

Appendix E

Cultural and Paleontological Resources Inventory Report

**NEGATIVE CULTURAL AND PALEONTOLOGICAL
RESOURCES INVENTORY REPORT FOR THE SUNBOW II,
PHASE 3 PROJECT,
CITY OF CHULA VISTA,
SAN DIEGO COUNTY, CALIFORNIA**

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Negative Cultural and Paleontological Resources Inventory Report for the Sunbow II, Phase 3 Project, City of Chula Vista San Diego County, California

NATIONAL ARCHAEOLOGICAL DATABASE (NADB) INFORMATION

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Type of Study: Cultural and Paleontological Resources Inventory

New Resources: N/A

Updated Sites: N/A

USGS Quads: Chula Vista, California 1:24,000 (1996)

Acreage: 135.7 acres

Permit Numbers: State Clearinghouse No. TBD

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
ADI	area of direct impact
APE	area of potential effects
BP	years before present
CEQA	California Environmental Quality Act
City	City of Chula Vista
CRHR	California Register of Historical Resources
DPR	Department of Parks and Recreation
NAHC	Native American Heritage Commission
PRC	Public Resources Code
Project	Sunbow II, Phase 3 Project
SCIC	South Coast Information Center
SDNHM	San Diego Natural History Museum

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EXECUTIVE SUMMARY

ACI Sunbow, Inc. in partnership with Lennar Homes proposes construction of the multifamily residential community, the Sunbow II, Phase 3 Project (Project), City of Chula Vista (City). The Project APE is located in Section 17 and 18 of Township 18 South and Range 1 West of the Imperial Beach, California 7.5-minute series United States Geological Survey quadrangle. The Project's area of potential effects (APE) consists of the 135.7-acre parcel, while only the south eastern 67.5-acre portion constitutes the area of direct impact (ADI). The Project would construct within the ADI water and electrical undergrounding of utilities to the homes and community buildings. All utilities are planned to be tied into existing infrastructure at Olympic Parkway. The Project also includes the construction of community access roads on site, and access from Olympic Parkway.

An in-house records search of the data housed at the South Coast Information Center indicated that no cultural resources have been previously identified within the Project APE. The record search included a 1-mile search buffer. A total of 82 cultural resources are located within the search buffer. These resources consist of three historic resources and 79 prehistoric resources (Confidential Appendix A). A field survey of the Project APE yielded no new cultural resources.

A sacred lands file search with the Native American Heritage Commission (NAHC) has been requested and is pending response. Once the NAHC response is received, outreach letters to the tribes on the NAHC contact list will be sent out. The Project is subject to compliance with Assembly Bill (AB) 52 (PRC 21074) which requires consideration of impacts to "tribal cultural resources" as part of the California Environmental Quality Act (CEQA) process. AB 52 requires the City of Chula Vista, lead agency responsible for CEQA compliance for the proposed Project, to notify any groups (who have requested notification) of the proposed Project who are traditionally or culturally affiliated with the geographic area of the Project.

Dudek's inventory Phase I cultural resources of the Project indicates that archaeologically there is low sensitivity for intact subsurface archaeological deposits. Given the close proximity outside of the Project site to other cultural resources there is potential for buried archaeological deposits. Therefore, monitoring is recommended for all initial ground disturbing activities. The monitoring archaeologist may reduce the monitoring schedule if the path of impact is clearly in disturbed contexts.

Regional geological mapping indicates that the geological units present within the study area are (listed in order from youngest to oldest): young alluvial floodplain deposits, the San Diego Formation, and the Otay Formation, as confirmed by the museum record search results. The

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museum records search results indicate that the study area is underlain by geological units ranging from high to low paleontological potential.

A paleontological records search was requested from the San Diego Natural History Museum (SDNHM), and a letter was received in response on April 14, 2020, indicating that there are 14 fossil localities within a half-mile radius of the Project APE. All of the localities occur just north of the Project APE and were collected during past construction projects. Two of the localities are from the late Oligocene Otay Formation and 12 are from the late Pliocene to early Pleistocene San Diego Formation. Published geological maps and reports and unpublished reports were reviewed to identify geological units underlying the study area and their paleontological sensitivity or potential.

The young alluvial floodplain deposits have low paleontological sensitivity on the surface, which increases to moderate with depth where they become old enough to have the potential to yield significant paleontological resources and the San Diego and Otay Formations have high paleontological sensitivity according to the SDNHM records search results and desktop geological and paleontological review. A paleontological mitigation program is recommended. Areas of the Project APE underlain by low sensitivity young alluvial floodplain deposits do not require paleontological mitigation on the surface; however, excavations beyond five feet deep require part-time paleontological monitoring as determined by the qualified paleontologist. Excavations into the San Diego and Otay Formations require full-time paleontological monitoring. Implementation of the paleontological monitoring program would be sufficient to reduce the impacts to less than significant.

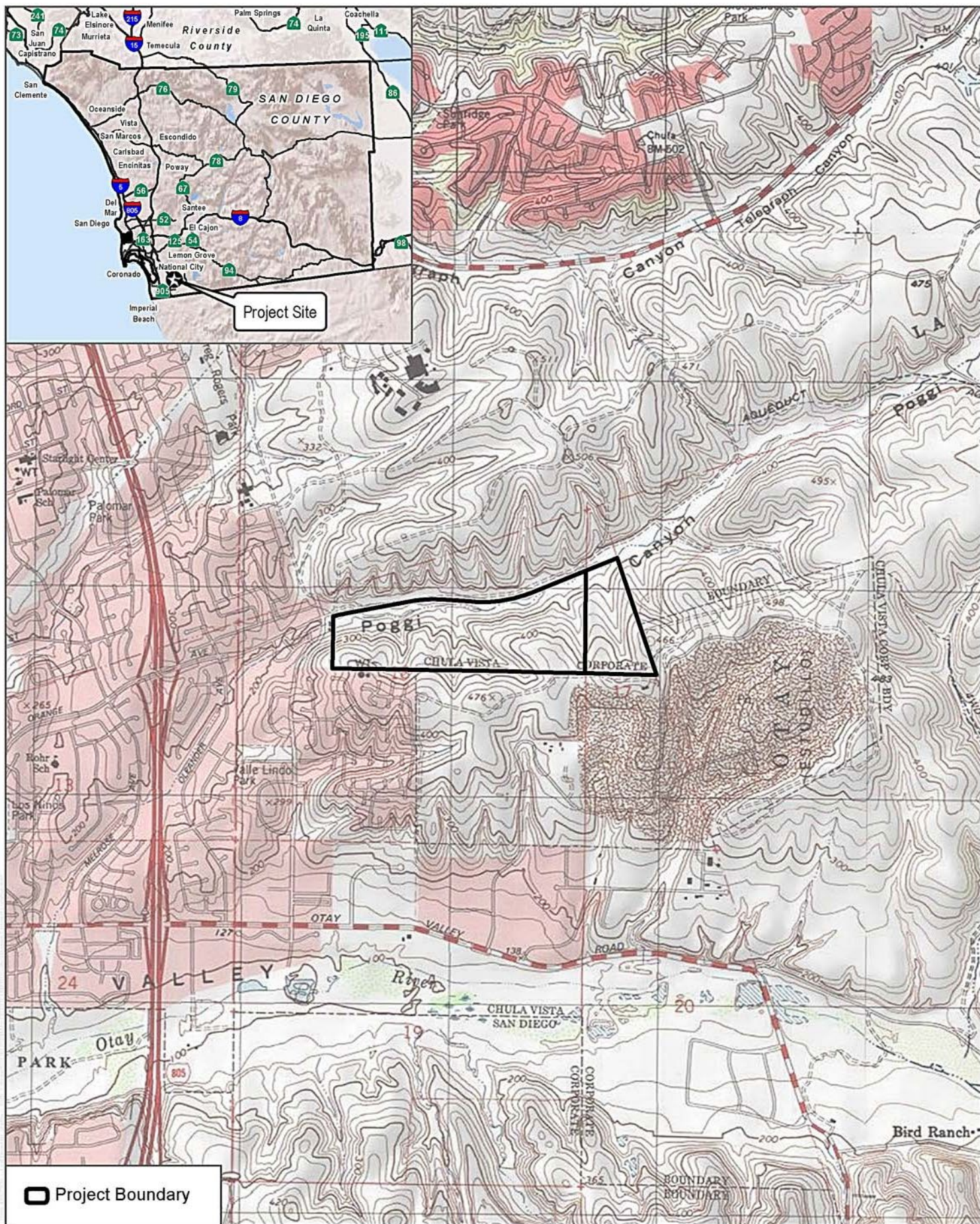
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1 PROJECT DESCRIPTION AND LOCATION

The Sunbow II, Phase 3 Project (Project) is located in the City of Chula Vista, California. The Project APE is located in Section 17 and 18 of Township 18 South and Range 1 West of the Imperial Beach, California 7.5-minute series United States Geological Survey quadrangle (Figure 1, Project Location). The Project APE is located at the western end of Poggi Canyon, occupying the southern slope (Figure 2, Project APE). The Project primarily consists of mass grading, excavation, trenching and construction of a residential community of multifamily homes, roads, and community facilities. The Project APE is bordered on the northern side by Olympic Parkway, Republic Services Otay Landfill on the southern side, and Brandywine Avenue on the west, and a rural canyon to the east. The Project's area of direct impact (ADI) is only 67.5 acres of the 135.7-acre area of potential effects (APE), with the remainder being left as open space. The development will be centered on the highest portion of the property in the southeastern corner of the Project APE.

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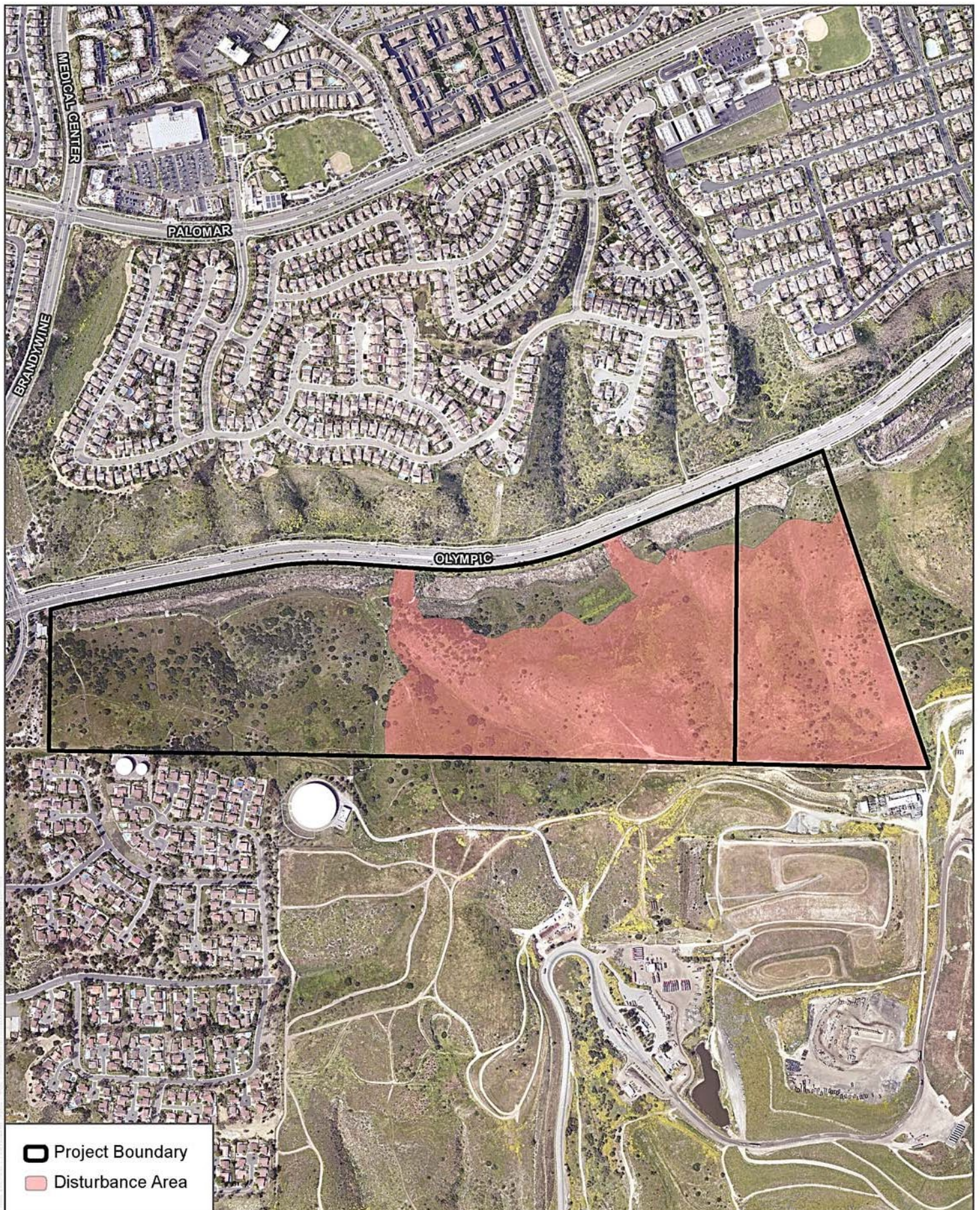
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SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle

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SOURCE: SANGIS 2017

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1.1 Regulatory Context

1.1.1 State Regulations

The California Environmental Quality Act (CEQA) requires that all private and public activities not specifically exempted be evaluated for the potential to impact the environment, including effects to historical resources. Historical resources are recognized as part of the environment under CEQA. It defines historical resources as “any object, building, structure, site, area, or place, which is historically significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California” (Division I, Public Resources Code [PRC] Section 5021.1[b]).

Lead agencies have a responsibility to evaluate historical resources against the California Register of Historical Resources (CRHR) criteria prior to making a finding as to a proposed project’s impacts to historical resources. Mitigation of adverse impacts is required if a project will cause substantial adverse change. Substantial adverse change includes demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired. The CEQA Guidelines provide that a project that demolishes or alters those physical characteristics of an historical resource that convey its historical significance (i.e., its character-defining features) can be considered to materially impair the resource’s significance.

The CRHR is used in the consideration of historic resources relative to significance for purposes of CEQA. The CRHR includes resources listed in, or formally determined eligible for some California State Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts), or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA unless a preponderance of evidence indicates otherwise.

Generally, a resource shall be considered by the lead agency to be “historically significant” if the resource meets the criteria for listing on the CRHR (PRC SS5024.1, Title 14 CCR, Section 4852) consisting of the following:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
2. It is associated with the lives of persons important to local, California, or national history; or
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or

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4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

CEQA was amended in 2014 through Assembly Bill (AB) 52, which created a new category of “tribal culture resources” that must be considered under CEQA, and applies to all projects that file a Notice of Preparation or notice of negative declaration or mitigated negative declaration on or after July 1, 2015. AB 52 requires lead agencies to provide notice to and begin consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of a Project if that tribe has requested, in writing, to be kept informed of projects by the lead agency prior to the determination whether a negative declaration, mitigated negative declaration, or environmental impact report will be prepared. If a tribe requests consultation within 30 days upon receipt of the notice, the lead agency must consult with the tribe. AB 52 also specifies mitigation measures that may be considered to avoid or minimize impacts on tribal cultural resources. Specifically, California PRC Section 21074 provides the following guidance:

- (a) Tribal Cultural Resources are either of the following:
 - (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - (A) Included or determined to be eligible for inclusion in the California Register of Cultural Resources.
 - (B) Included in a local register of cultural resources as defined in subdivision (k) of §5020.1.
 - (2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of §5024.1. In applying the criteria set forth in subdivision (c) of §5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
- (b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- (c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

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In the event that Native American human remains or related cultural material are encountered, Section 15064.5(e) of the state CEQA Guidelines (as incorporated from PRC Section 5097.98) and Health and Safety Code Section 7050.5 define the subsequent protocol. In the event of the accidental discovery or recognition of any human remains, excavation or other disturbances shall be suspended of the site or any nearby area reasonably suspected to overlie adjacent human remains or related material. Protocol requires that a county-approved coroner be contacted in order to determine if the remains are of Native American origin. Should the coroner determine the remains to be Native American, the coroner must contact the Native American Heritage Commission (NAHC) within 24 hours. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 (California Code of Regulations, Title 14; Chapter 3; Article 5; Section 15064.5[e]).

Paleontological resources are explicitly afforded protection by CEQA, specifically in Section VII(f) of CEQA Guidelines Appendix G, the “Environmental Checklist Form,” which addresses the potential for adverse impacts to “unique paleontological resource[s] or site[s] or ... unique geological feature[s].” This provision covers fossils of signal importance—remains of species or genera new to science, for example, or fossils exhibiting features not previously recognized for a given animal group—as well as localities that yield fossils significant in their abundance, diversity, preservation, and so forth. Further, CEQA provides that generally, a resource shall be considered “historically significant” if it has yielded or may be likely to yield information important in prehistory (PRC 15064.5 [a][3][D]). Paleontological resources would fall within this category. The PRC, Chapter 1.7, Sections 5097.5 and 30244 also regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.

1.1.2 Local Regulations

City of Chula Vista Historic Preservation Ordinance

The City of Chula Vista (City) has developed a set of guidelines that ensure compliance with state and federal guidelines for the management of historical resources. The criteria for designation of a resource to the Chula Vista Register of Historical Resources is found in Chapter 21 of the Chula Vista Municipal Code (City of Chula Vista 2014). The intent of the City’s guidelines is to ensure consistency in the identification, evaluation, preservation/mitigation, and development of the City’s historical resources. The criteria used by the city to determine significance for historic resources reflect a more local perspective of historical, architectural, and cultural importance for

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inclusion on the city's Register of Historical Resources. The resource can meet one or more of the following criteria (City of Chula Vista 2014):

1. A resource is at least 45 years old; and
2. A resource possesses historical integrity defined under Chula Vista Municipal Code 21.03.084 and the resource is determined to have historical significance by meeting at least one of the following criteria:
 - ii. Criterion 1: It is associated with an event that is important to prehistory or history on a national, state, regional, or local level.
 - iii. Criterion 2: It is associated with a person or persons that have made significant contributions to prehistory or history on a national, state or local level.
 - iv. Criterion 3: It embodies the distinctive characteristics of a style, type, period, or method of construction, or represents the work of a master or important, creative individual, and/or possesses high artistic values.
 - v. Criterion 4: It is an outstanding example of a publicly owned historical landscape that represents the work of a master landscape architect, horticulturist, or landscape designer or a publicly owned historical landscape that has potential to provide important information to the further study of landscape architecture or history.
 - vi. Criterion 5: It has yielded or may be likely to yield information important in prehistory or the history of Chula Vista, the state, region, or nation.

As defined by the City, "Integrity" relates to the authenticity of the historic identity of a resource. Integrity is preserved by the persistence and preservation of the physical attributes that existed when that resource was in use during a historic or prehistoric period, including: location, design, setting, materials, workmanship, feeling, and association.

City of Chula Vista's General Plan

The Environmental Element of the City of Chula Vista General Plan (Chapter 9, Section 3.1.10) specifically addresses potential impacts to non-renewable paleontological resources and outlines policies to mitigate negative impacts (City of Chula Vista 2005). The objective and policies protecting paleontological resources are outlined below:

- **Objective E-9:** Protect Chula Vista's important cultural resources and support and encourage their accessibility to the public
 - **Policy E-9.1:** Continue to assess and mitigate the potential impacts of private development and public facilities and infrastructure to cultural resources, in accordance with the California Environmental Quality Act.

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- **Policy E-9.2:** Support and encourage the accessibility of Chula Vista's important cultural resources to the public for educational; religious; cultural; scientific; and other purposes, including the establishment of museums and facilities accessible to the public, where such resources can be appropriately studied, exhibited, curated, etc.
- **Policy E-9.3:** Discourage disruption, demolition, and other negative impacts to historic cultural resources.
- **Objective E-10:** Protect important paleontological resources and support and encourage public education and awareness of such resources.
 - **Policy E-10.1:** Continue to assess and mitigate the potential impacts of private development and public facilities and infrastructure to paleontological resources in accordance with the California Environmental Quality Act.
 - **Policy E-10.2:** Support and encourage public education and awareness of local paleontological resources, including the establishment of museums and educational opportunities accessible to the public.

1.2 Project Personnel

Dudek Archaeologist Angela Pham, M.A., RPA, acted as Principal Investigator for the Project, directed the archaeological survey, and co-authored the report. Archaeologists Jessica Colston, Loukas Barton, and Micah Hale co-authored the report. Archaeologists Patrick Hadel, Jessica Colston, and Loukas Barton conducted the field survey. All archaeological personnel meet the Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61) for archaeology.

Dudek senior paleontologist, Michael Williams, PhD, acted as paleontological Principal Investigator for the Project, directed the paleontological resources survey, and co-authored the report. Editorial comments were provided by Sarah Siren, M.Sc.

1.3 Report Organization

Following this Project introduction, description, and definition of the Project's APE, Section 2, Setting, describes the Project's physical and geological setting and provides the relevant cultural/historic context. Section 3, Guidelines for Determining Significance, describes the guidelines for the determination of significance for cultural and paleontological resources. Section 4 contains the analysis of the Project effects, including the investigatory field methods and tribal correspondence. Section 5 provides the survey and paleontological records search results and descriptions of resources. Section 6, Management Considerations, discusses the interpretation of the resources importance and the identification of impacts for management concerns. Finally,

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Section 7 provides a list of all references cited in this report. Several appendices accompany the report: Confidential Appendix A contains the confidential South Coast Information Center (SCIC) Record Search Results, Appendix B contains the NAHC and Tribal Correspondence, Appendix C contains the confidential results of the paleontological records search, and Appendix D contains resumes of key personnel.

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2 SETTING

2.1 Natural Environment

The Project APE is located in an undeveloped portion of Poggi Canyon on the southern portion the City of Chula Vista. All existing vegetation consists of native grasses and shrubs. Common animals within this area may include coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*), pocket gopher (*Thomomys bottae*) striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), cottontail (*Sylvilagus audubonit*), black-tailed jackrabbit (*Lepus californicus bennettii*), deer mouse (*Peromyscus maniculatus*) sparrow (*Melospiza melodia*), lesser goldfinch (*Cardeulis psaltria*), and common yellowthroat (*Geothlypis trichas*), as well as a number of other species of birds, mammals, reptiles, and amphibians.

2.2 Geological Setting

The Project lies within the Peninsular Ranges Geomorphic Province (California Geological Survey 2002). This province extends from the tip of the Baja California to the Transverse Ranges (the San Gabriel and San Bernardino Mountains) and includes the Los Angeles Basin, offshore islands (Santa Catalina, Santa Barbara, San Nicholas, and San Clemente), and continental shelf. The eastern boundary is the Colorado Desert Geomorphic Province (California Geological Survey 2002; Morton and Miller 2006). The Peninsular Ranges were formed by uplift of plutonic igneous rock resulting from the subduction of the Pacific Plate underneath the North American Plate during the latter portion of the Mesozoic era (approximately 125 to 90 million years ago) (Abbott 1999).

2.3 Cultural Context

2.3.1 Prehistoric and Ethnohistoric Periods

Evidence for continuous human occupation in the San Diego region spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad time frame have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. Each of these reconstructions describes essentially similar trends in assemblage composition in more or less detail. This research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC.–AD 500), Late Prehistoric (AD 500–1750), and Ethnohistoric (post-AD 1750).

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Paleoindian (pre-5500 BC)

Evidence for Paleoindian occupation in coastal Southern California is tenuous, especially considering the fact that the oldest dated archaeological assemblages look nothing like the Paleoindian artifacts from the Great Basin. One of the earliest dated archaeological assemblages in coastal Southern California (excluding the Channel Islands) derives from SDI-4669/W-12, in La Jolla. A human burial from SDI-4669 was radiocarbon dated to 9,590–9,920 years before present (BP) (95.4% probability) (Hector 2007). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of groundstone, battered cobbles, and expedient flake tools). In contrast, typical Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of groundstone tools. Prime examples of this pattern are sites that were studied by Emma Lou Davis (1978) on China Lake Naval Air Weapons Station near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (MNO-679)—a multicomponent fluted point site, and MNO-680—a single component Great Basin Stemmed point site (Basgall et al. 2002). At MNO-679 and MNO-680, groundstone tools were rare while finely made projectile points were common.

Turning back to coastal Southern California, the fact that some of the earliest dated assemblages are dominated by processing tools runs counter to traditional notions of mobile hunter–gatherers traversing the landscape for highly valued prey. Evidence for the latter—that is, typical Paleoindian assemblages—may have been located along the coastal margin at one time, prior to glacial retreat and the concomitant rapid rise in sea level during the early Holocene (pre-7500 BP) that submerged as much as 1.8 kilometers of the San Diego coastline. If this were true, however, it would also be expected that such sites would be located on older landforms near the current coastline. Some sites, such as SDI-210 along Agua Hedionda Lagoon, contained stemmed points similar in form to Silver Lake and Lake Mojave projectile points (pre-8000 BP) that are commonly found at sites in California’s high desert (Basgall and Hall 1990). SDI-210 yielded one corrected radiocarbon date of 8520–9520 BP (Warren et al. 2004). However, sites of this nature are extremely rare and cannot be separated from large numbers of milling tools that intermingle with old projectile point forms.

Warren et al. (2004) claimed that a biface manufacturing tradition present at the Harris site complex (SDI-149) is representative of typical Paleoindian occupation in the San Diego region that possibly dates between 10,365 and 8200 BC (Warren et al. 2004: 26). Termed San Dieguito (Rogers 1945), assemblages at the Harris site are qualitatively distinct from most others in the San

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Diego region because the site has large numbers of finely made bifaces (including projectile points), formal flake tools, a biface reduction trajectory, and relatively small amounts of processing tools (Warren 1964, 1968). Despite the unique assemblage composition, the definition of San Dieguito as a separate cultural tradition is hotly debated. Gallegos (1987) suggested that the San Dieguito pattern is simply an inland manifestation of a broader economic pattern. Gallegos' interpretation of San Dieguito has been widely accepted in recent years, in part because of the difficulty in distinguishing San Dieguito components from other assemblage constituents. In other words, it is easier to ignore San Dieguito as a distinct socioeconomic pattern than it is to draw it out of mixed assemblages.

The large number of finished bifaces (i.e., projectile points and non-projectile blades), along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other assemblages throughout the San Diego region, regardless of age. Warren et al. (2004) made this point, tabulating basic assemblage constituents for key early Holocene sites. Producing finely made bifaces and formal flake tools implies that relatively large amounts of time were spent on tool manufacture. Such a strategy contrasts with the expedient flake-based tools and cobble-core reduction strategy that typifies non-San Dieguito Archaic sites. It can be inferred from the uniquely high degree of San Dieguito assemblage formality that the Harris site complex represents an economic strategy distinct from non-San Dieguito assemblages.

If San Dieguito truly represents a distinct socioeconomic strategy from the non-San Dieguito Archaic processing regime, its rarity implies that it was not only short-lived, but that it was not as economically successful as the Archaic strategy. Such a conclusion would fit with other trends in southern California deserts, wherein hunting-related tools are replaced by processing tools during the early Holocene (Hall and Basgall 1993).

Archaic (8000 BC–AD 500)

The considerable overlap between the presumed age of Paleoindian occupations and the Archaic period highlights the difficulty in defining a cultural chronology in the San Diego region. If San Dieguito is the only recognized Paleoindian component in the San Diego region, then the dominance of hunting tools implies that it derives from Great Basin adaptive strategies and is not necessarily a local adaptation. Warren et al. (2004) admitted as much, citing strong desert connections with San Dieguito. Thus, the Archaic pattern is the earliest local socioeconomic adaptation in the San Diego region (Hale 2001, 2009).

The Archaic pattern is relatively easy to define with assemblages that consist primarily of processing tools: millingstones, handstones, battered cobbles, heavy crude scrapers, expedient

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flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the San Diego region, with little variability in composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite enormous amounts of archaeological work at Archaic sites, little change in assemblage composition occurs until the bow and arrow is adopted at around AD 500, as well as ceramics at approximately the same time (Griset 1996; Hale 2009). Even then, assemblage formality remains low. After the bow is adopted, small arrow points appear in large quantities and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped millingstones and handstones decrease in proportion relative to expedient, unshaped groundstone tools (Hale 2009). Thus, the terminus of the Archaic period is equally as hard to define as its beginning because basic assemblage constituents and patterns of manufacturing investment remain stable, complimented only by the addition of the bow and ceramics.

Reasons for the rapid and early development of a generalized processing economy have cited environmental deterioration or population growth as primary agents of change. Environmental deterioration cannot account for its development since southern California environments have had established plant communities for much of the last 15,000 years (Axelrod 1978, see Hale 2001) that varied mostly in vertical distribution. Indeed, the Pinto period seems to have thrived during the Archaic period, even if specific local manifestations are less obvious than others (Basgall et al. 2002). Population growth itself also presents a weak case as a primary agent of change since the archaeological record is either too incomplete to support such an analysis or because it implies a shift in mobility rather than population density. Archaic period sites reflect serial site occupation rather than either high residential mobility or sedentism (Basgall and True 1985; Hale 2001). Rather, the best explanation for the appearance and persistence of the Archaic pattern is that it represents a strongly stable socioeconomic strategy tailor-made for Southern California with its rich crops of roots and tubers, seeds, and nuts and small animals.

Late Prehistoric (AD 500–1750)

The period of time following the Archaic and prior to Ethnohistoric times (AD 1750) is commonly referred to as the Late Prehistoric (Rogers 1945; Wallace 1955; Warren et al. 2004). However, several other subdivisions continue to be used to describe various shifts in assemblage composition, including the addition of ceramics and cremation practices. In northern San Diego County, the post-AD 1450 period is called the San Luis Rey Complex (Meighan and True 1977), while the same period in southern San Diego County is called the Cuyamaca Complex and is thought to extend from AD 500 until Ethnohistoric times (Meighan 1959). Rogers (1929) also subdivided the last 1,000 years into the Yuman II and III cultures, based on the distribution of

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ceramics. Despite these regional complexes, each is defined by the addition of arrow points and ceramics, and the widespread use of bedrock mortars. Vagaries in the appearance of the bow and arrow and ceramics make the temporal resolution of the San Luis Rey and Cuyamaca complexes difficult. For this reason, the term Late Prehistoric is well-suited to describe the last 1,500 years of prehistory in the San Diego region.

Temporal trends in socioeconomic adaptations during the Late Prehistoric period are poorly understood. This is partly due to the fact that the fundamental Late Prehistoric assemblage is very similar to the Archaic pattern, but includes arrow points and large quantities of fine debitage from producing arrow points, ceramics, and cremations. The appearance of mortars and pestles is difficult to place in time because most mortars are on bedrock surfaces; bowl mortars are actually rare in the San Diego region. Some argue that the Ethnohistoric intensive acorn economy extends as far back as AD 500 (Bean and Shippek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred prior to AD 1400. True (1980) argued that acorn processing and ceramic use in the northern San Diego region did not occur until the San Luis Rey pattern emerged after approximately AD 1450. For southern San Diego County, the picture is less clear. The Cuyamaca Complex is the southern counterpart to the San Luis Rey pattern, however, and is most recognizable after AD 1450 (Hector 1984). Similar to True (1980), Hale (2009) argued that an acorn economy did not appear in the southern San Diego region until just prior to Ethnohistoric times, and that when it did occur, a major shift in social organization followed.

In spite of the abundant cultural influences from the Colorado Desert, early agricultural practices never gained traction in California, and western Colorado Desert evidence for aboriginal agriculture is virtually non-existent, absent early ethnohistoric accounts of Fort Mojave Indians (Kroeber 1925). It is likely that the stable Archaic economy persisted into the Late Prehistoric era and absorbed the efficiencies of certain technological innovations including the bow and arrow and ceramics. Locally, however, Tizon Brownware ceramic vessels dominate archaeological assemblages; Colorado buffware fragments are relatively rare, and could have been obtained simply through trade. Aboriginal agriculture probably hit a socioeconomic brick wall in southern California where a stable economy focused on generalized but regular exploitation of locally abundant plant foods was simply too efficient and socially reinforced to allow the labor intensive practice of agriculture to take root (Bettinger 1999; Bettinger 2001; Hale 2010).

Ethnohistoric (post-AD 1750)

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of

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the Native American inhabitants of the San Diego region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the San Diego region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early Twentieth Century (Boscana 1846; Fages 1937; Geiger and Meighan 1976; Harrington 1934; Laylander 2000). The principal intent of these researchers was to record the precontact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as “salvage ethnography,” was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his “memory culture” approach (Lightfoot 2005: 32) by recording languages and oral histories within the San Diego region. Kroeber’s 1925 assessment of the impacts of Spanish missionization on local Native American populations supported Kumeyaay traditional cultural continuity (Kroeber 1925: 711):

San Diego was the first mission founded in upper California; but the geographical limits of its influence were the narrowest of any, and its effects on the natives comparatively light. There seem to be two reasons for this: first, the stubbornly resisting temper of the natives; and second, a failure of the rigorous concentration policy enforced elsewhere.

In some ways this interpretation led to the belief that many California Native American groups simply escaped the harmful effects of contact and colonization all together. This, of course, is untrue. Ethnographic research by Dubois, Kroeber, Harrington, Spier, and others during the early Twentieth Century seemed to indicate that traditional cultural practices and beliefs survived among local Native American communities. These accounts supported, and were supported by, previous governmental decisions which made San Diego County the location of more federally recognized tribes than anywhere else in the United States: 18 tribes on 18 reservations that cover more than 116,000 acres (CSP 2009).

The traditional cultural boundaries between the Luiseño and Kumeyaay Native American tribal groups have been well defined by anthropologist Florence Shippek (1993; summarized by the San Diego County Board of Supervisors 2007:6):

In 1769, the Kumeyaay national territory started at the coast about 100 miles south of the Mexican border (below Santo Tomas), thence north to the coast at the drainage

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divide south of the San Luis Rey River including its tributaries. Using the U.S. Geological Survey topographic maps, the boundary with the Luiseño then follows that divide inland. The boundary continues on the divide separating Valley Center from Escondido and then up along Bear Ridge to the 2240 contour line and then north across the divide between Valley Center and Woods Valley up to the 1880-foot peak, then curving around east along the divide above Woods Valley.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006: 34). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007: 71). Based on the Project location, the Native American inhabitants of the region would have likely spoken both the Ipai and Tipai language subgroup of the Yuman language family. Ipai and Tipai, spoken respectively by the northern and southern Kumeyaay communities, are mutually intelligible. For this reason, these two are often treated as dialects of a larger Kumeyaay tribal group rather than as distinctive languages, though this has been debated (Laylander 2010; Luomala 1978).

Victor Golla contends that one can interpret the amount of variability within specific language groups as being associated with the relative “time depth” of the speaking populations (Golla 2007: 80). All things being equal, a language group with a high degree of internal variation is therefore older than one with less internal diversity. Golla further observes that the “absolute chronology of the internal diversification within a language family” can be correlated with archaeological dates (2007: 71). This type of interpretation is modeled on concepts of genetic drift and gene flow associated with migration and population isolation in the biological sciences.

Golla suggested that there are two language families associated with Native American groups who traditionally lived throughout the San Diego County region. The northern San Diego tribes have traditionally spoken Takic languages that may be assigned to the larger Uto–Aztecan family (Golla 2007: 74). These groups include the Luiseño, Cupeño, and Cahuilla. Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto–Aztecan ca. 2600 BC–AD 1, which was later followed by the diversification within the Takic speaking San Diego tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2010). The majority of Native American tribal groups in the southern San Diego region have traditionally spoken Yuman languages, a subgroup of the Hokan Phylum. Golla has suggested that the time depth of Hokan is approximately 8,000 years (Golla 2007: 74). The Kumeyaay tribal communities share a common language group with the Cocopa, Quechan, Maricopa, Mojave, and others to east, and the Kiliwa to the south. The time depth for both the Ipai (north of the San Diego River, from

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Escondido to Lake Henshaw) and the Tipai (south of the San Diego River, the Laguna Mountains through Ensenada) is approximated to be 2,000 years at the most. Laylander has contended that previous research indicates a divergence between Ipai and Tipai to have occurred approximately AD 600–1200 (Laylander 1985). Despite the distinct linguistic differences between the Takic-speaking tribes to the north, the Ipai-speaking communities in central San Diego, and the Tipai southern Kumeyaay, attempts to illustrate the distinctions between these groups based solely on cultural material alone have had only limited success (Pigniolo 2004; True 1966).

The Kumeyaay generally lived in smaller family subgroups that would inhabit two or more locations over the course of the year. While less common, there is sufficient evidence that there were also permanently occupied villages, and that some members may have remained at these locations throughout the year (Owen 1965; Shipek 1982, 1985; Spier 1923). Each autonomous tribelet was internally socially stratified, commonly including higher status individuals such as a tribal head (*Kwaaypay*), shaman (*Kuseyaay*), and general members with various responsibilities and skills (Shipek 1982). Higher-status individuals tended to have greater rights to land resources, and owned more goods, such as shell money and beads, decorative items, and clothing. To some degree, titles were passed along family lines; however, tangible goods were generally burned ceremonially or destroyed following the deaths of their owners (Luomala 1978). Remains were cremated over a pyre and then relocated to a cremation ceramic vessel that was placed in a removed or hidden location. A broken metate was commonly placed at the location of the cremated remains, with the intent of providing aid and further use after death. At maturity, tribal members often left to other bands in order to find a partner. The families formed networks of communication and exchange around such partnerships.

Areas or regions, identified by known physical landmarks, could be recognized as band-specific territories that might be violently defended against use by other members of the Kumeyaay. Other areas or resources, such as water sources and other locations that were rich in natural resources, were generally understood as communal land to be shared amongst all the Kumeyaay (Luomala 1978). The coastal Kumeyaay exchanged a number of local goods, such as seafood, coastal plants, and various types of shell for items including acorns, agave, mesquite beans, gourds, and other more interior plants (Luomala 1978). Shellfish would have been procured from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast. The availability of these marine resources changed with the rising sea levels, siltation of lagoon and bay environments, changing climatic conditions, and intensity of use by humans and animals (Gallegos and Kyle 1988; Pigniolo 2005; Warren 1964). Shellfish from sandy environments included *Donax*, *Saxidomus*, *Tivela*, and others. Rocky coast shellfish dietary contributions consisted of *Pseudochama*, *Megastrea*, *Saxidomus*, *Protothaca*, *Megathura*, *Mytilus* and others.

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Lastly, the bay environment would have provided *Argopecten*, *Chione*, *Ostrea*, *Neverita*, *Macoma*, *Tagelus*, and others. While marine resources were obviously consumed, terrestrial animals and other resources likely provided a large portion of sustenance. Game animals consisted of rabbits and hares (*Leporidae*), birds (*Aves*), ground squirrels (*Spermophilus*), woodrats (*Neotoma*), deer (*Cervus*), bears (*Ursus*), mountain lions (*Puma concolor*), bobcats (*Lynx rufus*), coyotes (*Canis latrans*), and others. In lesser numbers, reptiles and amphibians may have been consumed.

A number of local plants were used for food and medicine. These were exploited seasonally, and were both traded between regional groups and gathered as a single tribelet moved between habitation areas. Some of the more common of these that might have been procured locally included buckwheat (*Eriogonum fasciculatum*), Agave, Yucca, lemonade berry (*Rhus integrifolia*), sugar brush (*Rhus ovata*), sage scrub (*Artemisia californica*), yerba santa (*Eriodictyon*), sage (*Salvia*), *Ephedra*, prickly pear (*Opuntia*), mulefat (*Baccharis salicifolia*), chamise (*Adenostoma fasciculatum*), elderberry (*Sambucus nigra*), oak (*Quercus*), willow (*Salix*), and Juncus grass among many others (Wilken 2012).

The Project APE is located approximately 19 miles west of Tecate Peak and 9.5 miles west of Otay Mountain. Both of these locations figure strongly in Kumeyaay cosmological world views and creation stories. Tecate peak was called *Kuuchamaa*, and was understood to be a shamanic location for acquiring power. Shippek observed that, while there were other named mountains of cultural significance, “Kuuchanuia was the central place, more sacred and more powerful than any other” (Shippek 1985). Just west of this sacred peak is the Otay Mountain, known in Tipai as *Huu*, or “the nose.” Areas or regions, identified by known physical landmarks, could be recognized as band-specific territories that might be vigorously defended – violent if need be – against use by other members of the Kumeyaay. Other areas or resources, such as water sources and other locations rich in natural resources, were generally understood as communal property to be shared amongst all the Kumeyaay (Loumala 1978).

Historic Period (post-AD 1542)

European activity in the region began as early as AD 1542, when Juan Rodríguez Cabrillo landed in San Diego Bay. Sebastián Vizcaíno returned in 1602, and it is possible that there were subsequent contacts that went unrecorded. These brief encounters made the local native people aware of the existence of other cultures that were technologically more complex than their own. Epidemic diseases may also have been introduced into the region at an early date, either by direct contacts with the infrequent European visitors or through waves of diffusion emanating from native peoples farther to the east or south (Preston 2002). It is possible, but as yet unproven, that the precipitous demographic decline of native peoples had already begun prior to the arrival of Gaspar de Portolá and Junípero Serra in 1769.

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Spanish colonial settlement was initiated in 1769, when multiple expeditions arrived in San Diego by land and sea, and then continued northward through the coastal plain toward Monterey. A military presidio and a mission were soon firmly established at San Diego, despite violent resistance to them from a coalition of native communities in 1776. Private ranchos subsequently established by Spanish and Mexican soldiers, as well as other non-natives, appropriated much of the remaining coastal or near-coastal locations (Pourade 1960–1967).

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to native populations in western San Diego County. Some former mission neophytes were absorbed into the work forces on the ranchos, while others drifted toward the urban centers at San Diego and Los Angeles or moved to the eastern portions of the county where they were able to join still largely autonomous Native communities. United States conquest and annexation, together with the gold rush in Northern California, brought many additional outsiders into the region. Development during the following decades was fitful, undergoing cycles of boom and bust. With rising populations in the Nineteenth Century throughout the Southern California region, there were increased demands for important commodities such as salt.

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3 GUIDELINES FOR DETERMINING SIGNIFICANCE

3.1 Cultural Resources

According to CEQA (Section 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:

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.

The significance of an historical resource is materially impaired when a project:

- 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 (CRHR); or
- 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
- 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 CRHR 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:

- 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).
- 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, and this section, Section 15126.4 of the Guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.

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- 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 21083.2 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. If an archaeological resource is neither a unique archaeological nor an 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) and (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides the following:

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 Native American Heritage Commission 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 Native American Heritage Commission. Action implementing such an agreement is exempt from: 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); and the requirement of CEQA and the Coastal Act.

1.2 Paleontological Resources

Paleontological resources are the fossilized remains or traces of plants and animals that are preserved in earth's crust, and per the Society of Vertebrate Paleontology guidelines (SVP 2010), are older than written history or older than approximately 5,500 years. They are limited, nonrenewable resources of scientific and educational value, which are afforded protection under state and local laws and regulations as defined in Section 1.1, Regulatory Context, of this report. This study satisfies requirements in accordance with state guidelines (13 PRC, 2100 et seq.) and Public Resources Code Section 5097.5 (Stats 1965, c 1136, p. 2792). This analysis also complies with guidelines and significance criteria specified by the Society of Vertebrate Paleontology (SVP 2010). Table 1, Paleontological Resources Sensitivity Criteria, provides definitions for high, moderate, low, marginal, and no paleontological resource

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potential, or sensitivity, as set forth in and in agreement with the County of San Diego's (2009) Guidelines for Determining Significance: Paleontological Resources.

**Table 1.
Paleontological Resources Sensitivity Criteria**

Resource Sensitivity / Potential	Definition
High	High resource potential and high sensitivity are assigned to geologic formations known to contain paleontological localities with rare, well preserved, critical fossil materials for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleoclimatic, paleobiological and/or evolutionary history (phylogeny) of animal and plant groups. In general, formations with high resource potential are considered to have the highest potential to produce unique invertebrate fossil assemblages or unique vertebrate fossil remains and are, therefore, highly sensitive.
Moderate	Moderate resource potential and moderate sensitivity are assigned to geologic formations known to contain paleontological localities. These geologic formations are judged to have a strong, but often unproven, potential for producing unique fossil remains (Deméré and Walsh 1993).
Low	Low resource potential and low sensitivity are assigned to geologic formations that, based on their relatively young age and/or high-energy depositional history, are judged unlikely to produce unique fossil remains. Low resource potential formations rarely produce fossil remains of scientific significance and are considered to have low sensitivity. However, when fossils are found in these formations, they are often very significant additions to our geologic understanding of the area.
Marginal	Marginal resource potential and marginal sensitivity are assigned to geologic formations that are composed either of volcanoclastic (derived from volcanic sources) or metasedimentary rocks, but that nevertheless have a limited probability for producing fossils from certain formations at localized outcrops. Volcanoclastic rock can contain organisms that were fossilized by being covered by ash, dust, mud, or other debris from volcanoes. Sedimentary rocks that have been metamorphosed by heat and/or pressure caused by volcanoes or plutons are called metasedimentary. If the sedimentary rocks had paleontological resources within them, those resources may have survived the metamorphism and still be identifiable within the metasedimentary rock, but since the probability of this occurring is so limited, these formations are considered marginally sensitive.
No Potential	No resource potential is assigned to geologic formations that are composed entirely of volcanic or plutonic igneous rock, such as basalt or granite, and therefore do not have any potential for producing fossil remains. These formations have no paleontological resource potential, i.e., they are not sensitive.

Source: County of San Diego 2009.

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4 ANALYSIS OF PROJECT EFFECTS

4.1 Methods

4.1.1 Archival Methods

Dudek conducted a California Historical Resources Information System records search through our in-house subscription to the SCIC database on April 2, 2020, for the Project and a 1-mile search buffer surrounding the Project. This search included their collection of mapped prehistoric, historical and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, archival resources, and ethnographic references. Additional consulted sources included the National Register of Historic Places, California Inventory of Historical Resources/CRHR and listed Office of Historic Preservation Archaeological Determinations of Eligibility, California Points of Historical Interest, California Historical Landmarks, and Caltrans Bridge Survey information. Confidential Appendix A provides the confidential results of the records search and a bibliography of prior cultural resources studies.

In addition to the SCIC records search, Dudek requested a paleontological records search from the San Diego Natural History Museum (SDNHM) on April 9, 2020. The records search request included the Project APE and a 1-mile radius buffer around the Project. The purpose of the paleontological records search was to assist in identifying geological units within the Project APE and determine if any paleontological localities exist within the Project APE and 1-mile radius buffer.

4.1.2 Field Methods

Dudek Archaeologists Patrick Hadel, Jessica Colston, and Loukas Barton conducted a pedestrian survey of the APE for cultural and paleontological resources on April 11, 2020. Areas throughout the APE were inspected at 10- and 15-meter transects. Archaeological survey exceeded the applicable Secretary of Interior Professional Qualifications Standards for archaeological survey and evaluation. Areas with a slope exceeding 25% are avoided as a matter of safety. Survey crew was equipped with a GPS receiver. Location-specific photographs were taken using an Apple 3rd Generation iPad equipped with 8 MP resolution and georeferenced PDF maps of the Project area. Accuracy of this device ranged between 3 meters and 10 meters. Evidence for buried cultural and paleontological deposits was sought through inspection of natural or artificial erosion exposures and the spoils from rodent burrows.

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4.1.3 Native American Participation/Consultation

Dudek requested a NAHC search of the Sacred Lands File was sent on April 8, 2020, for Traditional Cultural Properties or Sacred Sites that have been identified to be within the Project APE (Appendix B). The NAHC results are pending. The NAHC will provide a contact list of Native American representatives for tribes that are traditionally geographically affiliated with the Project APE. Once received, tribal outreach letters will be sent to those representatives. The NAHC and tribal responses will be included in subsequent drafts of the current study. If any responses are forthcoming, they will be forwarded to the City.

The proposed Project is also subject to compliance with AB 52 (PRC 21074) which requires consideration of impacts to “tribal cultural resources” as part of the CEQA process. AB 52 requires the City of Chula Vista, lead agency responsible for CEQA compliance for the proposed Project, to notify any groups (who have requested notification) of the proposed Project who are traditionally or culturally affiliated with the geographic area of the Project. Because AB 52 is a government-to-government process, all records of correspondence related to AB 52 notification and any subsequent consultation are on file with the City of Chula Vista.

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5 RESULTS

5.1 Archival Review – Cultural Resources

An in house records search conducted on April 2, 2020, resulted a total 68 reports within the 1-mile buffer, of which only 16 reports fall within the Project APE (Table 2). One of which (SD-10448) outlines the study of impacts for a proposed pipeline through the middle of the Project APE. At time of writing, only one intersecting report was available through the SCIC due to the lockdown on archival facilities associated with the COVID-19 epidemic. The remaining 52 reports are listed in Confidential Appendix A.

**Table 2.
Reports Within the Project APE**

Report #	Year	Title	Publisher
SD-02690	1993	FINAL CULTURAL RESOURCES EVALUATION OF THE 23,088-ACRE OTAY RANCH, SAN DIEGO COUTY	OGDEN ENVIRONMENTAL
SD-03625	1999	A CULTURAL RESOURCES STUDY FOR THE OLYMPIC PARKWAY PROJECT	THE CITY OF CHULA VISTA
SD-03625	1999	A CULTURAL RESOURCES STUDY FOR THE OLYMPIC PARKWAY PROJECT	THE CITY OF CHULA VISTA
SD-03726	1996	ARCHAEOLOGICAL SURVEY REPORT FOR THE OTAY ANNEX LANDFILL PROJECT	WOODWARD-CLYDE CONSULTANTS
SD-03824	2000	CULTURAL RESOURCE SURVEY FOR THE PROPOSED OLYMPIC PARKWAY PROJECT,CITY OF CHULA VISTA, CALIFORNIA	KYLE CONSULTING
SD-03824	2000	CULTURAL RESOURCE SURVEY FOR THE PROPOSED OLYMPIC PARKWAY PROJECT,CITY OF CHULA VISTA, CALIFORNIA	KYLE CONSULTING
SD-03950	1997	CULTURAL RESOURCES REPORT FOR THE OTAY ANNEX LANDFILL PROJECT	GALLEGOS AND ASSOCIATES
SD-04657	1992	DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT. OTAY RANCH	OGDEN ENVIRONMENTAL AND ENERGY SERVICES CO., INC
SD-06805	1987	ARCHAEOLOGICAL OVERVIEW AND PLANNING DOCUMENT FOR THE PROPOSED RANCHO OTAY PROJECT	TMI ENVIRONMENTAL SERVICES
SD-07163	1999	A CULTURAL RESOURCES STUDY FOR THE OLYMPIC PARKWAY PROJECT	BRIAN F. SMITH
SD-07668	2001	ARCHAEOLOGICAL MITIGATION OF IMPACT TO PREHISTORIC SITE SDI-13864, OTAY RANCH VILLAGE ONE WEST	BRIAN F. SMITH & ASSOC.
SD-07775	2000	A REPORT OF AN ARCHAEOLOGICAL EVALUATION OF CULTURAL RESOURCES AT THE OTAY RANCH VILLAGE TWO SPA	BRIAN F. SMITH AND ASSOCIATES
SD-10448	2005	SITE SIGNIFICANCE EVALUATION OF A PORTION OF PREHISTORIC ARCHAEOLOGICAL SITE CA-SDI-17668 LOCATED ALONG THE PROPOSED OTAY WATER DISTRICT, 30-INCH RECYCLED WATER	MOONEY, JONES & STOKES

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Table 2.
Reports Within the Project APE

Report #	Year	Title	Publisher
		PIPELINE ROUTE, IN THE OTAY RIVER VALLEY, SAN DIEGO COUNTY, CALIFORNIA	
SD-10821	2007	FINAL CULTURAL RESOURCES MITIGATION MONITORING REPORT FOR THE OTAY WATER DISTRICT 30- INCH RECYCLED WATER PIPELINE SAN DIEGO COUNTY, CALIFORNIA	MOONEY, JONES & STOKES
SD-11502	1995	RESULTS OF AN ARCHAEOLOGICAL SURVEY AND THE EVALUATION OF CULTURAL RESOURCES AT THE OTAY RANCH SECTIONAL PLANNING AREA ONE AND ANNEXATION PROJECT	BRIAN F. SMITH AND ASSOCIATES
SD-12397	2009	ARCHAEOLOGICAL MONITORING OF THE OTAY RANCH VILLAGE 2 PROJECT	BRIAN F. SMITH & ASSOCIATES

SD-12397

Report SD-12397 is a summary of the archaeological monitoring effort in support of the Otay Ranch Village 2 Project, an 855-acre parcel located immediately to the east of (but not overlapping) the current Project APE (see Confidential Appendix A). Conducted by Brian F. Smith and Associates, from June, 2006 to April, 2007, the report summarizes recoveries at three archaeological sites and four cultural isolates. None of the monitoring discoveries were considered significant and the authors determined that construction of the Otay Ranch Village 2 Project would not induce an adverse effect on cultural resources, and recommended that no further archaeological mitigation was necessary (Clowery-Moreno et al. 2009).

The SCIC record search indicates that no cultural resources have been identified within the Project APE. However, 82 cultural resources have been recorded within the 1-mile search buffer (Table 3). Of these, only three are historic resources, while 79 are prehistoric resources. The density of resources within this 1-mile buffer attests to the potential for buried resources within the Project APE, even though none have yet been identified (Confidential Appendix A).

Historic resources within the 1-mile buffer include the Otay Ranch Farm Complex (approximately 830 meters to the east of the current Project APE), a farmhouse at 5401 Main Street, and a structure mapped on the 1903 map. Of the 79 prehistoric resources already identified within the 1-mile buffer, we have evidence of four temporary camps, 27 light scatters of artifacts, most notably chipped stone, a single bedrock milling station, and 47 isolated artifacts that include simple flake tools, cores, millings, and pestles. Though the majority of these have not been fully evaluated, the nature and character of them attest to fairly light land-use patterns within the 1-mile buffer.

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Table 3.
Resources Within Project Research Area (1-Mile Buffer)

Primary	Trinomial	Period	Description	CRHP Eligibility	Intersect?
37-008065	SDI-008065	Prehistoric	Lithic and artifact scatter	Potentially Eligible	NO
37-008912	SDI-008912	Prehistoric	Artifact scatter	Potentially Eligible	NO
37-010471	SDI-010471	Prehistoric	Artifact scatter	Potentially Eligible	NO
37-010472	SDI-010472	Prehistoric	Lithic scatter	Potentially Eligible	NO
37-010473	SDI-010473	Prehistoric	Artifact scatter	Potentially Eligible	NO
37-010489	SDI-010489	Prehistoric	Lithic scatter	Potentially Eligible	NO
37-011145	SDI-011145	Prehistoric	Lithic scatter	Potentially Eligible	NO
37-011146	SDI-011146	Prehistoric	Lithic scatter	Potentially Eligible	NO
37-011387	SDI-011387	Historic	Otay Ranch Farm Complex	Not Eligible	NO
37-011968	SDI-011968	Prehistoric	Lithic scatter	Potentially Eligible	NO
37-012289	SDI-012289	Prehistoric	Temporary Camp	Not Eligible	NO
37-012290	SDI-012290	Prehistoric	Lithic scatter	Not Eligible	NO
37-012292	SDI-012292	Prehistoric	Lithic scatter	Not Eligible	NO
37-012293	SDI-012293	Prehistoric	Artifact scatter	Potentially Eligible	NO
37-013226	SDI-013226	Prehistoric	Temporary camp	Not Eligible	NO
37-013771	SDI-013776	Prehistoric	Bedrock milling	Potentially Eligible	NO
37-013872	SDI-013862	Prehistoric	Lithic scatter	Potentially Eligible	NO
37-013873	SDI-013863	Prehistoric	Lithic scatter	Potentially Eligible	NO
37-013874	SDI-013864	Prehistoric	Lithic scatter	Not Eligible	NO
37-013875	SDI-013865	Prehistoric	Lithic scatter	Not Eligible	NO
37-013876	SDI-013866	Prehistoric	Lithic scatter	Potentially Eligible	NO
37-013877	SDI-013867	Prehistoric	Lithic scatter	Not Eligible	NO
37-013878	SDI-013868	Prehistoric	Temporary camp	Potentially Eligible	NO
37-014153		Prehistoric	Isolate- Flake and core	Not Eligible	NO
37-014154		Prehistoric	Isolate-Millingstone	Not Eligible	NO
37-014155		Prehistoric	Isolate- Flake	Not Eligible	NO
37-014156		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO
37-014157		Prehistoric	Isolate- Core	Not Eligible	NO
37-014159		Prehistoric	Isolate- Simple Flake Tool and Flake	Not Eligible	NO
37-014160		Prehistoric	Isolate- Flake	Not Eligible	NO
37-014161		Prehistoric	Isolate- Core	Not Eligible	NO
37-014162		Prehistoric	Isolate- Core and flake	Not Eligible	NO
37-014163		Prehistoric	Isolate- Flake	Not Eligible	NO
37-014164		Prehistoric	Isolate- Flake	Not Eligible	NO
37-014165		Prehistoric	Isolate- 2 Flakes	Not Eligible	NO
37-014166		Prehistoric	Isolate- Retouched Flake Tool	Not Eligible	NO
37-014167		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO
37-014168		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO

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Table 3.
Resources Within Project Research Area (1-Mile Buffer)

Primary	Trinomial	Period	Description	CRHP Eligibility	Intersect?
37-014178		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO
37-014179		Prehistoric	Isolate- 2 flakes	Not Eligible	NO
37-014180		Prehistoric	Isolate- Core	Not Eligible	NO
37-014181		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO
37-014182		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO
37-014183		Prehistoric	Isolate- Flake	Not Eligible	NO
37-014184		Prehistoric	Isolate- 2 Simple Flake Tools	Not Eligible	NO
37-014185		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO
37-014186		Prehistoric	Isolate- 2 Simple Flake Tools	Not Eligible	NO
37-014187		Prehistoric	Isolate- Flake	Not Eligible	NO
37-014188		Prehistoric	Isolate- 2 Flakes	Not Eligible	NO
37-014189		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO
37-014190		Prehistoric	Isolate- Simple Flake Tool and Flake	Not Eligible	NO
37-014191		Prehistoric	Isolate- Pestle	Not Eligible	NO
37-014192		Prehistoric	Isolate- Simple Flake Tools	Not Eligible	NO
37-014193		Prehistoric	Isolate- Flake	Not Eligible	NO
37-014223	SDI-014055	Prehistoric	Temporary Camp	Potentially Eligible	NO
37-014224	SDI-014056	Prehistoric	Artifact scatter	Potentially Eligible	NO
37-014529		Prehistoric	Isolate- Core	Not Eligible	NO
37-014542	SDI-014175	Prehistoric	Lithic Scatter	Potentially Eligible	NO
37-014544	SDI-014177	Prehistoric	Lithic Scatter	Not Eligible	NO
37-014570	SDI-014203	Prehistoric	Artifact Scatter	Potentially Eligible	NO
37-015009		Prehistoric	Isolate- Flake	Not Eligible	NO
37-015010		Prehistoric	Isolate- Core fragment	Not Eligible	NO
37-015148		Prehistoric	Isolate- Simple Flake Tool	Not Eligible	NO
37-015149		Prehistoric	Isolate- Core	Not Eligible	NO
37-015231		Prehistoric	Isolate- Core	Not Eligible	NO
37-015332		Prehistoric	Isolate- Flake	Not Eligible	NO
37-015333		Prehistoric	Isolate- Flake	Not Eligible	NO
37-015334		Prehistoric	Isolate- Assayed cobble and flake	Not Eligible	NO
37-015335		Prehistoric	Isolate-Core and Flake	Not Eligible	NO
37-015336		Prehistoric	Isolate- Flake	Not Eligible	NO
37-015525		Prehistoric	Isolate- Flake	Not Eligible	NO
37-015526		Prehistoric	Isolate- Flake	Not Eligible	NO
37-015975		Prehistoric	Isolate- Flake	Not Eligible	NO
37-025521		Historic	Farmhouse at 4501 Main St.	Potentially Eligible	NO
37-026550		Historic	Structure mapped on 1903 map	Potentially Eligible	NO
37-028497	SDI-014303	Prehistoric	Lithic Scatter	Potentially Eligible	NO

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Table 3.
Resources Within Project Research Area (1-Mile Buffer)

Primary	Trinomial	Period	Description	CRHP Eligibility	Intersect?
37-030154	SDI-019219	Prehistoric	Lithic Scatter	Potentially Eligible	NO
37-030158		Prehistoric	Isolate- Flake	Not Eligible	NO
37-030568		Prehistoric	Isolate- Flake	Not Eligible	NO
37-030569	SDI-019432	Prehistoric	Lithic Scatter	Potentially Eligible	NO
37-032800	SDI-020737	Prehistoric	Lithic Scatter	Potentially Eligible	NO
37-032801	SDI-020738	Prehistoric	Lithic Scatter	Potentially Eligible	NO

Two previously recorded prehistoric artifact scatter sites, approximately 160 meters upslope from the Project APE, speak to the kinds of resources that may be encountered inside the Project APE. These sites might also be subject to erosion and result in artifact drift downslope into the Project APE.

P-37-010471 (CA-SDI-10471)

Resource is a prehistoric artifact scatter found immediately upslope of the Project APE, on the adjacent property to the south. The site measures roughly 45 meters in diameter. The site consists of moderate amounts of large tools, cores and flakes, as documented by Fink in 1973. A representative surface collection of the tools were taken. The area had been recently burned, therefore the presence of midden soils was impossible to determine.

P-37-010473 (CA-SDI-10473)

Resource is a prehistoric artifact scatter, consisting of large flakes, tools, cores situated on the crest of the southern side of Poggi Canyon, upslope from the Project's southern boundary. The site measures approximately 32 meters in diameter. This site was heavily surface collected during recordation by Fink in 1974 and was subjected to subsurface testing at that time. The shovel test pits yielded no subsurface component. The interpretation was that this site constituted as surface scatter of a San Dieguito III lithic workshop.

5.2 Archival Review – Paleontological Resources

According to surficial geological mapping at a scale of 1:100,000 (Kennedy and Tan 2008) and the paleontological records search through the SDNHM (Confidential Appendix C), the Project is underlain by Holocene (< 11,700 years ago) to late Pleistocene (approximately 129,000 to 11,700 years ago) young alluvial floodplain deposits (map unit Qya), the late Pliocene to early Pleistocene (approximately 3.6 million years ago to 1.8 million years ago) San Diego Formation (map unit Tsds), and the late Oligocene (approximately 1 million years ago) Otay Formation (map unit To) (Figure 3, Geology Map).

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The SDNHM paleontological records results were received on April 14, 2020, and no records were found of fossil localities within the boundaries of the Project APE. However, 14 fossil localities are located within a half-mile radius of the study area (Confidential Appendix C). Of these, two localities are from the Otay Formation and 12 localities are from the San Diego Formation. The following paragraphs summarize the records search results and geological units present within the Project site from youngest to oldest.

Young Alluvial Floodplain Deposits (Qya)

Young alluvial floodplain deposits crop out on the surface along a narrow band adjacent to Olympic Boulevard on the northern edge of the Project APE (Figure 3). These deposits generally consist of unconsolidated and poorly sorted gravels, sands, silts, and clays that are mostly Holocene in age. Due to the young age of young alluvial floodplain deposits, they do not usually contain significant paleontological resources and are assigned low paleontological sensitivity. However, oftentimes these deposits are relatively shallowly underlain by older geological units that are assigned moderate to high paleontological sensitivity.

San Diego Formation (Tdss)

The late Pliocene to early Pleistocene, marine San Diego Formation is mapped in the southern and southeastern portion of the Project (Figure 3) and consists of fossiliferous yellowish-gray to yellowish-brown, weakly consolidated, fine-grained sandstones, poorly sorted gravels, pebble conglomerates, and bedded claystones (Deméré and Walsh 1993; Kennedy 1975). The San Diego Formation is abundantly fossiliferous and has produced significant marine and terrestrial fossils throughout its extent in San Diego County. Jefferson (2010) reported a variety of birds and small and large terrestrial mammals in his compilation of early Quaternary fossil localities. The SDNHM reported 12 fossil localities within the half-mile radius buffer zone for the Project. These localities were recovered during excavations for the Sunbow II and Otay Ranch Village 1 West residential developments, just to the north of the Project APE. Trace, invertebrate, and vertebrate fossils collected during these excavations include burrows, coprolites, bryozoans, gastropods, bivalves, decapods, stomatopods, sand dollars, barnacles, crabs, sharks, rays, bony fish, sea birds, walrus, eared seals, sea cows, and whales. In addition to the marine trace, invertebrate, and vertebrate fossils recovered from the jobsite, terrestrial snakes, rabbits, horse, deer, and ground sloth were recovered. Based on the productivity of the San Diego Formation, it is assigned high paleontological sensitivity (Confidential Appendix C).

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Otay Formation (To)

The late Oligocene Otay Formation comprises the majority of the surficial geology of the Project APE (Figure 3). Geologically, the Otay Formation consists of fluvially-(river) deposited arkosic sandstone that interfingers with siltstone and claystone (Kennedy and Tan 2008). The Otay Formation is composed of three informal members based on their lithologies (lithostratigraphic units): (1) a basal “conglomerate member” composed of crumbly boulder to cobble clasts that are subrounded to subangular; (2) a middle “gritstone member” composed of crumbly to indurated, coarse to very coarse, pebbly gritstone; and (3) an upper “sandstone – mudstone member” composed of coarse sandstones grading upwardly into sandy siltstones and mudstones (Walsh and Deméré, 1991). The gritstone and sandstone – mudstone members have produced significant vertebrate fossils in San Diego County (Walsh and Deméré, 1991). The Otay Formation is assigned high paleontological sensitivity throughout its geographic extent (City of San Diego 2016) and high sensitivity within the Project APE according to the SDNHM (Confidential Appendix C).

5.3 Aerial Imagery Analysis

A review of historic aerial imagery for the Project APE extends back to 1953 (NETR 2020) with photos present from 1953, 1964, 1966, 1968, 1971, 1981, 1989, 1994, 1996, 2002, 2003, 2005, 2009, 2010, 2012, 2014, and 2016. The aerial imagery showed that for the vast majority of the Project APE, no development of the property had been on site from the earliest aerial image in 1953. The Project APE is located at the western end of Poggi Canyon, occupying the southern slope. The construction of Olympic Parkway along the northern border of the Project APE began as a small dirt road visible in the 1953 photo, but was paved as a split lane highway between 1996 and 2002. The addition of the median and development of Olympic Parkway also impacted the Project APE with the creation of a culvert running parallel to Olympic. The Project APE includes the culvert as well as engineered animal crossing overpasses with surface vegetation. This impact runs along the northern 40 feet of the Project APE. From at least the early 1960s, the eastern section of the Project APE has been subject to cultivation as indicated by patterns of mechanical plowing; this practice appears to have ended in the 1980s. Historic topographic maps consulted were from 1904, 1908, 1911, 1915, 1920, 1928, 1932, 1941, 1943, 1955, 1960, 1962, 1977, 2002, 2012, 2015, and 2018. The topos show the current location of the landfill to have been a historic borrow pit, as early as 1904, with continuous use into the present.

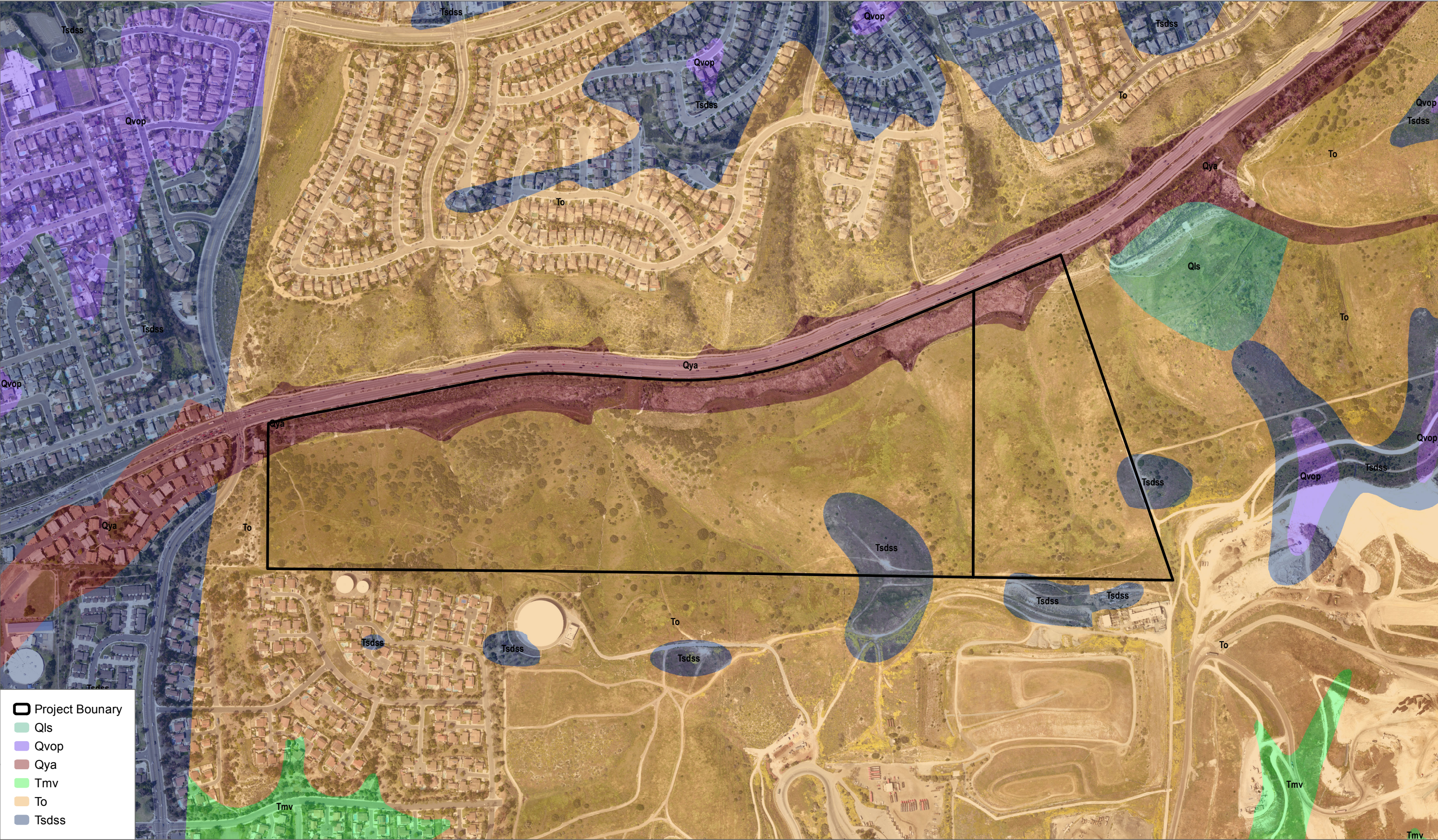
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5.4 Survey Results

The intensive pedestrian survey of the APE conducted April 11, 2020, identified no new cultural or paleontological resources within the current APE limits. Visibility was overwhelmingly obscured by vegetation, allowing for less than one-third of the ground surface to be viewed in many areas. In addition, the western-most sector of the Project was inaccessible due to the presence of an active, inhabited homeless camp located within the proposed open space/Preserve area. Fortunately, this sector of the property is not scheduled for either grading or residential development. Across the Project, surface visibility was confined to scattered exposures near stands of lemonade berry (*Rhus integrifolia*), gopher and ground squirrel burrow spoils, and to a series of recently graded roadways. Several different vegetation communities have been identified across the Project APE (Ince et al. 2020), with elements of the Diegan Coastal Sage Scrub (namely large stands of lemonade berry), as well as Southern Willow Scrub (composed mainly of arroyo and black willows, *Salix lasiolepis* and *Salix gooddingii* respectively) being particularly impenetrable. Recent growth in both native and non-native grasslands due to heavy rains obscured surface visibility nearly everywhere else. Recent notable growth included blue-eyed grass (*Sisyrinchium bellum*) sweet fennel (*Foeniculum vulgare*) and wild oat (*Avena barbata*). The invasive white garden snail (*Theba pisana*) was in high abundance throughout the Project APE.

Crisscrossing the western sector of the property is a network of recently graded roadways. These provided the most extensive and unobstructed view of the ground surface, revealing rounded alluvial cobbles and pebbles embedded in a clay-rich, fine-grained, and currently water-logged sediment matrix. Though the recorded roadways exposed roughly 2,350 square meters of bare ground, we did not encounter any cultural resources in those places.

Other notable disturbances, namely colluvial slope wash at the bottoms of the small tributary feeder drainages, on the north side of the property, obscured bedrock, active vegetation, and likely all cultural and paleontological resources in the immediate area. Indeed, the colluvial movement of sediment and gravels downslope during seasonal heavy rains would ensure that cultural resources at the bottom of the hill, in and adjacent to Poggi Canyon, are deeply buried, wherever present.



SOURCE: SANGIS 2017

Figure 3. Geology Map
Lennar Sunbow

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6 MANAGEMENT CONSIDERATIONS

6.1 Resource Importance & Impact Analysis

To date, no cultural or paleontological resources have been identified within the Project's 135.7-acre APE (and subset 67.5-acre ADI). Any cultural resources encountered within the Project APE during construction monitoring would have the potential to be eligible for listing on the CRHR. This is not to say that no significant resources exist, and any of these (as well as in aggregate) help to reveal the subsistence and settlement strategies of the prehistoric inhabitants throughout the broader region; further study of these patterns is essential. It is also very likely that the geological context throughout the area, particularly in the downslope areas of canyons and gullies, insures that prehistoric cultural resources are deeply buried; future disturbance may therefore unearth them. Similarly, any paleontological resources encountered during Project excavations would likely be scientifically significant.

6.2 Archaeological Recommendations

Based on the cultural resources inventory of the Project, no known cultural resources will be impacted as a result of Project implementation. However, while no cultural resources have been identified or recorded within the Project APE, the proximity to known sites beyond the southern boundary, P-37-010473 (CA-SDI-10473) and P-37-010471 (CA-SDI-10471), indicates a high sensitivity of encountering intact subsurface cultural resources. The hills dividing Poggi Canyon and its affiliated seasonal drainage (on the north) from the more substantial Otay River (1 mile directly south of the Project APE) likely housed numerous trails connecting them, and may have hosted occasional gatherings or other activities. As with the existing archaeological record of the broader area, the Project APE may contain intact, buried evidence of prehistoric or historic transit, transportation, short-term encampments, and/or resource acquisition. There is always potential to encounter previously unidentified subsurface cultural deposits. It is recommended that impacts to cultural resources may be reduced to less than significant (no adverse effect) through full-time monitoring by an archaeologist and Native American monitor of all Project-related earth-moving activities, and preparation of a final cultural monitoring report following completion of construction. The final monitoring report should incorporate a summary of all previous cultural resource studies conducted within the Project APE.

As summarized herein, a qualified archaeologist (Project Archaeologist), as defined by CEQA guidelines, should be retained to manage the implementation of the following mitigation program. The following mitigation measures would reduce potentially significant impacts to cultural resources and human remains to a less-than-significant level:

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CUL-1:

- A. Prior to beginning construction activities, the Project Archaeologist and Native American representative will attend any pertinent preconstruction meetings with the construction manager and/or grading contractor in order to provide recommendations and answer questions relating to the archaeological monitoring program. The Project Archaeologist will be familiar with the cultural inventory conducted for the current Project and will be prepared to introduce any pertinent information concerning expectations and probabilities of discovery during ground disturbing activities.
- B. Both an archaeological monitor familiar with local resources and a Native American monitor will be present full-time during the initial disturbance of soil with potential to contain cultural deposits. All areas of initial Project-related subsurface disturbance should be assumed to have the potential to contain cultural deposits. Monitoring of initial ground disturbance will not exceed a depth of 5 feet (1.5 meters) unless cultural resources are identified or if, through direct inspection of subsurface exposures by the Project Archaeologist, an area is observed to have the potential to support the presence of archaeological deposits at greater depths. Cultural resources monitoring may be reduced from initial full-time monitoring to periodic spot checks, or discontinued if appropriate, once the Project Archaeologist determines that there is little or no risk to encounter cultural material.
- C. Daily archaeological and Native American monitoring logs will be prepared. Logs will include monitor names and affiliations, a description of general activities observed, cultural discoveries, as well as comments or concerns as applicable.
- D. In the event of an archaeological discovery, and when requested by the archaeological monitor or Native American monitor, the resident contractor will divert, redirect, or temporarily halt ground disturbing activities in the area of discovery or impacts to allow for preliminary inspection of potentially significant archaeological resources or impacts. The significance of the discovered resources or impacts will be determined by the archaeologist, in consultation with the City of Chula Vista (City). For significant cultural resources, a Research Design and Data Recovery Program will be prepared and carried out to mitigate impacts before grading activities in the area of discovery will be allowed to resume.
- E. The Project Archaeologist will be responsible for ensuring that all cultural materials collected will be cleaned, catalogued, and curated permanently with an appropriate institution; that a letter of acceptance from the curation institution has been submitted to the City; that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material will be identified as to species; and that specialty

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studies are completed, as appropriate. The Project Archaeologist should make a good faith effort to ensure that all archaeological material collected through previous work is appropriately curated with any material recovered through construction monitoring.

- F. If human remains are discovered, work will halt in that area and procedures set forth in the California Public Resources Code (Section 5097.98) and State Health and Safety Code (Section 7050.5) will be followed by the archaeological monitor after notification to the County Coroner by the Project Archaeologist. If Native American remains are present, the County Coroner will contact the Native American Heritage Commission to designate a Most Likely Descendent, who will arrange for the dignified disposition and treatment of the remains.
- G. Within three months following the completion of monitoring, two copies of a monitoring results report (even if negative) and/or evaluation report, if applicable, that describes the results, analysis, and conclusions of the archaeological monitoring program (with appropriate graphics) will be submitted to City.
- H. For significant archaeological resources encountered during monitoring, the Research Design and Data Recovery Program will be included as part of the final evaluation monitoring report. Two copies of the final monitoring report for significant archaeological resources, if required, will be submitted to the City. This final monitoring report should also incorporate a summary of the evaluation results and analyses previously conducted within the Project area.
- I. The archaeologist will be responsible for recording (on the appropriate CA DPR 523 Series forms) any significant or potentially significant resources encountered during the archaeological monitoring program in accordance with Section 106 and the City's Cultural Resources Guidelines, and submittal of such forms to the South Coastal Information Center at San Diego State University with the final monitoring results report.

6.3 Paleontological Recommendations

Dudek's review of record search data, geological mapping, geological and paleontological literature, and onsite field survey did not identify any existing paleontological resources within the Project APE boundaries. However, the paleontological records search performed by the SDNHM revealed there are 14 localities within a half-mile radius of the study area boundary from the San Diego and Otay Formations, which underlie the majority of the Project APE. Based on the records search results and map and literature review, the study area has high potential to produce paleontological resources during planned construction activities. A qualified paleontologist should be retained for the Project, in accordance with the Society of Vertebrate Paleontology guidelines (SVP 2010), and a complete paleontological monitoring program adopted prior to Project-related

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earthmoving activities. Implementation of the following paleontological mitigation program would reduce any potential impacts to below a level of significance for paleontological resources:

CUL-2: Prior to the issuance of grading permits, the Applicant shall provide written confirmation to the City that a qualified paleontologist has been retained to carry out an appropriate mitigation program. (A qualified paleontologist is defined as an individual with an M.S. or Ph.D. in paleontology or geology who is familiar with paleontological procedures and techniques.) A pre grade meeting shall be held among the paleontologist and the grading and excavation contractors.

A paleontological monitor shall be onsite at all times during the original cutting of previously undisturbed sediments of highly sensitive geologic formations (i.e., Otay Formation and San Diego Formation) to inspect cuts for contained fossils. (A paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials.) The paleontological monitor shall work under the direction of a qualified paleontologist. The monitor shall be onsite on at least a half-time basis during the original cutting of previously undisturbed sediments of moderately sensitive geologic formations (e.g., unnamed river terrace deposits and the Mission Valley Formation) to inspect cuts for contained fossils. However, neither of these rock units have been mapped within the Project APE and are therefore not anticipated to be impacted during construction.

The monitor shall be onsite on at least a quarter-time basis during the original cutting of previously undisturbed sediments of low sensitivity geologic formations (e.g., Lindavista Formation and Santiago Peak Volcanics [metasedimentary portion only]) to inspect cuts for contained fossils. However, these deposits have not been mapped within the Project APE and are therefore not anticipated to be impacted during construction. The monitor shall periodically (every several weeks) inspect original cuts in deposits with an unknown resource sensitivity (i.e., Quaternary alluvium).

In the event that fossils are discovered in unknown, low, or moderately sensitive formations, the Applicant shall increase the per-day field monitoring time. Conversely, if fossils are not discovered, the monitoring, at the discretion of the City's Deputy City Manager/Development Services Director or its designee, shall be reduced. A paleontological monitor is not needed during grading of rocks with no resource sensitivity (i.e., Santiago Peak Volcanics, metavolcanic portion).

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When fossils are discovered, the paleontologist (or paleontological monitor) shall recover them. In most cases, this fossil salvage can be completed in a short period of time. However, some fossil specimens (such as a complete whale skeleton) may require an extended salvage time. In these instances, the paleontologist (or paleontological monitor) shall be allowed to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for the recovery of small fossil remains such as isolated mammal teeth, it may be necessary in certain instances and at the discretion of the paleontological monitor to set up a screen-washing operation on the site.

Prepared fossils along with copies of all pertinent field notes, photos, and maps shall be deposited in a scientific institution with paleontological collections such as the San Diego Natural History Museum. A final summary report shall be completed. This report shall include discussions of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils.

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APPENDIX A
(CONFIDENTIAL)
SCIC Record Search Results

APPENDIX B

Native American Heritage Commission Correspondence

Jessica Colston

From: Jessica Colston
Sent: Wednesday, April 8, 2020 3:01 PM
To: 'nahc@nahc.ca.gov'
Subject: SLF Request for Lennar Sunbow PN# 12612
Attachments: Records_Search_Map.pdf; Sacred Lands File Contact Form-Lennar Sunbow PN# 12612.pdf

Hello NAHC Staff,

Please find the attached Sacred Lands File Search request and map.

Thank you and have a great day!



Jessica Colston
Archaeologist
605 Third Street / Encinitas, CA 92024
Mobile: 760.815.6642
www.dudek.com

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION

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

Information Below is Required for a Sacred Lands File Search

Project: _____

County: _____

USGS Quadrangle

Name: _____

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

Company/Firm/Agency:

Contact Person: _____

Street Address: _____

City: _____ Zip: _____

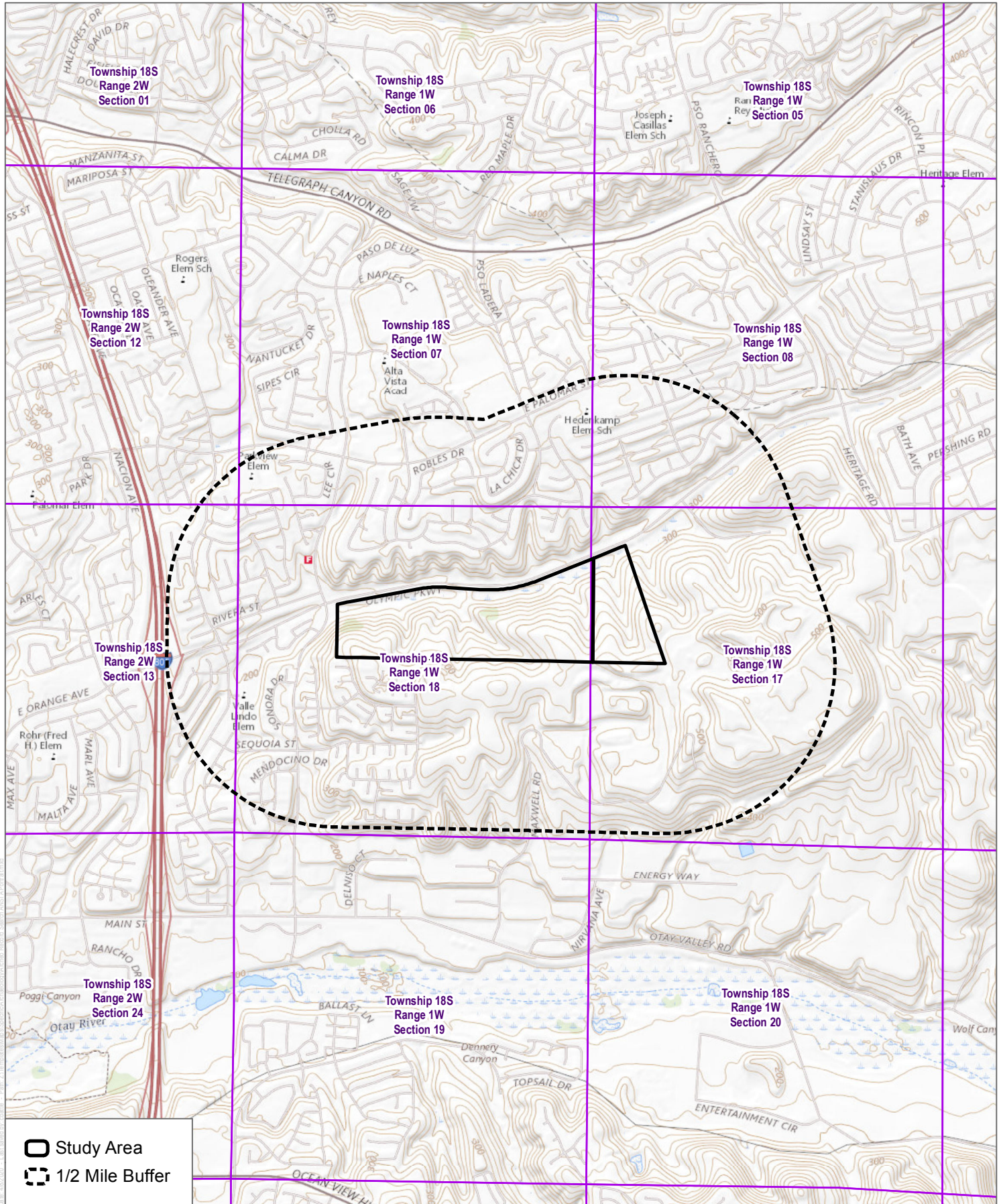
Phone: _____ Extension: _____

Fax: _____

Email: _____

Project Description:

____ Project Location Map is attached



SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle

APPENDIX C
(CONFIDENTIAL)
Museum Records Search Results

APPENDIX D

Key Personnel Resumes

Micah Hale, PhD, RPA

Senior Archaeologist

Micah Hale is Dudek's cultural resources practice manager and lead principal investigator, with technical expertise as a lithic and groundstone analyst, invertebrate analyst, and in ground penetrating radar. Over the course of his 23-year career, Dr. Hale has served as a principal investigator in the public and private sector for all levels of archaeological investigation, as a public outreach coordinator and as an assistant professor at the University of California (UC), Davis. As Dudek's cultural resources practice manager, he currently functions as a principal investigator in project oversight including proposals, research designs, fieldwork, artifact analysis, and report authorship.

Dr. Hale's experience is both academic and professional spanning California, Arizona, Nevada, and Oregon, including work for Naval Facilities Engineering Command (NAVFAC) Southwest, California Department of Transportation (Caltrans), Western Area Power Administration, Bureau of Land Management (BLM), U.S. Army Corps of Engineers (ACOE), U.S. Fish and Wildlife Service (USFWS), California State Parks, various city and county agencies, and directly for Native American groups.

Dr. Hale has supervised numerous large-scale surveys, test excavations, data recovery programs, and geoarchaeological investigations, served as a third-party review consultant, and an expert witness in legal proceedings. He has authored research designs, management and treatment plans, proposals, preliminary and final reports, and technical analyses. Dr. Hale has integrated his personal research interests into projects and participated in professional symposia at local and national venues, including the Society for American Archaeology and the Society for California Archaeology. Additionally, he has conducted academic research in the Polar Arctic, Greenland. Dr. Hale's current focus is on hunter-gatherer archaeology of California and the Great Basin, applying theoretical premises of cultural evolution and human behavioral ecology.

Dr. Hale currently assists in the preparation of technical descriptions and analyses for environmental impact statements and reports at the state and federal levels for Dudek projects. Examples of completed environmental sections include those prepared for the Yokohl Ranch, Rio Mesa Solar, Soitec Rugged and Tierra Del Sol Solar, San Diego Gas and Electric's (SDG&E) Wood to Steel project, and various others.



Micah Hale

Education

*University of California, Davis
PhD, Anthropology, 2009*

BS, Anthropology, 1996

*California State University,
Sacramento*

MA, Anthropology, 2001

Certifications

*Register of Professional
Archaeologists (RPA)*

Professional Affiliations

*Antelope Valley Archaeological
Society*

San Diego Archaeological Society

Society for American Archaeology

Society for California Archaeology

Project Experience

Development

Phase II Archaeological Data Recovery for the Newland Homes Sierra Project, San Diego County, California. As project manager and principal investigator, supervising data recovery investigations at two significant prehistoric archaeological sites and historic archival research of a homestead in support of the Newland Sierra Environmental Impact Report (EIR). (2013–Present)

Phase I Archaeological Inventory and Phase II Archaeological Evaluation for the Yokohl Ranch Project, Tulare County, California. As project manager and principal investigator, supervised completion of 12,000 acre survey and archaeological evaluation of 85 prehistoric and historical archaeological sites in support of the Yokohl Ranch EIR. (2012–2013)

Phase I Inventory and Phase II Cultural Resources Evaluation for the Star Ranch Project, RBF Consulting, San Diego County, California. As project manager and principal investigator, supervised CEQA inventory and evaluation for private development. (2011)

Phase II Archaeological Evaluation of Two Prehistoric Sites, Torrey Pines Glider Port, San Diego County, California. As project manager and principal investigator, supervised CEQA evaluation of two prehistoric archaeological sites for the Torrey Pines City Park General Development Plan. (2012)

Data Recovery of One Prehistoric Site for the Rhodes Property, Sea Breeze Properties, San Diego County, California. As project manager and principal investigator, supervised CEQA compliant data recovery of a large prehistoric site for a residential development.

Archaeological Survey of the Paramount Mine Exploratory Drilling Project, Essex Environmental, Mono County, Nevada. As principal investigator and field director, conducted archaeological survey for mining exploration and prepared the technical report. (2006)

Phase I Inventory of 1,544 Acres and Phase II Evaluation of Archaeological Sites along the Western and Northwestern Boundaries, Edwards Air Force Base, Kern County, California. As field director, supervised a Phase I inventory of 1,544 acres. Recorded 30 new archaeological sites, more than a dozen "sub-modern" refuse dumps, and a variety of isolate finds. Notable sites include several early Holocene lithic scatters (Lake Mojave-, Silver Lake-, and Pinto-age deposits), a rhyolite lithic quarry, and a complex of historic dumps associated with homesteading activities around Lone Butte. (2005)

Archaeological Survey of the La Mesa Meadows Residential Development Project, Helix Environmental, San Diego County, California. As principal investigator, conducted a survey of a proposed residential development in San Diego County. (2005)

Pankey Ranch Testing, Pardee Homes, Northern San Diego County, California. As field director, supervised excavation of shovel test pits to delineate the boundaries of site CA-SDI-682, the prehistoric village of Tom-Kav. Managed field personnel, conducted excavation, and wrote portions of technical report. (2004)

Oceanside Hilton EIR, Dudek Associates, Oceanside, San Diego County, California. As principal investigator and field director, conducted a survey of the proposed Hilton Hotel at the eastern end of Buena Vista Lagoon in Carlsbad and prepared portions of technical report for an EIR. (2004)

Data Recovery of Locus O, Star Canyon Development, Agua Caliente Band of Cahuilla Indians, Palm Springs, Riverside County, California. As field director, supervised field crews for data recovery mitigation of an archaeological deposit and human remains near Tahquitz Canyon. Coordinated with Native American representatives and prepared portions of the technical report. (2004)

Linda Vista Survey, City of San Marcos Planning Department, San Diego County, California. As field director, conducted a Phase I cultural resource inventory of the proposed road realignment in San Marcos. Prepared technical reports and made recommendations for additional work to be done within the project area. (2003)

Archaeological Monitoring for Williams Communications Fiber-Optic Line, Jones and Stokes Associates, San Luis Obispo and Bakersfield, Kern and San Luis Obispo Counties, California. As resource monitor/Native American coordinator, conducted archaeological monitoring for a fiber-optic cable installation project that spanned 180 miles from San Luis Obispo to Bakersfield. Identified and protected archaeological resources in the project area in compliance with state and federal regulations. Managed Native American monitors and coordinated daily work with construction and environmental staff to facilitate project completion. (2001)

Subsurface Survey of a Proposed Bicycle Path Along the Columbia River Slough in Northwest Portland, City of Portland, Multnomah County, Oregon. As field archaeologist, conducted auger testing in a variable north-to-south transect at 30-meter intervals, and unit mapping. (2000)

Phase II Test Excavations, AT&T, Portland, Multnomah County, Oregon, and Vancouver, Clark County, Washington. This project determined the presence and condition of any cultural resources in the project areas that were situated on the northern and southern sides of the Columbia River in Washington and Oregon. (1999)

AT&T Cable Removal Project, Jones and Stokes Associates, Taft to Los Angeles, Kern and Los Angeles Counties, California. As field archaeologist, conducted a survey to determine archaeological impact by the removal of a lead-lined subsurface cable. (1998)

Education

Data Recovery for the Palomar North and Meadowood Projects, Palomar College, San Diego County, California. As principal investigator, supervised Section 106 and CEQA-compliant data recovery of the ethnohistoric village of Tom-Kav. Expert witness for litigation of archaeological work for the client. (2012)

Data Recovery Excavations in Advance of Geotechnical Coring at W-12, University of California San Diego (UCSD), San Diego County, California. As project manager and principal investigator, supervised data recovery excavations in a midden dated as early as 9,600 years before present. (2009)

Archaeological Test Excavations at Selected Sites on Vandenberg Air Force Base, University of California, Davis, Lompoc, Santa Barbara County, California. As principal investigator and field director, supervised and instructed 21 students for the 2008 UC Davis Field School. (2008)

Archaeological Survey and Excavations in the Polar Arctic, University of California Davis, Northwest Greenland. As researcher, conducted a project for the National Science Foundation, National Geographic, and the Ingfieldland Polar Archaeology Expedition; UC Davis. (2006)

Energy

Phase II Evaluation of 19 Archaeological Sites for Soitec's Tierra Del Sol Solar Project, San Diego County, California. As principal investigator, oversaw and implemented significance evaluations, including fieldwork and documentation, under CEQA and San Diego County guidelines within the development footprint. (2012–2013)

Phase II Evaluation of 42 Archaeological Sites for Soitec's Rugged Solar Project, San Diego County, California. As principal investigator, oversaw and implemented significance evaluations, including fieldwork and documentation, under CEQA and San Diego County guidelines within the development footprint. (2012-2013)

Class III Cultural Resources Inventory for the Level 3 Fiber Optic Installation Project, Fort Irwin Army Reserve and BLM, San Bernardino County, California. As Project manager and co-principal investigator, oversaw and implemented cultural resource inventory of fiber optic corridor and recordation and evaluation of contributing elements to the NRHP-eligible LADWP transmission line corridor. (2012–2013)

Third-Party Compliance Monitoring for the Ocotillo Wind Energy Farm, Ocotillo, Imperial County, California. As principal investigator, oversaw and implemented compliance assistance to the BLM to ensure adherence to mitigation measures and proper treatment of cultural resources. (2012–2013)

Third-Party Compliance Monitoring for the Tule Wind Project, San Diego County, California. As principal investigator, oversaw and implemented compliance assistance to the Bureau of Land Management to ensure adherence to mitigation measures and proper treatment of cultural resources. (2012–2013)

Third-Party Compliance Monitoring for the East County Substation Project, San Diego County, California. As principal investigator, oversaw and implemented compliance assistance to the BLM and California Public Utilities Commission (CPUC) to ensure adherence to mitigation measures and proper treatment of cultural resources. (2012–2013)

Third-Party Compliance Monitoring for the Rio Mesa Solar Project, Riverside County, California. As principal investigator, oversaw and implemented compliance assistance to the BLM to ensure adherence to mitigation measures and proper treatment of cultural resources. (2012–2013)

Class III Cultural Resources Inventory for Soitec's Fort Irwin Solar Project, San Bernardino County, California. As project manager and co-principal investigator, oversaw and implemented cultural resources inventory. (2013)

Phase II Archaeological Testing of One Historic Site for the Cool Valley Solar Project, RBF Consulting, San Diego County, California. As project manager, supervised implementation of archaeological testing of a historic airfield near Campo. (2012)

Phase II Archaeological Testing of Four Prehistoric Sites for the Gildred Solar Project, RBF Consulting, San Diego County, California. As project manager, supervised implementation of archaeological testing of four small prehistoric sites along the ancient Lake Cahuilla shoreline. (2012)

Phase II Archaeological Testing of One Prehistoric Site for the Borrego A and B Solar Projects, RBF Consulting, San Diego County, California. As project manager, supervised implementation of archaeological testing of a large prehistoric habitation site in the Imperial Valley. (2012)

Phase I Cultural Resources Inventories for the Sol Orchard and Sol Focus Solar Projects, RBF Consulting, San Diego County, California. As project manager, supervised implementation of Phase I CEQA inventories for more than 22 solar projects. (2012)

Class II Survey of 4,700 Acres for the Silurian Wind Project, Iberdrola Renewables, San Bernardino County, California. As project manager and principal investigator, supervised Section 106 inventory of proposed renewable energy project. (2011)

Class III and Class II Cultural Resources Inventory for the Tule Wind Alternative Energy Project, HDR Engineering for Iberdrola Renewables, San Diego County, California. Serve as project manager and principal investigator. Supervised inventory of 6,000 acres and recordation of nearly 200 archaeological sites, and assisted the BLM in preparation of a programmatic agreement between Iberdrola and the California State Historic Preservation Office (SHPO). (2010)

Monitoring of the Installation of Meteorological (MET) Towers for the Tule Wind Project, HDR Engineering, San Diego County, California. As project manager and principal investigator, supervised archaeological and Native American monitors during MET tower installation in the Tule Wind project area. (2010)

Jamul Substation 6, SDG&E, Jamul, San Diego County, California. As field director, conducted an intensive pedestrian survey of 18 acres in Jamul for a proposed substation construction project. Identified and recorded two archaeological sites within the project area. Prepared the technical report. Coordinated with paleontology subconsultant and incorporated paleontology report into ASM's archaeology technical report. (2004)

Path 15 Transmission Line Corridor, Steigers Corporation, San Joaquin Valley, Fresno and Merced Counties, California. Served as field director. Supervised survey of over 87 miles of 400-foot transmission line corridor and over 46 miles of access roads in Merced and Fresno Counties. Supervised field crew, documented sites, coordinated with Native American representatives, coordinated access to survey areas, and prepared portions of technical report. (2004)

Carmel Valley Substation Survey, SDG&E, Carmel Valley, San Diego County, California. As field director, conducted a Phase I cultural resource inventory of a proposed power substation. (2003)

Federal

Ground-Penetrating Radar Survey and Class III Inventory for the Friendship Circle Project, Department of Homeland Security, Gulf South Research Corporation, San Diego County, California. As project manager and principal investigator, supervised and implemented a ground-penetrating radar survey and surface survey for the Friendship Circle project at Border Fields State Park, San Diego.

Healthcare

Kaiser Permanente Murrieta Valley Medical Center Preliminary Environmental Impact Report (PEIR), City of Murrieta, California. Acted as Principal Investigator on the Kaiser Murrieta project, overseeing a Phase I cultural resources inventory and Phase II archaeological significance evaluation of one prehistoric resource. Assisted the City with Tribal communication and analysis of potential impacts to a viewshed considered sensitive by local Native Americans. All studies were completed to comply with CEQA guidelines in support of an EIR.

Military

Phase II Evaluation of 31 High Complexity Sites on Edwards Air Force Base, CH2MHill/JT3, Kern and Los Angeles Counties, California. As project manager, oversaw Section 106 test excavations at 31 prehistoric archaeological sites. (2010)

Phase II Evaluation of 85 Archaeological Sites on Edwards Air Force Base, CH2MHill/JT3, Kern and Los Angeles Counties, California. As project manager and principal investigator, supervised Section 106 test excavations at 42 prehistoric and 43 historic archaeological sites. (2010)

Western Acquisition Survey, Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms, San Bernardino County, California. As principal investigator, managed the survey of 10,000 acres on land administered by the BLM in Johnson Valley, west of the base. Duties included project management, coordination with BLM Barstow field office and MCAGCC 29 Palms personnel, coordinating and supervising field crews, as well as document preparation. (2010)

Management Plan for the Coso Rock Art National Historic Landmark (NHL), Naval Air Weapons Station (NAWS) China Lake, Inyo County, California. As project manager, supervised and co-authored a management plan for the Coso Rock Art NHL, including arranging and implementing stakeholder meetings and field testing the implementation plan. (2010)

Section 110 Intensive Archaeological Survey of the Cole Flat Training Area, NAWS China Lake, Inyo County, California. As project manager and principal investigator, supervised the survey of 5,400 acres near the Coso Rock Art NHL. (2009)

Phase I Survey of Selected Parcels in Five Training Areas, MCAGCC Twentynine Palms, San Bernardino County, California. As project manager and principal investigator, supervised survey of 4,500 acres in the Blacktop, Lava, Lavic Lake, Sunshine Peak, and Quackenbush training areas. (2009)

Phase I Survey of Aerial Maneuver Zones for the 53 Aerial Maneuver Zone (AMZ) Project, MCAGCC Twentynine Palms, California. As project manager and principal investigator, supervised survey of 72 AMZ's. (2009) Client Reference: Leslie Glover, MCAGCC 29 Palms, 760.830.5369.

Cultural Resources Inventory and Evaluation for the Skaggs Island Defense Base Closure and Realignment Commission (BRAC) Disposal Archaeological Survey, Naval Communications Station, Sonoma County, California. As principal investigator, supervised survey of installation and recordation and evaluation of historic civilian and military resources. (2011–2012)

Phase I Survey of 8,100 Acres on Edwards Air Force Base, ACOE, Kern County, California. As principal investigator, supervised survey of 8,100 acres on Edward Air Force Base. (2008–2009)

Phase I and II Survey of 2,500 Acres and Evaluation of 50 Sites on Edwards Air Force Base, ACOE, Kern County, California. As principal investigator, supervised survey of 2,500 acres and evaluation of 50 sites on Edward Air Force Base. (2008)

Cultural Resources Inventory and Evaluation for the Concord Inland BRAC Disposal Archaeological Survey, Naval Weapons Station, Seal Beach, Detachment Concord, Contra Costa County, California. As principal investigator, supervised survey of 5,200 acres and recordation and evaluation of historic civilian and military resources, and prehistoric archaeological sites.

Archaeological Evaluation of Eight Prehistoric Sites in the Emerson and Quackenbush Training Areas, ACOE, MCAGCC Twentynine Palms, San Bernardino County, California. As field director, supervised excavation of eight prehistoric sites on the Marine Corps base in Twentynine Palms, California. (2005)

Archaeological Evaluation of 22 Sites on Edwards Air Force Base, ACOE, San Bernardino County, California. As field director, supervised the National Register evaluation of 22 sites at Edwards Air Force Base. (2005)

Naval Base Point Loma Site Recordation, NAVFAC Southwest (SW), Point Loma, San Diego County, California. As principal investigator and field director, supervised relocation of 33 sites located on Naval Base Point Loma. Reviewed site documentation and re-recorded sites that were improperly documented by past surveys. (2004)

Archaeological Testing of 23 Sites in the Las Pulgas Corridor, Marine Corps Base (MCB) Camp Pendleton Environmental Security, MCB Camp Pendleton, San Diego County, California. As field director, supervised field crews for Phase II testing and mechanical coring of 23 sites on Camp Pendleton. Coordinated with coring contractor and base personnel. Documented sites in the field. Supervised field crews and prepared portions of technical report. (2004)

Rose-Arizona, Clay, and Photo Drainage, and Road Improvement Surveys, NAVFAC SW, San Clemente Island, Los Angeles County, California. As field director, supervised archaeological surveys and the placement of protective signing on 750 sites. Coordinated access to the island and supervised one crew member. (2004)

Remote Sensing, NAVFAC SW, Naval Auxiliary Landing Field (NALF) San Clemente Island, Los Angeles County, California. As GPS specialist, conducted data collection and image rectification for a remote sensing project in the detection of archaeological sites on the base. Supervised one crew member. (2004)

MCB Camp Pendleton Burn Survey, MCB Camp Pendleton Environmental Security, MCB Camp Pendleton, San Diego County, California. As field director, supervised an archaeological survey of 1,500 acres in the De Luz and Case Springs areas of Camp Pendleton. Managed field crews, documented archaeological sites, prepared site forms and portions of technical report. (2002)

Survey of Yuma Stormwater Basin, NAVFAC SW, Marine Corps Air Station (MCAS) Yuma, Yuma County, Arizona. As field director, supervised survey of stormwater basin along the Marine Corps airfield at MCAS Yuma. Managed field crew and prepared technical report. Client (2002)

Archaeological Coring of the Red Beach Site (SDI-811), MCB Camp Pendleton Environmental Security, MCB Camp Pendleton, San Diego County, California. As field director, supervised first phase of a geologic coring project for a shell midden site along the coast of MCB Camp Pendleton, San Diego County. Coordinated with coring contractor and base personnel. Managed field monitors and field crew. (2002)

Archaeological Testing and Survey of the Lemon Tank Area, NAVFAC SW, NALF San Clemente Island, Los Angeles County, California. Conducted excavations, survey, and site recording. (2002)

Evaluation of Nine Prehistoric Sites, Edwards Air Force Base, San Bernardino County, California. As field archaeologist, evaluated nine sites through excavation to determine overall sensitivity and value of the archaeological remains that characterize the region. (1999)

Evaluation of Four Prehistoric Sites, Jones and Stokes Associates, Camp Roberts National Guard, San Luis Obispo County, California. As field technician, conducted excavation in order to determine the boundaries of the site for further mitigation. (1998)

Archaeological Survey and Excavation, ACOE, MCAGCC Twentynine Palms, San Bernardino County, California. As field archaeologist, participated in nine field rotations averaging 10 days each. Conducted survey of portions of the Marine Corps base to determine the distribution of cultural materials, and subsequently excavate sites based on priority. This area is characterized as high desert with the typically associated flora and fauna and archaeological sites that range in age from Early to Late Holocene. (1998)

Resource Management

South Sacramento Habitat Conservation Plan (HCP) EIR, County of Sacramento, California. Led the cultural resources effort on the South Sacramento HCP Project, including development of a long-term plan for analyzing cultural resources constraints and assisting multiple agencies in their tribal outreach obligations.

Archaeological Survey of the Silver Lake Recreation Area, El Dorado Irrigation District, California. As principal investigator and field director, supervised an archaeological survey of the Silver Lake Recreation area. (2006)

Archaeological Data Recovery Excavations at Border Fields State Park, California State Parks, Imperial Beach, San Diego County, California. As field director, supervised excavation of prehistoric sites located within the APE of a fence along the U.S.–Mexico Border in San Diego County. Prepared technical report. (2005)

Archaeological Salvage Excavations of Two Ollas in Hellhole Canyon, BLM, San Diego County, California. As principal investigator, relocated a cache of prehistoric ceramic artifacts uncovered during wildfires in San Diego County. Documented cache and collected artifacts for subsequent reconstruction in the ASM laboratory. Prepared technical report detailing project. (2005)

Archaeological Data Recovery Excavations at CA-SDI-16691, Jackson Pendo Development Company, Escondido, San Diego County, California. As principal investigator, supervised data recovery excavation at a Late Prehistoric site in Escondido, California. (2005)

El Cuervo Wetlands Mitigation, City of San Diego Land Development Review Department and Mitigation Monitoring Coordination, Carmel Valley, San Diego County, California. As co-principal investigator, supervised an archaeological monitoring project in central San Diego County, conducted test excavation of one site identified during monitoring. The site was evaluated as not significant. Prepared portions of technical report and supervised on-site monitor. (2004)

Milk Vetch Emergency, Imperial Irrigation District (IID), Imperial County, California. As archaeological monitor, conducted emergency monitoring along transmission line corridor in Imperial County. Coordinated with IID and construction personnel. Prepared technical report. (2002)

Burial Salvage Excavations at the Sucking Carp Site (CA-MER-295), Great Valley Grassland State Park, California Department of Parks and Recreation, Los Banos, Merced County, California. As field supervisor, directed excavations at CA-MER-295 in the central San Joaquin Valley in order to salvage cultural remains (including burials) from further destruction by the San Joaquin River. (1999)

Transportation

Ortega Highway Monitoring, City of San Juan Capistrano, Orange County, California. As project manager, supervised Dudek's principal investigator to coordinate archaeological, tribal, and paleontological mitigation monitoring associated with the construction of water conveyance facilities and road repairs. (2013)

Archaeological Testing and Ground Penetrating Radar Study of the Forester Creek Biological Mitigation Area, Caltrans District 11, Santee, San Diego County, California. As principal investigator and field director, supervised archaeological testing of a private parcel. (2005)

Rail Bridge (at mile marker 230.6) Replacement, North County Transit District, Agua Hedionda, Carlsbad, San Diego County, California. As principal investigator and field director, managed an archaeological survey of an APE associated with the replacement of and historic railroad bridge. Recorded archaeological sites within APE and prepared portions of technical report. (2004)

Little Lake Phase II Testing, Caltrans District 5, Little Lake, Inyo County, California. As field director, supervised Phase II testing of four sites including the ethnohistoric village of Pagunda near the town of Little Lake. Supervised field crews, coordinated fieldwork with Caltrans and subconsultants, and prepared portions of technical report. (2004)

Extended Phase I Testing, Caltrans District 05, Little Lake, Inyo County, California. As field director, supervised fieldwork for extended Phase I testing of one prehistoric site along U.S. Route 395 (US 395) in Inyo County. Prepared portions of technical report. (2003)

Cartago and Olancho Four-Lane Project Test Excavations, Caltrans District 05, Inyo County, California. Serve as field director. Supervised test excavations of 15 sites for the proposed widening of US 395 near Cartago and Olancho. Supervised all fieldwork and managed a team of 12 field archaeologists. Coordinated selected specialized studies, conducted ground stone analysis, and prepared large portions of the resulting 800-plus-page report. (2002)

Survey of Amtrak Second Mainline Right-of-Way, North County Transit District, Oceanside, San Diego County, California. As co-field director, managed an archaeological survey of 6.2 miles of North County Transportation District railroad right-of-way near San Onofre, California. (2002)

State Route 905 (SR 905) Survey, Caltrans District 11, San Diego County, California. Served as co-field director. Conducted survey and recorded sites along the SR 905 right-of-way in southern San Diego County. Documented three prehistoric sites within the proposed right-of-way. Created site maps and prepared site forms. (2002)

Evaluation of 11 Sites along US 395, Caltrans District 05, Blackrock, Inyo County, California. As crew chief, managed 6–18 personnel, prepared paperwork and report. Made decisions surrounding site excavations in Owens Valley. Project included Phase II test excavation of numerous sites ranging in age from early to late Holocene. (2002)

Phase I Survey, Caltrans District 10, Stockton, San Joaquin County, California. As field archaeologist, conducted various survey and excavation projects for Caltrans throughout central California. Conducted survey and excavation, operated as a graduate student assistant to the District 10 archaeologist dealing with compliance issues, prepared site mapping and technical reports including Archaeological Survey Reports (ASR), Historic Properties Survey Reports (HPSR), and Negative Declarations. (1997)

Phase I Survey/TEA, Caltrans, Inyo and Mono Counties, California. As field archaeologist, conducted survey of most major highways in Mono and Inyo Counties, California. Documented the distribution of all cultural material within the Caltrans right-of-way in order to determine impacts by road widening. (1996–1997)

Tribal

Section 106 Mitigation Development and Tribal Consultation Assistance, BLM, San Diego County, California. As project manager, assisted the BLM in development of Historic Properties Treatment Plan, Tribal Participation Plan, and other mitigation measures for the Tule Wind project, McCain Valley California. (2011–2012)

Mitigative Screening, Agua Caliente Band of Cahuilla Indians, Palm Springs, Riverside County, California. As field director, supervised archaeological mitigation of an impacted burial site on the Agua Caliente Reservation. Prepared mapping of the project, coordinated field efforts with Tribal representatives, oversaw monitoring of the project, and prepared portions of the technical report. (2003)

Water/Wastewater

San Clemente Water Recycling Monitoring, City of San Clemente, Orange County, California. As project manager, supervised Dudek's principal investigator to coordinate archaeological, tribal, and paleontological mitigation monitoring associated with the construction of a new water conveyance pipeline. Duties include preparation of a discovery and treatment plan. (2013)

Poseidon Resources Desalination Plant and Pipeline Monitoring, City of Carlsbad, San Diego County, California. As project manager, supervised Dudek's principal investigator to coordinate archaeological, tribal, and paleontological mitigation monitoring associated with the construction of the desalination plant and a new water conveyance pipeline. Duties include preparation of a discovery and treatment plan and evaluation of archaeological discoveries. (2013)

Lee Lake Cultural Resources Inventory, Lee Lake Water District, Riverside County, California, 2013. As project manager, supervised Dudek's principal investigator to coordinate and implement cultural resources inventory for the construction of a new pipeline and water storage facility.

Poseidon Resources Desalination Plant and Pipeline Wetland Mitigation Archaeological Evaluation, City of San Diego, San Diego County, California. As project manager and principal investigator, developed methods and strategies to evaluate archaeological deposits most likely related to the 1782 ethnohistoric Kumeyaay village of La Punta located within the wetland mitigation area. Project included geotechnical coring and backhoe exploration to locate and evaluate buried archaeological deposits. Duties included assistance provided to the USFWS for NAGPRA consultation and implementation. (2013)

Cultural Resources Monitoring for the City of Napa Levee Improvement Project, ACOE, Sacramento District, Sacramento, California. As principal investigator, supervised archaeological monitoring requiring HAZWOPER certified archaeologists to treat historical archaeological discoveries for a levee and stormwater improvement project. (2010–2011)

Data Recovery Excavations at the Ridge Hill Facilities Site (SDI-18472), Padre Dam Municipal Water District (PDMWD), San Diego County, California. As principal investigator, supervised data recovery of a complex late prehistoric habitation site. (2009)

San Clemente Canyon Survey, City of San Diego Metropolitan Wastewater Department, City of San Diego, San Diego County, California. As principal investigator and field director, supervised and conducted an intensive pedestrian survey of proposed access road maintenance for the San Clemente Canyon sewer line. Two cultural resources were identified. Conducted site documentation, prepared sites forms and technical report. Managed survey crew member. (2004)

Lake Murray Survey, City of San Diego Metropolitan Wastewater Department, La Mesa, San Diego County, California. As field director, conducted survey of proposed trunk sewer replacement in La Mesa. Prepared portions of the technical report. (2003)

Phase II Testing, IID, Imperial County, California. As field director, supervised Phase II testing of eight sites in the Colorado Desert. Managed field crews, conducted test excavations, and prepared site documentation and portions of the technical report. (2003)

Carmel Valley Archaeological Monitoring, City of San Diego Metropolitan Wastewater Department, Carmel Valley, San Diego County, California. As field monitor for pre-trenching for placement of sewer line, conducted monitoring and wrote portions of technical report. (2002)

Relevant Previous Experience

Teaching

- 2008: Assistant Professor, Archaeology, UC Davis
- 2008: Instructor/Principal Investigator, 2008 UC Davis Archaeology Field School, Vandenberg Air Force Base, California.
- 2005–2008: Level III Teaching Assistant, UC Davis; taught discussion sections/ lectures for Human Evolution, Archaeology, and Human Ecology
- 1998–1999: Acted as Public Education Coordinator for the Museum of Anthropology at UC Davis; included instructing a course teaching archaeology students how to inform the public about the value of anthropology through in-class presentations, exhibits, and the building of 'teaching trunks' for people in grades 1–12 of primary and secondary education

- 1997–1998: Substitute teacher with an Emergency Credential in the Woodland and Davis Joint Unified School Districts for grades K–12, all subjects excluding foreign languages
- 1997–Present: Regularly perform presentations about the value of archaeology in classrooms at the level of the grades 1–12
- 1996: Teaching assistant at the UC Davis archaeological field school; job duties included student management and instruction in the methods of excavation and survey.

Specialized Training

- 2012 – Accounting and Finance for Non-Financial Managers, UCSD Rady School of Business Management
- 2010 – ESOP Planning and Management, UCSD Rady School of Business Management
- 2004 – Ground Penetrating Radar Field Methods and Interpretation Certificate
- 2002, 2010 – GPS Field Methods Training, ASC Scientific

Publications

Hale, Micah J. 2012. “Malcolm Rogers’ Archaeology in Coastal San Diego.” Book chapter in preparation; edited by Don Laylander.

Hale, Micah J. 2011. “Modeling Socioeconomic Discontinuity in Southern Alta California.” In, *California Archaeology* 2:2: December 2010, pp. 203–250.

Hale, Micah J. 2010. “A Comment on Hildebrandt et al. (2009) Shellfish Transport, Caloric Return Rates, and Prehistoric Feasting.” In *California Archaeology* 3:111–113.

Hale, Micah J. 2009. *Santa Barbara and San Diego: Contrasting Adaptive Strategies in Southern California*. PhD dissertation; University of California, Davis.

Hale, Micah J. n.d. *Preserving Cultural Heritage Through Public Outreach: A Curriculum for Jr. High and High School*.

Hale, Micah J. 2005. *Processing Economies, Coastal Settlement, and Intensification in Northern San Diego County*. In *Proceedings of the Society for California Archaeology*, Volume 18.

Hale, Micah J. 2001. *Technological and Social Organization of the Millingstone Horizon in Southern California*. Master’s thesis; California State University, Sacramento.

Hale, Micah J. 2000. *Consumer Anthropology: Theory and Method of Recognizing and Interpreting Consumption Patterns for Product Development and Marketing Strategies*. Developed for Richard Knight, Director of Intelligent Products, Addidas, USA.

Hale, Micah J., Richard McElreath, and Robert Bettinger. 2012. (in prep.) *Modeling Time Minimizing and Energy Maximizing Adaptive Strategies*.

Hale, Micah J., and Peter Richerson. 2012. (in prep.) *Investigating the Rate-Limiting Factors of Cultural Evolution: Archaeological Evidence from Southern California*.

Hale, Micah J., and Bruce Winterhalder. 2012. (in prep.) *Discontinuous Sociocultural Evolution*

Selected Technical Reports

- Hale, Micah J. 2010. "Limited Archaeological Excavations at SDI-4669 (SDM-W-12A)." In Advance of Geotechnical Coring, University House Rehabilitation Project, University of California at San Diego, La Jolla, California. Submitted to Ione Stiegler Architecture, La Jolla, California. Report on file at South Coastal Information Center, SDSU.
- Hale, Micah J. 2010. Results of Archaeological Monitoring for Meteorological Masts in McCain Valley, San Diego County, California. Prepared for HDR Engineering Inc.
- Hale, Micah J. 2007. Archaeological Survey of the Silver Lake Recreation Area, El Dorado Irrigation District, El Dorado County, California. Prepared for Trish Fernandez, El Dorado Irrigation District, El Dorado County, California.
- Hale, Micah J. 2005. "Ground Stone Analysis." In From the Coast to the Inland: Prehistoric Settlement Systems Along the Las Pulgas Corridor, Camp Pendleton, California, by Micah J. Hale and Mark S. Becker. Report submitted to Southwest Division of Naval Facilities.
- Hale, Micah J. 2005. Cultural Resources Inventory for the Proposed San Diego Model Schools Development Project. ASM Affiliates Inc., Carlsbad, California. Prepared for the City of San Diego, California.
- Hale, Micah J. 2004. Cultural Resources Inventory for the Replacement of Bridge 230.6 over Agua Hedionda Lagoon, San Diego County, California. Submitted to North County Transit District, San Diego County, California.
- Hale, Micah J. 2004. Cultural Resources Inventory for the Gawle Property, San Diego County, California. Submitted to Helix Environmental for the City of San Diego.
- Hale, Micah J. 2004. Cultural Resources Inventory for the Hines Nursery, San Diego County, California. Submitted to Hines Nurseries, Rainbow Valley, California.
- Hale, Micah J. 2004. Cultural Resources Inventory for the San Clemente Canyon Trunk Sewer Maintenance and Access Routes, San Diego County, California. Submitted to Metropolitan Wastewater Department, City of San Diego, California.
- Hale, Micah J. 2004. Cultural Resources Inventory for the Montezuma Trunk Sewer Replacement, San Diego County, California. Submitted to Metropolitan Wastewater Department, City of San Diego, California.
- Hale, Micah J. 2004. Cultural Resources Inventory for the Oceanside Hotel EIR, San Diego County, California. Submitted to Dudek for the City of Oceanside, California.
- Hale, Micah J. 2004. Historic Resources Mitigation Monitoring of the El Cuervo Norte Project, San Diego County, California. Submitted to the City of San Diego.
- Hale, Micah J. 2004. Emergency Test Excavations of an Exposed Olla, Riverside County, California. Submitted to BLM, Riverside County, California.
- Hale, Micah J. 2004. Cultural Resources Monitoring for Geotechnical Coring Related to the All-American Canal Lining Project, Imperial County, California. Submitted to Imperial Irrigation District, Imperial County, California.
- Hale, Micah J. 2004. Cultural Resources Monitoring of Geotechnical Coring Related to the Coachella Canal Lining Project, Riverside County, California. Submitted to Imperial Irrigation District, Riverside County, California.
- Hale, Micah J. 2004. "Ground and Battered Stone Analysis." In Data Recovery Investigations at the Eucalyptus Site, CA-SDI-6954, San Diego County, California. Prepared by Don Laylander, ASM Affiliates Inc., Carlsbad, California. Submitted to EDAW Inc.

- Hale, Micah J. 2003. Cultural Resources Inventory for the Linda Vista Drive Re-Alignment Alternatives, City of San Marcos, California. Submitted to Nolte for the City of San Marcos.
- Hale, Micah J. 2003. Cultural Resources Inventory for the Lake Murray Trunk Sewer Replacement, San Diego County, California. Submitted to the Metropolitan Wastewater Department, City of San Diego, California.
- Hale, Micah J. 2000. Cultural Resource Monitoring Report. Jones and Stokes Associates Inc. Prepared for AT&T Corp., Atlanta, Georgia, for the AT&T cable removal project from Lucin, Utah, to Red Bluff, California.
- Hale, Micah J. 2000. "Ground and Battered Stone Analysis." In Report on Excavations at Four Locations in the Lead Mountain Vicinity of the Twentynine Palms Marine Base, edited by Mark Basgall. Sacramento Archaeological Research Center.
- Hale, Micah J. 2000. "Ground and Battered Stone Analysis." In Report on Excavations at CA-MER-295, edited by Mark Basgall and R. Bethard. Sacramento Archaeological Research Center.
- Hale, Micah J. 2000. "Invertebrate Analysis." In Report on Excavations at CA-MER-295, edited by Mark Basgall and Mark Giambastiani. Sacramento Archaeological Research Center.
- Hale, Micah J. 2000. "Site Reports for Sites SBR-9415 and SBR-9420." In Report on Excavations at Lead Mountain in Twentynine Palms Marine Corps Air Ground Combat Training Center, edited by Mark Basgall. Sacramento Archaeological Research Center.
- Hale, Micah J. 1999. "Ground and Battered Stone Analysis." In Muddle in the Middle: Phase II Excavations of Five Sites in Kern County, California, edited by Mark Basgall. Prepared for V. Levulett, Environmental Management, Caltrans District 5, San Luis Obispo. Sacramento Archaeological Research Center.
- Hale, Micah J., and Brad Comeau. 2009. Data Recovery Excavations at CA-SDI-18472 for the Proposed Padre Dam Municipal Water District Secondary Connection Project (Ridge Hill Facilities) Johnstown, San Diego County, California. Prepared for Mr. Albert Lau, Engineering Manager, Padre Dam Municipal Water District.
- Hale, Micah, Brad Comeau, and Chad Willis. 2010. Class II and Class III Cultural Resources Inventory Report for the Tule Wind Project, McCain Valley, San Diego County, California. Prepared for HDR Engineering Inc. Report on file at the South Coastal Information Center, SDSU.
- Hale, Micah J., and John R. Cook. 2005. Results of Ground Penetrating Radar Investigations at CA-SDI-10148 in the Forester Creek Biological Mitigation Site, San Diego County, California. With contributions by Jeffrey S. Patterson. Prepared for Chris White, Caltrans District 11.
- Hale, Micah J., and Mark S. Becker. 2006. From the Coast to the Inland: Prehistoric Settlement Systems Along the Las Pulgas Corridor, Camp Pendleton, California. ASM Affiliates, Carlsbad, California. Submitted to Southwest Division of Naval Facilities.
- Hale, Micah J., and Mark A. Giambastiani. 2010. A Cultural Resources Inventory for Sample Surveys in Selected Training Areas, Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, San Bernardino County, California. Prepared for Marine Air Ground Task Force Training Command, Natural Resources and Environmental Affairs, Twentynine Palms, California.
- Hale, Micah, and Mark Giambastiani. 2010. Archaeological Resources Survey Report Aerial Maneuver Zone (AMZ) Project at the Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center, Twentynine Palms, California, San Bernardino County, California. Prepared for Marine Air Ground Task Force Training Command, Natural Resources and Environmental Affairs, Twentynine Palms, California.

- Hale, Micah, and Mark Giambastiani. 2010. An Archaeological Survey of 3,650 Acres at Cole Flat, Naval Air Weapons Station (NAWS), China Lake, California. Prepared for Mike Baskerville, Base Archaeologist, NAWS China Lake, California.
- Hale, Micah J., Mark Giambastiani, Michael Richards, and David Iversen. 2009. Phase II Cultural Resource Evaluations at 51 Archaeological Sites in Management Regions 1A, 1B, 2B, 2C, and 3E, Bissell Hills and Paiute Ponds, Edwards Air Force Base, Kern and Los Angeles Counties, California. Prepared for U.S. Army Corps of Engineers under contract numbers W91238-07-F-0051 and W91238-07-F-0052.
- Basgall, Mark, Lynn Johnson, and Micah Hale. 2002. An Evaluation of Four Archaeological Sites in the Lead Mountain Training Area, Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center, Twentynine Palms, California. Prepared for United States Marine Corps Air Ground Combat Center, Twentynine Palms, California. Prepared by Archaeological Research Center, Institute of Archaeology and Cultural Studies, Department of Anthropology, California State University, Sacramento.
- Becker, Mark S., and Micah J. Hale. 2004. "Flaked Stone and Ground Stone Artifact Analysis." In Phase II Archaeological Testing and Evaluation of CA-INY-3647, CA-INY-3650/H, CA-INY-3826, and P-14-7356, Little Lake Rehabilitation, U.S. 395, Inyo County, California, edited by Brian Byrd and Seetha Reddy, ASM Affiliates. Prepared for Caltrans District 6, Fresno.
- Byrd, Brian F., and Micah J. Hale. 2005. Testing and Evaluation of CA-SDI-13,930 on Camp Pendleton Marine Corps Base, San Diego County, California: A Paleoenvironmental Approach. ASM Affiliates, Carlsbad, California. Prepared for Southwest Division Naval Facilities Engineering Command.
- Byrd, Brian F., and Micah J. Hale. 2004. Final Report on the Rose-Arizona Site Survey and Documentation, San Clemente Island. Prepared for Dr. Andrew Yatsko, NAVFAC SW, South Bay Area Focus Team.
- Byrd, Brian F., and Micah J. Hale. 2004. Final Report on the San Clemente Island Protective Signing and Maintenance Project. Prepared for Dr. Andrew Yatsko, NAVFAC SW, South Bay Area Focus Team.
- Byrd, Brian F., and Micah J. Hale. 2004. Final Report on the San Clemente Island Road Improvement Survey. Prepared for Dr. Andrew Yatsko, NAVFAC SW, South Bay Area Focus Team.
- Byrd, Brian F., Micah J. Hale, and Sinéad Ní Ghabhláin. 2004. "Archaeological Testing at INY-3647." In Phase II Archaeological Testing and Evaluation of CA-INY-3647, CA-INY-3650/H, CA-INY-3826, and P-14-7356, Little Lake Rehabilitation, U.S. 395, Inyo County, California, edited by Brian Byrd and Seetha Reddy, ASM Affiliates. Prepared for Caltrans District 6, Fresno.
- Byrd, Brian F., Micah J. Hale, and Sinéad Ní Ghabhláin. 2004. "Archaeological Testing at INY-3650/H." In Phase II Archaeological Testing and Evaluation of CA-INY-3647, CA-INY-3650/H, CA-INY-3826, and P-14-7356, Little Lake Rehabilitation, U.S. 395, Inyo County, California, edited by Brian Byrd and Seetha Reddy, ASM Affiliates. Prepared for Caltrans District 6, Fresno.
- Byrd, Brian F., Micah J. Hale, and Sinéad Ní Ghabhláin. 2004. Archaeological Testing at INY-3826. In Phase II Archaeological Testing and Evaluation of CA-INY-3647, CA-INY-3650/H, CA-INY-3826, and P-14-7356, Little Lake Rehabilitation, U.S. 395, Inyo County, California, edited by Brian Byrd and Seetha Reddy, ASM Affiliates. Prepared for Caltrans District 6, Fresno.
- Byrd, Brian F., and Micah J. Hale. 2003. Final Report on Extended Phase I Excavation at CA-INY-2207/2758, Little Lake Rehab Project, Inyo County, California. ASM Affiliates, Encinitas. Prepared for Lynn Faraone, Chief, Central California Cultural Resource Branch, California Department of Transportation.

- Byrd, Brian F., and Micah J. Hale. 2002. Phase II Investigations of 15 Prehistoric Sites for the Cartago-Olancho Four-Lane Project, U.S. 395, Owens Valley, California. ASM Affiliates Inc. Prepared for Caltrans District 6, Fresno.
- Byrd, Brian F., and Micah J. Hale. 2001. Research Design for Phase II Investigations of 14 Prehistoric Sites for the Cartago-Olancho Four-Lane Project, U.S. 395, Owens Valley, California. ASM Affiliates Inc. Prepared for Caltrans District 6, Fresno.
- Cook, John R., Collin O'Neill, and Micah J. Hale. 2001. Archaeological Survey for the Amtrak Second Main Line, San Onofre Segment, MP 210.1 to 214.7, San Diego County. ASM Affiliates Inc. Draft report prepared for North County Transit District.
- Giambastiani, M., M. Hale, M. Richards, and S. Shelley. 2008. Draft Report Phase II Cultural Resource Evaluations at 47 Archaeological Sites on the East and Northeast Shores of Rogers Lake, Management Region 3, Edwards Air Force Base, Kern and Los Angeles Counties, California. Report submitted to Edward Air Force Base, Base Historic Preservation Officer.
- Giambastiani, G., M. Hale, S. Ni Ghabhláin, and D. Iversen. 2006. Phase II Cultural Resource Evaluation of 21 Archaeological Sites along the Western and Northwestern Boundary Fence, Edwards AFB, Kern and Los Angeles Counties, California. Submitted to Earth Tech Inc., Colton, California.
- Hector, Susan, Micah J. Hale, and Catherine Wright. 2003. Cultural Resource Inventory of the Path 15 Los Banos-Gates Transmission Line Construction Project, Merced and Fresno Counties, California. Contract No. 03-186-01-01-ASM. Prepared for Steigers Corporation, Littleton, Colorado.
- Laylander, Don, and Micah J. Hale. 2004. Data Recovery Excavations at Locus O, CA-RIV-45. ASM Affiliates Inc., Carlsbad, California. Submitted to Agua Caliente Band of Cahuilla Indians.
- Reddy, Seetha N., and Micah J. Hale. 2003. Archaeological Survey of Portions of the De Luz Housing Area, O'Neill Lake, and the Case Spring Highlands, Marine Corps Base Camp Pendleton, California. ASM Affiliates, Encinitas, California. Prepared for NAVFAC SW, San Diego, California.
- Whitley, David, and Micah Hale. 2010. Management Plan for the Coso Rock Art District National Historic Landmark. Prepared for NAVFAC SW, San Diego County, California.

Editorial Review

- Hale, Micah J. 2011. Editorial Reviewer, *Journal of California Archaeology*, Left Coast Press, California.
- Hale, Micah J. 2011. Editorial reviewer, *Journal of California and Great Basin Anthropology*, Malki Museum Press, California.
- Hale, Micah J. 2010. Editorial reviewer, *Pacific Coast Archaeology Society*, California.

Presentations

- Hale, Micah J. 2012. *The Data Matter: Contributions of the Sacramento State Archaeological Research Center*. Presented at the 2012 Society for California Archaeology Meetings, San Diego, California.
- Hale, Micah J. 2012. *Andy Yatsko, the Human Transit: Celebrating His Lifetime Contributions*. Presented at the 2012 Society for California Archaeology Meetings, San Diego, California.
- Hale, Micah J. 2012. *Malcolm Rogers' Work Along the San Diego Coast*. Presented at the 2012 Society for California Archaeology Meetings, San Diego, California.

- Hale, Micah J. 2011. *Tracing the Origins of Processing Economies in the Far West: A View from Coastal Southern California*. Presented at the Yucca Valley Archaeopalooza Conference, 29 Palms, California.
- Hale, Micah J. 2011. *Adaptive Divergence Among Southern California Hunter Gatherers*. Presented at the 2011 Society for California Archaeology Meetings, Rohnert Park, California.
- Hale, Micah J. 2011. *A 10,000 Year Old Habitation at the University House, La Jolla: Implications for Trans-Holocene Socioeconomic Stability in San Diego*. Presented at the 2011 Society for American Archaeology Meetings, Sacramento, California.
- Hale, Micah J. 2010. *Using the Ideal Free Distribution to Model Socioeconomic Discontinuity Among Hunter-Gatherers*. Paper presented at the 2009 Society for American Archaeology Meetings, St. Louis, Missouri. Micah Hale, Symposium Chair.
- Hale, Micah J. 2005. *Investigating the Role of Acorns in Southern California Hunter-Gatherer Economies*. Guest Speaker at the Antelope Valley Archaeological Society Meeting.
- Hale, Micah J. 2005. *Processing Economies, Coastal Settlement, and Intensification in Northern San Diego County*. Presented at the Society for California Archaeology, Sacramento.
- Hale, Micah J. 2004. *Cultural Resource Management in Practice: An Overview of Methodological Approaches*. Presented at the Imperial Valley Desert Museum Annual Meetings.
- Hale, Micah J. 2003. *The Adaptive Significance of Technological Organization during the Holocene in Southern California*. Discussant in a symposium entitled, *Change and Cultural Adaptations Along the California Coast*. Organized by Seetha Reddy for the 68th Annual Meetings of the Society for American Archaeology, Milwaukee, Wisconsin. David Yesner and Roger Colten, Chairs.
- Hale, Micah J. 2003. *The Organization of Subsistence Technology in Southern California During the Holocene*. Guest Speaker for the San Diego County Archaeological Society, January 28, 2003, San Diego.
- Hale, Micah J. 2002. *Prehistory Along the Southwestern Shore of Owens Lake: Preliminary Results from the Cartago-Olancho Project*. Presented at the 2002 Northern California Data Sharing Meetings, Society for California Archaeology, Santa Cruz, California.
- Hale, Micah J. 2002. *Ground and Battered Stone Along the Western Shores of Owens Lake*. Presented at the 2002 Northern California Data Sharing Meetings, Society for California Archaeology, Santa Cruz, California.
- Hale, Micah J. 2001. *Technological and Social Organization during the Millingstone Horizon of Southern California*. Presented at the Society for California Archaeology Annual Meeting, Modesto.
- Hale, Micah J. 1999. *The Analysis Method of Formatting Presentations and Lesson Plans in Archaeology*. Presented at the Society for American Archaeology 64th Annual Meeting, Chicago, Illinois.
- Hale, Micah J. 1998. *A Practical and Effective Method for Teaching Archaeology to the Public*. Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

Awards

- 2010: NAVFAC SW, Camp Pendleton, Research Grant, \$59,000
- 2008: U.S. Air Force, Vandenberg AFB, Radiocarbon Grant, \$25,000
- 2008: Fieldwork Fellowship, Graduate Studies, UC Davis, \$2,010
- 2007: Fieldwork Fellowship, Graduate Studies, UC Davis, \$1,800
- 2006: Fieldwork Fellowship, Graduate Studies, UC Davis, \$5,650
- 2005–2009: Graduate Fee Fellowship/Stipend, UC Davis, \$74,500

Clearances

- Department of Defense (DoD) High-Security Clearance for SPAWAR, Naval Base Point Loma, NALF San Clemente Island, Vandenberg Air Force Base, MCAGCC Twentynine Palms, Edwards Air Force Base, NAWS China Lake, Yuma Proving Grounds, and MCB Camp Pendleton

Sarah Siren

Senior Paleontologist

Sarah Siren is a senior paleontologist with 20 years' experience as a paleontological resources consultant. Ms. Siren has served as paleontologist for numerous projects throughout California, with extensive experience in Imperial, Orange, Riverside, Los Angeles, San Bernardino, and San Diego Counties. These projects involved multiple agencies, public and private sector clients, a variety of resources, and multidisciplinary staff supervision. She specializes in California Environmental Quality Act (CEQA) and Bureau of Land Management (BLM) compliance standards. She taught at Saddleback Community College in Mission Viejo, California as an associate geology professor, and worked as a curatorial assistant with the Natural History Museum of Los Angeles County and, more recently, as a field manager with the San Diego Natural History Museum.

Ms. Siren has conducted studies at both the Smithsonian Institution and Badlands National Park, and supervised as lead research scientist for various field activities, curation projects, and laboratory preparations. Her diverse experience includes recovering, identifying, mapping, and preparing fossils. Ms. Siren is able to effectively manage projects and complete deliverables from assessments to final technical reports in a timely manner.

Project Experience

Development

Kettner Lofts Project, Citymark Development, City of San Diego, California. As project manager and principal investigator, responsible for cultural resources construction monitoring during construction of this residential complex located in Little Italy.

Poinsettia 61 Project, Lennar, City of Carlsbad, California. As project manager and paleontologist, provided paleontological resources mitigation services for this residential project.

Double D Mine, County of Riverside, California. Responsible for cultural and paleontological resources management of surveys and reporting on this 611-acre mine near Blythe. Deliverables were accepted and approved by the County of Riverside.

Tejon Mountain Village, Tejon Mountain Village, LLC, County of Kern, California. Responsible for paleontological resources monitoring during geotechnical drilling within a portion of this 28,000-acre master planned community.



Sarah Siren

Education

South Dakota School of Mines and Technology

MS, Paleontology, 2002

George Washington University

BS, Geology, 1999

BA, French Language and Literature, 1999

Certifications

Geologist-in-Training, No. 167 California

Certified GIS Professional (GISP)

40-hour HAZWOPER Training

Qualified Paleontologist, City of San Diego and Counties of Kern, Los Angeles, Orange, Riverside, San Diego, and San Luis Obispo

Affiliations

Natural History Museum of Los Angeles County, Museum Associate

Society of Vertebrate Paleontology

Heather Lane Corti Residence, City of Del Mar, California. As project manager and principal investigator, responsible for cultural and paleontological resources construction monitoring for residential development located in the City of Del Mar.

1902 Grandview Street, City of Oceanside, California. Provided a paleontological resources review for the tentative tract map location, including management considerations and recommendations.

Winchester 1800 Project, City of Temecula, California. Project manager and principal investigator responsible for a paleontological resources survey and report prepared for this development located in the City of Temecula. Also provided editorial comments on the cultural resources report for the same project.

Mira Loma Commerce Center, County of Riverside, California. Project manager and principal investigator, responsible for cultural and paleontological resources monitoring during the construction of two commercial buildings on 31 acres and completion of a final technical report.

Otay Ranch, Parcels B (Village 8 West) and C (Village 9), Otay Land Company, City of Chula Vista, California. As field manager and co-principal investigator, conducted the pedestrian field survey of an approximately 600 acre site in the City of Chula Vista. Also co-authored the paleontological assessment for the project.

Olympic Pointe (East and West) Project, Alta Geotechnical Inc., City of Chula Vista, California. As field manager and co-principal investigator, responsible for oversight of field studies conducted as part of the paleontological mitigation program for the project. The findings of this paleontological mitigation program were included in a final technical report co-authored by Ms. Siren.

Education

Fullerton College Master Plan Program EIR, North Orange County Community College District, Cypress, California. Paleontologist for the Facilities Master Plan Program EIR. Issues include historic building preservation, traffic, and parking, and adjacent neighbor concerns associated with noise, traffic, parking, and growth inducement.

San Ysidro School District (SYSD) Vista Del Mar School, RBF, County of San Diego, California. As field manager and co-principal investigator, responsible for preconstruction WEAP training and supervision of paleontological monitoring program for the project. A series of fossil producing strata were discovered and collected from approximately 2–3 million year old San Diego Formation consisted of significant fossil remains of marine invertebrates.

Thomas Jefferson School of Law Project, Thomas Jefferson School of Law, City of San Diego, California. As field manager, conducted multiple fossil salvages for this East Village project site. A mammoth skull, tusks, and partial skeleton were recovered and are currently awaiting preparation. In addition, a partial gray whale (*Eschrichtius robustus*) skeleton was discovered at the site and is housed at the museum's storage facility.

Coast Community College District, County of Orange, California. As project manager and co-principal investigator, conducted the field surveys and prepared the paleontological resources assessments for Orange Coast College, Golden West College, and Coastline Community College for submittal to Dudek.

Energy

Jacumba Solar, County of San Diego, California. Served as senior paleontologist. Provided paleontological resources recommendations and guidelines during the design phase, and oversight during mitigation monitoring.

California Flats Solar Project, First Solar/NextEra, Counties of Monterey and San Luis Obispo, California. As project manager and principal investigator, supervised the cultural and paleontological resources mitigation program in accordance with the mitigation measures and treatment plan for the project.

California Valley Solar Ranch Project, NRG/Sun Power, County of San Luis Obispo, California. As field manager and co-principal investigator, supervised the paleontological mitigation program in accordance with the paleontological monitoring and treatment plan for the project.

Sunrise Powerlink, SDG&E, Counties of San Diego and Imperial, California. As field manager and co-principal investigator, responsible for implementation of the field mitigation program for the project. Additionally, aided in the preparation of the SDG&E Sunrise Powerlink Paleontological Records Search, Monitoring and Treatment Plan, and co-authored Final Technical Report on paleontological resources for submittal to the BLM.

Paleontological Services On-Call Contract, SDG&E, Counties of San Diego and Imperial, California. As field manager investigator, responsible for oversight of paleontological monitoring being conducted as part of several work orders for SDG&E. Over thirty work orders ongoing or completed under the on-call contract. Also responsible for co-authoring final project reports (both mitigation and assessment).

Imperial Irrigation District (IID) Imperial to Dixieland 230 kilovolt Transmission Line and Expansion of Dixieland Substation, AECOM, County of Imperial County, California. As field manager and co-principal investigator, responsible for field studies oversight and preparation of the paleontological assessment report. The paleontological assessment program included completion of a paleontological records search and literature review, completion of a field survey, and preparation of a final report summarizing findings and proposing appropriate mitigation measures to reduce potential adverse impacts to a level below significance. The findings of this paleontological assessment report indicated that the potential adverse impacts to a variety of marine and non-marine sedimentary rocks could be avoided.

SCG Imperial Valley Loop, Insignia Environmental, City of Brawley, California. As field manager, responsible for oversight of monitoring and fossil salvage being conducted on site by another consultant. Mitigation efforts consisted of monitoring during mass grading activities, recovery of fossils discovered, laboratory preparation and curation of fossils, and preparation of the final report. A series of fossil producing strata were discovered and collected from ~14,000 to 7,000 year old lacustrine sedimentary rocks ancient Lake Cahuilla. Recovered fossils consisted of significant fossil remains of late Pleistocene- to early Holocene-age marine invertebrates.

Municipal

Block 4N (North Encanto) Project, City of San Diego, California. As project manager and principal investigator, responsible for archaeological and paleontological monitoring for underground conduit system installation by San Diego Gas and Electric (SDG&E) for the City of San Diego in the neighborhood of Encanto. A marine mollusk and vertebrate assemblage was recovered from the San Diego Formation. Served as the primary author of the report. Specimens were prepared and curated according to the City of San Diego and the San Diego Natural History Museum's guidelines for paleontology.

Palm Springs Waste Water Treatment Plant, City of Palm Springs, California. Project manager and principal investigator, responsible for preparation of a field survey report, paleontological resources monitoring program, and final report for this construction project.

Transportation

California High-Speed Rail Project Construction Package 2-3, Fresno to Bakersfield, Dragados/Flatiron Joint Venture, Fresno to Bakersfield, California. Managed cultural and paleontological resource staff on the Fresno to Bakersfield Section of the project. Responsible for Worker Environmental Awareness Program (WEAP) training and Paleontological Resources Mitigation and Monitoring Plan (PRMMP) consistent with the Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) created for the project.

Mid-Coast Corridor Transit Project, City of San Diego, California. As project manager and principal investigator, responsible for cultural and paleontological resources construction monitoring during excavation for this San Diego Association of Governments (SANDAG) project.

San Elijo Lagoon Double Track Project, AECOM, City of Encinitas, California. As project manager and principal investigator, responsible for cultural and paleontological resources construction monitoring during excavation on this SANDAG project.

Old Otay Mesa Road Improvement Project, City of San Diego, California. As project manager and principal investigator, responsible for cultural and paleontological resources construction monitoring during excavation on this City of San Diego project.

Pelandale Avenue Alternative Infiltration Trench Structure (SITS) Pilot Study Project, County of Stanislaus, California. Co-authored the paleontological identification report for the Caltrans District 6. Consulted with Caltrans on the field survey results and made recommendations for future mitigation monitoring in accordance with the Standard Environmental Reference for Paleontology.

Keller Road and I-215 Interchange Project, Jacobs Engineering and California Department of Transportation (Caltrans), City of Murrieta, California. As project manager and principal investigator for cultural and paleontological resources on this interchange project for the City of Murrieta, conducted the field survey and drafted a report in accordance with the Caltrans Standard Environmental Reference.

Mid-City Bus Rapid Transit Project, City of San Diego, California. Co-authored the paleontological evaluation report for the Caltrans District 11. Completed the field survey for the study, and made recommendations for future mitigation monitoring in accordance with the Standard Environmental Reference for Paleontology. Responsible for WEAP training preconstruction and paleontological resources monitoring during excavation by Granite Construction on this SANDAG project.

Paleontological Services On-Call Contract, Caltrans, Counties of San Diego and Imperial, California. As field manager investigator, responsible for oversight of paleontological monitoring being conducted as part of Caltrans road improvement projects along the SR-52, SR-76, SR-78, SR-94, SR-805, SR-905, and I-15 freeways. Numerous concurrent work orders were issued and completed under the on-call contract. Also responsible for co-authoring final project reports (both mitigation and assessment).

SR-210 Mixed Flow Lane Addition from Highland Avenue to San Bernardino Avenue, County of San Bernardino, California. Conducted field survey and co-authored the Paleontological Identification and Evaluation Report for submittal to Caltrans District 8.

I-15/Limonite Avenue Interchange Improvements Project, County of Riverside, California. Conducted field survey and co-authored the Paleontological Identification and Evaluation Report for submittal to the California Department of Transportation (Caltrans) District 8.

SR-76/I-15 Interchange Improvement Project, Caltrans, City of San Diego, California. During grading by Flatiron Construction for the Caltrans District 11 roadway improvements to the SR-76/I-15 interchange, field manager responsible for recovery of a nearly complete skull and postcrania of a long-horned bison (*Bison latifrons*).

Water/Wastewater

Carlsbad Desalination Plant and Pipeline, Poseidon Water LLC, County of San Diego, California. As field manager and co-principal investigator for paleontological resources, managed field personnel and fossil recovery efforts during construction of this multi-year project.

Otay Water Treatment Plant, ICF International Inc., County of San Diego, California. As field manager and co-principal investigator, Ms. Siren co-authored the paleontological resources final technical report which was accepted by the Otay Water District. She was also responsible for supervising the paleontological monitoring on this project located in eastern San Diego County, California.

North City Pure Water Conveyance Project, City of San Diego, California. Served as project manager and principal investigator on this public works project. Responsible for managing cultural and paleontological resources studies for a new underground pipeline with improvements to existing infrastructure.

Cultural Resources Support for Master Stormwater System Maintenance Program (MSWSMP), County of San Bernardino, California. As project manager and principal investigator for paleontology, responsible for the review and edit of the paleontological resources assessment of approximately 500 flood control facilities within San Bernardino County. The scope of services included providing a mitigation monitoring plan should monitoring and collection of paleontological resources be necessary.

Little Lake Line B Town Drain System Construction Project, Riverside County Flood Control and Water Conservation District, California. Served as project manager and principal investigator on this public works project. Responsible for managing cultural and paleontological resources monitoring for a new underground pipeline.

North Broadway Pipeline, City of Escondido, California. Served as principal investigator and paleontologist on this project. Managed mitigation monitoring project for this water pipeline project traversing Quaternary older alluvial deposits within the City of Escondido.

Los Angeles Department of Power and Water (LADWP) Path 46 Transmission Line Project, Environmental Science Associates (ESA), County of San Bernardino County, California, and Clark County, Nevada. As project manager and principal investigator, reviewed the final survey report for submittal to the client. Co-authored annual report for submittal to the BLM.

San Vicente Dam Raise Project, San Diego County Water Authority (SDCWA), County of San Diego, California. As field manager and co-principal investigator, Ms. Siren conducted the field survey and co-authored the paleontological resources assessment report.

South Orange County Water Authority (SOCWA) Coastal Treatment Plant, County of Orange, California. As field manager and co-principal investigator, conducted the field survey and co-authored the paleontological resources assessment report.

Holly Hills Storm Drain Project, Los Angeles Department of Public Works, Los Angeles County, California. As project manager and paleontologist, responsible for providing on-call paleontological monitoring. The scope of services included providing on-site monitoring and collection of archaeological or paleontological resources found. Evaluated and prepared salvaged fossils in compliance with CEQA guidelines. Wrote quarterly reports on the findings.

Specialized Training

- Geology field course, Lehigh University, 1999.

Publications

- Black, S.A., C.L. Herbel, and R.C. Benton. 2001. "Bone Beds in the Lower Scenic Member, Brule Formation (*Oligocene*), Badlands National Park, South Dakota." Abstract. Poster presentation at the Sixty-First Annual Society of Vertebrate Paleontology Meeting, Bozeman, Montana.
- Deering, M.R., L.G. Barnes, S.A. Siren, S.A. McLeod, M.O. Walsh, and K.R. Rice. 2007. "A Fossil Ziphiid Whale (Cetacea: Odontoceti) from the Latest Miocene Capistrano Formation in Southern Orange County, California." Los Angeles, California: Southern California Academy of Sciences.
- Deering, M.R., M.L. Kearin, S.A. Black, and L.G. Barnes. 2004. "An Archaic Baleen-Bearing Mysticete Whale Resembling *Eomysticetus* from the Lower Miocene Vaqueros Formation in Southern California." Abstract. Western Association of Vertebrate Paleontologists, Annual Meeting, Occidental College. February 14, 2004.
- Deméré, T.A., K.A. Randall, B.O. Riney, and S.A. Siren. 2013. Forthcoming. "Discovery of remains of an extinct giant bison (*Bison latifrons*) in Upper Pleistocene (Rancholabrean) fluvial strata in the San Luis Rey River Valley, San Diego County, California, USA." In *Alternative Rocks: The Geology and Natural Resources Above and Below the San Luis Rey River Valley, Northern San Diego County, California*, edited by B. Olson. San Diego, California: San Diego Association of Geologists Field Trip Guide.
- Herbel, C.L., R.C. Benton, and S.A. Black. 2002. "Bone Bed Surveys: Making Use of the Data." Abstract. Geological Society of America Annual Meeting, Abstracts with Programs 34, no. 6, paper no. 237-5.
- Santos, Comer, K. S. Siren, A. Nouri, T. Deméré, and Randall, K. 2010. "Paleontological Sensitivity Map for San Diego County: A Categorical Risk Analysis." ESRI Users Conference, Map Gallery Poster.
- Siren, S.A. 2006. "Site Analysis of the Buffalo Alley Bone Bed Located in the Lower Scenic Member of the Brule Formation (*Oligocene*), Badlands National Park, South Dakota." Abstract. Poster presentation at the Sixty-Sixth Annual Society of Vertebrate Paleontology Meeting, Ottawa, Ontario, Canada.

Awards

San Diego Natural History Museum Staff Appreciation Award, 2012.

South Dakota School of Mines and Technology Award for Outstanding Contributions to Campus Leadership, April 2001 and 2002.

¹ Née S.A. Black.

Michael Williams, PhD

Senior Paleontologist

Michael Williams is a paleontologist and crossed-trained archaeological field technician with over 18 years' experience with fieldwork, fossil vertebrate specimen processing, and writing of reports for the U.S. Army Corps of Engineers (ACOE) and private and public entities. Dr. Williams has project experience in all aspects of paleontological mitigation, including Phase I preconstruction surveys and report preparation and writing paleontological mitigation plans, initial studies (ISs)/mitigated negative declarations, and environmental impact reports (EIRs). He also has experience attending pre-grade meetings; preparing and presenting on-site Worker Environmental Awareness Programs (WEAPs); monitoring for paleontological resources and supervising paleontological monitoring; coordinating spot checks and monitoring with construction superintendents and foremen; collecting and processing sediments for vertebrate microfossils, writing final monitoring reports; and accessioning fossils to the Natural History Museum of Los Angeles County, San Bernardino County Museum and the Cooper Center in Orange County. Dr. Williams has California Department of Transportation (Caltrans), Bureau of Land Management (BLM) and private company paleontological mitigation experience in San Diego, Imperial, Orange, Los Angeles, Riverside, San Bernardino, Ventura, Kern, Inyo, Fresno, San Francisco, and Alameda counties. In addition, he has worked as a cross-trained archaeological surveyor and monitor on several field projects.



Michael Williams

Education

*Louisiana State University
PhD, Geology and Geophysics,
2009*

BS, Zoology, 2002

Certifications

*Qualified Paleontologist; Orange,
Riverside, and San Diego Counties
BLM California Paleontological
Resource Use Permit*

Professional Affiliations

Society of Vertebrate Paleontology

Project Experience

Development

Tehachapi Walmart Project, Gresham Savage Nolan & Tilden. As senior paleontologist, drafted the letter of retention for the project.

Sterling Ranch Estates Project, Sterling Ranch Estates, Castaic, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and co-wrote the cultural and paleontological resources technical report.

Steadfast Carlsbad AI/Mc Project, Steadfast Development Holdings, Inc., Carlsbad, California. Served as senior paleontologist for the project. Supervised paleontological monitors, evaluated fossil discoveries, and conducted and supervised laboratory and curatorial work on fossils collected during project excavations,

St. John Garabed Church Project, St. John Garabed Armenian Apostolic Church Trust, San Diego, California. Served as paleontological manager for the project. Supervised paleontological monitors, conducted paleontological monitoring, evaluated fossil discoveries, and conducted and supervised laboratory and curatorial work on fossils collected during project excavations.

Sienna (Vista 27 And Formerly 729 Emerald Vista) Project, Vista, California. Served as senior paleontologist. Provided senior paleontological support, conducted paleontological spot-checking, and co-wrote the final monitoring report.

Roblar Road Quarry Project, John Barella, Cotati, California. Served as senior paleontologist. Provided senior paleontological support for the paleontological survey team.

Rialto Baseline/Alder Warehouse Project, Pacific Industrial, Inc. Served as senior paleontologist. Field trained an archaeological/paleontological monitor.

Poinsettia Due Diligence Project, Lennar Homes, Carlsbad, California. Served as paleontological manager on the project. Supervised paleontological monitors, conducted paleontological monitoring, evaluated fossil discoveries, and conducted and supervised laboratory and curatorial work on fossils collected during project excavations.

Hotel Del Coronado North Parking Garage Project, Hdc South Beach Development, LLC, Coronado, California. Served as paleontological manager on the project. Supervised paleontological monitors, conducted paleontological monitoring, evaluated fossil discoveries, and conducted and supervised laboratory and curatorial work on fossils collected during project excavations.

Hotel Del Coronado South Beach Development Project, Hdc South Beach Development, LLC, Coronado, California. As co-manager of the project, presented the archaeological and paleontological Workers Environmental Awareness Program, and provided senior support to field monitors.

Northside Specific Plan EIR Project, Rick Engineering Company, Riverside, California. As senior paleontologist, provided QA/QC for the paleontological resources section of the Environmental Impact Report.

Oakmont Assisted Living-Memory Care Facility And Zoning Code Update MND Project, City of Covina, Covina, California. Served as senior paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and co-wrote the paleontological resources section of the Mitigated Negative Declaration.

Morrison Project, Sheppard Mullin Richter & Hampton LLP, Los Angeles, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and co-wrote the cultural and paleontological resources technical report.

Monteverde LLC Project, Gibson, Dunn, and Crutcher LLP, Los Angeles, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and co-wrote the cultural and paleontological resources technical report.

Modelo Project EIR, Comstock Realty Partners, LLC, Commerce, California. As senior paleontologist, provided QA/QC for the paleontological resources section of the Environmental Impact Report.

Meridian South Campus Specific Plan EIR Project, Lewis Retail Centers, Riverside, California. As senior paleontologist, provided QA/QC for the paleontological resources section of the Environmental Impact Report.

Mariner's Cove Redevelopment Project, Aimco, San Diego, California. As senior paleontologist, reviewed geological mapping and the geotechnical report and provided a geological write-up for the constraints analysis.

Lone Oak Monitoring Project, CWC Lone Oak 24, LLC, San Diego, California. As senior paleontologist, presented the paleontological Workers Environmental Awareness Program to the construction crew, provided senior paleontological support of paleontological monitors, conducted paleontological monitoring spot-checks, and wrote the final monitoring report.

Juanita Avenue Project, Flexible PSH Solutions, Inc., Los Angeles, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and co-wrote the cultural and paleontological resources technical report.

K4 CEQA Services Project, Lewis Retail Services, Riverside, California. As senior paleontologist, wrote the paleontological resources section of the Environmental Impact Report.

Jones Ranch Project, Realm, Oceanside, California. As senior paleontologist, drafted the paleontological resources section of the Mitigated Negative Declaration.

Hillside Meadows Project, Lakeside Investment, L.p., Santee, California. As senior paleontologist requested the paleontological records search from the San Diego Natural History Museum and wrote the paleontological resources section of the Mitigated Negative Declaration.

Five Lagunas Addendum Project, Merione Geirer Partners, Laguna Hills, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the environmental impact report.

Fire Station 50 Project, Habitat Restoration Services, Inc., San Diego, California. Served as paleontological manager on the project. Supervised paleontological monitors, evaluated fossil discoveries, and conducted/supervised laboratory and curatorial work on fossils collected during construction.

El Monte Sand Mine Project, Horizon Hill El Monte Investors, Gp, LLC, Lakeside, California. As senior paleontologist, co-wrote the paleontological resources section.

Costco La Mesa Project, Costco Wholesale, La Mesa, California. Requested the paleontological records search from the San Diego Natural History Museum and wrote the paleontological resources section of the Mitigated Negative Declaration.

Costco Murrieta Project, Costco Wholesale, Murrieta California. Requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the environmental impact report.

ARB Southern California Consolidation Project, California Department of General Services, Riverside, California. As senior paleontologist, co-wrote the Paleontological Resources Impact Mitigation Program, Provided senior paleontological support for the project and field monitors, and conducted paleontological monitoring.

Auburn Interfaith Food Closet Project, Auburn Interfaith Food Closet, Auburn, California. Requested the paleontological records search from the University of California, Berkeley Museum of Paleontology and co-wrote the cultural and paleontological resources inventory report.

Arcadia Hotel and Annex MND Project. Provided senior QA/QC for the paleontological resources section of the Mitigated Negative Declaration.

1000 Oriole Project, Tag Front, Laguna Beach, California. As paleontological principal investigator, requested the paleontological records search from the Natural History Museum of Los Angeles County, conducted the archaeological and paleontological survey, and co-wrote the cultural and paleontological resources inventory report.

1225 Cliff Drive – Archaeological and Paleontological Resources Study, Morris Skenderian and Associates, A.I.A., Laguna Beach, California. As paleontological principal investigator, requested the paleontological records search

from the Natural History Museum of Los Angeles County and co-wrote the cultural and paleontological resources inventory report.

20TH Street Wellness Center EIR Project, City of Santa Monica, Santa Monica, California. As senior paleontologist requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the environmental impact report.

2149 Edison Street Project, Central Coast Land Group, LLC, Santa Ynez, California. Provided senior QA/QC for the Phase I archaeological and paleontological survey report.

2761 Cebada Canyon Project, Avo Vista Farms, LLC, Lompoc, California. Co-wrote the Phase I archaeological and paleontological survey report.

650 Bennett Avenue Project, Moorehoward Investments, LLC., San Diego, California. Provided senior paleontological support to paleontological monitors. Co-wrote the final combined archaeological and paleontological monitoring report.

702 Matsumoto Lane Project, Partner Engineering And Science, Inc., Winters California. As senior paleontologist, requested the paleontological records search from the University of California, Berkeley Museum of Paleontology and co-wrote the cultural and paleontological resources inventory report.

740 – 790 East Green Street Mixed-Use Project Sustainable Community Environmental Assessment, City of Pasadena, Pasadena, California. Provided senior QA/QC for the paleontological resources section of the EIR.

8850 Sunset Boulevard EIR Project, City of West Hollywood, West Hollywood, California. As senior paleontologist requested paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the environmental impact report.

Alta Mixed Use Development, PRII/Wood Oceanside, LLC, Oceanside, California. Drafted the paleontological resources section of the Geology and Soils chapter for the environmental impact report.

Double D Mine Project, Mitchell Chadwick, Blythe, California. As paleontologist, co-wrote the paleontological resources survey report and paleontological resources impact mitigation program.

Pacific Palisades Village 1 CAH Acquisitions Co. LLC, Los Angeles, California. As senior paleontologist, presented the paleontological Workers Environmental Awareness Program, provided senior paleontological support of paleontological monitors, and assisted in writing the final monitoring report.

Vista Del Mar Project, VD Pacific Terrace LLC, Oceanside, California. Co-wrote the Paleontological Resources Impact Mitigation Program and spot-checked project site for paleontological resources.

Interim Ranch-Wide Management Plan, Tejon Ranch Corporation, Kern County, California. Presented the Workers Environmental Awareness Program and provided senior paleontological support to field monitors.

Entitlement Contract, LLJ Orion PacificVista LLC, Vista, California. As paleontologist, drafted paleontological resources EIR section.

Kettner Lofts, CVC M Kettner 106 LLC, San Diego, California. As paleontologist, provided paleontological monitoring.

Solana Highlands Multifamily Development, City of Solana Beach, California. As paleontologist, provided information for Draft Environmental Impact Report.

Education

SF State Master Plan EIR Project, San Francisco State University, California. Served as senior paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and wrote the paleontological resources section of the Environmental Impact Report.

Norco College Veteran Resource Center MND Project, Riverside Community College District, Riverside, California. Served as senior paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and co-wrote the paleontological resources section of the Mitigated Negative Declaration.

New Student Union Building, California State University, Fresno, Fresno, California. Served as senior paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and wrote the paleontological resources section of the Mitigated Negative Declaration.

Moreno Valley College Welcome Center, Riverside Community College District, Moreno Valley, California. Served as senior paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and wrote the paleontological resources section of the Mitigated Negative Declaration.

MCCCD MMRP Implementation – Track and Field Project, MiraCosta Community College District, Oceanside California. Served as senior paleontologist. Drafted the Paleontological Resources Impact Mitigation Program, attended the preconstruction meeting and present the Workers Environmental Awareness Training to the construction crew, managed paleontological monitors, provided paleontological monitoring spot-checks, and collected and curated fossil invertebrates from the project site.

MCCCD MMRP Implementation – North Storm Drain Project, MiraCosta Community College District, Oceanside California. Served as senior paleontologist. Drafted the Paleontological Resources Impact Mitigation Program, attended the preconstruction meeting and present the Workers Environmental Awareness Training to the construction crew, managed paleontological monitors, and drafted the negative findings paleontological resources final monitoring memorandum.

Housing Expansion – Phase I Project, California State University, Long Beach, Long Beach, California. Served as senior paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and wrote the paleontological resources section of the archaeological and paleontological resources memorandum.

Kennedy High School Campus Improvements MND Project, Los Angeles Unified School District, Granada Hills, California. As senior paleontologist, provided QA/QC for the geology and soils chapter of the Mitigated Negative Declaration.

Hillsdale Middle School Field Lighting Project, Cajon Valley Union School District, El Cajon, California. Requested the paleontological records search from the San Diego Natural History Museum and wrote the paleontological resources section of the Mitigated Negative Declaration.

Fullerton College Instruction Building and Central Plant Paleontological Monitoring Project, North Orange County Community College District, Fullerton, California. As project manager and senior paleontologist, presented the workers environmental awareness training and conducted paleontological monitoring.

CSUMB Master Plan EIR Project, California State University, Monterey Bay, Seaside, California. Requested the Natural History Museum of Los Angeles County paleontological records search and wrote the paleontological resources section for the Environmental Impact Report.

San Diego State University New Student Housing Expansion, Gatzke, Dillon and Balance, California. Served as paleontologist. Wrote the paleontological resources section of the technical report.

Fullerton College Master Plan Program EIR, North Orange County Community College District, Fullerton, California. Served as paleontologist. Conducted paleontological resources survey and wrote the paleontological resources survey report.

Chapman University Packinghouse EIR, Orange County, California. Served as paleontologist. requested the paleontological records search from the Natural History Museum of Los Angeles County and drafted paleontological resources section for the EIR.

Energy

Torrey Wind, Terra-Gen Development Company, LLC, San Diego County, California. As senior paleontologist, provided QA/QC for the paleontological resources section of the Environmental Impact Report.

Strauss Wind Energy Project, Strauss Wind, LLC., Santa Barbara County, California. As paleontological principal investigator, coordinated and led the paleontological survey of the project site, requested the paleontological records search from the Natural History Museum of Los Angeles County, and co-wrote the Paleontological Resources Mitigation and Monitoring Plan.

Sanborn Solar Energy Project, Sanborn Solar, LLC, Mojave, California. Served as senior paleontologist. Requested the paleontological records search from the Natural History Museum of Los Angeles County, surveyed the project area for paleontological resources, and drafted paleontological resources technical report.

Russell No. SSE2-C12-190312-CIA-Russell Project, Samsung Solar Energy 2, LLC, Fresno County, California. As senior paleontologist, provided paleontological critical issues analyses for a potential project site.

Rosamond (PV-11) Project, First Solar, Inc., California. As paleontological principal investigator, conducted paleontological monitoring and supervised paleontological monitors, drafted a paleontological monitoring reduction letter and final monitoring report.

Pomerado Energy Storage Project, Sovereign Energy Storage, Poway, California. As senior paleontologist, requested the paleontological records search from the San Diego Natural History Museum and wrote the paleontological resources section of the Environmental Impact Report.

Polvadero Solar Project, Samsung Solar Energy 2, LLC, Almendra, California. As senior paleontologist, provided a paleontological critical issues analysis for the project.

Painted Hills Wind Permits & Environmental Studies Project, Terra-Gen Development Company, LLC, Riverside County, California. Served as senior paleontologist. Requested the paleontological records search from the Natural History Museum of Los Angeles County and drafted paleontological resources inventory report.

Oatfield Solar, Carbonera Solar No. SSE2-C12-190329-CIA Project, Samsung Solar Energy 2, LLC, Fresno County, California. As senior paleontologist, provided paleontological critical issues analyses for two potential project sites.

North Gila - Imperial Valley # 2 Transmission Line Project, County of Imperial, Imperial County, California, As paleontological principal investigator, coordinated and led the paleontological survey.

Little Bear Environmental Compliance Services (TO#001), Longroad Energy Management, LLC, Fresno County, California. As senior paleontologist, managed paleontological field monitors and conducted paleontological monitoring.

Liberty No. SSE2-C12-190314-CIA-Liberty Ranch Project, Samsung Solar Energy 2, LLC, Fresno County, California. As senior paleontologist, provided a paleontological critical issues analysis for the project.

Hyder Hay No. SSE2-C12-190312-CIA-HyderHay Project, Samsung Solar Energy 2, LLC, Fresno County, California. As senior paleontologist, provided a paleontological critical issues analysis for the project.

Hyder Ducor No. SSE2-C12-190312-CIA-HyderDucor Project, Samsung Solar Energy 2, LLC, Fresno County, California. As senior paleontologist, provided a paleontological critical issues analysis for the project.

Horizon West – Round Mountain Environmental Survey Project, NEET West, LLC, Tehama County, California. As senior paleontologist, conducted desktop geological and paleontological research and wrote paleontological critical issues analyses for three potential project sites.

Edwards Solar Project, Terra-Gen Development Company, LLC. Served as senior paleontologist. Co-wrote the paleontological resources impact mitigation program.

Critical Issues Analysis – Valley Center Energy Storage, Terra-Gen Development Company, LLC, Valley Center, California. Served as senior paleontologist. Conducted desktop geological and paleontological research and wrote the paleontological critical issues analysis.

Coachella Flats I and II Wind Project, Terra-Gen Development Company, LLC, Palm Springs, California. Served as senior paleontologist. Requested the paleontological records search from the Natural History Museum of Los Angeles County and drafted paleontological resources inventory report for BLM approval.

Blythe Solar Power Project, NextEra Energy, Inc., Blythe, California. Served as senior paleontologist. Provided senior paleontological support for the project, and conducted paleontological monitoring.

Arlington Solar Project, NextEra Energy, Inc., Blythe, California. Served as senior paleontologist. Provided senior paleontological support to field monitors.

American Kings Solar Project, First Solar Development, LLC, Lemoore, California. Served as senior paleontologist. Co-wrote the Paleontological Resources Impact Mitigation Program.

Almendra Solar Project, Samsung Solar Energy, LLC, Almendra, California. Served as senior paleontologist. Conducted desktop geological and paleontological research and wrote the paleontological constraints analysis.

California Flats Solar Project, McCarthy Building Companies Inc., San Luis Obispo County, California. Served as paleontologist. Conducted archaeological and paleontological monitoring, assisted in fossil evaluation, and wrote the final paleontological monitoring report

California Flats High Voltage, First Solar Electric Inc., San Luis Obispo County, California. Served as paleontologists. Conducted archaeological and paleontological monitoring, assisted in fossil evaluation, and wrote the final paleontological monitoring report.

ISEC West Paleontological Services, Tenaska Inc., Imperial County, California. Served as paleontologist. Curated fossil invertebrate fauna, accessioned fossil invertebrates to the Natural History Museum of Los Angeles County, and co-wrote the final paleontological resources final report.

FTHL Habitat Management Lands, Tenaska Inc., Imperial County, California. [Served as paleontologist.](#) Curated fossil invertebrate fauna, accessioned fossil invertebrates to the Natural History Museum of Los Angeles County, and co-wrote the final paleontological resources final report.

Healthcare

San Marcos Medical Center Project, Kaiser Foundation Hospital, California. Served as senior paleontologist. Requested the San Diego Natural History Museum paleontological records search and wrote the paleontological resources section of the archaeological and paleontological resources technical report.

Encompass Health Outpatient Rehabilitation Facility Project, Encompass Health, Chula Vista, California. As senior paleontologist, requested the paleontological records search from the San Diego Natural History Museum and wrote the paleontological resources inventory report.

Cuyama Valley Medical Cannabis Farm Phase I Project, Andrew James Jeknavorian, Cuyama Valley, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and co-wrote the Phase I Archaeological and Paleontological Survey Report.

Kaiser Permanente Moreno Valley Medical Center Master Plan EIR Project, Kaiser Foundation Hospital, Moreno Valley, California. Served as senior paleontologist. Requested the paleontological records search from the Natural History Museum of Los Angeles County and drafted the paleontological technical report and paleontological resources section for the Environmental Impact Report.

LA Medical Center Master Plan Environmental Impact Report, Kaiser Foundation Health Plan Inc., Los Angeles, California. As senior paleontologist, provided QA/QC for the paleontological resources section of the Environmental Impact Report and draft the impacts analysis section.

Covina Kaiser Medical Office Building MND Project, City of Covina, Covina, California. Served as senior paleontologist. Requested the paleontological records search from the Natural History Museum of Los Angeles County and drafted paleontological resources section for the Mitigated Negative Declaration.

Kaiser Permanente, Murrieta Valley Medical Center Project, Kaiser Permanente, Murrieta, California. Served as paleontologist. Co-wrote the final monitoring report.

Specialty Medical Office Building, Kaiser Foundation Health Plan Inc., Irwindale, California. Served as paleontological field lead. Co-wrote the Paleontological Resources Impact Mitigation Program, performed spot-check monitoring, supervision of paleontological monitors, and co-wrote the final paleontological monitoring report.

Biology and Cultural Resource Review for Mapleton Park Centre Site Land Purchase, Kaiser Foundation Health Plan Inc., Murrieta, California. Wrote the final paleontological monitoring report.

Municipal

The Villages At Alhambra EIR Review, City of Alhambra, California. As senior paleontologist, provided a third party review of the paleontological technical report

Stonetree Golf Club Project, City of Novato, California. As senior paleontologist, provided QA/QC for the paleontological resources section of the Mitigated Negative Declaration.

Silverrock Park Venue Project, City of La Quinta, California. Served as project manager and senior paleontologist. Managed the project, presented the paleontological Workers Environmental Awareness Program, provided senior support to field monitors and conducted paleontological monitoring, and analyzed and collected fossil resources from the project.

Sand Canyon Resort EIR Project, City of Santa Clarita, California. Served as senior paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and provided senior technical editing of the paleontological resources section of the Environmental Impact Report.

River Walk Mixed Use Project Initial Study Project, City of Santa Clarita, California. As senior paleontologist, wrote the paleontological resources section of the Initial Study.

Protea Memory Care Facility Project, City of San Juan Capistrano, San Juan Capistrano, California. Served as senior paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and wrote the paleontological resources section of the archaeological and paleontological resources technical report.

Palm Villas EIR Project, City of Saratoga, Saratoga, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Environmental Impact Report.

Newell Creek Dam Inlet/Outlet Pipeline Project, City of Santa Cruz, Santa Cruz, California. As senior paleontologist, researched project geology and provided paleontological monitoring recommendations.

Monterey Bay Square MND Peer Review, City of Alhambra, Alhambra, California. As senior paleontologist, provided a peer review of the Mitigated Negative Declaration.

Modern Pacific Residential Project, City of Colton, Colton, California. As senior paleontologist, provided QA/QC for the paleontological resources section of the Mitigated Negative Declaration.

Keck Science Center Expansion Project MND Project, City of Claremont, Claremont, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Mitigated Negative Declaration.

Jefferson at Avalon Specific Plan Project, City of Carson, Carson, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Environmental Impact Report.

Alipaz Street Monitoring Project, The Fishel Company, San Juan Capistrano, California. Provided senior archaeological/paleontological support to archaeological/paleontological monitors.

Aliso Viejo Ranch 100 Park Avenue Project, City of Aliso Viejo, Aliso Viejo, California. Provided senior archaeological support to archaeological monitors.

Machado Lake Pipeline Project, City of Los Angeles, California. Served as paleontological field lead. Monitored and supervised monitoring for archaeological and paleontological resources and co-wrote the final monitoring report.

Van Norman Reservoir Well Drilling Project, City of Los Angeles, California. Served as paleontological field lead. Monitored and supervised monitoring for archaeological and paleontological resources and co-wrote the final monitoring report.

City Truck Line South-Unit 4, City of Los Angeles, California. Served as paleontological field lead. Monitored and supervised monitoring for paleontological resources.

Dairy Fork Wetlands, City of Aliso Viejo, California. Served as archaeological field technician. conducted archaeological resources monitoring.

As-Needed Environmental Services, City of San Diego, California. Served as paleontologist. Conducted paleontological monitoring and wrote the final paleontological monitoring report.

San Diego Association of Governments (SANDAG) Continuing Services Agreement, AECOM Technical Services, California. Served as paleontologist. Assisted with review of monitoring field logs.

As-Needed Environmental Services, Department of General Services, Southern California. Served as paleontologist. Co-wrote the paleontological resources final monitoring report.

Public Utilities Department As-Needed Environmental Services, City of San Diego, California. Served as paleontologist. Edited the paleontological resources table for the Environmental Impact Report/Environmental Impact Statement (EIS).

SANDAG General On-Call Environmental Compliance, California. As paleontologist, co-wrote the final paleontological resources monitoring report.

Resource Management

As-Needed Projects, Habitat Restoration Sciences Inc., San Diego County, California. Provided archaeological monitoring.

San Jacinto Wildlife Area EIR, California Wildlife Foundation, Riverside County, California. As paleontologist, reviewed the paleontological resources section of the Environmental Impact Report.

Transportation

The Boring Company Project, SpaceX, Hawthorne, California. As paleontologist, drafted the paleontological technical memorandum for the project.

Reedley DMV Field Office Replacement Project, California Department of General Services (DGS), Reedley, California. As senior paleontologist, provided QA/QC for the paleontological resources section

Old Road Bridge Over Castaic Creek MND Project, County of Los Angeles, Val Verde, California, As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and drafted the paleontological resources section of the Mitigated Negative Declaration.

High Speed Rail Compliance Monitoring, Dragados-Flatiron Joint Venture, Sacramento, California, Provided senior paleontological support to paleontological monitors and evaluated fossil resources.

Del Obispo Street Widening Project, City of San Juan Capistrano, San Juan Capistrano, California. Co-managed the project including coordination with the City and Native American monitoring company and supervision of archaeological and paleontological monitors. Drafted the final monitoring report.

Construction Management Services for the Mid-Coast Corridor Projects, PGH Wong Engineering Inc., San Diego, California. Conducted archaeological and paleontological resources monitoring.

Gilman Drive Bridge Environmental Compliance, PGH Wong Engineering Inc., San Diego, California. Provided paleontological resources monitoring, assisted with managing paleontological resources monitors, and evaluated fossil discoveries

Confidential Transportation Project, San Pedro, California. Reviewed project geology, wrote a paleontological records search summary, and assisted in drafting mitigation measures.

Water/Wastewater

Trampas Dam And Reservoir Archaeo And Paleo Services, Santa Margarita Water District, San Juan Capistrano, California. As archaeological and paleontological project manager and senior paleontologist, prepared and administered the Workers Environmental Awareness Training for paleontology and archaeology and coordinated and conducted archaeological and paleontological resources monitoring.

TO-02: MT FRS II Construction Monitoring, San Diego County Water Authority, San Diego, California. Served as senior paleontologist, drafted the Paleontological Resources Mitigation and Monitoring Plan and coordinated the paleontological survey.

Temescal Valley Water Reclamation Facility Expansion, Temescal Valley Water District, California. Served as paleontologist. Requested the Natural History Museum of Los Angeles County paleontological records search and wrote the paleontological resources section of the archaeological and paleontological resources technical report.

TAF #3: Paleontological and Biological Monitoring for the Stormwater Collection System Project, Sanitation Districts of Los Angeles County, Puente Hills, California. As senior paleontologist, prepared and administered the Workers Environmental Awareness Training for paleontology, drafted the Paleontological Resources Impact Mitigation Plan, coordinated and conducted paleontological monitoring, and wrote the final paleontological monitoring report.

Taf No.5 Gardena Pumping Plant Upgrades Project, Sanitation Districts of Los Angeles County. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Mitigated Negative Declaration.

TAF No.8 San Jose Creek Interceptor Sewer Rehabilitation Phase 2 Project, Sanitation Districts of Los Angeles County, San Gabriel, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Mitigated Negative Declaration.

Socwa Trail Bridge Etm Crossing Protection Project, Tetrattech, Aliso Viejo, California. Served as senior paleontologist. Provided QA/QC for the paleontological resources section of the report.

River Supply Conduit Unit 7 Archaeo Monitoring Support Project. Served as senior paleontologist. Attended the preconstruction meeting and presented the Workers Environmental Awareness Training to the construction crew, field trained an archaeological/paleontological monitors, coordinated monitoring, and analyzed, prepared, and curated fossils collected during monitoring,

Reservoir 10 & 6 Water Line Project, City of San Clemente, California. Served as senior paleontologist/archaeologist and project manager. Attended the preconstruction meeting and presented the Workers Environmental Awareness Training to the construction crew, managed archaeological and paleontological monitors, and provided paleontological monitoring spot-checks. Wrote and submitted the final monitoring report to the City of San Clemente.

Plan Check Services-222097 Project, Riverside County Flood Control & Water Conservation District, Riverside, California. As senior paleontologist, reviewed the paleontological assessment report and provided suggestions.

Oso Sewage Lift Station Replacement MND Project, El Toro Water District, Laguna Beach, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Mitigated Negative Declaration.

Olympic Well Field Restoration and Arcadia Water Treatment Plan Expansion Project, City of Santa Monica, Los Angeles, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Environmental Impact Report.

MWD Emergency Permitting Services, Montecito Water District, Montecito, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County, wrote the paleontological resources impact mitigation plan, provided senior paleontological support for field monitoring staff, evaluated fossil resources discovered on the project, and spot-checked excavations.

MWD Upper Newport Backbay Project, Metropolitan Water District of Southern California, Newport Beach, California. As senior paleontologist, reviewed the archaeological and paleontological treatment plan.

Mockingbird Canyon Wash Restoration Project, Riverside County Flood Control & Water Conservation District, Woodcrest, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County, coordinated the paleontological survey, and drafted the paleontological technical report.

Monterey Bay Regional Water Project EIR/EIS, California State Lands Commission, Monterey County, California. As senior paleontologist, provide QA/QC for the paleontological resources section of the Environmental Impact Report.

Las Flores Enhanced Water Reliability Project, Santa Margarita Water District, Las Flores, California. As senior paleontologist, requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Environmental Impact Report. As archaeologist, conducted the archaeological survey and Native American correspondence and drafted the Section 106 archaeological resources survey report.

Ls 1269 Sewer Forcemain Replacement Project, Western Municipal Water District, Riverside, California. As senior paleontologist, provided QA/QC for the paleontological resources section of the Environmental Impact Report.

North Indio Flood Control Channel – WIFIA Loan Application Project, Coachella Valley Water District, Indio, California. Co-wrote the cultural resources update memorandum.

Coronado Trunk Line, Los Angeles Department of Water and Power, Los Angeles, California. Requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the Mitigated Negative Declaration.

Chatsworth Reservoir Mitigation Feasibility Study, Los Angeles Department of Water and Power, Chatsworth, California. Requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the feasibility study.

Castaic Lake Stabilization and Management Project, Tejon Ranch Company, Castaic, California. Provided senior paleontological support of paleontological monitors and conducted paleontological monitoring,

Arroyo Seco Canyon EIR Project, City of Pasadena, Pasadena, California. Requested the paleontological records search from the Natural History Museum of Los Angeles County and wrote the paleontological resources section of the EIR.

Interlake Tunnel and Spillway Modification Project, Horizon Water and Environment LLC, San Luis Obispo County, California. Served as paleontologist. Conducted the paleontological resources survey, assisted in the archaeological resources survey and drafted the paleontological resources section of the EIR.

Sewer Master Plan, Rincon del Diablo Municipal Water District, Escondido, California. As paleontologist, drafted paleontological resources section of EIR.

Palm Springs Wastewater Treatment Plant Expansion, W.M. Lyles Co. Southern District, California. Conducted paleontological resources monitoring, wrote the final monitoring report, and accessioned a fossil into the Western Science Center.

Zone E Recycled Water System Expansion Archaeological and Native American Monitoring, Santa Margarita Water District, Orange County, California. Served as senior paleontologist. Co-managed the project and provided archaeological monitoring.

Capital Project Funding and Environmental Clearance Assistance, San Elijo Joint Powers Authority, San Diego County, California. Co-wrote the geological context section.

Relevant Previous Experience

Development

Palatino Little Italy Apartments Project, Kirkham Road and McMillin, San Diego, California. Served as principal paleontologist and provided oversight for paleontological monitoring.

South Pointe West Project, JCCL-South Pointe West LLC, Diamond Bar, California. Served as principal paleontologist and paleontological monitor. Managed monitoring of excavations for paleontological resources, stabilized and prepared fossils, and processed sediments for vertebrate microfossils.

Sixth and Virgil (Next on Sixth) Streets Multifamily Residential Development Projects, Century West Partners, Los Angeles, California. Served as principal paleontologist. Coordinated and conducted paleontological monitoring and collected, stabilized, and prepared fossil fishes.

Northwest Village Creek Phase 2 Project, Jacobs Center for Neighborhood Innovation, San Diego, California. Served as principal paleontologist. Provided senior paleontological oversight for paleontological monitoring.

Treasure Island and Yerba Buena Island Major Phase 1, City and County of San Francisco, California. Served as principal paleontologist. Wrote the paleontological resources mitigation monitoring and reporting program.

Altair Development Project, Ambient Communities, Temecula, California. Served as principal paleontologist and wrote the paleontological resources section of the EIR.

Berendo and New Hampshire Streets Multifamily Residential Development Projects, Fifield Companies, Los Angeles, California. Served as principal paleontologist. Supervised paleontological monitoring, collected and processed sediment samples for microvertebrates, and accessioned fossils into the Natural History Museum of Los Angeles County.

San Juan Capistrano Medical Office, Edward Almanza and Associates, San Juan Capistrano, California. Served as principal paleontologist and supervised paleontological monitoring.

Lifetime Fitness Construction Project, Lifetime Fitness Inc., Laguna Niguel, California. Served as principal paleontologist. Monitored excavations for paleontological resources; accessioned fossils into the Cooper Center at California State University, Fullerton; and wrote the final monitoring report.

Orange County Great Park Paleontological Monitoring, City of Irvine, California. Served as staff paleontologist. Developed and presented the WEAP. Monitored construction activities for former underground storage tank 240b

and pond excavations for paleontological resources, accessioned fossils into the Natural History Museum of Los Angeles County, and wrote the final monitoring reports.

Anaheim Henning View Terrace Home Construction Project, KTK Construction Inc., Anaheim Hills, California. Served as principal paleontologist. Supervised paleontological monitoring and co-wrote the final monitoring report.

College Park Home Construction Project, Lennar Corporation, Chino, California. Served as principal paleontologist and supervised paleontological monitoring.

Whisler Ridge Home Construction Project, KB Homes, Lake Forest, California. Served as principal paleontologist. Surveyed construction site for paleontological resources. Monitored and supervised monitoring of grading activities.

Cahuilla Gold Project, Consolidated Goldfields Corporation, Imperial County, California. Served as staff paleontologist and participated in survey for paleontological resources.

Education

Rancho Campana High School, Oxnard Union High School District, Camarillo, California. Served as principal paleontologist. Supervised paleontological monitoring, collected and processed sediments for microfossils, and contributed to the final monitoring report.

Browning High School, Long Beach Unified School District, Signal Hill, California. Served as principal paleontologist. Spot-checked paleontological monitoring; collected and processed sediments for microfossils; accessioned fossils to the Natural History Museum of Los Angeles County, Invertebrate Paleontology Division; and contributed to the final monitoring report.

Long Beach Unified School District Project, Long Beach, California. Conducted an inventory of paleontological resources within the Long Beach Unified School District for use in the formulation of preservation guidelines and during future development and redevelopment of multiple school sites.

Energy

Scattergood Transmission Line Project, Los Angeles Department of Water and Power (LADWP), Los Angeles County, California. Served as paleontological and archaeological monitor. Monitored excavations for paleontological and archaeological resources.

Path 46 Clearances Project, LADWP, San Bernardino County, California. Served as principal paleontologist and archaeological surveyor. Surveyed for paleontological and archaeological resources and wrote the paleontological resources assessment.

Haskell Canyon Substation, LADWP, Santa Clarita, California. Served as principal paleontologist. Monitored excavations for paleontological resources and reviewed the final paleontological monitoring report.

Glenarm Power Plant Project, City of Pasadena, California. Served as paleontological and archaeological monitor. Coordinated and monitored excavations for paleontological and archaeological resources.

Marsh Landing Generating Station, California Energy Commission (CEC), Contra Costa County, California. Served as staff paleontologist. Assisted in managing daily monitoring activities, writing monthly reports, and writing the final report.

Plains Exploration and Production Company Project, Kern County, California. Served as staff paleontologist. Surveyed for paleontological resources and co-wrote the paleontological resource assessments.

Rio Mesa Solar Project, BrightSource Energy Inc., Blythe, California. Served as staff paleontologist. Participated in paleontological survey on both BLM and private lands. Assisted with writing the paleontological resources section for the Application for Certification and final report.

Sonoran West Solar Project, BrightSource Energy Inc., Blythe, California. Served as staff paleontologist. Participated in paleontological survey on both BLM and private lands. Assisted with writing the final report.

Proposed Oasis Date Gardens Development, Golden Sands Properties, Thermal, California. Served as principal paleontologist. Conducted paleontological survey and wrote paleontological resources assessment.

Proposed Cascade Solar Project, Cascade Solar LLC/Axio Power Holdings LLC, San Bernardino County, California. Served as principal paleontologist. Conducted paleontological survey and co-wrote the paleontological resources assessment.

Pio Pico Energy Center, CEC, Otay Mesa, California. Served as staff paleontologist and participated in survey for paleontological resources.

Calico Solar Project, San Bernardino County, California. Served as staff paleontologist and participated in survey for paleontological resources.

Military

Legislative EIS for Renewal of the Chocolate Mountain Aerial Gunnery Range Land Withdrawal, U.S. Department of the Navy (DON), California. Served as staff paleontologist. Contributed to paleontological resource sections of Legislative EIS for extension of the DON aerial munitions gunnery range and test ground.

Sites TVOR SE and TVOR S Paleofaunal and Paleoenvironmental Research, ACOE/Prewitt and Associates Inc., Fort Polk, Louisiana. Served as paleontological technician. Participated in field and laboratory work, research, and writing of final report.

Site TVOR SE Paleofaunal and Paleoenvironmental Research, ACOE/Prewitt and Associates Inc., Fort Polk, Louisiana. Served as paleontological technician. Participated in field and laboratory work, research, and writing of report.

Municipal

Proboscidean Recovery Effort, LADWP, Lone Pine, California. Served as principal paleontologist. Organized and led the field crew in the recovery of a proboscidean tusk found in a borrow pit at the Lone Pine Landfill and wrote the final report.

Calabasas Landfill Project, County of Los Angeles, California. Served as principal paleontologist and wrote the paleontological resources technical report.

Mountain View Acres Drainage Improvement Project, San Bernardino Associated Governments (SANBAG), Victorville, California. Served as principal paleontologist and paleontological monitor. Monitored excavations for paleontological resources and wrote the final monitoring report.

Transportation

Mid Coast Rail Project, PGH Wong Engineering, San Diego, California. Served as archaeological and paleontological monitor and supervisor during extension of the trolley service to University City. Daily activities included working closely with biologists, Native American monitors, and construction personnel to complete the project in compliance with all mitigation measures and state and federal regulations. In addition, salvaged, collected associated data, and curated fossils discovered during construction.

Livermore Extension Project, Bay Area Rapid Transit, Alameda County, California. Served as principal paleontologist. Contributed to the paleontological resources section of the EIR.

Merced to Fresno Project, California High Speed Rail Authority (CHSRA), Fresno County, California. Served as principal paleontologist. Administered the WEAP and monitored for paleontological resources.

SR-91 Corridor Improvement Project, Riverside County Transportation Commission/Caltrans, Corona, California. Served as paleontological monitor. Monitored geotechnical drilling for paleontological resources, collected and processed sediment samples for microvertebrates, and assisted in the recovery of a fossil bison.

I-15/I-215 Interchange Improvement Project, Caltrans, Devore, California. Served as paleontological monitor and monitored excavations for paleontological resources.

Palmdale to Los Angeles Union Station Project, CHSRA, Los Angeles County, California. Served as staff paleontologist. Participated in survey for paleontological resources and writing of EIR/EIS and technical report.

I-10/Cherry Avenue Interchange Improvement Project, SANBAG/Caltrans, Fontana, California. Served as principal paleontologist. Supervised paleontological monitoring, processed sediment samples, and participated in writing the final monitoring report.

I-10/Citrus Avenue Interchange Improvement Project, SANBAG/Caltrans, Fontana, California. Served as principal paleontologist and supervised the paleontological monitor. Collected and processed sediment samples for vertebrate microfossils, and co-wrote the final paleontological mitigation report.

I-215 Murrieta Hot Springs Road to Scott Road, Caltrans, Murrieta, California. Served as staff paleontologist. Participated in survey for paleontological resources, monitored excavations for paleontological resources, and wrote the final monitoring report.

I-215 Scott Road to Nuevo Road, Caltrans, Riverside County, California. Served as staff paleontologist and wrote the paleontological mitigation plan.

I-215 Newport Overcrossing Bridge Reconstruction Project, Caltrans, Grand Terrace, California. Served as principal paleontologist. Conducted paleontological survey and wrote combined Paleontological Identification Report (PIR)/Paleontological Evaluation Report (PER).

I-405 from SR-73 to I-605 Improvement Project PIR/PER, Parsons/Caltrans, Orange County, California. Served as staff paleontologist and participated in survey for paleontological resources.

Water/Wastewater

Eastern Recycled Water System Project, Escondido, California. Served as archaeological surveyor and participated in a survey for archaeological resources.

Peters Canyon Water Capture and Reuse Project, Irvine Ranch Water District, Irvine and Tustin, California. Served as principal paleontologist. Coordinated and conducted paleontological monitoring, and collected and processed sediments for microfossil recovery.

Cadiz Valley Water Conservation Recovery and Storage Project, Cadiz Inc./Santa Margarita Water District, Cadiz, California. Served as principal paleontologist. Conducted paleontological monitoring and wrote the paleontological mitigation and monitoring plan.

Hauled Water Project, County of Los Angeles, California. Served as principal paleontologist and geologist. Wrote the geology and soils IS, the technical report, and the paleontological section of the EIR.

Enhanced Watershed Management Programmatic EIR, County of Los Angeles, California. Served as principal paleontologist. Wrote the paleontological section of the programmatic EIR.

Publications

- Bonett, R.M., A.L. Trujano-Alvarez, M.J. Williams, and E.K. Timpe. 2013. "Biogeography and Body Size Shuffling of Aquatic Salamander Communities on a Shifting Refuge." *Proceedings of the Royal Society*. B: 1–8.
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Conference Presentations

"Miocene Amphibians and Reptiles from Fort Polk, Louisiana: Evaluating their Usefulness in Paleoenvironmental Reconstruction and Biostratigraphy." 2011. Presented at Geological Society of America South Central Section 45th Annual Meeting. New Orleans, Louisiana.

Loukas Barton, PhD, RPA

Research Archaeologist

Loukas Barton is a research scientist with 23 years' experience in archaeology, cultural resource management, education, and communication of scientific methods, results, and objectives to public, professional, and academic audiences. Dr. Barton has worked in the private sector (for CRM firms), in the public sector (for the National Park Service), in public programming (at the Peabody Museum of Natural History), and in the university setting (at the University of California, Davis, the University of Alaska, Fairbanks, the University of Pittsburgh, and California State University, Fullerton).

Dr. Barton has collaborated with U.S. federal land management agencies (NPS, USFWS, BIA, and USFS), museum repositories (the Peabody Museum of Natural History, The Carnegie Museum of Natural History, the Alutiiq Museum, the Museum of the North, the Gansu Province Museum, and the National Museum of Mongolia), multiple tribal entities, Native village councils and regional corporations (primarily in Alaska), a variety of national and international research institutions (Lawrence Livermore National Laboratory, the Carnegie Institution of Washington, the Chinese Academy of Science, the Chinese Academy of Social Sciences, the Center for Arid Environment and Paleoclimate Research, the French National Center of Scientific Research), and multiple universities.

Dr. Barton has published widely in international peer-reviewed scientific journals and edited volumes, in English, Mandarin, and Mongolian. He presents the results of scientific research regularly, as an invited lecturer to universities and public audiences, and as a participant in academic symposia. Dr. Barton is currently an Associate Editor for the international English-language journal, *Archaeological Research in Asia*, and he is a regular reviewer for a broad range of international journals, publishing houses, and funding agencies. His primary focus is on the prehistoric archaeology and ecology of hunter-gatherers and small-scale farmers and herders throughout western North America and northern Asia. Dr. Barton's technical expertise includes ecological modeling, archaeometry, lithic analysis, archaeobotany, spatial analysis, and quantitative reasoning.

Project Experience

Strauss Wind Energy Project, Santa Barbara County, California. Established the research design for Phase II Work Plan; drafted the cultural context and interpretations of the Phase II Archaeological Significance Evaluations.

Ritz-Carlton Bacara Beach Hotel, Goleta, California. Drafted the cultural context and interpretations for the Extended Phase 1 archaeological investigation on the Santa Barbara coast.

130 Robin Hill Road, Goleta, California. Drafted the cultural context and interpretations of the Phase 3 Data Recovery Program at CA-SBA-58 on the ancient Goleta Lagoon.

Education

University of California, Davis

PhD, Anthropology, 2009

MA, Anthropology, 2003

Yale

BA, Archaeological Studies, 1997

Professional Affiliations

Alaska Anthropological Association

Society for American Archaeology

Society for California Archaeology

Society for East Asian Archaeology

Edwards Air Force Base, Kern County, California. Contributed to the design and editing of the Historic Properties Treatment Plan for the Edwards solar enhanced use lease.

National Park Service: Chignik-Meshik Rivers Region Cultural Resource Reconnaissance Project, Aniakchak National Monument & Preserve, Alaska. Served as Principal Investigator for a 4-year NHPA Section 110 mapping and inventory project on federal (NPS and USFWS), state (AK), and private land, in a roadless, remote setting. Wrote and coordinated all contracts, cooperative agreements, and research design. Contributed to annual field reports and resource catalogs, developed GIS-based data archives, authored professional peer-reviewed publications, and delivered public presentations.

National Park Service: Coastal Cultural Resource Reconnaissance and Salvage, Amalik Bay, Katmai National Park & Preserve, Alaska. Served as Principal Investigator for a 6-year NHPA Section 110 mapping, inventory, and evaluation project on federal (NPS) land, in a roadless, remote setting. Wrote and coordinated all contracts, cooperative agreements, and research design. Contributed to annual field reports and resource catalogs, developed GIS-based data archives, and delivered public and professional presentations.

Southern California Edison, Transmission Line Separation Project, Sierra National Forest, California. Worked as Field Director, conducting site inventory, evaluation, and testing in support of a comprehensive Cultural Resources Management Plan (conducted by Pacific Legacy Inc.).

Human Ecology of the Uvs Nuur Basin, Mongolia. Served as co-Principal Investigator in a multi-disciplinary, multi-institution, international collaborative research project on the tangible cultural heritage of northwest Mongolia. Drafted all research designs, established all cooperative agreements and memoranda, co-directed all fieldwork, co-authored annual reports, developed GIS-based data archives, co-authored professional peer-reviewed publications, and delivered both public and professional presentations. Funded by the Luce Foundation, the University of Nevada, Reno, and the University of Pittsburgh.

Survey and Excavation of Late Pleistocene and Paleolithic Archaeology, Longxi Basin, Gansu Province, China. Served as co-PI on a primary research project attempting to understand the biogeography of archaic and early modern humans in northern Asia. Drafted all research designs and grant proposals, established all cooperative agreements and memoranda, co-directed all fieldwork, authored annual reports, developed GIS-based data archives, co-authored professional peer-reviewed publications, and delivered both public and professional presentations. Funded by the Leakey Foundation.

Survey and Excavation to Study the Origins of Agriculture in China's Western Loess Plateau, Gansu Province, China. Served as Principal and co-Principal Investigator on a series of projects funded by the Wenner-Gren Foundation, the National Geographic Society, the Pacific Rim Research Program of the University of California, and the US National Science Foundation. Drafted all research designs and grant proposals, established all cooperative agreements and memoranda, co-directed all fieldwork, co-authored annual reports, developed GIS-based data archives, co-authored professional peer-reviewed publications, and delivered both public and professional presentations.

Angela Ngoctien Pham, RPA

Archaeologist

Angela. Pham has over 7 years' experience as an archaeologist and archaeological lab director, with a variety of technical skills, including surveying, excavation techniques, testing, data recovery, monitoring, artifact identification, cataloging, and preservation and curation. She is highly knowledgeable about the California Environmental Quality Act and National Historic Preservation Act Section 106 and Section 110. She works closely with Native American tribal members and manages and supervises field crews and lab technicians, and directs, plans, and organizes field projects. Ms. Pham authors site inventory reports, cultural technical reports, and Department of Parks and Recreation (DPR) site records. She conducts record searches and research using the National Archaeological Database and the California Historic Resources Information System at the South Coastal Information Center.

EDUCATION

San Diego State University, California
MA, Applied Anthropology, 2011
San Diego State University, California
BA, Anthropology, 2008

CERTIFICATIONS

Registered Professional Archaeologist

PROFESSIONAL AFFILIATIONS

Society for American Archaeology,
San Diego Archaeological Society
Society for California Archaeology

Project Experience

Development

City of San Diego Underground Utilities On Call, City of San Diego, California. As Principal investigator, supervised the cultural resources mitigation program during construction. Coordinated cultural field monitoring, authored technical reports, prepared DPR forms and conducted site evaluations when applicable.

Patton State Hospital Project, California Department of General Services, County of San Bernardino, California. As project manager, supervised the cultural resources mitigation program during construction improvements to the facility in accordance with the mitigation measures and treatment plan for the project.

Proctor Valley Village 14 and Preserve Project, County of San Diego, California. Conducted field survey and site evaluation, prepared cultural resources report, and an archaeological data recovery plan for a component of the Otay Ranch master-planned community.

Archaeological Survey for the Torrey Highlands Office Project, The Preserve at Torrey Highlands LLC, San Diego County, California. As field director, conducted intensive pedestrian survey for proposed project area. Identified all potential impacts to existing and newly recorded cultural resources. The project involves development of a 450,000-square-foot office project in the Torrey Highlands community of San Diego, located south of State Route 56 along the future extension of Camino del Sur. The area of potential effects, consisting of the 11.1-acre project site, is bounded on three sides by undeveloped land within the City's Multi-Habitat Preservation Area.

Yokohl Ranch Cultural Resources, The Yokohl Ranch Company LLC, Tulare, California. As crew, Ms. Conducted archaeological data recovery in Yokohl Valley.

Archaeological Survey for the Canyon Spring Healthcare Center, City of Riverside Community and Economic Development Department, Riverside, California. As field director, conducted intensive pedestrian survey for proposed project area. Identified all potential impacts to existing and newly recorded cultural resources.

Archaeological Survey for Lake Mission Viejo Project, Lake Mission Viejo Association, Orange County, California. As field director, conducted intensive pedestrian survey for proposed project area. Identified all potential impacts to existing and newly recorded cultural resources.

Archaeological Testing and Monitoring for the Hamilton Hospital Project, Marin County, California. As field director, conducted extended Phase I testing and monitored auguring activities for the future construction and improvement of the Hamilton Hospital. Dug shovel test units, used Global Positioning System (GPS), and documented excavation.

Archaeological Survey and Testing for the Proctor Valley Village 14 & Preserve Project, Jackson Pendo Development, San Diego County, California. As archaeologist, conducted intensive pedestrian survey and field testing for proposed project area. Identified all potential impacts to existing and newly recorded cultural resources.

Archaeological Site Visit for the 888 North Sepulveda Boulevard Hotel Project, OTO Development, Los Angeles County, California. As archaeologist, conducted a pre-construction archaeological site visit with clients and construction foreman. Discussed standard archaeological field protocols.

Archaeological Monitoring for the Corona Brine Line Project, Santa Ana Watershed Project Authority, Riverside County, California. As archaeologist, coordinated with Charles King Company (construction company) project managers and construction foreman, conducted archaeological monitoring for the installment of the brine line.

Education

Archaeological Testing for the Mission Beach Elementary School Project, San Diego County, California. As field director, conducted Phase II of testing for future construction at the Mission Beach Elementary School. Dug shovel test units, used GPS, and documented excavation.

Parking Structure Project, Academy of Our Lady of Peace, San Diego, California. Conducted cultural monitoring, site evaluation, and report preparation.

San Marcos High School Monitoring Project, San Marcos Unified School District, San Diego County, California. As I archaeological monitor, conducted field monitoring during rough grading and trenching phases of construction at San Marcos High School.

Energy

Drew Solar Project, Drew Solar LLC, Imperial County, California. As principal investigator, Ms. Pham coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a negative technical letter report for this solar development. The mitigation strategy did not require additional archaeological monitoring or other work based on the lack of archaeological sites, and the low potential for encountering unrecorded subsurface cultural resources. Recommendations were submitted to Imperial County.

Jacumba Solar Extended Phase 1, NextEra, Jacumba, San Diego County, California. As field crew, conducted site examinations and limited shovel test pit excavation; co-authored letter report of findings.

Third Party Compliance Monitoring for the Tule Wind Project, San Diego County, California. Archeological compliance monitor, oversaw and implemented compliance assistance to the Bureau of Land Management to ensure adherence to mitigation measures and proper treatment of cultural resources. (2012-2013)

Inyo-Barren Ridge North American Electric Reliability Corporation (NERC) Compliance, Los Angeles Department of Water and Power, Kern, Inyo, and Mono Counties, California. As archaeologists co-authored the monitoring project report.

Blythe Solar Power Project, NextEra, Riverside County, California. As lead archaeologist, conducted compliance monitoring on Bureau of Land Management (BLM) land. Responsible for on-site implementation of the archaeological monitoring program, including daily safety briefings. Oversaw field monitors. Coordinated the work of sub-consultants or other contractors participating in archaeological field investigations. Assisted with report preparation.

McCoy Solar Energy Project, Riverside County, NextEra, California. As lead archaeological monitor, conducted and coordinated archaeological compliance monitoring, archaeological surveys, and Section 106 testing on BLM land for construction of access roads, substation, restoration activities, and a 230-kilovolt generation tie-line for the McCoy Solar Project. Responsible for on-site implementation of the archaeological monitoring program, including daily safety briefings. Oversaw field monitors. Coordinated the work of sub-consultants or other contractors participating in archaeological field investigations. Assisted with report preparation.

Cultural Resources for the Devers-Palo Verde 500-kilovolt (kV) Transmission Line, Southern California Edison (SCE), Riverside County, California. Served as archaeology monitor responsible for available data review, field survey, field monitoring, and cultural resource compliance maintenance among contractors.

Archaeological Monitoring for the Block 4N North Encanto Underground Utility Project, City of San Diego, San Diego County, California. As archaeologist, coordinated with San Diego Gas & Electric Company (SDG&E) project managers and construction foreman, and conducted archaeological monitoring for underground utilities trenching.

Cultural Resources On-Call Contract, SDG&E, San Diego, Riverside, Imperial, and Orange Counties, California. As field director, organized and led archaeological surveys of project areas on an as-needed basis. Identified, recorded, and mapped sites within the project areas. Provided management recommendations, pole placement recommendations, and cultural resources monitoring. Wrote DPR forms and technical reports regarding project findings.

Tule Wind Geotechnical Monitoring and NRHP Nomination Project, Iberdrola Renewables, San Diego County, California. As lead project monitor, coordinated and conducted monitoring for geotechnical work during the field operations of the Tule Wind Project.

Transportation

California High-Speed Rail Project Construction Package 2-3, Fresno to Bakersfield, Dragados/Flatiron Joint Venture, Fresno to Bakersfield, California. Conducted pedestrian surveys on the Fresno to Bakersfield Section of the project. Conducted daily compliance reporting.

Archaeological Monitoring for the City of San Juan Capistrano Highway 74 Project, Caltrans, Orange County, California. As archaeologist, coordinated with project managers and construction foreman, and conducted archaeological monitoring for Highway 74 improvements.

Water/Wastewater

Archaeological Testing for the Hidden Ridge Recycled Water Pipeline Project, Santa Margarita Water District, Orange County, California. As archaeologist, conducted extended phase I testing for the installment of a recycled water line to serve the Hidden Ridge community within the Santa Margarita Water District service area.

Archaeological Monitoring for the Line B, Project, Riverside County Flood Control and Water Conservation District, Riverside County, California. As archaeologist, coordinated with WINCO project managers and construction foreman, conducted archaeological and paleontological monitoring for all trenching activities for the pipeline.

Archaeological Survey for Lake Morena Dam and Outlet Project, San Diego County, California. As field director, directed field crew and conducted intensive pedestrian survey for proposed project area. Identified all potential impacts to existing and newly recorded cultural resources.

Archaeological Survey for Lake Morena Reservoir Project, City of San Diego Public Utilities Department, San Diego County, California. As field director, conducted intensive pedestrian survey for proposed project area. Identified all potential impacts to existing and newly recorded cultural resources.

Little Lake Line B Town Drain System Construction Project, Riverside County Flood Control and Water Conservation District, Riverside County, California. Served as cultural and paleontological monitor.

Relevant Previous Experience

San Diego Mission de Alcalá Collections Management Project, San Diego County, California. As associate archaeologist, participated in the long-term management of the San Diego Mission artifact collections. Upgraded the archaeological collections to current archival and curation standards.

County of San Diego Fuel Reduction Parcel Preparation Program in Julian, Whispering Pines, and Along State Route 78/79, Environmental Resource Solutions Inc., San Diego County, California, 2013. As associate archaeologist, performed a cultural resources survey of the project area. Created avoidance measures in consultation with ERS and the County of San Diego and prepared a technical report.

Cultural and Historical Resources Report and Impact Analysis for the Elvira to Morena Double Track Project, HDR Engineering Inc., San Diego, California 2013. As associate archeologist, performed a cultural resources survey of the double track project area, including a visual impact of buildings within the indirect area of potential effect, and an evaluation of the railroad and associated railroad bridges and features.

Archaeological Testing for the Sorrento to Miramar Double Track Project, BRG Consulting for San Diego Association of Governments (SANDAG), San Diego County, California, 2013. As field director, conducted on-site water screening and lab processing with archaeological crew.

Archaeological Survey for the Padre Trail Inn Project, Helix Environmental Planning, San Diego County, California, 2013. As field director, conducted intensive pedestrian survey for project area. Identified all potential impacts to existing and newly recorded cultural resources.

Stabilization and Rehabilitation of the San Diego Mission de Alcala Archaeological Collections, Mission Basilica San Diego, San Diego County, California, 2013. As laboratory director, conducted the stabilization and rehabilitation of archaeological collections that are currently residing at the San Diego mission. Brought the collections up to present federal curation standards. Recommended options for proper long-term curation of collections.

Archaeological Survey for the Greater Julian Tree Removal Project, Julian, County of San Diego, California, 2013. As field director, conducted intensive pedestrian surveys for all areas that are part of the San Diego County fuels reduction program. Identified all potential impacts to existing and newly recorded cultural resources.

Archaeological Survey for the Gateway Road Project, Helix Environmental Planning, Calexico, Imperial County, California, 2013. As field director, conducted intensive pedestrian survey for 0.5-acre property. Recorded potential impacts to cultural resources.

Archaeological Monitoring for the Tule Wind Project, Iberdrola Renewables Inc., San Diego County, California, 2013. As supervisor archaeologist, conducted monitoring for geotechnical work in compliance with BLM requirements for Section 106 of the National Historic Preservation Act (NHPA). Surveyed and recorded existing and new sites located near geotechnical testing locations.

Archaeological Monitoring for the Black Mountain MET Tower Project, BLM, Imperial County, California, 2013. As supervisor archaeologist, conducted pedestrian survey prior to construction and created an access route to MET Towers. Monitored all construction activity.

Archaeological Survey for the Rosemary's Mountain Quarry Expansion Project, Granite Construction, San Diego County, California, 2013. As archaeologist, conducted an intensive pedestrian survey in order to determine if any previous or new cultural resources could be encountered during construction expansion. **Archaeological Survey for the Otay Mesa Cactus Road Project, U.S. Army Corps of Engineers, San Diego County, California, 2013.** As field director, conducted an intensive pedestrian survey in compliance with both NHPA and CEQA guidelines. Determined the presence and absence of any additional cultural resources within the project area.

Archaeological Testing and Monitoring for the 10th Avenue and Urbana Apartments Project, H.G. Fenton Company, San Diego County, California, 2012–2013. As supervisor archaeologist, conducted testing and trench excavation prior to construction of project area. Monitored all ground disturbance activities. Collected and recorded any cultural resources.

Archaeological Testing and Monitoring for the 15th and Market Apartments Project, 15th and Market Investors LLC, San Diego County, California, 2012–2013. As field director, conducted pre-construction subsoil testing and construction grading and demolition monitoring. Determined if any

significant cultural resources were either present or absent. Recorded and documented any significant structures or features during construction.

Archaeological Testing for the Sorrento to Miramar Double Track Project, SANDAG, San Diego County, California, 2012. As field director, conducted on-site water screening and lab processing with archaeological crew.

Archaeological Survey for the Woodward Project, Helix Environmental Planning, San Diego County, California, 2012. As field director, conducted Phase I cultural resources survey for future development.

Archaeological Testing and Monitoring for the North Country Transit District, Sorrento to Miramar Project, ABC Construction, San Diego County, California, 2012. As field director, conducted test excavation in order to determine if cultural resources were located in construction area. Also conducted construction monitoring.

Archaeological Testing for the Padre Dam Eastern Service Area Secondary Connection-Alternative Site Location Project, Helix Environmental Planning, San Diego, California, 2012. As field director, conducted Phase II testing for future installment of reservoir, tanks, and water pumps. Dug shovel test units, used GPS, documented excavation, and supervised field crew.

Archaeological Evaluation for the Marine Corps Base Camp Pendleton Conjunctive Use Project, MCB Camp Pendleton, San Diego County, California, 2012. As associate archaeologist, conducted pedestrian survey in order to identify any cultural resources located on Camp Pendleton and Fallbrook boundaries of the area of potential effect.

Archaeological Monitoring for the Lusardi Creek Restoration Project, Dudek, San Diego County, California, 2012. As field director, conducted monitoring for the removal of invasive species adjacent to Lusardi Creek. Identified any cultural resources that were uncovered during the removal of invasive plants.

Archaeological Data Recovery and Monitoring for the Palomar College Mitigation Project, Palomar College District, San Diego County, California, 2012. As associate archaeologist, conducted controlled excavation units, water screened excavated soil, and lab processed all cultural material found on site.

Archaeological Data Recovery for the North Country Transit District, Sorrento to Miramar Project, ABC Construction, San Diego County, California, 2012. As associate archaeologist, conducted controlled unit excavations, water screened soil, and conducted lab processing both in the field and the lab. Client Reference: ABC Construction Co., Inc., 619.239.3428.

Archaeological Survey and Monitoring for California Department of Transportation (Caltrans) State Route 76 project, Caltrans District 11, San Diego County, California, 2011. As field director, conducted survey and monitored trenching for proposed State Route 76 road expansion.

Broadstone Little Italy Archaeological Testing and Monitoring, San Diego Natural History Museum, San Diego County, California. As lead project archaeologist, conducted both the testing and monitoring during field operations and prepared the initial report for the project.

Archaeological Survey for the De Luz Pole Replacement Project, SDG&E, San Diego County, California, 2011. As field director, supervised and conducted cultural surveys for future power pole replacements.

Archaeological Survey for the LNL UG Gateway, SDG&E, Laguna Nigel, Orange County, California, 2011. As field director, supervised and conducted surveys for future power pole replacements.

Archaeological Survey of SDG&E Power Poles, SDG&E, Palomar Mountain, San Diego County, California, 2011. As field director, conducted preconstruction survey of 19 power poles on Palomar Mountain.

Archaeological Survey and Monitoring for the Devers Palo Verde 2 Project, Southern California Edison, Riverside County, California, 2011. As field director, supervised and conducted survey and monitoring for proposed substation location. Coordinated work with Southern California Edison. Marked off areas of culturally sensitive materials.

Wood-to-Steel Preconstruction Archaeological Surveys for Tie Line Alternative Pole Replacements, SDG&E, San Diego County, California, 2011. As archaeological field technician, conducted preconstruction survey for future power pole replacements.

Archaeological Survey and Testing for the East County (ECO) Substation Project. SDG&E

Publications

Pham, A. 2011. "Historical and Archaeological Patterns of Water Use in San Diego County: A Case Study of the Whaley House Cistern/Well." Master's thesis; San Diego State University.

Jessica Colston

Associate Archaeologist, Paleontological Technician

Jessica Colston is an archaeological and paleontological field monitor and technician with 11 years' experience. Ms. Colston has extensive field experience including identification and comparative analysis of faunal assemblages, both past and present. Ms. Colston's research interests include zooarchaeology of Pacific coast hunter-gatherers, including examination of trauma and pathology, bone tool production, utilization of faunal materials beyond subsistence, morphometric analysis, taphonomic processes in coastal environments, and human impacts on local fauna.

Project Experience

Development

Lone Oak Monitoring, CWC Lone Oak 24 LLC, San Diego, California.

Coordinated daily archaeological and Native American monitoring for a residential development in an archaeologically sensitive area adjacent to jurisdictional waterways. Authored the Negative Monitoring report at the conclusion of the mass grading component of the project.

Hotel del Coronado North Parking Garage, Hdc South Beach

Development LLC, Coronado, California. Responsible for monitoring into paleontological sensitive soils, and responsible for the recovery of any fossiliferous materials.

Costco Project, La Mesa, California. Drafted the Negative Survey Letter for the development of an adjacent commercial lot for Costco Gas station installation.

Sanborn Archaeological Significant Evaluation, Terra-Gen Development Company LLC, San Diego, California.

Served as archaeological technician and report writer for evaluation excavations on previously recorded sites within the project's APE. Responsibilities included identification and documentation of archaeological features, artifacts and cultural soils. Report writing included the interpretation of the excavation results, both in terms of the artefactual assemblage and the sediments observed throughout the project area.

16970 Sunset Boulevard Cultural, Crest Real Estate, Los Angeles, California. Identified and documented archaeological and historical features on historic property.

235 North La Luna, Thomas and Kelly Adams, Ojai, California. Serving as archaeological technician. Responsible for excavation, documentation and collection of archaeological materials during phase II shovel testing.

Newland Sierra Project, Newland Sierra LLC, San Diego, California. Catalogued and performed data entry for collection previously housed with Palomar College.

Education

*California State University,
Los Angeles*

*MA, Anthropology (Archaeology
emphasis), 2019 (expected)*

University of California, Santa Cruz

*BA, Anthropology (Archaeology
emphasis), 2009*

Certifications

CPR/First Aid

24-Hour HAZWOPER

*Archeological Technician
Certificate*

*Technician-Level Amateur Radio
License, Call Sign K16NTC*

Driver's License, Class M1

Professional Affiliations

*Lambda Alpha National Honors
Society*

Society for American Archaeology

Society for Biological Anthropology

Society for California Archaeology

Del Mar Beach Resort, Del Mar Beach Resort Investors LLC, San Diego County, California. Excavated, identified, and recorded archaeological materials recovered during phase II testing on site. Vertebrate and invertebrate analysis was performed in lab.

Highland Mesa Development II, Highland Mesa Development II Corp., Escondido, California. Served as archaeological technician. Monitored cultural resources during construction development for residential use.

The Yokohl Ranch Company Environmental Impact Report, Tulare County, California. Catalogued and sorted records of artifacts and features collected by project for analysis.

Villa Stora Affordable Housing Project, Villa Stora CIC LP, City of Oceanside, California. Served as archaeological technician. Identified and recorded cultural resources in the project area, which included on-site coordination with Native American monitors and subconsultants.

Twin Oaks Valley Road Residential Project, Pacific Real Estate Services, City of San Marcos, California. Wrote Negative Monitoring Report.

Villa Stora Monitoring, Beazer Homes Holding Corporation, City of Oceanside, California. Served as archaeological technician. Monitored ground disturbance in native soils adjacent to the Mission San Luis Rey during construction activities. This involved identification of ceramics, faunal bone, and historic ranching artifacts and impacts. Coordination with multiple subconsultants and Native American Monitors was also required.

Discovery Village South, City of San Marcos, California. Served as archaeological technician. Responsible for identification of historic and prehistoric cultural resources during survey of undeveloped project area.

973 K Street, SimonCRE Alpha III LLC, City of San Miguel, California. Served as archaeological technician. Responsible for pre-construction survey of lot purposed for commercial development. Responsible for coordination with the Native American monitors and evaluation of surface deposits of cultural materials. Proximity to the San Miguel Mission indicated likely subsurface deposits. Responsible for the preparation of Negative Findings Letter.

Energy

Edwards Additional 2019 Botanical Surveys, Terra-Gen Development Company LLC, San Diego, California. Responsible for co-authorship of the work plan and impact assessment plan for the Edwards AFB Solar Project. Preparation of these documents included the supplemental creation of an archaeological district, under SHPO guidelines. Faunal osteological identification/assessments contributed the work plan by proactively 'clearing' archaeological sites where any osteological material was previously recorded that was not clearly identified as non-human.

Task Order 23 EAFB 2019 Botanical, Terra-Gen Development Company LLC, San Diego, California. Co-authored work plan and impact assessment plan for the Edwards AFB Solar Project. Preparation of these documents included the supplemental creation of an archaeological district, under SHPO guidelines. Faunal osteological identification/assessments contributed the work plan by proactively 'clearing' archaeological sites where any osteological material was previously recorded that was not clearly identified as non-human.

Task Order 24 Cultural HPTP and MOA, Terra-Gen Development Company LLC, San Diego, California. Co-authored work plan and impact assessment plan for the Edwards AFB Solar Project. Preparation of these documents included the supplemental creation of an archaeological district, under SHPO guidelines. Faunal osteological identification/assessments contributed the work plan by proactively 'clearing' archaeological sites where any osteological material was previously recorded that was not clearly identified as non-human.

Centennial Flats Solar Project, Eolus North America Inc., Tonopah, Arizona. Responsible for leading an 11-person crew on a 5,000-acre Phase I survey in 10 survey days. Project area was previously un-surveyed and contained over 100 isolates and 10 newly recorded sites, including both prehistoric and historic habitations and infrastructure. Due to the time constraints of the survey, live coordination between two survey teams, project management, GIS and report writing was required. This was a methodological pilot project that yielded time saving innovations that will be implemented in other projects.

LNTP PreCon Activities, Tule Wind LLC, San Diego County, California. Co-lead on-site archaeologist. Responsible for coordination of monitors for full and appropriate coverage of ground-disturbing activities. Also responsible for identification, documentation, and collection of at-risk cultural resources present within the limits of the LNTP provided for the fence line.

California Flats Fairy Shrimp Project, First Solar Electric (CA) Inc., San Luis Obispo County, California. Responsible for mapping perimeter of vernal pool habitat for fairy shrimp. Occasional on-site inspection to reaffirm perimeter is in good condition.

Infrastructure Mapping on San Bernardino National Forest, Los Angeles Department of Water and Power, California. Performed LADWP field survey as an archaeological technician. Responsible for identification and documentation of cultural resources, both archaeological and historical.

Drew Solar Project, Drew Solar LLC, Imperial County, California. Performed phase I survey of proposed area for solar development. Documented and recorded historic canals and associated resources.

PP1&2 Transmission Line Conversion, Los Angeles Department of Water and Power, California. Responsible for field survey and record search associated with new transmission line work.

Tule Wind Compliance Monitoring, U.S. Bureau of Land Management (BLM), San Diego County, California. Responsible for monitoring and verifying the implementation of permit conditions in relation to cultural resources. This included detail oriented mapping, communication with on-site archaeological and cultural monitors, and documentation of incidents qualifying as violations of the established permit conditions or written agreements.

Blythe Unite 4, NextEra Energy Resources, Riverside County, California. Responsible for ensuring multiple on-site ground-disturbing activities had appropriate archaeological and paleontological monitoring coverage, as well as scheduling and recording of archaeological and paleontological materials discovered in the course of monitoring. This also involved the orchestration and coordination with multiple subconsultants, Native American monitors, archaeological field techs, and paleo monitors. Responsible for final identification and assessment of archaeological resources.

Jacumba Solar Archeological Project, BayWa Renewable Energy, San Diego County, California. As an archaeological monitor, responsibilities included identification, documentation, and collection of culturally significant artifacts and features. Monitoring was conducted in summer weather and required consistent movement to provide coverage for the ground disturbing activities.

McCoy Solar LLC Environmental Services, City of Blythe, California. Responsible for ensuring multiple on-site ground disturbing activities had appropriate archaeological and paleontological monitoring coverage as well as scheduling and recording of archaeological and paleontological materials discovered in the course of monitoring. This also involved the orchestration and coordination with multiple subconsultants, Native American monitors, archaeological field techs and paleo monitors. Responsible for final identification and assessment of archaeological as well as paleontological resources.

California Flats Project, First Solar Electric (CA) Inc., San Luis Obispo County, California. Responsible for ensuring multiple on-site ground-disturbing activities had appropriate archaeological and paleontological monitoring coverage, as well as scheduling and recording of archaeological and paleontological materials discovered in the course of monitoring. This also involved the orchestration and coordination with multiple subconsultants, Native American monitors, archaeological field techs, and paleo monitors. Responsible for final identification and assessment of archaeological and paleontological resources.

Jacumba Solar, Swinerton Builders, San Diego County, California. Served as archaeological monitor and was responsible for ensuring multiple on-site ground disturbing activities had appropriate archaeological monitoring coverage. Also responsible for the scheduling and recording of archaeological materials discovered in the course of monitoring.

McCoy Solar Energy Project, City of Blythe, California. Served as archaeological lead monitor and was responsible for ensuring multiple on-site ground disturbing activities had appropriate archaeological monitoring coverage as well as scheduling and recording of archaeological materials discovered in the course of monitoring. This also involved the orchestration and coordination with multiple subconsultants, Native American monitors, archaeological field technicians and paleontological monitors.

BLM Monitoring, Tule Wind LLC, San Diego County, California. Served as third-party archaeological monitor. Responsible for verifying compliance of construction with BLM and County permits and Conditions of Approval.

Military

Camp Wilson Infrastructure Upgrades, RQ Berg JV, City of Twentynine Palms, California. Responsible for coordinating archaeological monitoring with multiple subconsultants on an active military base. Unexploded ordnance training was a key element, as well as historic artifact identification.

Municipal

As-Needed Environmental Services, City of San Diego, California. Served as archaeological technician for historic site visits to nine of the dams within the San Diego Municipal water district's purview. Site visits included the recording of original and altered features of the historical structures and associated buildings. Responsible for the resultant resource descriptions for the present state of the historical resources. Dams visited included: San Vicente, El Capitan, Hodges, Miramar, Murray, Barrett, Upper Otay, Lower Otay and Sutherland.

City of Yucaipa On-Call Contract, California. Responsible for field survey of proposed impact areas for watershed projects. Recorded newly discovered cultural resources and the updating of existing records.

DS 86 BESS, Los Angeles Department of Water and Power, California. Record search at the South Central Coastal Information Center.

As-Needed Watershed and Resource Protection, City of San Diego, California. Wrote Barrett Lake reports.

San Diego Association of Governments Continuing Services Agreement, AECOM Technical Services Inc., San Diego County, California. Monitoring excavations in beach environment requiring railway safety training. Monitoring for this project required both paleontological and archaeological expertise. Responsibilities included identification, documentation and collection of prehistoric, historic and fossiliferous resources.

Resource Management

Double D Mine Project, Mitchell Chadwick, Blythe, California. Performed phase I Field survey around talc mine. Identification of historic and prehistoric resources was required, as well as recording and notifications.

Transportation

High Speed Rail Geotechnical, Dragados-Flatiron Joint Venture, Fresno, California. Performed excavation and identification of human osteological remains. Responsible for appropriate treatment and recording practices with sensitive remains.

Mid-Coast Corridor Projects, PGH Wong Engineering Inc., San Diego County, California. Approved as both an archaeological and paleontological monitor. Responsibilities focused on the identification, collection, and documentation of multiple ground disturbing activities during the course of the day. Railway training and strict adherence to safety protocols was vital. Prioritization of activities was required to provide appropriate coverage to various activities. Detailed documentation for both disciplines was required. Communication with multiple companies was required not only for technical documentation but also efficient use of time in the work day. Finds covered the spectrum from historic features and isolates to paleontological features.

Orange County Transportation Authority Additional Parking at Golden West Transportation Center, City of Huntington Beach, California. As archaeological technician, monitored construction and earth-moving operations for disturbances to archaeological/paleontological resources. Recorded any disturbed materials found. Workdays included working closely and safely around large construction equipment, which required good visual and verbal communication skills with construction personnel.

Water/Wastewater

Emergency Technical Support, Montecito Water District, Santa Barbara County, California. Responsible for field survey for assessment of impacts to archaeological resources during emergency efforts following the Montecito mudslides for FEMA compliance. Coordinated with emergency services for appropriate access and safety.

Hanson El Monte Pond Cultural Monitoring, Sierra Pacific West Inc., San Diego County, California. Responsible for preparation of the negative monitoring letter.

Inland Empire Brineline Reach V Rehabilitation, Santa Ana Watershed Project Authority, City of San Bernardino, California. Served as archaeological technician. Responsible for the monitoring of ground disturbing activities for archaeological resources.

North Broadway Pipeline Cultural Monitoring, Rincon del Diablo Municipal Water District, San Diego County, California. Responsible for the writing/preparation of the Negative Monitoring Report.

Relevant Previous Experience

Development

Bilstein Southwest Rally Cup Series, City of Yuma, Arizona. As an archaeological liaison, advised on proposals for the expansion of current rally series routes through state, federal and privately owned lands in California and Arizona. Conducted research and performed permitting for the rally series via the appropriate owners in compliance with Section 106. (2010–Present)

Catalina Island Metropole Project, Catalina Island, California. Screened back dirt from previous excavations with emphasis on identification of grave goods and the distinction between human and faunal remains. Participated in data analysis and entry into the Microsoft Access database. This data entry involved preliminary identification quality checks as well as metadata quality assurance within the database.

Sunshine Canyon Landfill Project, City of Simi Valley, California. Served as paleontological/archaeological monitor and primarily monitored for paleontological resources in canyon excavation. Daily field identification, recording, and preparation of fossiliferous or archaeological materials were required.

Various Monitoring Projects, Riverside and San Bernardino Counties, California. Served as paleontological/archaeological monitor on multiple projects in Riverside and San Bernardino counties during excavation activities such as grading and trenching, for items of any historical, archaeological, or paleontological significance. Identified and prepared paleontological samples in plaster in the field for transit to lab facilities.

Education

California State University, Los Angeles (CSULA) Coastal California Archaeological Lab Comparative Faunal Collection, City of Los Angeles, California. As founder and manager, established maceration lab compliant with Occupational Safety and Health Administration (OSHA) regulations. The lab specializes in providing students and professionals with an osteological comparative collection for species endemic and introduced along the California coast. This lab is also designed as a teaching lab where students can gain experience in maceration techniques and comparative anatomy.

ANTH 424 Archaeological Research Techniques, CSULA, Point Mugu Field School, Ventura County, California. As graduate assistant/field co-coordinator, taught field school survey, mapping, and excavation techniques as well as monitored the excavation of test units.

ANTH 310 Evolutionary Perspectives on Sex and Gender, CSULA, City of Los Angeles, California. As graduate assistant, assisted the course professor in the form of data entry, grading of papers, proctoring of exams, and chaperoned on the class field trip to the Los Angeles Zoo for primate observations.

Field School, CSULA, Point Mugu State Park, California. As field school crew leader/compass skills instructor, taught undergraduates mapping and orienteering techniques using topographic maps, compass, pace measurement and GPS skills. As a crew leader Ms. Colston facilitated the excavation of a test unit and the accompanying analysis of excavated materials.

ANTH 300 Evolutionary Perspectives on Emotion, CSULA, City of Los Angeles, California. Served as graduate assistant and aided the course professor in the form of data entry, grading papers, and the proctoring of exams.

Anthropology Department Assistant, University of California, City of Santa Cruz, California. As anthropology laboratories assistant, processed modern faunal specimens for maceration to museum/archival level quality. Performed/supervised and taught the speciation of common osteological animal remains. Received extensive experience in the curation and cataloguing of incoming material from varying locations, contexts and categories. Made catalogues in both hard copy as well as digitally, with specific experience in FileMaker software. Skills in the use of scalpel blade maceration as well as dermestid beetles were extensively utilized. This position promoted a strong understanding of preservation techniques for different materials if they are to be used as an academic comparative.

Field School Cataloguing System, Cabrillo Community College, City of Aptos, California. Served as student collections analyst. During this final month of the field school learned how to utilize a cataloguing system whose input method was DOS, but also to create new cataloguing systems that were appropriate and commensurate with the scale of the project at hand. Also introduced to basic skills of field identification for historic items, appropriate references, and methods of classifying bone, stone and shell artifacts.

Presidio Field School, Cabrillo Community College, City of San Francisco, California. Served as student excavator. During this portion of the field school, Ms. Colston lived at the San Francisco Presidio and participated in the ongoing field project of excavating the area adjacent to the Officers' mess hall, but was historically the chapel. Methods learned here included using breaking bars and picks to dig through the melted adobe, as well as trowels, shovels, etc., to create pedestals and draw profiles.

Archaeological Technician Certification Course, Cabrillo Community College, Fort Hunter Liggett, Jolon, California.

This was the first month of the three month course for earning the Archaeological Technician Certification. As student field surveyor, Ms. Colston was taught to use both basic and advanced methods of orienteering with topographic maps, compass, and GPS. Skills learned included utilization of latitude/longitude coordinates and Universal Transverse Mercators, township and range, and ethnographic narrative. For practical experience the team camped at Fort Hunter Liggett and performed transect surveys and shovel test pits.

Energy

NRG Power Plant Project, City of El Segundo, California. Served as paleontological/archaeological monitor and monitored for archaeological and paleontological materials in a coastal environment with excavations exceeding 20 feet below sea level. OSHA compliance and other environmental compliance regulations were emphasized.

Federal

U.S. Forest Service Field Survey, Modoc National Forest, California. Served as an archaeological technician. The majority of the job was field survey, recording new sites, monitoring known sites, and completing a federal monitoring form when visiting sites that had not been updated in 10 years or more. Responsible for detailed and accurate completion of federal site forms, positive artifact identification, material identification of artifacts (mostly lithics), ability to hike a minimum of 5 miles in extremely rocky terrain while carrying a 40 pound field pack.

U.S. Forest Service Crew Chief, Modoc National Forest, California. As crew chief, supervised and trained a crew of 3–4 people while conducting Section 110 compliance site recordation of both prehistoric and historic sites. Crew included 2–3 unpaid volunteers and at least one GS-03. This position required the independent completion of federal Environmental Impact Report forms. Detailed proofreading of technical reports for government use was required. The team used GPS navigation, topographic maps in latitude/longitude and Universal Transverse Mercators coordinates, in addition to compass navigation for archaeological site recognition and mapping. This position also included helping train, lead and supervise a Passport in Time (PIT) project, which introduced over 20 volunteers to the archaeological resources of Modoc National Forest. The PIT project had two sessions, which were each one week in duration.

Military

CA-SNI-40 Excavation Project, San Nicolas Island Naval Base, California. As archaeological field and lab assistant, assisted with excavation of CA-SNI-40, a coastal indigenous archaeological site on San Nicolas Island, off the southern coast of California. Analysis of excavated cultural material including bone from sea mammals and birds, shell, and lithics.

Phase 2 Survey Project, Center for Environmental Management of Military Lands, Fort Greely, Alaska. Served as archaeological technician. The team was completing Phase 2 surveys of probable sites while using shovel test pitting techniques to investigate subsurface deposits. Experience in using many tools for excavation depending on soil solidity, including: mattock, pickaxe, shovel, trowel, and ice pick, etc. Due to remote location of survey area, as well as working on military lands, multiple training certifications were received, including bear training, unexploded ordinance training, ARGO amphibious vehicle driving, and excavation through glacial till.

Resource Management

Sunshine Canyon Landfill Monitoring, City of Granada Hills, California. Served as air quality monitor and patrolled a neighborhood downwind of the landfill for offensive odors and recorded the findings. This job required that monitors also be on the lookout for anything unusual in the neighborhood, thus patrollers would act as unofficial members of the neighborhood watch.

Transportation

San Gabriel Mission Alameda Corridor–East Project, City of San Gabriel, California. Screened and excavated area immediately adjacent to Mission San Gabriel. The identification of human and faunal remains was invaluable.

Specialized Training

- Flint Knapping, 2012
- Society for California Archaeology (SCA) Zooarchaeology Workshop, 2011
- SCA Workshop Archaeochemistry Workshop, 2010
- Biohazard/Lab Safety, 2009
- Wilderness Bear Training, 2008
- Unexploded Ordinance Training, 2008

Conference Presentations

“A Spatial Analysis of the Distribution of Bone Tools at CA-SNI-25.” 2014. Poster presented at the Society for American Archaeology 79th Annual Meeting. Austin, Texas.

“California Spiny Lobster (*Panulirus interruptus*) in the Archaeological Record.” 2014. Presented at Society for California Archaeology 48th Annual Meeting. Visalia, California.

“Small Island, Big Connections: An Investigation into the Cultural Network Implications of the Redwood Box Cache.” 2013. Presented at Society for California Archaeology 47th Annual Meeting. Berkeley, California.

“Quilted Subsistence Patterns: A Middle Holocene Food Tradition on San Nicolas Island, California.” 2013. Presented at Society for California Archaeology 47th Annual Meeting. Berkeley, California.

“Preliminary Analysis of a Mainland Shell Midden: CA-VEN-395.” 2013. Presented at Society for California Archaeology 47th Annual Meeting. Berkeley, California.

“Analyzing the Hafted and Unhafted Bifaces from the Redwood Box Cache Feature, San Nicolas Island, California.” 2013. Presented at Society for California Archaeology 47th Annual Meeting. Berkeley, California.

“Historic Artifacts Recovered from the Redwood Box Cache on San Nicolas Island, California.” 2013. Program of the 8th California Island Symposium. Ventura, California.

“Using Cranial Morphometrics to Investigate the Domestication of Foxes on San Nicolas Island.” 2012. Program of the 46th Annual Meeting of the Society for California Archaeology. San Diego, California.

“Using Cranial Morphometrics to Investigate the Domestication of Foxes on San Nicolas Island.” 2012. Presented at Student Research Conference, California State University, Los Angeles. Los Angeles, California.

Awards

Above and Beyond Volunteerism Award, Bilstein Southwest Rally Cup, 2013

California State University, Los Angeles (CSULA) Emeriti Fellowship, 2012

Fund to Support Graduate Students in Research, Scholarship, and Creative Activities, 2012

CSULA Travel Support Scholarship, 2012

Ladies Auxiliary Continuing Education Scholarship, Veterans of Foreign Wars Post No. 2075, Hawthorne, California, 2010

Academic Jacket Award, Los Angeles Unified School District, California, 2005

Advanced Placement Scholar Award, 2004

Patrick Hadel

Associate Archaeologist and Paleontological Field Technician

Patrick Hadel is an archaeologist with over 10 years' experience in cultural resource interpretation and preservation, as well as archaeological field methodology. Mr. Hadel has extensive experience in all phases of archaeology, including survey, evaluation, data recovery, and monitoring as field crew and field director. He is also well versed in organizing and managing of small and large teams to complete physically demanding research projects in remote and harsh environments safely and effectively.

Project Experience

Development

Palm Avenue Distribution Center, City of San Bernardino, California. Served as archaeological and paleontological technician monitoring excavation for this warehouse/distribution center construction.

235 North La Luna, Phase II Evaluation, City of Ojai, California. Served as archaeological technician for the evaluation of a property located near a well-known prehistoric village site slated for residential development.

Yucaipa Wilson Basin III, Phase II Evaluation, City of Yucaipa, California. Served as archaeological technician for the testing of archaeological sites identified in a residential expansion.

Proctor Valley Village 14, Jackson-Pendo Development Co., San Diego County, California. Served as archaeological technician. Participated in the evaluation excavation of 53 prehistoric and historic sites for a 1,300 acre residential development. Acted as laboratory technician processing artifact collection; assisted with lithic analysis.

Yokohl Ranch Development, Yokohl Ranch Company, Tulare County, California. Served as archaeological technician. Participated in survey of 1,900 acres and excavation of 110 prehistoric and historic archaeological sites in locations for a residential development project; acted as laboratory technician sorting and cataloging artifacts; assisted with preparation of DPR forms.

Archaeological Test Excavation, Monitoring, and Mitigation Project for the Casa de Bandini/Cosmopolitan Hotel in Old Town San Diego State Historic Park, California State Parks, San Diego, California. Served as field technician. Excavated conducted monitoring, testing, and mitigation for the remodeling and restoration of the ca. 1870's Cosmopolitan Hotel. Included test excavations in the interior of the Bandini adobe as well as exterior courtyard and porch.

Energy

Jacumba Solar Project, Baywa/Swinerton/NextEra, Jacumba, San Diego County, California. Served as field director for Phase I pedestrian survey of 200 acre opens space preserve. Acted as field technician for Phase II distributional testing of 100 acre solar facility; acted as field director lead archaeological monitor during project

EDUCATION

San Diego City College

AA, Anthropology (Awaiting Petition approval)

CERTIFICATIONS

Anza Borrego Desert Paleontology Society Certification (2019 - In Progress)

California Archaeological Fieldwork, San Diego City College

Cultural Resource Management Workshop, Archer Institute

PROFESSIONAL AFFILIATIONS

Society for California Archaeology

California Archaeological Site Stewardship Program

American Center for Mongolian Studies

Society for American Archaeology

construction. Daily tasks for monitoring phase involved interaction with the construction contractors, facilities management, biologists, archaeologists, and Native American monitors to facilitate construction in compliance with all local, state and federal regulations in a culturally sensitive area; identified and excavated numerous thermal features, artifact scatters, and human remains during construction.

Cal Flats Solar Project, McCarthy Construction and First Solar Inc., Shandon, Monterrey and San Luis Obispo Counties, California. Served as archaeological monitor and crew chief during construction of a 1,700 acre solar facility. Worked closely with construction contractors and Native American monitors to conduct field operations in compliance with all state and federal regulations.

Tule Wind, Bureau of Land Management and Avengrid Renewables Inc., McCain Valley, San Diego County, California. Served as third-party archaeological monitor for the BLM ensuring the project maintained compliance with project mitigation measures and federal regulations.

Blythe Solar Power Project, NextEra, Blythe, California. Served as archaeological monitor for a 6.4 square mile solar field. Ensured construction contractors were in full compliance with project mitigation measures and federal regulations.

California Valley Solar Project, NRG/Sunpower, California Valley, San Luis Obispo County, California. Served as lead archaeological monitor and field director for construction of a 1,900 acre solar project. Managed a crew of 5–10 archaeologists and Native American Consultants. . Duties included: monitoring all soil disturbance for cultural resources, building and maintaining Environmentally Sensitive Area barriers and signage to protect cultural resources from construction impacts, and providing consultation to contractors to facilitate their compliance with all mitigation measures, state and federal cultural regulations, and to maintain an open and healthy cultural dialogue with the local Native American community.

Ocotillo Wind, Pattern Energy, Ocotillo, Imperial County, California. Served as archaeological monitor during construction of a 112 turbine wind farm situated in a very culturally and archaeologically sensitive location. Daily tasks included working closely with Native American monitors and construction personnel to ensure compliance with all mitigation measures and federal regulations.

Tule Wind Project, HDR Inc., San Diego County, California. Served as archaeological technician. Performed Class I and Class II pedestrian survey for 4,900 acre wind energy project; documented over 100 archaeological sites.

Sunrise Powerlink Project, San Diego Gas and Electric, San Diego and Imperial Counties, California. Served as lead archaeological monitor during construction of a 221-mile long high voltage electrical transmission line project. Acted as archaeological technician during the Phase I survey; recorded over 100 prehistoric and historic archaeological sites also acted as a Technician the Phase II evaluation and excavation of sites discovered during the survey portion.

City of San Diego As-Needed Contract, San Diego, California. Served as archaeological monitor for the installation of underground utilities on 10 separate projects throughout the City of San Diego. Acted as archaeological technician wet screening excavated sediments to recover human remains.

Federal

Dry Canyon Munitions Remediation, Army Corps of Engineers / Dawson Technical, Los Padres National Forest, Ventura, County, California. Served as archaeological monitor, accompanied an

Unexploded Ordinance team surveying for munitions during reconnaissance cleanup evaluation in a WWII-era artillery range. Performed a pedestrian survey of munitions sampling areas prior to activities. Documented nine new archaeological sites and updates eight previously recorded site; directed crews to avoid archaeological sites.

Military

Camp Wilson Facilities Upgrade, NAVFAC Southwest, Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms, San Bernardino County, California. Served as archaeological monitor during the installation of upgrades to the Camp Wilson training facility on MCAGCC. Documented multiple isolates and directed crews to avoid significant sites in the vicinity of the project.

Delivery Order 30 Survey, NAVFAC Southwest, MCAGCC Twentynine Palms, San Bernardino County, California. Served as archaeological technician, participated in surveying numerous proposed landing zones throughout MCAGCC working closely with BEARMAT range safety and base personnel. Recorded more than a dozen new prehistoric archaeological sites.

Transportation

San Elijo Lagoon Double Track Project, AECOM, Encinitas and Solana Beach, California. Served as archaeological and paleontological monitor during construction of a second mainline railroad track. Coordinated closely with project biologist, Native American monitor, and construction contractors to ensure the project was completed in compliance with all project mitigation measures and state and federal regulations.

Mid Coast Rail Project, PGH Wong Engineering, San Diego, California. Served as archaeological monitor during construction of a second mainline railroad track and the installation of a double-track expansion of the Blue Line Trolley. Daily activities included working closely with biologists, Native American monitors, and construction personnel to complete the project in compliance with all mitigation measures and state and federal regulations.

Water/Wastewater

Barrett Lake Survey, City of San Diego, City of San Diego, California. Served as archaeological technician. Participated in the pedestrian survey of the lake shore area while the lake was at a historic low to identify potential impacts to archaeological sites during water level drawdowns; recorded 35 sites and seven isolates; prepared DPR forms and site descriptions for the survey report.

Otay River Estuary Restoration Project, Poseidon Resources, Imperial Beach, California. Served as archaeological technician. Participated in the evaluation excavation of four prehistoric sites, including an ethnohistoric village site; as laboratory technician, sorted and cataloged recovered materials.

Relevant Previous Experience

Ikh Nart Reserve, Dornogobi Province, Mongolia. Served as staff archaeologist. The Anza-Borrego Foundation, in partnership with Denver Zoo, Earthwatch, and the Mongolian Academy of Sciences, has a cultural resource identification and preservation program at the Ikh Nartiin Chuluu biological reserve in the Northern Gobi region of Mongolia. As a staff archaeologist, led field crews during field survey, excavation, ethnographic research; with the help of local families and herders, local archaeologists, and US-based archaeologists, created a public heritage preservation outreach program for cultural resource conservation; implemented programs to raise international awareness for the preservation of cultural resources.

Gaitaud Development and Design, San Diego, California. Served as construction foreman assistant in high-profile residential construction projects throughout San Diego County. Managed operations of laborers and skilled labor technicians during the process of residential development. Maintained safety standards and environmental compliance for various residential and commercial construction projects throughout San Diego County.

Specialized Training

- Field Data Collection: All Trimble products, ArcGIS, Pathfinder, CalTOPO, Total Station, GPR, Collector Apps, and Digital Theodolite.
- Extensive Construction and Development Knowledge: Operational knowledge of construction methods and terminology, experience working closely with skilled labor and construction management, lifelong experience with the world of construction, development and its various concerns.

Conference Presentations

"Working Towards an Exportable Indigenous Heritage Management and Cultural Ranger Program in the Ikh Nart Nature Reserve, Mongolia." Co-Authored with Terendagva Yadmaa, Ph.D., Joan Schnieder Ph.D., and Jennifer Farquhar, M.A. 2015. Presented at the Society for American Archaeology Annual Conference, San Francisco, California.

"Investigations at Burgas Ni Am Buddhist Monastery in the Northern Gobi, Mongolia." Co-Authored with Tserendagva Yadmaa, Ph.D. and Dalantai Sereuya. 2014. Presented at the Society for American Archaeology Annual Conference, Austin, Texas.

"A Mongolian Quarry Landscape in the Northern Gobi." Co-Authored with Joan Schneider Ph.D. and Tserendagva Yadmaa, Ph.D. 2014. Presented at the Society for American Archaeology Annual Conference, Austin, Texas.

"Toward a Cultural Heritage Management Program for Ikh Nart Nature Reserve, East Gobi Province, Mongolia: A Pioneer International Effort Based on the California State Parks Cultural Resources Preservation Model in the Eastern Gobi Desert of Mongolia." 2013. Poster presented at the Society for American Archaeology Annual Conference, Honolulu, Hawaii.