as greens. Also, mustards are high in calcium and potassium, and contain isothiocyanates (mustard oil), beta carotene, and fiber. The flower buds are high in protein.

Several members of the Brassicaceae (mustard) family were exploited for seeds and greens, the latter of which were used as potherbs. Brassicaceae seeds ripen in early summer. *Descurainia* and *Lepidium* are noted commonly in macrofloral records from the Southwest and were exploited for their greens and seeds (Kearney and Peebles 1960:325). Brassicaceae seeds stimulate production of digestive juices in the stomach and aid in digestion. *Descurainia* and *Lepidium* seed coats produce a mucilaginous substance that when wet are "viscous enough to slow digestion and absorption in the human digestive system, thereby helping control the development of diabetes" (Brand, et al. 1990 cited in Hodgson 2001:98). Young plants were eaten raw or cooked as potherbs. Tilford (1997:158) notes that for both *Descurainia* and *Lepidium* "the raw or cooked greens of young plants are highly nutritious, containing considerable amounts of trace minerals and vitamins A, B, and C." Parched and ground seeds were used to make flour, to thicken soup, and to make pinole (Hodgson 2001:98-99; King 1990:12-13; Kirk 1975; Sweet 1976:56).

All species of *Descurainia* (tansy-mustard) are edible. Native people often baked fresh young leaves in fire pits lined with stones. Alternating layers of leaves and hot rocks were used to create a steamer. The plants were steamed for about 30 minutes then used immediately or were dried for later use (Harrington 1967:308). The parched and ground seeds were used to thicken soup and to make pinole. A poultice of the plants was applied to toothaches and used as lotion for frostbite and sore throats. In Mexico the seeds are poulticed and applied to wounds. *Descurainia* is a weedy annual or biennial found on hillsides, in plains, valleys, fields, waste places, and along roadsides (Harrington 1967:307-308; Kearney and Peebles 1960:349; Kirk 1975:38; Moerman 1986:151; Muenscher 1980:242).

Lepidium (peppergrass) are weedy annual or biennial plants. The leaves contain vitamins A and C, iron, and protein, and may be eaten fresh or cooked as potherbs. Seeds have a peppery taste and may be used to flavor salads and stews. Native people used bruised plants or leaf tea to treat poison ivy and scurvy. Leaves were poulticed on the chest for croup. Navaho-Kayenta peoples used the plant for "effects of swallowing an ant," and the plant was "rubbed on baby's face to put infant to sleep" (Moerman 1986:257-258). *Lepidium* also was used as a disinfectant, for heart palpitations, dizziness, or poulticed to "draw blister quickly" (Moerman 1986:258). *Lepidium* grows in dry or moist soil in fields, cultivated ground, and waste places (Foster and Duke 1990:34; Kirk 1975:37; Muenscher 1980:250; Peterson 1977:26).

Nearly half of the Brassicaceae growing in California are non-native. Generally, weedy species of the mustard family are more successful in moist rather than desert areas (Morhardt and Morhardt 2004: 94). All *Brassica* species were introduced from Europe or Asia (Morhardt and Morhardt 2004:98). Many *Brassica* (and other Brassicaceae genera) have become naturalized in California. “According to some stores, black mustard seeds were scattered by the Spanish padres so that the tall yellow-flowering shoots would mark the route between missions along the California coast” (Morhardt and Morhardt 2004:107). Elevated Brassicaceae pollen frequencies are notable in historic pollen deposits of California. Core 2 from Ysidora Basin on Camp Pendleton documented small increases in Brassicaceae pollen in the upper samples (Scott Cummings, et al. 2011). A modern surface sample at CA-SDI-10690, also Camp Pendleton (Scott Cummings, et al. 2010), displayed an elevated Brassicaceae pollen frequency.

Geranium **(Cranesbill, Geranium)**

Geranium (cranesbill, geranium) are annual or perennial plants with long, beaklike fruit capsules. The leaves and flowers are edible. The Miwok used a root decoction for aching joints (Moerman 1998:246). Other medicinal uses are reported for other groups, indicating geranium’s usefulness. Leaf poultices were applied to injuries, insect bites, rashes, and other skin irritations. Leaf tea was used as a gargle, to treat diarrhea, other gastric problems, and urinary irritations. The powdered root has the strongest astringent action and was used to stop bleeding. Roots were bruised into paste and applied to sores, and root decoctions were used for diarrhea. *Geranium* plants grow in open sunny to shaded sites, grasslands, meadows, shrublands, woodlands, forests, moist sites, streambanks, foothills, and mountains (Hickman 1993:673-674; Hitchcock and Cronquist 1973:280-281; Moerman 1998:246; Tilford 1997:42-43).

Lonicera **(Honeysuckle)**

Lonicera (honeysuckle) are shrubby or climbing plants with showy, fragrant flowers, growing in meadows, thickets and along roadsides (Fernald 1950: 1331). Shoots, bark, and leaves all had medicinal uses for various Native American groups in eastern North America, indicating their medicinal properties. Farther north, the Mendocino used a honeysuckle leaf infusion as a wash for sore eyes and the long, flexible stems for making circular withes of baskets. Their children sucked nectar from the yellow flowers (Moerman 1998: 318). Decoctions or other preparations from leaves were used as a contraceptive, a hair wash, a remedy for tuberculosis, and a strengthening tonic, and were applied to bruises. Infusions made from bark were taken to alleviate colds, sore throats, fevers, and homesickness and as a diuretic. They also were used as a children’s sedative and in steam baths to promote lactation (Moerman 1998: 317). Honeysuckle flowers are food for hummingbirds.

Poaceae (Grass Family)

A large, widely-distributed family, Poaceae (grass family) thrive in many different climates and biomes. The family includes many diverse, economically-important species. Grasses on the landscape provide fodder for game animals. Grass caryopses (seeds) have been used extensively for food and some have been cultivated and/or domesticated. Native grasses in this area including *Achnatherum* (ricegrass), *Agropyron* (wheatgrass), *Agrostis* (bentgrass), *Bromus* (brome grass), *Elymus* (ryegrass), *Festuca* (fescue), *Hordeum* (wild barley), *Muhlenbergia* (muhly grass), *Poa* (bluegrass), and *Sporobolus* (dropseed) were collected and processed as food. Often, parched grass seeds were ground into meal to make mushes and cakes. When present, grass awns (hairs) were singed off by exposing the seeds to flame. Depending on species, grass seeds ripen from spring to fall, providing a long-term available food source. In addition, roots, edible raw, roasted, or dried, were ground into flour. Grass leaves and stems provided raw materials for building, weaving, and making cordage. For example, bedding, baskets, mats, clothing, twine, thatch, clothing and sandals all were made from grasses. Grass functioned as a floor covering, tinder, and to make brushes and brooms (Chamberlin 1964:372; Cushing 1920:219, 253-254; Fowler 1986:76-77; Harrington 1967:322; James 1901:72-85; Kindscher 1987:228-237; Kirk 1975:177-190; Liljeblad and Fowler 1986:416-417; Rogers 1980:32-40).

Several grasses common to emergent wetlands produced seeds that were gathered and utilized. These include *Bromus* and *Elymus*. *Bromus* seeds were available from May through September, while *Elymus* seeds were available from June through September (Brandoff 1980). Grass seeds constitute an abundant food source for the Luiseño (Bean and Shipek 1978:552).

Local conditions affect grass species' abundance and availability. During the late summer and fall, many groups burned dry grass and brush to promote better grass growth the following year (Bean and Shipek 1978:552; Luomala 1978:600). Often, communities used seed beaters to loosened seeds before collecting them in conical or wide-mouthed baskets (Ebeling 1986:183, 195). *Melica* (melic, oniongrass) shoots were eaten raw or boiled as greens. Bulbous corms at the base of the culms provided an additional food source (Ebeling 1986:196; Moerman 1998:338). Grass seeds including *Avena* (wild oat), the second most abundant plant food for the Luiseño, were parched and ground into meal (Bean and Shipek 1978:552; Mead 2003:63-64). The Kawaiisu pounded *Melica* seeds in a bedrock mortar and cooked them into a mush. *Distichlis spicata* (saltgrass) leaves yielded useful salt (Ebeling 1986:185; Johnson 1978:355). Baskets were woven from *Muhlenbergia rigens* (deergrass), *Sporobolus* (dropseed), and *Phragmites* (reed) grass stems (Ebeling 1986:170-172, 195-196; Hedges and Beresford 1986:25). Thatch houses, and arrow shafts, flutes, cordage, and nets incorporated *Phragmites* stems (Ebeling 1986:196). Grass mats covered doorways and floors and were used as pillows (Kelly 1978:417).

***Agropyron* (Wheatgrass)**

Agropyron (wheatgrass) spp. are perennial grasses with some species growing in clumps and other species forming sod with creeping rhizomes. Seeds were used as food by native groups, as they were for other grasses. Native *Agropyron* grow on dry slopes and hills, mountains, meadows, open slopes and woods, alpine slopes, plains, canyons, rocky hills, alkaline soil, dry grasslands, and along streams (Harrington 1964:65-69; Moerman 1998:55; Weber 1976:394).

ETHNOZOOARCHAEOLOGICAL REVIEW

Archaeological materials from various culture groups in southern California reflect subsistence practices associated with coastal tideland collectors and foothill hunters and gatherers who had access to acorns, buckeye, pine nuts, insects, land mammals, shellfish, surf and freshwater fish (Heizer and Elsasser 1980:82-83). Ethnographically documented animal uses suggest possible or even probable prehistoric animal exploitation. Similar to ethnobotanic interpretations, records of widespread historic animal utilization may demonstrate continued prehistoric resource practices. However, European contact affected culinary, hunting, and animal use practices, resulting in a loss of indigenous knowledge. A wide breadth of ethnographic sources, both inside and outside the study area, was consulted to permit a more exhaustive review of potential human and animal interactions. Ethnographic literature serves only as a guide, not as conclusive evidence of resources' occurrences or specific uses. When compared with archaeological materials (artifacts and features), protein residues are interpreted as use indicators. We provide the following ethnozooarchaeological background to discuss animals identified through protein residue analysis.

Bovidae (Cattle, Sheep, and Goat Family) and Antilocapridae (Pronghorn Family)

The family Bovidae includes ungulate, ruminant mammals with unbranched horns that grow on all males and sometimes females. Although Bovidae are located primarily in the Old World, bison (*Bison*), goat (*Oreamnos*), sheep (*Ovis*), and muskox (*Ovibos*) are present in North America. Bison ranged throughout North America, from the eastern woodlands to northwestern Canada and Alaska. Plains bison (*Bison bison bison*) were common to vast expanses of grasslands and migrated seasonally, often moving 200 or more miles between summer and winter ranges. Wood bison (*Bison bison athabascae*) lived in small non-migratory herds and were scattered from northern Alberta to Alaska (Mitchell and Gates 2002). The range for bison in California only extended into the northeast corner of the state, Modoc County region, and west toward the Sierra Nevada (Cunningham 2010:233-234). Similarly, the range for muskox (*Ovibos moschatus*) is limited to areas with cold climates and barren terrains such as the Arctic tundra of North America including Alaska and northern Canada with prehistoric populations extending south as far as Kentucky (McSpadden 1917). Therefore, bison and muskox are not likely candidates for prehistoric Bovidae proteins identified for this project through CIEP.

Mountain goat (*Oreamnos americanus*) range from central to high mountain areas with open country, steep rocky cliffs, and grazing meadows common in Alaska, western Canada, Washington, western Montana, and Idaho. Historically, mountain goat has been transplanted within and introduced to Wyoming, Colorado, Montana, South Dakota, Oregon, Utah, and California (Cowan and McCorory 1970:60; Hibbs 1967:242; Krausman and Czech 2000:553; Lemke 2004:535; Rideout and Hoffmann 1975:4). The project area does not include populations of mountain goat, again making this member of Bovidae an unlikely source of proteins. Prehistoric animals likely associated with positive reactions observed for Bovine or goat antisera near southwestern California include bighorn/mountain sheep or pronghorn antelopes. Alternately, positive reactions to bovine antiserum may reflect historically introduced cattle, goat, or sheep herds. Domesticated cattle and sheep were originally introduced to California by the Spanish (Cunningham 2010:106-107).

Ovis canadensis (bighorn sheep or Rocky Mountain sheep) inhabit the rugged slopes and rocky cliffs of the western mountain ranges from southern British Columbia and southwest Alberta, Canada down through Idaho, Montana, California, Arizona, and New Mexico, continuing south to northern Mexico. There are several varieties of mountain sheep. They are found in most of the mountainous regions of western North America, usually in areas rarely disturbed by man near or above timberline. They migrate between high slopes in the summer and valleys in the winter (Burt and Grossenheider 1980:227; Whitaker 1980:672-674).

Old world antelopes are members of the Bovidae family; however, the pronghorn antelope (*Antilocapra americana*), present only in North America, represents the family Antilocapridae. These artiodactyls are the sole decedents of a unique family, yet their horns and dental formula are similar to other ruminants. Pronghorns inhabit the open prairies and sagebrush plains of the western half of North America ranging from southern Saskatchewan down to California, Arizona, New Mexico, and western Texas (Burt and Grossenheider 1980: 223; Whitaker 1980: 662). Pronghorns aggregate in scattered bands throughout the summer and in larger herds in the winter (Whitaker 1980:662-663). Although pronghorn is part of the Antilocapridae, pronghorn blood has produced positive results to antisera from members of Bovidae, specifically bovine and goat antisera. This suggests positive reactions from unknown (archaeological) protein residues to antisera from members of Bovidae could represent pronghorn antelope.

Positive reactions observed for goat and sheep antisera associated with sites near the southwestern Mojave Desert likely represent bighorn/mountain sheep or pronghorn antelopes. Desert bighorn sheep (*Ovis canadensis nelsoni*) are found in Southwestern desert mountain ranges including the Sonoran, Mojave, and Great Basin deserts, as well as Transverse and Peninsular mountain ranges in southwestern California (Epps, et al. 2004). Bighorn sheep and pronghorn antelope were among the large game hunted by the Yavapai (Khera and Mariella 1983:39). Men, women, and children would participate in animal drives used to hunt game such as rabbit and antelope (Khera and Mariella 1983: 46). Most groups categorized as Southern Paiute had access to bighorn/mountain sheep, while antelope was available to approximately half of the groups (Kelly and Fowler 1986:370). Hunting these large game animals involved individuals or small groups using bows and arrows (Kelly and Fowler 1986:370). The Serrano also pursued bighorn/mountain sheep and antelope with bows and arrows. Meat was baked, boiled, parched, or sun-dried; bones were boiled and broken for marrow extraction; and blood was consumed (Bean and Smith 1978:571). Bighorn/mountain sheep remains comprise the majority of faunal elements represented in archaeological deposits at the Newberry Cave site (ca. 4000–1000 BC) along the Mojave River, San Bernardino County (Coombs, et al. 1979:13; Warren and Crabtree 1986:188-189). Ritualistic practices associated with hunting large game is evidenced by rock art, split-twig figurines, animal-specific shamans, “dreamers”, and songs (Kelly and Fowler 1986:370; Warren and Crabtree 1986:189).

Pronghorn were one of the major animal foods for tribes in southern California, including the Kawaiisu, Tataviam, and Serrano (Bean and Smith 1978:571; King and Blackburn 1978:536; Moratto 1984:343; Zigmond 1986). These tribes hunted large game with bows and arrows. Voegelin (1938:13) reports that the Tubatulabal, Kawaiisu, Chumash, and Yokuts held an annual pronghorn drive in July near Bakersfield.

Bovine (Domestic Cow, Goats, and Sheep)

European colonization introduced domestic cows (*Bos* sp.), goats (*Capra* sp.), and sheep (*Ovis* sp.) to North America. Positive reactions to bovine and goat antisera may reflect local cattle or goat herds if the area was used historically for livestock grazing or if manures consisting of livestock feces and urine were added to local agricultural fields. Domesticated cattle and sheep were originally introduced to California by the Spanish, and after 1824 livestock grazing was extensive (Cunningham 2010:107).

Leporidae (Rabbit and Jackrabbits/Hare Family)

Leporidae (rabbit and jackrabbit/hare family), including rabbits and hares, are small grazing mammals that generally have long ears, side facing eyes, long hind legs, soft fur, and short tails. Hares (*Lepus* sp.) are larger than rabbits and prefer open habitats where they can attempt to outrun predators. Jackrabbits tend to inhabit open desert scrubland, prairies, and on occasion stray into woodlands. Rabbits, however, are not as fast and prefer environments with dense cover where they can "freeze" and hide from carnivores (Burt and Grossenheider 1980:202-212; Whitaker 1980:346-364). Cottontail populations thrive in areas with bushy cover as well as poorly drained bottom lands. All of these long-eared jumpers have adapted to a wide range of environments and are found across North America.

Leporids were very important resources for groups in southern California, providing the day-by-day meat supply (Underhill 1941:12, 18-19). Rabbits were among the main game animals pursued by the Serrano and Cahuilla of southern California. These small mammals were hunted using bow and arrow; curved throwing sticks; traps, nets, snares, and deadfalls (Bean 1978:578; Bean and Smith 1978: 571). Communal rabbit hunts also were held on occasion (Bean and Smith 1978: 571). Sometimes neighboring groups joined in (Warren 1984:344). Skins were dressed and often made into blankets and used as robes in cold weather (Bean 1978:579; Bean and Smith 1978:571; Luomala 1978:599). Rabbitskin robes were reported as universal articles of clothing among southern California and southwestern United States groups. Sometimes infants were wrapped in jackrabbit skins during cold weather (Zigmond 1986:400-403). Rabbits were broiled on coals and/or cooked in an earth oven (King 1990:24). Meat and bones were crushed in a mortar, dried, and stored (Kroeber 1925:652; Yohe, et al. 1991:660). Members of the Leporidae found in southern California include brush rabbit (*Sylvilagus bachmani*), desert cottontail (*Sylvilagus audubonii*), and black-tailed jackrabbit (*Lepus californicus*) (Whitaker 1980:348-360).

DISCUSSION

Bedrock milling Site RIV-1330/H included multiple boulders exhibiting milling features, one mano and two metate fragments. Bedrock milling features from Features B, E, and J were selected for pollen and protein residue analysis (Table 1). The mano recovered from the surface also was washed to recover pollen and protein residue signatures of use. This site is located in an area disturbed by modern ranching, so a discussion of local vegetation is not relevant to understanding potential resources of the area.

The mano wash, Sample 1 RIV-1330, yielded a very small quantity of pollen and a large quantity of microscopic charcoal. The very small quantity of pollen recovered (eight pollen grains) is not likely to indicate overly aggressive washing prior to sample collection, as *Sporormiella* dung fungal spores were more abundant than pollen (Figure 1 and Table 2).

Sporormiella is an ascomycete fungus found only on the dung of herbivores. The genus is widespread in sub-boreal and temperate regions of the world. *Sporormiella* spores are borne in ascomata on the surface of drying dung and are spread passively to nearby vegetation, with which they are ingested (Davis and Shafer 2006). Many coprophilous fungi, such as *Sporormiella*, rely on a cyclic process involving herbivore ingestion of spores with foliage, germination of spores following passage through the gut, mycelial growth within, and eventual sporulation on dung (Wicklow, et al. 1980). While grazing, herbivores also can inadvertently ingest ascomata, the fruiting bodies on dung that contain millions of individual spores, especially in areas where dense herbivore populations exist (Aptroot and Geel 2006). Depending on the context of the sample, recovery of *Sporormiella* in archaeological samples can be an indicator of the presence of herbivores and possibly use of their byproducts. Interpretations can range from the presence of dung on the landscape to burning dung for fuel to the utilization of intestinal material for cooking and subsistence.

Sporormiella often becomes more abundant in Historic Period sediments following the historic introduction of grazing animals. Its increasing presence in historic samples has been noted in numerous palynological studies (Davis 1987). *Sporormiella* fungal spores are not confined to the dung of introduced herbivores, since they also occur on dung from bison, moose, wild sheep, deer, elk, caribou, and rabbits. The increase of *Sporormiella* spores in historic sediments may relate to changing land use patterns and increase in the length of time that animal herds occupy any given area.

This abundance of *Sporormiella* dung fungal spores indicates retention of animal dung on the surface of the mano even after the surface was cleaned in preparation for sample collection. The large quantity of microscopic charcoal suggests this mano was burned, probably after its last use. Small quantities of *Juniperus*, *Pinus*, *Quercus*, Amaranthaceae, High-spine Asteraceae, Brassicaceae, and Poaceae, representing juniper, pine, and oak, trees, plants in the goosefoot/amaranth family, plants in the sunflower family, mustard family plants, and grasses, probably accumulated after the mano was burned and represents local vegetation. This mano exhibits the largest quantity of *Sporormiella* dung fungal spores noted for this project, suggesting it was located in a meadow used by grazing animals.

The protein residue wash from a non-feature associated mano (1 RIV-1330) was tested against the available antisera (Table 3). Positive reactions of varying strengths were observed between the wash sample and goat and rabbit antisera at the 1:3 and 1:5 dilutions (Table 4). A questionable positive reaction between the artifact wash and goat antiserum at the 1:3 dilution was substantiated with a clear positive reaction at the 1:5 dilution (Table 5). Similarly, a very weak positive reaction between the artifact wash and rabbit antiserum at the 1:3 dilution was validated by a positive reaction at the 1:5 dilution.

The most likely animals represented by positive reactions to goat antiserum for the project area include Desert bighorn sheep (*Ovis canadensis nelsoni*) and/or pronghorn antelope (*Antilocapra americana*), and positive reactions to rabbit antiserum likely represent brush rabbit (*Sylvilagus bachmani*), desert cottontail (*Sylvilagus audubonii*), or black-tailed jackrabbit (*Lepus*

californicus). Substantiated reactions between the artifact wash (1 RIV-1330) and antisera generally indicate protein transfer through tool/feature use; however, without a soil control for the sample, it is not possible to rule out environmental contamination as the source for these reactions. As previously mentioned, compounds in the soil (chlorophyll, bacteria, and metal cations such as manganese, copper and iron oxide, or proteins introduced through modern animal activity in the area) can cause false positive reactions. Proteins are present in all body fluids and tissues, including feces and urine. Immunological studies on coprolites and modern animal dung have shown that CIEP will identify the animal that produced the feces (Newman, et al. 1993). As indicated by *Sporormiella* recovery in the pollen record, animal dung was present on the surface of the mano and proteins likely transferred onto the surface along with the spores. Therefore, it is likely all reactions against goat antiserum reflect the presence of grazing animals rather than tool use. It is also possible that positive reactions against rabbit antiserum reflect their presence on the landscape rather than tool use.

Feature B

Feature B is represented by pollen and protein residue Sample BMF-B-1 and its accompanying control sample. The pollen records for the matched bedrock milling feature and its paired control sample are similar. Moderate quantities of *Juniperus* and *Pinus* pollen indicate juniper and pine trees growing on nearby outcrops or hills. Small quantities of *Platanus* and/or *Quercus* pollen denote local growth of plane trees and oak. Recovery of *Eucalyptus* pollen in the control sample documents local or regional growth of introduced eucalyptus trees. Its absence from the milling stone wash suggests that cleaning efforts prior to collecting the sample were largely successful. The wash sample yielded moderate quantities of Low-spine Asteraceae, High-spine Asteraceae, and Brassicaceae pollen, representing ragweed/marshelder, other plants in the sunflower family, and plants in the mustard family, while the control sample exhibited only a small quantity of High-spine Asteraceae pollen. Both samples yielded small quantities of *Eriogonum* pollen, indicating presence of wild buckwheat in the local vegetation community. The wash sample exhibited small quantities of *Lonicera*, Onagraceae, Poaceae, Rosaceae, and *Typha* pollen, indicating honeysuckle, a member of the evening primrose family, grasses, a member of the rose family, and cattails growing locally. The control sample yielded a larger quantity of Poaceae pollen, representing local grasses. Both samples yielded large quantities of *Toxicodendron* pollen, representing poison oak or a related plant. Monolete spores, representing ferns, were observed only in the wash sample. *Sporormiella* dung fungal spores were recorded only in the control sample. Both samples yielded large quantities of microscopic charcoal relative to the pollen. In the absence of notes indicating the surface of this bedrock milling feature was burned, it is difficult to interpret the significance of this large quantity of charcoal. It represents ash, but the origin of the ash cannot be determined. Possible sources include grinding parched seeds, but this does not explain the equally large quantity of ash on the control surface. Local or regional fires might have contributed ash to the entire surface of this and other boulders in the area.

When tested against the available antisera, Sample BMF-B-1 from Feature B produced replicable positive reactions of varying strengths against rabbit antiserum. A very weak positive reaction against rabbit antiserum at the 1:3 dilution was substantiated by a positive reaction at the 1:5 dilution. The associated control wash (Sample CBMF-B) also produced a positive reaction against rabbit antiserum at the 1:5 dilution. Positive reactions observed in both the milling feature and control area suggest both are likely due to environmental contamination. It is

feasible that non-cultural transfer of Leporidae proteins to the outcrop surface results from contact with cottontail or jackrabbit feces and/or urine.

Feature E

Feature E is represented by washes from this bedrock milling feature that were examined for pollen and protein (BMF-E-2) and their accompanying control (CBMF-E). The pollen record was sparse from both areas. The milling feature wash yielded only single grains of *Juniperus* and *Pinus* pollen, indicating juniper and pine trees, as well as a large quantity of microscopic charcoal. The control sample yielded single Amaranthaceae, High-spine Asteraceae, and Poaceae pollen grains, representing a member of the goosefoot/amaranth family, a plant in the sunflower family, and grasses. Again, a large quantity of microscopic charcoal was noted.

No replicable positive results were observed between the protein residue wash (Sample BMF-E-2) from Feature E or the control wash (Sample CBMF-E) and the available antisera. Positive reactions obtained at a 1:3 dilution might represent environmental proteins; therefore, they serve as a guide for retesting against more dilute antiserum, but are not reported as having interpretive significance. Protein identification for residue from ground features presupposes several conditions. First, animal processing must have occurred after the last reshaping/resharpening. In addition, any proteins present must react to available antisera. Over time, degradation of proteins renders them unrecognizable by antisera at greater dilutions and eventually by all antisera. Failure to obtain an interpretable positive reaction results from degradation of proteins over time, feature use for working with animals or plants not represented by the available proteins, reshaping/resharpening after last use, or feature use for other purposes.

Feature J

Feature J is represented by six samples collected from bedrock milling features and a single control (CBMF-J). Pollen signatures from these milling features and the control sample were dominated by *Toxicodendron* pollen, representing poison oak or a similar plant, to a greater extent than was the sample examined from Feature B. Because the control sample yielded a similarly large quantity of *Toxicodendron* pollen, it is interpreted to be part of the local environmental signature. The control sample also yielded small quantities of *Pinus*, *Quercus*, Amaranthaceae, Low-spine Asteraceae, High-spine Asteraceae, Brassicaceae, *Eriogonum*, *Euphorbia*, and Poaceae pollen, representing pine and oak trees, a member of the goosefoot/amaranth family, ragweed or marshelder, another member of the sunflower family, a member of the mustard family, wild buckwheat, spurge, and grasses. A single *Selaginella* spore was recovered, documenting local growth of little clubmoss on this or a nearby boulder. A very small quantity of microscopic charcoal was noted in this sample. In the absence of measurement information concerning the size of the control area washed, we could not calculate total pollen concentration for the control sample.

Bedrock milling features from Feature J exhibited similar signatures to one another and in general to the control sample. *Acer* pollen was observed only in two washes (BMF-J-14 and BMF-J-15), probably indicating wind transport of pollen from local maple trees. *Eucalyptus*

pollen was observed only in BMF-J-14, indicating contribution of pollen from an introduced tree to the record. *Juglans* pollen also was rare, noted only in BMF-J-15 and signaling wind transport of pollen from local or regional walnut trees. *Juniperus* pollen also was rare, observed only in BMF-J-10 and indicating wind transport of juniper pollen. *Pinus* pollen was present in all but one (BMF-J-12) of the wash samples. Its absence from that sample is not deemed significant. *Pinus* pollen contributes to the environmental signal. *Platanus* pollen was noted in BMF-J-12 and BMF-J-13, indicating wind transport of pollen from local plane trees. *Quercus* pollen was observed in small quantity in all but BMF-J-11, signaling wind transport of oak pollen and its ubiquity in the local atmosphere. *Ulmus* pollen was present in two washes (AMF-J-10 and BMF-J-14, suggesting presence of elm trees in the general vicinity, but not in abundance.

Amaranthaceae pollen was observed in small quantities in all of the milling feature wash samples. BMF-J-11 and BMF-J-12 yielded slightly elevated frequencies, which may derive from the lower counts possible for these washes. *Artemisia* pollen was observed only in BMF-J-15, suggesting wind transport of pollen from sagebrush growing elsewhere. Low-spine Asteraceae pollen was common and noted in all milling feature washes except BMF-J-12, indicating wind transport from ragweed and/or marsh elder or similar plants growing locally. High-spine Asteraceae pollen was present in all milling feature washes, indicating local growth of plants in the sunflower family. Brassicaceae pollen was observed in all milling feature wash samples except BMF-J-12. The elevated frequency observed in BMF-J-11, accompanied by aggregates, suggests the possibility that seeds from a plant in the mustard family were ground. Caryophyllaceae pollen was noted only in BMF-J-15, probably indicating local growth of a plant in the pink family. Sample BMF-J-15 is the only one to record *Ephedra nevadensis*-type pollen, indicating long distance wind transport of pollen from ephedra. *Eriogonum* pollen was observed in only two of the milling feature washes, BMF-J-14 and BMF-J-15, where it likely represents locally growing wild buckwheat. *Euphorbia* pollen was present only in milling feature wash BMF-J-14, suggesting spurge grew in the vicinity. *Geranium* pollen was recorded only in milling feature washes BMF-J-11, BMF-J-13, BMF-J-14, and BMF-J-15 from this feature, not in wash samples from other features and not in any of the control samples. This distribution suggests use or processing geranium for their medicinal qualities. *Geranium* pollen does not travel readily on the wind; therefore, it is not considered to be part of the environmental record. *Lonicera* pollen was observed in two of these washes (BMF-J-11 and BMF-J-14). Honeysuckle flowers are sweet, and if medicines were prepared using this area, grinding something sweet along with the medicinal plants is a possibility. Poaceae pollen is present in small quantities in all the milling feature washes, likely present as part of the environmental signature. Small spherical starches with a centric hilum and no fissures were observed in BMF-J-11 and BMF-J-13 suggesting grinding grass seeds. Although similar starches are observed in cattail roots, the absence of *Typha* pollen from all of the milling feature wash samples from this feature suggest that is a remote possibility. *Typha* pollen travels well on the wind. If cattails grew locally, they should be represented as part of the environmental pollen signature. Microscopic charcoal was present, but not abundant in these signatures. Although it is tempting to interpret the lower frequencies to higher pollen counts, frequencies of microscopic charcoal are low in BMF-J-11 and BMF-J-12. which yielded counts of 30 and 51 pollen grains, respectively. Those frequencies also are low, indicating the smaller quantities of microscopic charcoal for this feature are real.

Of the six milling surfaces associated with Feature J, only Samples BMF-J-11 and BMF-J-12 produced substantiated positive results of varying strengths when tested against the available antisera. Control wash Sample CBMF-J also produced positive reactions. Positive

reactions observed for the remaining milling surfaces (BMF-J-10, BMF-J-13, BMF-J-14, and BMF-J-15) against antisera at 1:3 dilutions were not validated during retests. These negative results are likely due to presence of proteins too degraded for detection, absence of proteins due to reshaping after the last use or feature use for other purposes, or presence of proteins not represented by the available antisera.

Sample BMF-J-11 produced a very weak positive reaction against rabbit antiserum at the 1:3 dilution and a positive reaction at the 1:5 dilution, while Sample BMF-J-12 produced positive reactions against rabbit antiserum at both the 1:3 and 1:5 dilutions. Also, questionable positive and probable positive reactions occurred between Sample BMF-J-12 and bovine antiserum at the 1:3 and 1:5 dilutions, respectively. Clear, substantiated positive reactions for the milling slicks would generally indicate the presence of proteins related to Leporidae and Bovidae due to use; however, the control sample wash (CBMF-J) for milling surfaces associated with Feature J produced a positive reaction against rabbit antiserum and a probable positive reaction against bovine antiserum at the 1:5 dilutions. Positive reactions produced by the control suggest reactions observed for the milling surfaces are likely related to non-cultural processes. It is probable the positive results for washes from Feature J represent either false reactions due to compounds transferred from surrounding sediments to the outcrop surface or non-culturally related animal activities such as presence of feces and/or urine.

SUMMARY AND CONCLUSIONS

Pollen records from RIV-1130/H provide environmental information suggesting local vegetation included large quantities of poison oak or a similar plant, plants in the goosefoot/amaranth family, various plants in the sunflower family including ragweed/marshelder, plants in the mustard and pink families, wild buckwheat, spurge, geranium, honeysuckle, a member of the evening primrose family, grasses, and a member of the rose family. Trees represented include maple, walnut, juniper, pine, plane, oak, and elm.

Geranium and *Lonicera* pollen were observed only in milling feature washes. Their co-occurrence in two washes (BMF-J-11 and BMF-J-14) suggest the interpretation that they might have been part of medicinal preparations. Recovery of *Lonicera* pollen alone in milling feature wash BMF-B-11 suggests the possibility the milling feature was used to prepare another medicine and honeysuckle was ground with other ingredients to sweeten the mixture. Recovery of starches in BMF-J-11 and BMF-J-13 suggests grinding grass seeds in both milling features. Mustard family seeds might have been ground using the milling feature represented by BMF-J-11, as Brassicaceae aggregates were noted. They might have been added to a medicinal preparation or ground for culinary use.

Protein residue testing of wash samples from one mano, eight milling slicks, and three associated controls at RIV-1330/H produced substantiated positive reactions of varying strengths for six samples including the mano (1 RIV-1330), washes from Feature B (BMF-B-1 and CBMF-B) and washes from Feature J (BMF-J-11, BMF-J-12, and CBMF-J). Positive results are dependent on the method of extraction, retention of proteins on an artifact's surface, and protein reactivity to the tested antisera. Protein degradation is the mostly likely cause of negative results; however, if proteins present are not represented by the tested antisera or

proteins are absent due to tool reshaping/resharpening after use, one can expect negative results.

The mano wash (Sample 1RIV-1330) produced a questionable positive reaction against goat antiserum at the 1:3 dilution and a positive reaction at the 1:5 dilution. The artifact wash also produced a very weak positive reaction against rabbit antiserum at the 1:3 dilution and a positive reaction at the 1:5 dilution. Without an associated sediment control it is difficult to identify whether these reactions reflect tool use or environmental contamination. However, the presence of *Sporormiella* in the sample wash, identified during pollen analysis, indicates feces from a grazing animal were in contact with the artifact's surface. Therefore, it is likely positive reactions to goat antiserum reflect protein transfer from feces rather than tool use. Likewise, it is possible that feces from a member of Leporidae also came into contact with the mano.

Both the milling slick wash (BMF-B-1) and control wash (CBMF-E) from Feature B produced positive results to rabbit antiserum. A very weak positive reaction was observed between the milling slick wash and rabbit antiserum at the 1:3 dilution and a positive reaction occurred at the 1:5 dilution. The control sample also produced a positive reaction against the rabbit antiserum at a 1:5 dilution. These results indicate that substantiated positive reactions likely represent either false positives due to environmental factors such as compounds in the soil (chlorophyll, bacteria, and metal cations such as manganese, copper and iron oxide) that transferred to the outcrop surface, or proteins introduced in the form of feces and/or urine as a byproduct of animal activity in the area.

Milling slick Sample BMF-J-11 from Feature J produced substantiated positive reactions against rabbit antiserum (very weak positive at 1:3 dilution and positive at the 1:5 dilution), while milling slick Sample BMF-J-12 and control Sample CBMF-J produced positive reactions against rabbit antiserum and positive reactions of varying strengths against bovine antisera. The questionable positive and probable positive results between Sample BMF-J-12 and bovine antiserum are not sufficiently definitive for protein identification. Also, the probable positive reaction for the associated control (Sample CBMF-J) against bovine antiserum and positive reaction against rabbit antiserum suggest reactions observed between the milling slick washes and antisera are likely the product of non-cultural processes.

TABLE 1
PROVENIENCE DATA FOR SAMPLES FROM SITE RIV-1330/H,
RIVERSIDE COUNTY, CALIFORNIA

Sample No.	Feature	Provenience/ Description	Analysis
1 RIV-1330		Sample wash from mano	Pollen Protein
CBMF-B	B	Control for BMF-B-1	Pollen Protein
BMF-B-1		Sample wash from bedrock milling feature	Pollen Protein
CBMF-E	E	Control for BMF-E-2	Pollen Protein
BMF-E-2		Sample wash from bedrock milling feature	Pollen Protein
CBMF-J	J	Control sample wash for BMF-J-10, BMF-J-11, BMF-J-12, BMF-J-13, BMF-J-14, and BMF-J-15	Pollen Protein
BMF-J-10		Sample wash from bedrock milling feature	Pollen Protein
BMF-J-11		Sample wash from bedrock milling feature	Pollen Protein
BMF-J-12		Sample wash from bedrock milling feature	Pollen Protein
BMF-J-13		Sample wash from bedrock milling feature	Pollen Protein
BMF-J-14		Sample wash from bedrock milling feature	Pollen Protein
BMF-J-15		Sample wash from bedrock milling feature	Pollen Protein

TABLE 2
POLLEN TYPES OBSERVED IN SAMPLES FROM SITE RIV-1330/H,
RIVERSIDE COUNTY, CALIFORNIA

Scientific Name	Common Name
ARBOREAL POLLEN:	
Acer	Maple
Eucalyptus	Eucalyptus
Juglans	Walnut
Juniperus	Juniper
Pinus	Pine
Platanus	Sycamore
Quercus	Oak
Ulmus	Elm
NON-ARBOREAL POLLEN:	
Amaranthaceae	Amaranth family (now includes Chenopodiaceae, these two families were combined based on genetic testing and the pollen category "Cheno-ams")
Asteraceae:	Sunflower family
Artemisia	Sagebrush
Low-spine	Includes Ragweed, Cocklebur, Sumpweed
High-spine	Includes Aster, Rabbitbrush, Snakeweed, Sunflower, etc.
Brassicaceae	Mustard or Cabbage family
Caryophyllaceae	Pink family
Ephedra nevadensis-type (includes *E. clokeyi, E. coryi, E. funera, E. viridis, E. californica, E. nevadensis,* and *E. aspera*)	Ephedra, Jointfir, Mormon tea
Eriogonum	Wild buckwheat
Euphorbia	Spurge
Geranium	Geranium
Lonicera	Honeysuckle
Onagraceae	Evening primrose family

TABLE 2 (Continued)

Scientific Name	Common Name
Poaceae	Grass family
Rosaceae	Rose family
Toxicodendron	Poison ivy
Typha angustifolia-type	Narrowleaf cattail
Indeterminate	Too badly deteriorated to identify
STARCHES:	
Spherical dot starch	Typical of starches produced by grass seeds
SPORES:	
Monolete - smooth	Fern
Selaginella	Clubmoss
FUNGAL SPORES:	
Sporormiella	Dung fungus
Microscopic charcoal	Microscopic charcoal fragments
Total pollen concentration	Quantity of pollen per cubic centimeter (cc) of sediment

TABLE 3
LIST OF ANTISERA USED IN TESTING ARTIFACTS FROM SITE RIV-1330/H,
RIVERSIDE COUNTY, CALIFORNIA

ANTISERUM	SOURCE	POSSIBLE RESULTS
ANIMALS:		
Bear	MP Cappel - Fisher	Ursidae (bear family) - *Ursus americana* (black bear), *Ursus arctos* (brown bear and grizzly bear), *Ursus maritimus* (polar bear)
Bison	Prepared under the direction of Dr. Richard Marlar at the University of Colorado Health Sciences Center	*Bison* sp. (bison) - *Bison occidentalis* (prehistoric bison), *Bison bison* (plains bison), *Bison athabascae* (mountain or wood bison); Bos sp. (cow), domestic bovids
Bovine	MP Cappel - Fisher	*Bos* sp. (cow), domestic bovids, *Bison* sp. (bison)
Cat	MP Cappel - Fisher	Felidae (cat family) - *Felis concolor* (mountain lion, cougar), *Felis rufus/Lynx rufus* (bobcat), *Felis catus* (domestic cat), and other wild cat species
Chicken	Bethyl	Phasianidae (bird family including chicken, ptarmigan, pheasant, partridge and quail) - *Colinus virginianus* (common bobwhite), *Tympanuchus* (prairie chicken), *Callipepla californica/Laphortyx californicus* (California quail), *Callipepla gambelii/Lophortyx gambelii* (Gambel's quail), *Oreortyx pictus* (mountain quail); Tetraonidae (grouse family) - *Centrocercus urophasianus* (sage grouse), *Bonasa umbellus* (ruffed grouse); domestic chicken
Deer	MP Cappel - Fisher	Cervidae (deer family) - *Odocoileus hemionus* (mule deer or blacktail deer), *Odocoileus virginianus* (whitetail deer), *Cervus canadensis* (elk, wapiti), *Alces alces* (moose), *Rangifer* (caribou)
Dog	MP Cappel - Fisher	Canidae (dog family - coyote, wolf, fox, domestics), *Canis latrans* (coyote), *Canis lupus* (grey wolf), *Canis rufus* (red wolf), *Urocyon cinereoargenteus* (gray fox), *Urocyon littoralis* (island fox), *Vulpes vulpes* (red fox), *Vulpes macrotis* (kit fox), *Vulpes velox* (swift fox), *Canis familiaris* (domestic dog)

TABLE 3 (Continued)

ANTISERUM	SOURCE	POSSIBLE RESULTS
Goat	MP Cappel - Fisher	*Antilocapra americana* (pronghorn); *Oreamnos americanus* (mountain goat), *Capra hircus* (domestic goat)
Grasshopper	Prepared at PaleoResearch Institute	Unknown specificity, but would likely cross-react with many insects in the order Orthoptera, which includes grasshoppers, crickets, and locusts
Guinea pig	ImmunO - Fisher	*Castor* sp. (beaver); *Erethizon dorsatum* (porcupine); Sciuridae (rodent family including tree and ground squirrels, flying squirrels, chipmunks, prairie dogs, and marmots/woodchucks) - *Tamias striatus* (eastern chipmunk), *Marmota monax* (woodchuck), *Sciurus carolinensis* (gray squirrel), *Sciurus nigra* (fox squirrel), *Tamiasciurus hudsonicus* (red squirrel), *Glaucomys* sp. (flying squirrel), *Ammospermophilus leucurus* (whitetail antelope squirrel), *Spermophilus* sp./*Citellus* sp. (ground squirrel), *Sciurus griseus* (western grey squirrel); Caviidae (cavy family) - *Cavia porcellus* (guinea pig)
Human	ICN Pharmaceuticals, Inc.	*Homo sapiens* (human)
Mouse	MP Cappel - Fisher	Members of Cricetidae (family of New World rats and mice, hamsters, and gerbils), and Members of Murinae (Old World rats and mice family)
Rabbit	MP Cappel - Fisher	Leporidae (rabbit and jackrabbits/hare family) - *Sylvilagus floridanus* (Eastern cottontail), *Sylvilagus aquaticus* (swamp rabbit or cane-cutter rabbit), *Sylvilagus bachmani* (brush rabbit), *Sylvilagus audubonii* (desert cottontail), *Sylvilagus nuttallii* (mountain cottontail), *Sylvilagus transitionalis* (New England cottontail), *Oryctolagus cuniculus* (European rabbit), *Lepus californicus* (black-tailed jackrabbit), *Lepus townsendii* (white-tailed jackrabbit), *Lepus americanus* (snowshoe hare), *Lepus capensis* (European hare)

TABLE 3 (Continued)

ANTISERUM	SOURCE	POSSIBLE RESULTS
Rat	MP Cappel - Fisher	Members of Cricetidae (family of New World rats and mice, hamsters, and gerbils), and Members of Murinae (Old World rats and mice family)
Sheep	MP Cappel - Fisher	*Ovis canadensis* (bighorn sheep), *Ovis aries* (domestic sheep)
Turkey	Sigma Chemical Company	Phasianidae (bird family including pheasants, partridges, junglefowl, quail, peafowl, and chickens), *Meleagris gallopavo* (wild turkey), and domestic turkey; Anatidae (duck, geese, and swan family)
FISH/AQUATIC:		
American Eel	Robert Sargeant	Anguillidae (freshwater eel family) - *Anguilla rostrata* (American eel)
Atlantic croaker	Robert Sargeant	Perciformes order (Spiny-rayed [percoid] fishes)
Bay anchovy	Robert Sargeant	Engraulidae (anchovy family) - *Anchoa hepsetus* (striped anchovy), *Anchoa mitchilli* (bay anchovy), and *Engraulis eurystole* (silver anchovy)
Catfish	Sigma Chemical Company	Ictaluridae (catfish family), Cyprinidae (carp and minnow family), Catostomidae (sucker family)
Gizzard Shad	Robert Sargeant	*Dorosoma cepedianum* (gizzard shad); Clupeidae (herring family) - *Alosa aestivalis* (blueback herring), *Alosa mediocris* (hickory shad), *Alosa pseudoharengus* (alewife), *Alosa sapidissima* (American shad), *Brevoortia tyrannus* (Atlantic menhaden), *Clupea harengus* (Atlantic herring), *Etrumeus teres* (round herring), *Harengula jaguana* (scaled sardine), *Opisthonema oglinum* (Atlantic thread herring), and *Sardinella aurita* (Spanish sardine)

TABLE 3 (Continued)

ANTISERUM	SOURCE	POSSIBLE RESULTS
Striped bass	Robert Sargeant	Perciformes order (Spiny-rayed [percoid] fish); Percichthyidae (temperate bass), Centrarchidae (sunfish), Percidae (perch), Cottidae (sculpin family), Kyphosidae (sea chubs), Embiotocidae (surfperch and seaperch family), Clinidae (clinids family), Stichaeidae (pricklebacks family), Gobiidae (gobies family), Scombridae (mackerel family), Scorpaenidae (scorpionfish family), Agonidae (poacher family)
Sturgeon	Robert Sargeant	Acipenseridae (sturgeon family) - *Acipenser brevirostrum* (shortnose sturgeon), and *Acipenser oxyrhnchus* (Atlantic sturgeon)
Trout	Sigma Chemical Company	Salmonidae (trout and salmon family) - *Oncorhynchus* (salmon), *Salmo* (trout), *Salvelinus fontinalis* (brook trout), *Salvelinas namaycush* (lake trout), *Coregonus clupeaformis* (lake whitefish), *Prosopium cylindraceum* (round whitefish), *Thymallus arcticus* (arctic grayling), *Oncorhynchus mykiss* (rainbow trout), *Salmo salar* (Atlantic salmon), *Salmo trutta* (brown trout)
Weakfish	Robert Sargeant	Sciaenidae (fish family including drums, croakers, and hardheads) - *Cynoscion regalis* (weakfish)
PLANTS:		
Acorn	Prepared at PaleoResearch Institute	Acorn
Yucca	Prepared at PaleoResearch Institute	Yucca, agave, camas, aloe, & all members of the agave and lily families

TABLE 4
POSITIVE PROTEIN RESIDUE RESULTS FOR SAMPLES FROM
SITE RIV-1330/H, RIVERSIDE COUNTY, CALIFORNIA,
AGAINST ANTISERA AT VARIOUS DILUTIONS

Sample No.	Description	Dilution	Positive Result (Antiserum Type)	Possible Animal(s) Represented	Reaction Strength
1-RIV-1330	Mano	1:3	Goat	Bighorn sheep, pronghorn antelope, domesticated goat, domesticated sheep, or domesticated cattle	Questionable positive
		1:5			Positive
		1:3	Rabbit	Brush rabbit, desert cottontail, and black-tailed jack rabbit	Very weak positive
		1:5			Positive
BMF-B-1	Bedrock milling feature	1:3	Rabbit	Brush rabbit, desert cottontail, and black-tailed jack rabbit	Very weak positive
		1:5			Positive
CBMF-B	Non-use area on the milling outcrop, control for BMF-B-1	1:5	Rabbit	Brush rabbit, desert cottontail, and black-tailed jack rabbit	Positive
BMF-J-11	Bedrock milling feature	1:3	Rabbit	Brush rabbit, desert cottontail, and black-tailed jack rabbit	Very weak positive
		1:5			Positive
BMF-J-12	Bedrock milling feature	1:3	Bovine	Bighorn sheep, pronghorn antelope, domesticated goat, domesticated sheep, or domesticated cattle	Questionable positive
		1:5			Probable positive
		1:3; 1:5	Rabbit	Brush rabbit, desert cottontail, and black-tailed jack rabbit	Positive

TABLE 4 (Continued)

Sample No.	Description	Dilution	Positive Result (Antiserum Type)	Possible Animal(s) Represented	Reaction Strength
CBMF-J	Non-use area on the milling outcrop, control for BMF-J-11 and BMF-J-12	1:5	Bovine	Bighorn sheep, pronghorn antelope, domesticated goat, domesticated sheep, or domesticated cattle	Probable positive
		1:5	Rabbit	Brush rabbit, desert cottontail, and black-tailed jack rabbit	Positive

TABLE 5
PROTEIN RESIDUE ANALYSIS: CATEGORIES OF LIKELIHOOD FOR POSITIVE RESULTS

Reaction Strength	Description	Implications
Negative	No visible reaction.	Proteins related to the animal represented by the antiserum are not present in the sample wash.
Questionable Positive	Although a reaction occurred between the antiserum and sample wash, no vertical line of precipitation was observed.	It is possible that the wash contains proteins related to the animal represented by the antiserum, but the reaction does not definitively identify their presence.
Probable Positive	A fuzzy, curved line of precipitation was observed adjacent to one of the wells. The fact that the line was curved rather than straight, coupled with the fact that the line was not as clear or defined as the positive reaction between the antiserum and the blood control is reflected in this category.	It is likely that the reaction reflects the presence of degraded proteins related to the animal represented by the antiserum but a definitive positive cannot be assigned.
Very Weak Positive	A faint vertical line of precipitation.	This reflects the presence of few or slightly deteriorated proteins from the animal represented by the antiserum, or a member of its family (or order).
Weak Positive	A clear vertical line of precipitation that is weaker than that observed as a “positive” reaction.	Proteins from the animal represented by the antisera, or a member of the animal’s family group (or order), are present in the sample wash.
Positive	A clear vertical line of precipitation between the antiserum and the sample (antigen).	This indicates that proteins related to the animal represented by the antiserum, or a member of its family group, are present in the sample wash.

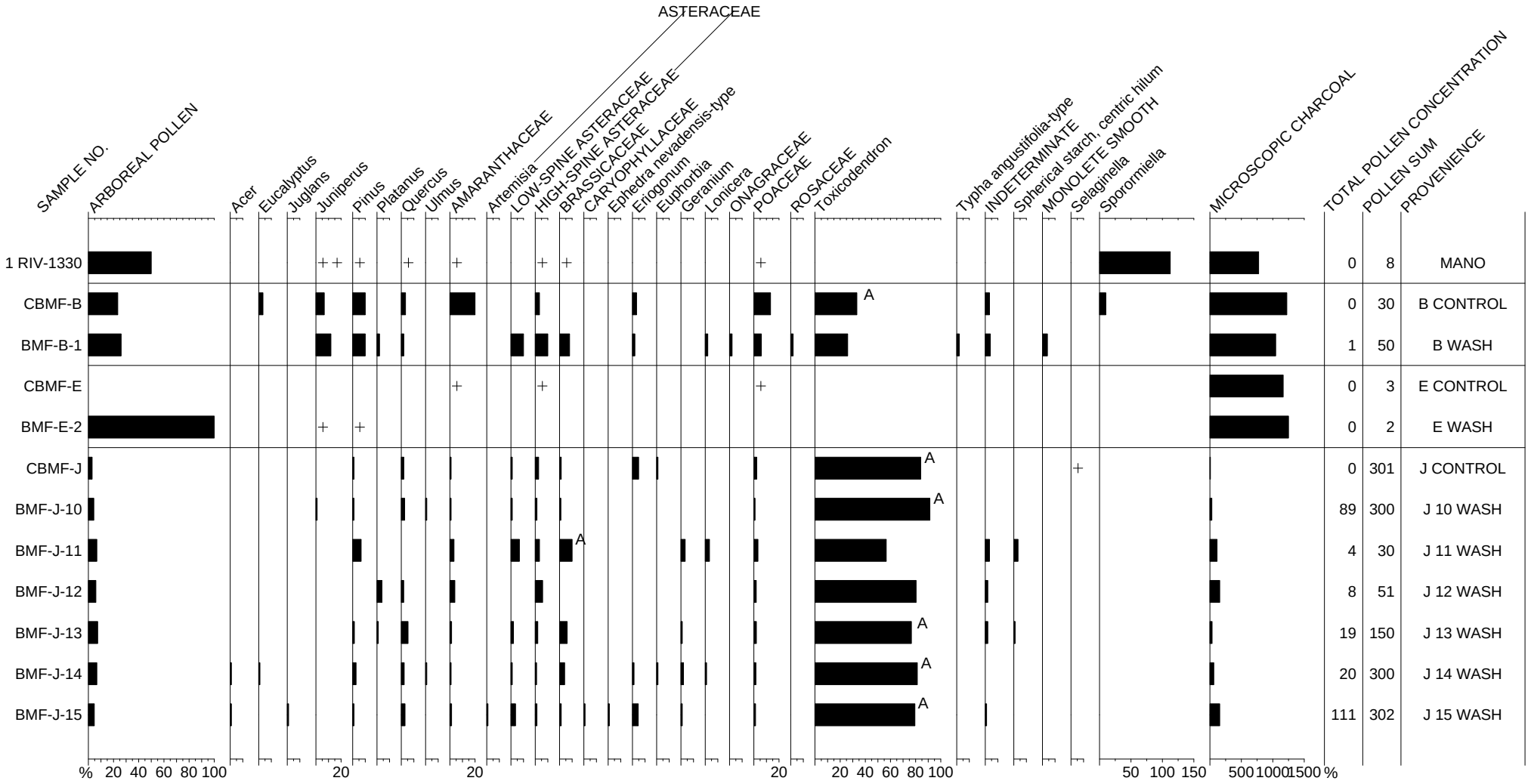

FIGURE 1. POLLEN DIAGRAM FOR RIV-1330/H, RIVERSIDE COUNTY, CALIFORNIA.

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