Cultural and Paleontological Resources Assessment

TTM ~~14514-4~~ 20304 Project

Town of Apple Valley, San Bernardino County, California
APN 0472-351-44

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DUKE CRM

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Per California Government Code 6254.10 archaeological site location information is exempt from the California Public Records Act. Therefore archaeological site location information should be kept confidential and not be made available for public view.

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MANAGEMENT SUMMARY

Duke Cultural Resources Management, LLC (DUKE C R M) is under contract to MLH, LLC (Client) to provide cultural/paleontological resources services for the Tentative Tract Map (TTM) 14514-4 Project (Project), located in the Town of Apple Valley, County of San Bernardino, California. The Project area is 55.24 acres and is located on Parcel 4 of Parcel Map Number 12999. The purpose of this report is to document identification efforts for cultural/paleontological resources as required by the California Environmental Quality Act of 1970 (CEQA). The Town of Apple Valley (Town) is the lead Agency for CEQA.

The cultural and paleontological resources assessment includes records searches, archival research, and a field survey. The paleontological records search did not identify any fossil localities in or near the Project. A review of available online and other published literature did not reveal any nearby fossil localities in deposits similar to those underlying the Project. Due to the low paleontological sensitivity of the underlying geologic units, and the lack of documented fossil localities nearby, paleontological construction monitoring is not recommended for the Project.

The cultural resources records search did not identify any archaeological or historical resources within one mile of the Project. No archaeological resources were discovered during the field survey. Due to the lack of documented archeological resources in the Project and the surrounding area, and the high level of disturbance observed during the field survey, the Project has a low sensitivity for archaeology. Due to the shallow depth of soil and previous ground disturbance in the Project, it is not anticipated to encounter intact buried cultural resources; therefore, archaeological monitoring is not recommended.

If the Project description changes additional studies may be warranted. If archaeological and/or paleontological resources are discovered during construction, a qualified archaeologist/paleontologist shall be retained to assess the nature and significance of the discovery. If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of the origin and disposition of the remains pursuant to State Public Resources Code Section 5097.98. The County Coroner must be notified immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

INTRODUCTION

Duke Cultural Resources Management, LLC (DUKE CRM) is under contract to MLH, LLC (Client) to provide cultural/paleontological resources services for the Tentative Tract Map (TTM) 14514-4 Project (Project), located in the Town of Apple Valley, County of San Bernardino, California. The Project area is 55.24 acres and is located on Parcel 4 of Parcel Map Number 12999.

Regulatory Environment

CEQA

The California Environmental Quality Act (CEQA) guidelines define a *historical resource* as a resource listed in or determined eligible for listing in the California Register of Historical Resources (CRHR). This includes cultural resources that have been determined eligible for a local register through a local historic resources survey. A cultural resource is a *historical resource* if it is considered eligible for the National Register of Historic Places (NRHP). A resource may be considered potentially eligible for listing in the CRHR if it meets any of the four criteria listed below:

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

To be considered a *historical resource* a cultural resource should also possess integrity of location, design, setting, materials, workmanship, feeling and association. As used here, integrity is defined as the ability of a historical resource to convey its significance. To determine which of these factors are most important will depend on the property being evaluated and which particular CRHR criterion under which the resource is considered eligible for listing.

Furthermore, CEQA necessitates that the lead agency consider whether the project will significantly affect *unique archaeological resources* that may be ineligible for listing in the CRHR and to avoid these unique archaeological resources when possible or mitigate any effects to less than significant levels (PRC 21083.2). As stated by CEQA, a *unique archaeological resource* means an archaeological artifact, object, or site which clearly demonstrates with a high probability that it meets, without merely adding to the current body of knowledge, any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC section 21083.2(a); CEQA Guidelines section 15064.5(c)(4).) However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC 21074(c); 21083.2(h)), further consideration of significant impacts is required.

With the adoption of AB52, CEQA has added a new category of resource, Tribal Cultural Resources (TCR). The TCR is defined in PRC 21074 (a)(1)(A)-(B). Potential impacts to a TCR shall be evaluated using the criterion as applied to a *historical resource/ unique archaeological resource* under CEQA. A TCR may include traditional cultural properties, which are associated with the cultural practices

and beliefs of a living community that link that community to its past and help maintain its cultural identity. TCRs may also include archaeological resources, locations of historic events, sacred areas, sources of raw materials for making tools, sacred objects, or traditional hunting and gathering areas. CEQA provides protection for paleontological resources if they represent "a unique paleontological resource or site" (Section V(c) of Appendix G). CEQA does not provide criteria for "unique," but in their discussion of paleontological resources under CEQA, Scott and Springer (2003) establish five criteria for determining if a fossil or resource is scientifically significant:

1. The fossils provide data on the evolutionary relationships and developmental trends among organisms, both living and extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

Project Description and Location

The Project proposes the development of 94 residential lots within the Equestrian Residential zoning district, with minimum lot size of 18,000 sq. ft., and average lot size of approximately 20,780 sq. ft. The Project is located in the northern half of the Town of Apple Valley in southwestern San Bernardino County. The Project is bound to the south by a private ranch, to the west by Choco Road and an existing housing development, and to the north and east by open space. The Project is located in the SW ¼ of Section 31 of Township 6 North, Range 3 West. It is depicted on the USGS *Apple Valley North, California* 7.5' Quadrangle. See Appendix A for maps of the Project.

SETTING

Natural

California is divided into 11 geomorphic provinces, each naturally defined by unique geologic and geomorphic characteristics. The Project is located in the western portion of the Mojave Desert geomorphic province. The Mojave Desert province is a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed drainage and many playas. The Mojave Desert province is wedged in a sharp angle between the Garlock Fault (southern boundary Sierra Nevada) and the San Andreas Fault, where it bends east from its northwest trend. The northern boundary of the Mojave Desert province is separated from the prominent Basin and Range by the eastern extension of the Garlock Fault. The Mojave Desert province is bound to the south by the Transverse Ranges and Colorado Desert geomorphic provinces, and to the east by the California state line (California Department of Conservation, 2002).

The Project is located east of the San Andreas Fault, an area of southern California that, in contrast to the area west of the fault, has not moved significantly in the past 55 million years (Engebretson, et al. 1985). Locally, the geology is dominated by igneous and metamorphic deposits reaching back to the Mesozoic Era (252 – 66 million years before present [BP]). Two separate phases of magmatic activity, in the Middle Jurassic Period (174 – 163 million years BP) and in the early Cretaceous Period (145 to 100 million years BP), emplaced igneous rocks and metamorphosed overlying sedimentary rocks throughout the Mojave Desert (Walker et al. 2002). These igneous rocks represent a southern extension of the magmatic activity responsible for the Sierra Nevadas and continue through southeastern California into Arizona (Tosdal, et al. 1989). Being harder than the surrounding

sedimentary deposits, the igneous deposits are more resistant to erosion, and form prominent local hills and mountains. The Project is located on the western base of one mountain that is composed predominantly of igneous rocks from the Early Cretaceous, with local deposits composed of material eroded and transported from the mountain onto surrounding lower-elevation areas.

The geology in the vicinity of the Project has been mapped by Hernandez and Tan (2007) at a scale of 1:24,000. A review of this map indicates the Project is largely underlain by two geologic units (Appendix A, Map 4 – Geology).

Biotite granodiorite (Kgd)
Biotite granodiorite is an intrusive igneous rock formation. This unit is composed of fine- to medium-grained biotite granodiorite and hornblende-biotite granodiorite, typically containing plagioclase feldspar, potassium feldspar, quartz, and biotite from the Cretaceous Period (Hernandez and Tan 2007). This unit underlies all of the Project except for the southeast corner. In the Project, this unit is exposed as a piedmont, with a broad, gently sloping bedrock surface covered by a thin (4 – 12 inches thick) veneer of eroded coarse sand and gravel. Biotite granodiorite is not fossiliferous, due to its igneous nature.

Hornblende diorite and gabbro (Jhd)
Hornblende diorite and gabbro is an intrusive igneous rock formation. This unit is composed of fine- to coarse-grained hornblende-quartz diorite, quartz-bearing hornblende diorite, and hornblendite, typically containing stubby hornblende crystals, fine interstitial plagioclase crystals, and minor quartz from the Jurassic Period (Hernandez and Tan 2007). This unit underlies the southeast corner of the Project. Hornblende diorite and gabbro is not fossiliferous, due to its igneous nature.

The Mojave Desert region provides unique, biologic communities. The High Desert's plant communities consist of Creosote, Joshua Tree, Alkali Sink, and Shadscale Scrub. These plant communities provide resources to support small mammals (rats, rabbits), coyotes, bobcats, reptiles (tortoises, snakes, lizards), birds (roadrunners, woodpeckers), and insects (termites, bees, moths) (Schoenherr 1992).

Cultural

Prehistory
Among many, Warren and Crabtree (1986) advanced a cultural chronology for the California deserts which employed an ecological approach; it defined five traditions in prehistory:

I. Lake Mojave (12000–7000 B.P.)
II. Pinto (7000–4000 B.P.)
III. Gypsum (4000–1500 B.P.)
IV. Saratoga Springs (1500–800 B.P.)
V. Protohistoric/Shoshonean (800~200 B.P.)

Warren and Crabtree (1986) viewed cultural continuity and change in terms of various significant environmental shifts. Warren defined the cultural ecological approach for archaeological research used in the California deserts. Many changes in settlement pattern and subsistence focus are viewed as cultural adaptations to a changing environment. Regardless of either synthesis used to understand cultural change through time, prehistoric occupation of the desert can be understood with the broad time periods, climatic information, and cultural manifestations, discussed below.

Early Holocene (11,600 – 8000 BP)
Traditional models of the prehistory of California hypothesize that its first inhabitants were the big game hunting Paleoindians who lived at the close of the last ice-age (~11,000 years before present

[BP]). As the environment warmed and dried, large Ice Age fauna died out, requiring adaption by groups to survive. In the desert regions of California, The Lake Mojave Period has been associated with dry lakes. Human occupation during that period is considered to be the first well defined within the Mojave. Wallace (1962) classified the material culture of this period as consisting mainly of stylized dart points from the Lake Mojave and Silver Lake series, lanceolate projectile points well-crafted bifacial knives, and large domed scrapers.

Middle Holocene (8,000 – 4,000 BP)

In the desert during the middle Holocene, the Pinto Period succeeded the Lake Mojave Period and appears to have been a time of climatic stress, with resultant changes in environment and staple resources, which affected cultural adaptations. As lakes and rivers dried up, plant and animal resources changed. Warren (1984) postulated the populations adjusted to hostile arid conditions by moving to oases in the deserts or to the edges of the desert. This dry period was followed by a moister period in which people returned to the deserts and more plant resources were utilized (Warren 1984). Milling equipment became more prevalent, but similar to the preceding Lake Mojave Period dart points, especially Pinto series points still dominated the material culture. This wet period was followed by another dry spell, which again resulted in decreased desert populations and subsequently led into the Little Pluvial at about 3,950 B.P. (Warren 1984).

Late Holocene (4,000 – 250 BP)

In the southern California desert during the late Holocene, the Late Prehistoric Period began around 1450 B.P., and is marked by the introduction of small projectile points which likely indicate the introduction of the bow and arrow (Warren 1984). Cultural periods assigned to this time frame include the Saratoga Springs Period, which is dominated by the Rose Spring and Eastgate series projectile points, and the Protohistoric Period (B.P. 1300 to historic times), dominated by Cottonwood Triangular and Desert Side notch projectile points. The use of pottery appears in California deserts during the Saratoga Springs Period and continues through the Protohistoric (Warren 1984).

Ethnography

The Project is located in an area that was shared or transitional between several Native American groups at the time of contact with Europeans. Groups that used this area include the Serrano (Vanyume or Desert Serrano), the Kitanemuk, the Kawaiisu, and the Tataviam. These groups are all of Takic family or Numic descent and entered the southern California or the Mojave Desert region roughly 3,500 – 1,500 years BP (Sutton 2009). All of these groups were mobile hunter-gatherers groups with seasonal camps located based on local or regional resources. Due to the distance from the California coast, and the hostility of the desert environments, early European explorers and clergy did not encounter these groups until relatively late in the Spanish Colonial period, typically around 1776.

The Serrano (Vanyume or Desert Serrano)

The Serrano people inhabited the San Gabriel and San Bernardino Mountains, the Mojave Desert in the north and south into the San Bernardino Valley. Serrano is a dialect of the Serran sub-group of the Takic language group (Bean and Smith 1978). Germane to the Project, the Desert Serrano or *Vanyume* lived along the Mojave River corridor and west into the Antelope Valley in the Mojave Desert. The division between the "Mountain Serrano" and the "Desert Serrano" goes back nearly a century to early 20th century ethnographies completed by Alfred Kroeber (1925). He defined the peoples living in the Mojave Desert region around the Mojave River as the "Vanyume", who shared a dialect with other "Serrano" speakers of the region. Bean and Smith (1978) further solidified this division in their definition of the Serrano within the Handbook of North American Indians. The Desert Serrano were known for their unique adaptation to living in the desert conditions year-round with some forays and expeditions to higher altitudes and the Colorado River for different resources

and trade goods. They used the Mojave River as a major trade corridor between the Southwest, the Colorado River valley, coastal California, and the San Joaquin Valley (Sutton and Earle 2017).

The Serrano lived in small villages and hamlets near permanent water sources. The Mountain Serrano lived in villages and hamlets within the Upper Sonoran life-zone (about 3,500 – 6,200 ft. in elevation). Desert Serrano lived in the Mojave Desert, mainly within permanent water sources such as the Mojave River. Sutton and Earle (2017) estimated that the population of Desert Serrano in 1776 to be around 700 people. Villages were usually composed of related family lineages or lineage sets. The Serrano consisted of two patrilineal moieties or clans (Wildcat and Coyote). Clan moiety intermingling was a common occurrence based on economic reciprocity, marriage or ritual. There may be two or more lineage sets in each village, bound by marriage, economic reciprocity or ritual (Bean and Smith 1978).

Structures within the villages were made of thatch of brush or reeds. Villages consisted of dwellings, ramadas, granaries, partially subterranean sweathouses, a ceremonial structure, and a cemetery. The Serrano cremated their dead and completed mourning ceremonies. The leader of the village (*ki·ka?*) lived in the ceremonial structure and maintained ceremonies for each village along with a ceremonial assistant (*paxa·?*). The *ki·ka?* was the spiritual leader for a village and maintained rituals and ceremonies. Unique among Takic speakers, the Serrano would divide control over the sacred space and ceremony between the two major moieties. One moiety would control the position of *ki·ka?* and the ceremonial structure, while the other moiety would control the *paxa·?* and the sacred bundle(*mö·??ĉ*) (Bean and Smith 1978).

The Serrano were hunter-gatherers who exploited a wide variety of environmental zones based on the elevation of their homeland and the seasonality of the resources. Serrano gathered desert plants of the Mojave Desert including Joshua tree flowers, mesquite bean, yucca, cacti, and desert seed plants such as chia. They also gathered higher elevation plants such as pinion nuts and acorns. Hunting was done at all elevations and included a wide variety of large and small game. Food preparation implements included earth ovens, watertight baskets, heated stones, shallow trays, metates, wooden and stone manos, flint knives, stone and bone scrapers, pottery trays and bowls, baskets, and horn and bone spoons and stirrers. The Serrano made baskets, rabbit skin blankets, awls, arrow straighteners, sinew-backed bows, arrows, fire drills, stone pipes, rattles made from turtle shell, tortoise shell, and deer hooves, wood rasps, bone whistles, bull-roarers, flutes, feathered costumes, mats, bags, storage pouches, cordage, and nets (Bean and Smith 1978). Trade with the California coast to the Colorado River occurred fairly regularly. Serrano groups traded mainly mountain resources, such as pinion seeds and yucca to lowland tribes and groups.

Kitanemuk

The Kitanemuk people inhabited the Tehachapi Mountains, the Antelope Valley, the western Mojave Desert, and the Tejon and Paso Creek drainage systems. Ethnographers in the past have assumed that the Kitanemuk were a northern variation of the Serrano culture (Sutton and Earle 2017). The languages share a common lineage. The Kitanemuk language is a dialect of the Serran language branch of the Takic language family like the Serrano and the Tataviam (Blackburn and Bean 1978). Like other Takic cultures, the Kitanemuk lived in sedentary villages that straddled two or more environmental biomes that they could exploit for various seasonal resources. Blackburn and Bean estimated their population to be around 500-1,000 individuals at the time of contact.

Structures within the villages were made of thatch of brush or reeds. Villages consisted of dwellings, ramadas, granaries, partially subterranean sweathouses, a ceremonial structure, and a cemetery. The Kitanemuk lived in permanent winter villages of 50 to 80 people or more. During the late spring, summer, and fall months they dispersed into smaller, highly mobile gathering groups. The Kitanemuk appear to have buried their dead and completed mourning ceremonies, while the other

Serrano groups cremated their dead (Blackburn and Bean 1978). Each village was composed of a leader of the village (*kika?y*), a ceremonial manager (*paka?*), two messengers (*wana?ypats*), shamans (*tsác*) and other ritualists. Unlike other Serran cultures, there was no moiety clan system in Kitanemuk culture.

The Kitanemuk were hunter-gatherers who exploited a wide variety of environmental zones based on the elevation of their homeland and the seasonality of the resources. The Kitanemuk gathered desert plants of the Mojave Desert including Joshua tree flowers, mesquite bean, yucca, cacti, and desert seed plants such as chia. They also gathered higher elevation plants such as pinion nuts and acorns. Hunting was done at all elevations and included a wide variety of large and small game. Like the Serrano, the Kitanemuk used similar food preparation implements like earth ovens, watertight baskets, heated stones, shallow trays, metates, and manos. Trade with the California coast, the San Joaquin Valley, and the southern Sierra Nevada Mountains occurred regularly.

Kawaiisu

The Kawaiisu are a group of Numic-family speakers who live in the Tehachapi Mountains north into the southern Sierra Nevada Mountains, and in the western and northern Mojave Desert including the Coso Mountains, the Panamint Valley and the Panamint Range. The Kawaiisu are not thought to be exigent today (Zigmond 1986).

The Kawaiisu would overwinter in semi-sedentary camps consisting of a large winter house. This winter house (*tomokahni*) was a circular structure with large forked poles supporting as roof brush and thatch and walls of tule or reeds. Other structures are an open air ramada-like structures (*havakahni*), small granaries, and a sweathouse of jacal or earth (*tivikahni*). Temporary structures would be made of brush, and roughly circular. The level of social organization of the Kawaiisu was band-level remaining within familial groups of no more than 10-15 people. There was no name for head person or chief and most organization fell within the family-group dynamic. Zigmond (1986) documented three types of shamanistic beliefs systems the Kawaiisu used: curing shamanism, evil or hexing shamanism, and weather shamanism.

Like other Numic cultures, the Kawaiisu were organized into hunter-gatherer groups who moved seasonally according to available resources. They had a large and complex knowledge of the landscape and resources throughout their territory. Zigmond (1986) recorded that the Kawaiisu identified 233 species of plants for use. Of these plant species, 112 were used for food and beverage, 94 for medicine, 87 for miscellaneous uses, and 27 species for spiritual or religious function. Gathering of food was completed with an array of baskets (seedbeaters, burden baskets, containers, etc.), digging sticks, poles, a brush, and groundstone implements like metates and manos. Bedrock mortars were a common tool for seed and plant production. Hunting was done at all elevations and included a wide variety of large and small game. Traps, nets, and bow and arrow were common ways to procure game.

History

In California, the historic era is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Coastal California was subsumed under Spanish rule beginning in the 18th century. The first Europeans to encounter coastal California were the party of Portuguese explorer Juan Rodríguez Cabrillo, who claimed it for Spain in 1542. Much of the Mojave Desert was beyond Spanish colonial control, and few adventured into the desert region. The first European to pass through the western Mojave area is thought to be Father Francisco Garcés in 1776. Having become familiar with the area, Garcés acted as a guide to Juan Bautista de Anza, who had been commissioned to lead a group

across the desert from a Spanish outpost in Arizona to set up quarters at the Mission San Gabriel in 1771 (Beck and Haase 1974). This is the first recorded group crossing of the Mojave Desert and, according to Father Garcés' journal, the group rested at the headwaters of the Mojave River.

The Mexican Period (1822-1848) began with Mexican independence from Spain and continued until the end of the Mexican-American War (Starr 2005). The Secularization Act resulted in the transfer, through land grants (called ranchos), of large mission tracts to politically prominent individuals. At that time, cattle ranching was a more substantial business than agricultural activities, and trade in hides and tallow increased during the early portion of this period. Until the Gold Rush of 1849, livestock and horticulture dominated California's economy.

The American Period (1848-present) began with the Treaty of Guadalupe Hidalgo, and in 1850, California was accepted into the Union of the United States primarily due to the population increase created by the Gold Rush of 1849. The cattle industry reached its greatest prosperity during the first years of the American Period. Mexican Period land grants had created large pastoral estates in California, and demand for beef during the Gold Rush led to a cattle boom that lasted from 1849–1855. However, beginning about 1855, the demand for beef began to decline due to imports of sheep from New Mexico and cattle from the Mississippi and Missouri Valleys. When the beef market collapsed, many California ranchers lost their ranchos through foreclosure. A series of disastrous floods in 1861–1862, followed by two years of extreme drought, which continued to some extent until 1876, altered ranching forever in the southern California area.

The area of the Town of Apple Valley was historically a very heavily visited location, being a migratory stop along the significant Mojave Indian trail (Hoover, et al. 2002). However, the first permanent residences in the area were not established until 1867, with a farm built by Silas Cox (Ingersoll 1904). The first major business in the area was apple orchards, which spread in the area in the early 1900s and gave the town its name. The arrival of the Great Depression in the 1930s made irrigation for apple orchards too expensive, and many of the orchards were subsequently converted into private ranches.

The modern town of Apple Valley was founded in 1946, when Newton T. Bass and B.J. "Bud" Westlund formed the Apple Valley Ranchos Land Company and marketed the area as a destination resort and quality residential community - "The Golden Land of Apple Valley". The first businesses to market "Apple Valley" were the Apple Valley Inn and Hilltop House, and within ten years of the founding, there were banks, churches and a school, along with a golf course, hospital and 180 businesses. The Town of Apple Valley became official in 1988 when residents voted for incorporation (Town of Apple Valley 2019).

METHODS

Paleontological Research

The San Bernardino County Museum (SBCM) performed a paleontological records search to locate fossil localities within the Project. In addition, Mr. performed a search of the online University of California Museum of Paleontology collections, San Diego Natural History Museum collections, Paleobiology Database, FAUNMAP, and other published literature for nearby (within 3 miles) fossil localities in similar deposits.

Cultural Resources Research

On August 13, 2019 DUKE C R M archaeologist Megan Wilson conducted a cultural resources records search at the South Central Coastal Information Center (SCCIC). The SCCIC is part of the California Historical Resources Information System (CHRIS) and is located at California State University, Fullerton. The records search included a review of all recorded historic and prehistoric

archaeological sites within a one-mile radius of the Project area, as well as a review of known cultural resource survey and excavation reports. Additionally, the California State Historic Property Data File (HPD) was reviewed, which includes the NRHP, CRHR, California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI). Additionally DUKE CRM staff reviewed including historic aerials (NETR 2019; UCSB 2019) and topographic maps (NETR 2019; USGS 2019) as well as local online histories (City of Apple Valley 2019) The internal archives at DUKE C R M were also inspected for relevant background information.

Field Survey

On August 19, 2019 a reconnaissance level pedestrian survey was conducted by DUKE C R M by Megan Wilson and DUKE C R M paleontologist Benjamin Scherzer. The reconnaissance survey included the entire 55.24-acre Project area with careful inspection of exposed ground surface. The survey was performed by walking transects spaced 15 meters apart within and around the Project boundary. Digital photos were taken to document the Project area.

Personnel

The project manager for this Project is Curt Duke. Mr. Duke is the Principal Archaeologist of DUKE C R M. Mr. Duke meets the professional qualifications of the Secretary of the Interior for prehistoric archaeology; he is also a Registered Professional Archaeologist (RPA) who has worked in all phases of archaeology (archival research, field survey, testing and data recovery excavation, laboratory analysis, construction monitoring) since 1994. Mr. Duke holds a Master of Arts (M.A.) degree in Anthropology with an emphasis in archaeology from California State University, Fullerton and a Bachelor of Arts (B.A.) degree in Anthropology from the University of California, Santa Cruz. Mr. Duke has worked throughout southern and Northern California and parts of Arizona and Nevada.

Benjamin Scherzer is a coauthor of this report and reviewed the paleontological record search results. He holds a Master of Science (M.S.) in Earth Sciences from Montana State University, Bozeman. He has more than 10 years of experience in paleontological research, field surveys, fossil salvage, laboratory identification, report preparation, and curatorial experience. Mr. Scherzer is a member of the Society for Vertebrate Paleontology, Geological Society of America, Society for Sedimentary Geology, Paleontological Society, Western Association of Vertebrate Paleontologists, and Pacific Section of the Association of the American Association of Petroleum Geologists. He is also trained in archaeological field methods and identification.

Megan Wilson is an archaeologist and GIS analyst. Ms. Wilson holds an M.A. in Anthropology with an emphasis in Archaeology. Using GIS, her thesis work included a spatial and landscape approach to settlement pattern in the Aliso Creek Watershed in Orange County. She meets the Secretary of Interior's Professional Qualifications Standards for prehistoric archaeology. With over 8 years of professional cultural resources experience she is a well-rounded archaeologist. She has worked in all phases of archaeology: field surveys, records searches and archival research, excavation, monitoring, Native American consultation, laboratory analysis, and report writing. She is cross trained in paleontological monitoring and fossil preparation.

Please see Appendix B for staff resumes.

RESULTS

Records Search

The results of the records search at the SCCIC indicated that one previous cultural resource study included portions of the Project area, while an additional 5 cultural studies have been conducted within a one-mile radius of the Project area.

Table 2. Reports within Project Boundary

Report No.	Year	Title	Author(s)	Comments
SB-01952	1989	Environmental Impact Evaluation: A Cultural Assessment of a 160-Acre Tract of land Designated AP# 472-351-01, Located in Apple Valley, San Bernardino County, California	De Munck, Victor C.	No cultural resources within current Project area

The results of these studies indicated that there are no cultural resources located within the Project area or within a one-mile radius of the Project.

On September 27, 2019, the SBCM submitted the results of their records search for fossil localities in or near the Project (Cortez 2019) (Appendix C, Paleontological Records Search Results). Combined with the records searches on online databases and published literature by B. Scherzer, no fossil localities were produced. These records search findings are consistent with the Environmental Impact Report for the Town of Apple Valley (2009, Exhibit III-5), which assigns a low paleontological potential to the surrounding area (Appendix A, Map 5 – Paleontological Sensitivity).

Table 1. Geologic Units and their Paleontological Potential

Age	Geologic Unit[1]	Fossils Present	Paleontological Sensitivity
Cretaceous	Biotite granodiorite (*Kgd*)	None	Low
Jurassic	Hornblende diorite and gabbro (*Jhd*)	None	Low

[1] Hernandez and Tan (2007)

Field Survey

The entire 55.24-acre Project area was surveyed on August 19, 2019 by DUKE CRM archaeologist Megan Wilson and paleontologist Benjamin Scherzer. Overall ground surface visibility was good (90%), as the majority of the Project area was flat to gently sloping, with only sparse, evenly spaced scrub obscuring the ground surface (Figures 1 and 2). Several swaths of ground near the perimeter of the project and extending east-west across the Project were subject to dynamiting for future road construction. While the dynamited areas still had good visibility, the surface and subsurface context had been thoroughly disturbed, and would have destroyed or disturbed any artifacts or fossils contained therein (Figure 3). Careful inspection was given to exposed subsurface stratigraphy when present. Observed exposed sediments were sandy to gravelly in texture, tan to brown in color, and ranged between 4 and 12 inches in thickness before transitioning into grey to reddish-brown igneous bedrock (Figure 4). During the survey, two historic can scatters were observed, one including associated historic artifacts (lid and scrap metal). The can scatters were located in close proximity, in the southeastern portion of the project, but were not diagnostic to time period and showed signs of extensive recent disturbance, such as bullet holes (Figure 5). A 1958 United States Geological Survey (USGS) elevation marker was also found in the northeast corner of the Project (Figure 6). These resources have limited data potential; therefore they were not collected, nor documented on State of California Department of Parks and Recreation forms (523 Series). No paleontological resources were observed during the field survey.

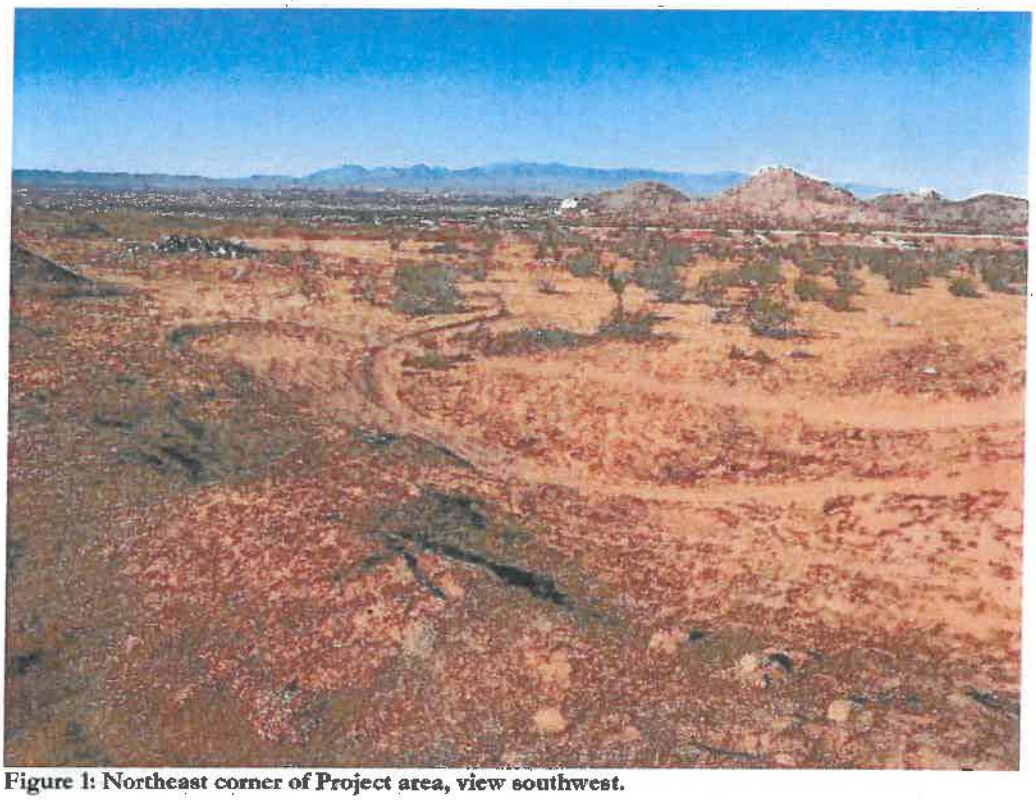

Figure 1: Northeast corner of Project area, view southwest.

Figure 2: Northwestern edge of Project area, view west.

Figure 3: Southeast corner of Project area, view south. Dynamited areas are visible in background.

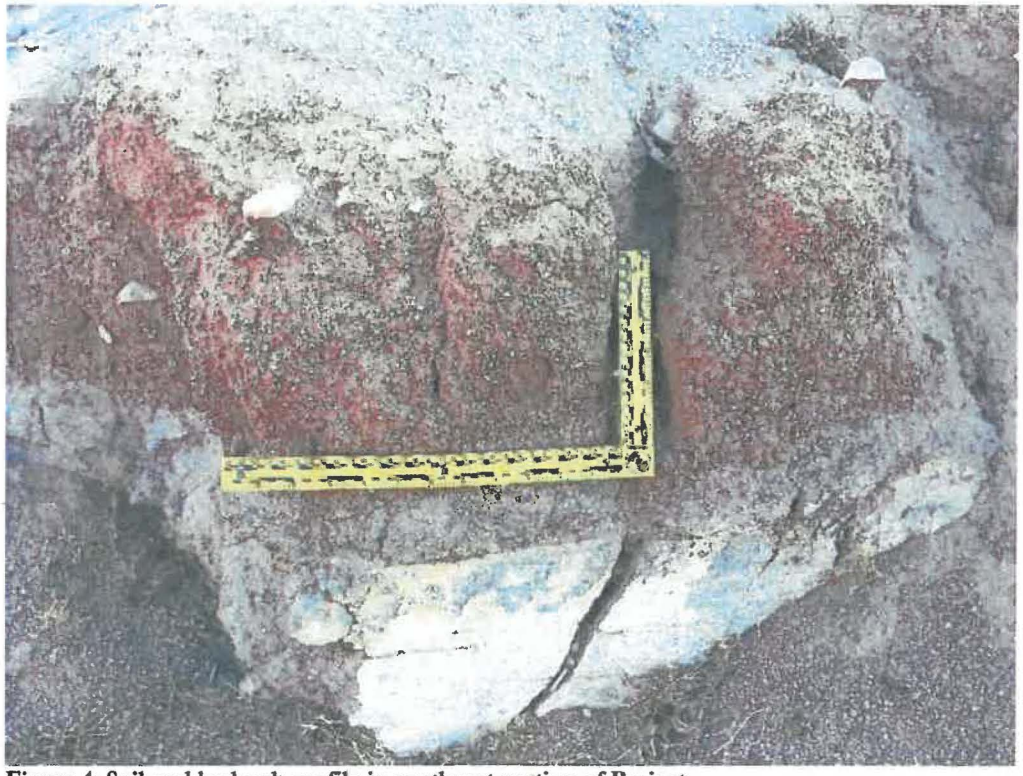

Figure 4: Soil and bedrock profile in southeast portion of Project.

Figure 5: Historic metal scatter in southeast portion of Project.

Figure 6: Historic USGS marker in northeast corner of Project.

IMPACTS ANALYSIS AND RECOMMENDATIONS

This section addresses the Project's potential to impact cultural and paleontological resources. Impacts to cultural resources are generally considered to be direct (e.g. destruction or demolition of a resource) or indirect (e.g. visual, audible, or cumulative changes to the setting). Under CEQA, cultural resources are evaluated for significance and eligibility for the CRHR. If a resource is considered eligible for the CRHR, it is considered a *historical resource* under CEQA. For the purposes of CEQA, impacts are only considered significant for *historical resources*.

The paleontological records search did not identify any fossil localities in or near the Project. A review of the available online and other published literature did not reveal any nearby fossil localities in deposits similar to those underlying the Project area. Due to the low paleontological sensitivity of the underlying geologic units, and the lack of documented fossil localities nearby, paleontological field monitoring is not recommended for the Project.

The historic artifacts encountered during the field survey were not diagnostic to time period and were heavily disturbed by modern activity. This limits their scientific significance and research potential. The condition of these artifacts, combined with the lack of documented archeological resources in the Project area, suggests the Project has a low sensitivity for prehistoric archaeology. Due to the shallow depth of the soil and the previous ground disturbance in the Project (dynamiting), it is not anticipated to encounter intact buried cultural resources, and there is limited potential for impacts to archaeological resources; therefore, archaeological monitoring is not recommended.

If the Project description changes additional studies may be warranted. If archaeological and/or paleontological resources are discovered during construction, a qualified archaeologist/paleontologist shall be retained to assess the nature and significance of the discovery. If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of the origin and disposition of the remains pursuant to State Public Resources Code Section 5097.98. The County Coroner must be notified immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

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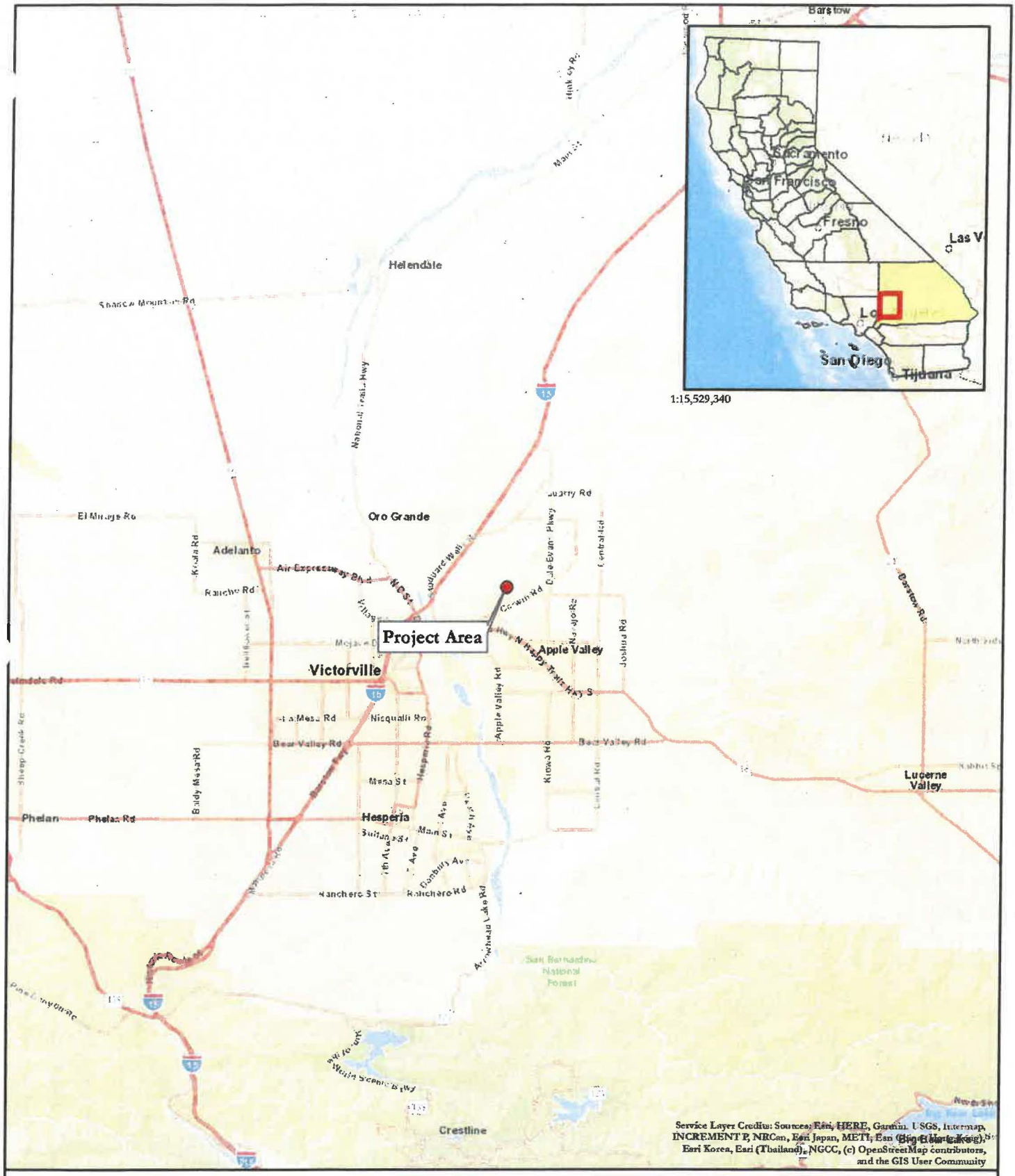
Appendix A

Project Maps



Map 1- Project Vicinity

TTM 14514-4 Apple Valley, C-0304

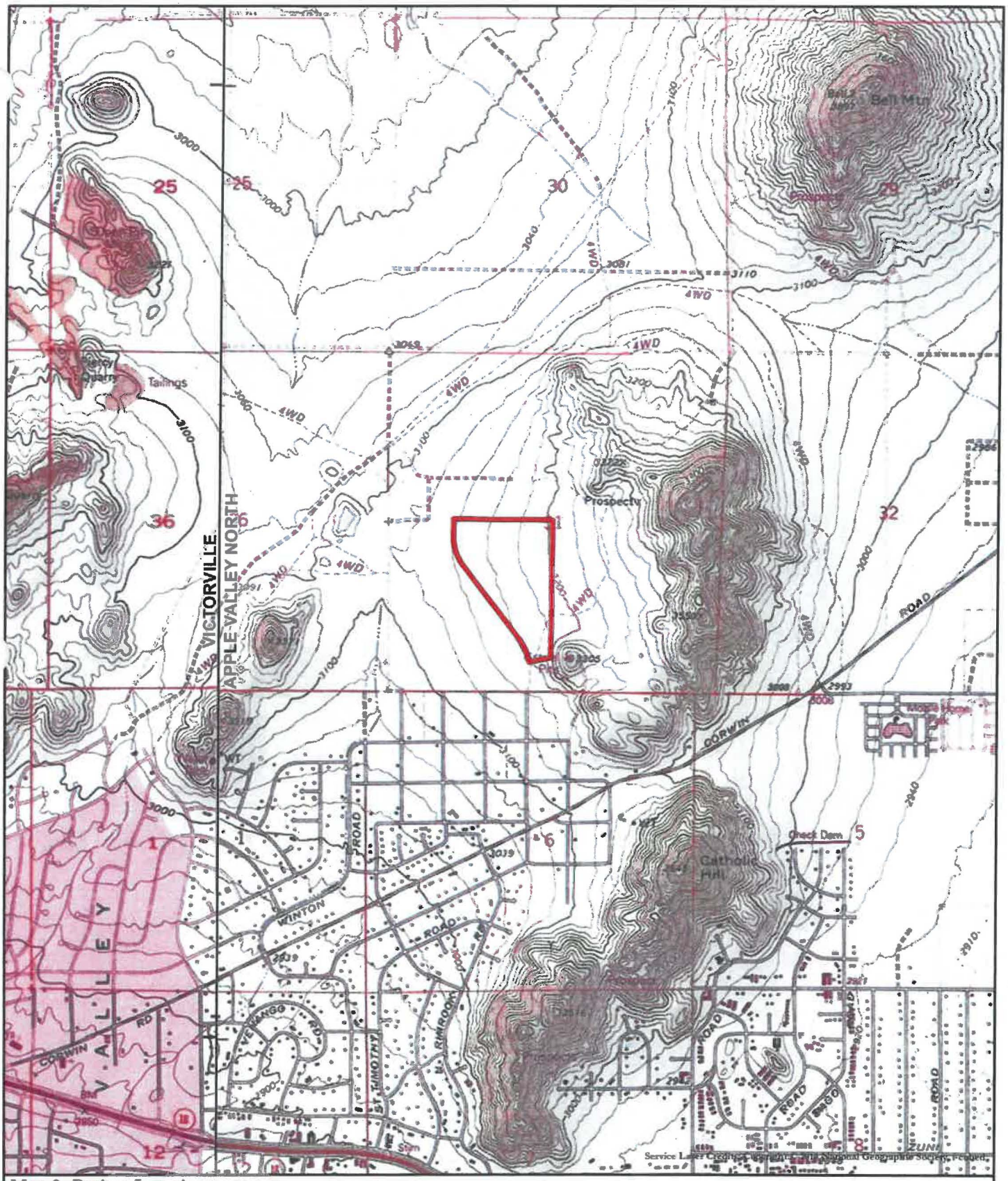
DUKE CRM

Project Area

0 5 10 Miles

1 inch = 5 miles 1:316,800

N



Map 2- Project Location

TTM 14514-4 Apple Valley, C-304

Project Area

USGS 7.5' Quads

0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

1 inch = 2,000 feet 1:24,000

N

DUKE CRM

Map 3- Project Aerial

TTM 14514-4 Apple Valley, C304

DUKE CRM

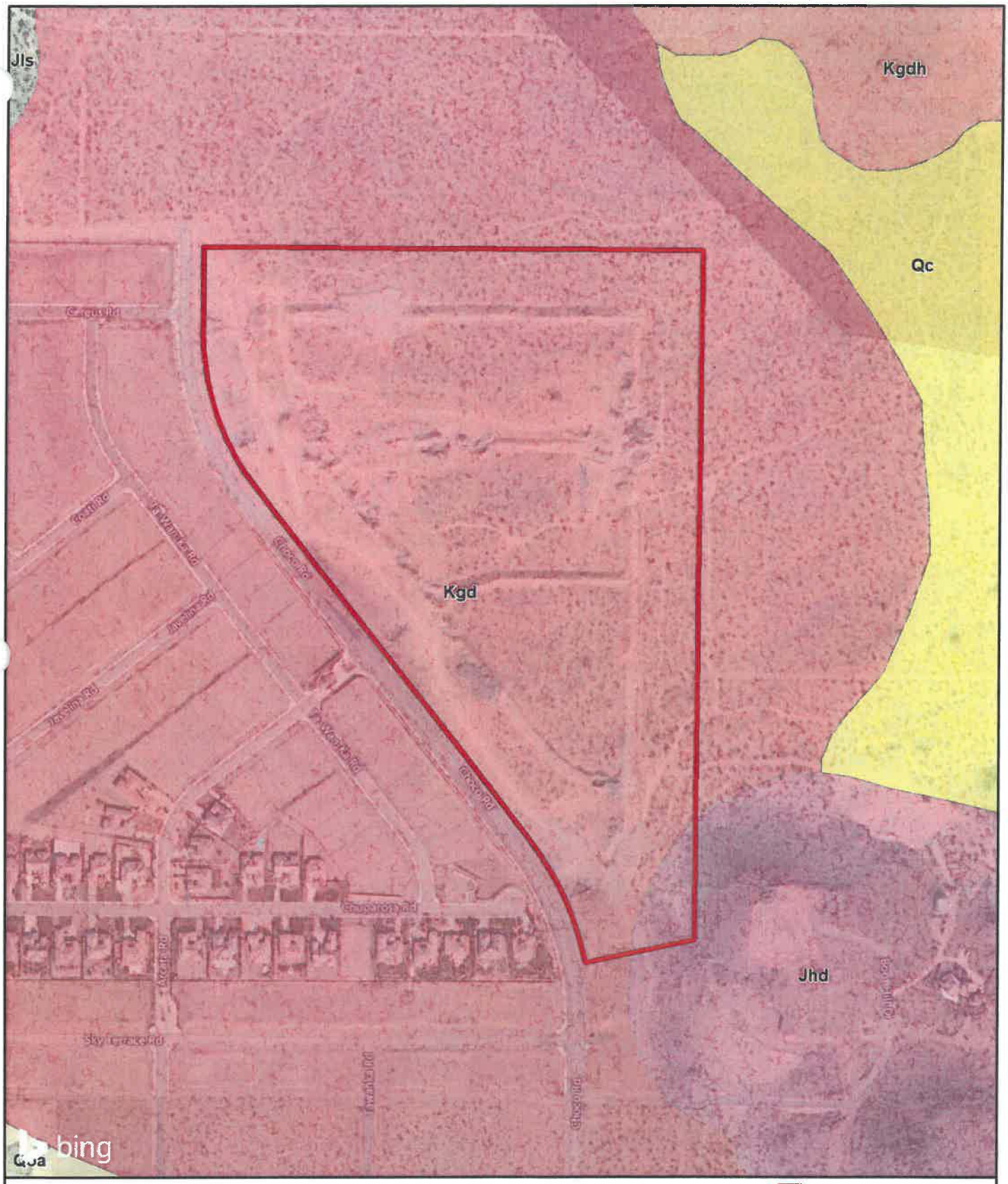
Project Area

0 150 300 Feet

1 inch =300 feet

1:3,600

N



Map 4- Project Geology

TTM 14514-4 Apple Valley, C304

DUKE CRM

Geology from Hernandez and Tan 2007

- Qc: colluvium
- Qoa: old alluvial deposits
- Kgd: biotite granodiorite
- Kgdh: hpabyssal granodiorite
- Jls: leucocratic Syenogranite
- Jhd: hornblende diorite and gabbro
- Jslr: laminated rhyolite

Project Area

0 200 400 Feet

N

1 inch =400 feet 1:4,800

Appendix B

Resumes

DUKE CRM

18 Technology Dr., Ste. 103
Irvine, CA 92618
949-356-6660
www.dukecrm.com

Curt Duke

President/Principal Archaeologist

Expertise

Cultural Resources Management
California Prehistory
Section 106 Compliance
CEQA Compliance
Native American Consultation

Education

CSU, Fullerton, M.A., Anth, 2006
SDSU, Grad Studies, Anth, 1996/97
UC Santa Cruz, B.A., Anth, 1994

Professional Registrations

RPA, No. 15969
County of Riverside (No. 151)
County of Orange

Professional Memberships

Society for California Archaeology
Society for American Archaeology
Pacific Coast Archaeological Society
Assoc. of Environmental Professionals
Building Industry Association

Professional Experience

President/Principal Archaeologist, DUKE CRM, 2011 to present.
Archaeologist/Principal, LSA Associates, 1997-2011.
Archaeological Technician, SRI, 1997.
Archaeological Technician, Petra Resources, 1997.
Archaeological Technician, KEA Environmental, 1997.
Archaeological Technician, Keith Companies, 1997.
Archaeological Technician, KEA Environmental, 1997.
Archaeological/Paleontological Tech., LSA Associates, 1996.
Archaeological/Paleontological Tech., Petra Resources, 1996.
Archaeological Technician, Affinis Environmental Services, 1996.
Archaeological Technician, KEA Environmental, 1996.
Archaeological Tech., Macko Archaeological Inc., 1995 to 1996.
Archaeological Technician, Heritage Resource Consultants, 1995.
Archaeological Technician, Chambers Group, 1995.
Archaeological Tech./Teachers Assistant, Cabrillo College, 1994
Anthropological Laboratory Technician, UC Santa Cruz, 1994.

Summary of Qualifications

Mr. Duke's career in cultural resources management spans 3 decades. He meets the Secretary of Interior's Professional Qualifications Standards for Prehistoric and Historical Archaeology. He also meets Caltrans PQS equivalent as a Principal Investigator for prehistoric archaeology. He received his B.A. in Anthropology in 1994 from the University of California, Santa Cruz, and his M.A. in Anthropology in 2006 from California State University, Fullerton. His M.A. thesis focused on prehistoric mortuary analysis in southern California. Curt is well-versed in the application of Section 106 of the NHPA, NEPA, and CEQA on a variety of projects across many market sectors. He has conducted/managed more than 3,500 cultural/paleontological resource projects for various clients primarily in California, as well as Nevada and Arizona. Mr. Duke has completed projects in all phases of archaeology: Ph. I Survey, XPI Survey, Buried Sites Testing, Archaeological Sensitivity Assessments, Ph. II Testing, Ph. III Data Recovery, Ph. IV Monitoring, and Native American consultation assistance. His project responsibilities primarily include overseeing archaeological, historical, and paleontological studies, ensuring that the quality of analysis and reporting meets or exceeds appropriate local, state, and federal standards. His positive, solution-oriented attitude makes him more than just an archaeologist, he brings value to any team in the way he seeks for positive outcomes.

Prior to starting DUKE CRM, Mr. Duke was a Principal Archaeologist at LSA Associates, Inc. He managed the Cultural/Paleontological group in LSA's Riverside office.

Selected Project Experience

Reid/Baldwin Adobe, LA Arboretum, Arcadia, 2019-Present. DUKE CRM is currently conducting archaeological monitoring at the Reid /Baldwin Adobe. In summer 2019 we conducted an archaeological excavation to explore for remnant buried architectural features. The Adobe was built in 1841 by Hugo Reid and in 1875 it was sold to Elias J. "Lucky" Baldwin. Role: Project Manager/Principal Archaeologist.

Veteran Affairs Medical Clinic, Santa Rosa, 2019. DUKE CRM conducted a records search, archival research, and a field survey for this project. The results were provided in a cultural resources assessment report. There were no cultural resources within the project. It was determined that the project did not have a high sensitivity for archaeology. Mr. Duke conducted the research, field survey and prepared the report.

Deane Dana Friendship Park, Rancho Palos Verdes, 2019. DUKE CRM is conducting archaeological monitoring for a habitat restoration and irrigation project in the park. The work is being conducted immediately outside the boundary of prehistoric site CA-LAN-850. The site is considered significant and was the subject of an archaeological excavation in the 1990s. To date there have been no delays caused by DUKE CRM. The client for this project is the Los Angeles County Parks and Recreation Department. Role: Project Manager/Principal Archaeologist.

Saint Margaret's Episcopal Church, San Juan Capistrano, 2019. DUKE CRM conducted archaeological monitoring for construction of several projects on this property. Several years ago, during a separate project a Native American burial was discovered on the campus. To date there have been no archaeological discoveries or delays caused by DUKE CRM. DUKE CRM coordinated with Native American monitors. Role: Project Manager/Principal Archaeologist.

Veteran Affairs Medical Clinic, Cotati, 2019. DUKE CRM conducted a records search, archival research, and a field survey for this project. The results were provided in a cultural resources assessment report. There were no cultural resources within the project. It was determined that the project did not have a high sensitivity for archaeology. Mr. Duke conducted the research, field survey and prepared the report.

Bedford Canyon Marketplace, Corona, 2019. DUKE CRM conducted a records search, archival research, and a field survey for this project. The results were provided in a cultural resources/paleontological assessment report. There were no cultural resources within the project.

Makayla 2 Mine Expansion Project, Olancha, CA, 2019. DUKE CRM conducted a Class III cultural resources study on approximately 25 acres of undeveloped land located in an unincorporated area near Coso Junction, Inyo County, California. Work was conducted in compliance with CEQA and NHPA. The County of Inyo was the lead Agency for CEQA and the BLM was the NHPA lead agency (BLM permit no. CA-19-13). DUKE CRM conducted an archaeological/historical resources records search, performed supplemental historical and archaeological background research, and intensively surveyed the APE. The results of the records search indicated that one historic archaeological site and four prehistoric archaeological sites were previous recorded within the boundaries of the APE and were updated in the current study. These five sites were documented in the pedestrian survey of the APE. None of the cultural resources were recommended potentially eligible for the CRHR/NRHP and were not considered potential historical resources for the purposes of CEQA nor historic properties for the purposes of the NHPA. Role: Project Manager/Principal Archaeologist.

Murrieta Canyon Academy, Murrieta, 2019. DUKE CRM conducted a records search, archival research, and a field survey for this project. We also assisted in AB52 consultation. The results were provided in a cultural resources/paleontological assessment report. There were no cultural resources within the project.

Skyridge Residential, Mission Viejo, 2011-present. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted a Phase II and Phase III excavation of prehistoric archaeological site CA-ORA-507. This work included research, preparation of a research design/work plan, excavation, lab analysis, Native American consultation, and preparing detailed technical reports. This involved managing a large team of archaeologist and geologists. The report was reviewed by the City, ACOE, and SHPO. Detailed archaeological and paleontological monitoring reports are being drafted and accession of a fossil whale to the San Diego Museum of Natural History is in process.

I-605/Valley Blvd. Improvements Project, City of Industry, 2019. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted a records search, Native American consultation, and a field survey. DUKE CRM prepared a Caltrans-format ASR and APE Map.

Vila Borba, Chino Hills, 2013-present. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted a Phase II excavation of archaeological sites CA-SBR-5285 and SBR-7972/H, as well as Phase III data recovery at site 36-031828, a prehistoric special-use campsite. This work included research, preparation of a research design/work plan, excavation, lab analysis, Native American consultation, and preparing a detailed technical report. The reports were reviewed by the City, ACOE, and SHPO. DUKE CRM also provided archaeological and paleontological monitoring working with Native Americans, the City and the applicant.

SR57/SR60 Confluence at Grand Avenue Project, City of Industry, 2019-Present. DUKE CRM conducted a cultural resources revalidation assessment for Segment II, Phase IIA of the SR-57/SR-60 Confluence at Grand Avenue Project. DUKE CRM conducted a records search and field survey for the revised project APE and coordinated Native American consultation under AB 52 with the City of Industry as the lead agency.

SR-60/I-605 IC Project PEAR, City of Industry/Baldwin Park, 2014. DUKE CRM conducted archaeological and paleontological studies in support of this project. The work included records searches at the SCCIC and NHMLAC, contacting the NAHC and local Native Americans, and a reconnaissance of the project area. Our efforts were summarized in letter reports. The lead agencies in this effort were the Los Angeles County Metropolitan Transportation Authority (LA Metro) and Caltrans.

Shoemaker Bridge Replacement, Long Beach, 2016-19. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted a records search, Native American consultation, and field survey. DUKE CRM prepared a Caltrans-format ASR, HPSR, PIR, FNAE, and APE Map documenting archaeo/paleo resources within the APE.

San Jacinto General Plan Update, San Jacinto, 2018-Present. Role: Project Manager/Principal Investigator. DUKE CRM is under contract to provide cultural/paleontological resource services including research, reconnaissance field survey, Native American consultation under AB-52 and SB-18, conduct a cultural landscape study and prepare a cultural/paleontological assessment report of its findings.

Tina-Pacific Residential Neighborhood Project, Stanton, 2018-Present. Role: Project Manager/Principal Archaeologist. DUKE CRM is under contract to provide cultural/paleontological resource services including a records search, historic evaluation of 40 properties, reconnaissance survey, Native American coordination under AB-52 and SB-18 and will prepare a combined cultural/paleontological report of its findings.

TTM 20022, Lots 1-6, San Bernardino County, 2018-Present. DUKE CRM is under contract to provide a cultural resource assessment for this 15-acre project near Mountain Home Creek Road in San Bernardino County in compliance with CEQA. This effort includes research, field survey, Native American consultation and preparation of a letter report.

Vantage Point Church Monitoring, Eastvale, 2018-Present. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted a cultural and paleontological resource assessment report. Following project approval DUKE CRM conducted monitoring services for this project and preparation of a report of our findings at the conclusion of ground disturbance. DUKE CRM documented the discovery of a prehistoric artifact and coordinated its reburial. DUKE CRM coordinated with Native American monitors.

Murrieta Hospitality Commons, 2017-19. DUKE CRM prepared a PRMP and conducted archaeological/ paleontological monitoring during the construction of this project. There were no discoveries made and no delays caused by DUKE CRM. DUKE CRM coordinated with Native American monitors. Role: Project Manager/Principal Archaeologist.

Ocean Place Monitoring, Seal Beach, 2018-Present. DUKE CRM is contracted to provide archaeological monitoring, Native American monitoring and will prepare a compliance letter at the conclusion of monitoring efforts.

MVGC – Rancho Belago II Monitoring, Moreno Valley, 2018-Present. Role: Project Manager/Principal Archaeologist. DUKE CRM is contracted to provide archaeological/paleontological monitoring and develop a monitoring plan for this 190-acre golf course, reserve and apartments project in compliance with CEQA. The plan outlines the construction monitoring and subsequent tasks in the event archaeological resources are discovered.

Santa Claus Lane Class I Bike Path, Carpinteria, 2015-2017. DUKE CRM conducted a cultural resource records search and archaeological field survey and prepared a Caltrans ASR and APE Map. The project is located along US-101 and the Union Pacific Railroad in the Carpinteria Salt Marsh Reserve contains a critically important Southern California estuary. Mr. Duke was the Project Manager and Principal Investigator.

Vantage Point Church, Eastvale, 2016. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to provide cultural/paleontological resource services for this 11-acre project to determine whether the proposed project would cause substantial adverse impacts to any historical, archaeological, or paleontological resources in or adjacent to the project area to comply with CEQA. This effort included records searches, field survey and Native American consultation to identify any cultural or paleontological resources. The records search indicated three previously records cultural resources within a 1-mile radius which was a lithic scatter of stone and glass tools and indicated a moderate sensitivity for cultural resources and a low sensitivity for historic resources. Therefore, DUKE CRM recommended archaeological monitoring during ground disturbance.

Jack Rabbit Trail – SCS2089, Beaumont, 2018. DUKE CRM was contracted to perform a cultural resource assessment for this H-frame communications tower, equipment cabinets and power infrastructure. This effort included research, field survey, Native American scoping and preparation of a report of our findings.

Route 66 Gas Station and Market Project, Helendale, 2017-18. DUKE CRM provided cultural/paleontological resource services for this 1.72-acre project. We evaluated the proposed project for impacts to cultural/paleontological resources under CEQA. After conducting a records search and field

survey, we concluded the sensitivity for cultural/paleontological resources was low in surficial sediments; however, the sensitivity could increase at depth to high. Therefore, DUKE CRM recommended paleontological monitoring. Following consultation with local Native Americans the County of San Bernardino required buried sites testing which was conducted by DUKE CRM. The results of the buried sites testing were negative and the project planning proceeded.

TTM 20128, Apple Valley, 2018. DUKE CRM provided paleontological resource services for the Apple Valley TTM No. 20128 project (approximately 101 acres), located at the southeast corner of Sitting Bull Road and Deep Creek Road. The results of the assessment were negative; however, it indicated that the buried sediments have a high sensitivity for fossils. Therefore, DUKE CRM recommended paleontological monitoring.

TTM 20022, Lots 1-6, San Bernardino County, 2018-19. DUKE CRM provided a cultural resource assessment for this 15-acre project near Mountain Home Creek Road in San Bernardino County in compliance with CEQA. This effort included research, field survey, Native American consultation, and preparation of a letter report.

Indus Light Industrial Building Project, Chino Hills, 2018. DUKE CRM provided paleontological, archaeological, and Native American monitoring services including preparation of a PRIMP.

Dolores Lake Park, Newberry Springs, 2017. DUKE CRM provided cultural resource services for a proposed redevelopment. Work completed included a records search at the SBAIC located at the San Bernardino County Museum. DUKE CRM prepared a letter of results, summarizing the research.

Redlands Railway District Project, 2019. DUKE CRM provided archaeological site monitoring for the excavation of test pits as well as conducting limited background research and prepare a letter of results. This project is located within and near the Redlands Chinatown and is considered highly sensitive for buried archaeological sites.

Rite-Aid, Phelan, 2016. DUKE CRM conducted archaeological monitoring services. No artifacts were discovered. No delays were caused by DUKE CRM. A letter report was completed and filed with the SCCIC and the owner. Project was completed per County of San Bernardino requirements.

Colton Bridges Retrofit Project, CA 2013-14. DUKE CRM provided cultural resources support for this local assistance project. DUKE CRM prepared an HPSR, HRER, and APE Map for two bridges and an APE Map for a third Bridge for which Caltrans prepared the HPSR. No cultural resources were determined significant within the APE. The railroad above the bridges and several of the adjacent parcels contained historic buildings. DUKE CRM worked with Caltrans staff to reduce the size of the APE so that these resources were not within the APE and therefore did not need to be evaluated. This was largely due to the limited nature of the project and its limited potential to impact these built-environment historic resources.

SBCTA (formerly SANBAG) Environmental On-Call, 2015-18. DUKE CRM is under contract to provide on-call cultural/paleontological resource services for the San Bernardino County Transit Authority (SBCTA). Mr. Duke was the Project Manager and Principal Archaeologist who managed and directed all work under this contract. This varied work has involved staff archaeologists, and related technical specialists from multiple offices. Many of the studies were conducted simultaneously, which necessitated careful project management and scheduling. The following Task Orders have been completed to date:

- **210/Pepper Ave, Rialto, 2017-2018** – Archaeological/Native American monitoring and reports.
- **I-10 University IC Improvements, Redlands, 2015-16**– 3rd party review of HRCR, ASR, & APE Map

- **I-15 PA-ED, San Bernardino-Riverside Counties, 2016** – 3rd party review of ASR, HPSR, PIR/PER, and APE Map
- **Metrolink Station Accessibly Project, San Bernardino County, 2015** – 3rd party review of HPSR, FNAE, and APE Map
- **SR-60 Central, City of Chino, 2017** – 3rd party review of HRCR, ASR, and APE Map

Central Avenue Pedestrian Improvements Project, County of Ventura, District 7, 2018. Role: Project Manager/Principal Archaeologist. DUKE CRM prepared a Caltrans-format Archaeological Survey Report and an Historic Property Survey Report under the Ventura County Transportation On-Call. This project included ADA accommodations, reconstruction, drainage improvements and pavement widening to improve the safety along Central Avenue for pedestrians. As a part of the Archaeological Survey Report, DUKE CRM conducted a records search, field survey and Native American consultation which identified one archaeological resource and an historic shed from the Jones Ranch dating from the mid-20th century. Given the extensive ground disturbance within the APE from residential development and utilities along Central Avenue the likelihood that any archaeological resources would be impacted would be low.

Avenue S-8 & 40th Street E. Roundabout, Palmdale, 2018. Role: Project Manager/Principal Archaeologist. DUKE CRM is under contract to provide cultural/paleontological resource services in compliance with CEQA and Section 106 of the NHPA. All work was completed in compliance with the Caltrans SER, including: an HPSR, ASR, APE Map, and PIR/PER.

Pacific Coast Highway (PCH) Signal Systems Improvements, City of Malibu, County of Los Angeles, District 7, 2018. DUKE CRM provided archaeological/paleontological resource services for this project including a records search, Native American consultation, and a field survey. An Archaeological Survey Report was prepared to document identification efforts for archaeological resources in the PAL. The records search identified 54 archaeological resources within one mile of the project PAL and 294 archaeological reports for projected located within and adjacent to the PAL. All of these sites were buried or eroding from hillsides along PCH. A PIR/PER was also prepared and noted potentially fossiliferous deposits. DUKE CRM recommended a PMP following the Caltrans SER be prepared by a principal paleontologist including sensitivity pre-grade training, monitoring, field and laboratory methods and a required PMR upon completion of earthmoving activities. Role: Project Manager/Principal Archaeologist.

Sweeny Road, near Lompoc, Santa Barbara County, CA, 2018-2019. DUKE CRM provided archaeological and paleontological services for this 25-acre project. DUKE CRM conducted a records search, background research, Native American consultation and a field survey. Deliverables included a Combined Archaeo/Paleo Letter Report with associated maps and photographs. Role: Project Manager/Principal Archaeologist.

Entrada Project, Riverside, 2018. DUKE CRM was under contract to provide a cultural resource study including a records search, location map and preparation of a letter report of archaeological findings and recommendations. Role: Project Manager/Principal Archaeologist.

1st Street over Glendale Boulevard, Los Angeles, 2018. DUKE CRM was contracted to provide emergency site recordation and evaluation of an unanticipated discovery of a single historic resource discovered during project construction. Role: Project Manager/Principal Archaeologist.

Sierra Crest II, Fontana, 2018. DUKE CRM is under contract to provide a peer review, on-site mitigation monitoring and inspection of previously recorded cultural resources and paleontological monitoring for the project in compliance with CEQA with the City as lead agency. A letter report of its findings will be prepared and submitted to the client. Role: Project Manager/Principal Archaeologist.

6th Street Viaduct Mission & Myers Roundabout, Los Angeles, 2018-Present. Role Project Manager/Principal Archaeologist. Mr. Duke's team is under contract to provide cultural/paleontological services for the project. DUKE CRM conducted records searches and a field survey and will prepare a combined cultural/paleontological resources report for the project.

SBCTA 210/Pepper Ave & Highland Ave, Rialto, 2017-2018. The project is subject to Section 106 of the NHPA and CEQA. DUKE CRM provided archaeological/paleontological monitoring during ground distributing activities in compliance with mitigation measures and especially in relation to human remains and burials. One prehistoric isolate, a chert bifcial core fragment was discovered during monitoring. The core was found in fill materials during construction activities. A secondary, but no less important portion of this monitoring activity was the reburial of human remains discovered during an unrelated project in 2007, but near this project area. The remains are surmised to have originated from the project area.

Laguna Canyon Road (SR-133), Laguna Beach, 2017. DUKE CRM is under contract to HDR, Inc. to provide paleontological resource services including a Paleontological Identification Report (PIR) in support of a PEAR. The PIR will estimate the scope, schedule and costs associated with completing paleontological studies associated with environmental compliance.

Diamond Valley Estates Specific Plan, Hemet, 2017-Present. Role: Project Manager/Principal Archaeologist. DUKE CRM provided cultural and paleontological resources services for the Diamond Valley Estates Specific Plan Project located south of Hemet, in Riverside County. The total project area is approximately 422 acres in size. DUKE CRM staff conducted research through the Eastern Information Center and the Western Science Center. In addition, DUKE CRM consulted with local Native American groups and conducted a field survey. Several potentially significant archaeological resources have been discovered. DUKE CRM is currently working with the developer, County staff, and Native American groups to assess the potential impacts and develop mitigation measures that will lessen the potential for impacts.

Union Street Two-Way Protected Bikeway, Pasadena, 2017-Present. Role: Project Manager/Principal Archaeologist. Mr. Duke's team is under contract to provide archaeological and paleontological services for the project. DUKE CRM conducted a records search, field survey, APE, ASR, PIE/PER and assisting the City with Native American consultation in compliance with CEQA & NEPA.

Pleasant Valley Road Two-Way Left Turn Lane, Camarillo, 2017. Role: Project Manager/Principal Archaeologist. Mr. Duke's team was under contract to provide cultural resource services in compliance with Caltrans, CEQA, NEPA, and Section 106. DUKE CRM conducted a records search, field survey, prepared an APE Map of the project area and is providing Native American Consultation to Ventura County. DUKE CRM prepared an ASR of its efforts and provided recommendations.

VA WLA Master Plan, Los Angeles, 2017-Present. Role: Project Manager/Principal Archaeologist. Mr. Duke's team was under contract to provide an Archaeological Sensitivity Model to evaluate the project for intact buried sites for the Veterans Affairs West Los Angeles in a densely urbanized Brentwood neighborhood. The report summarized buried site sensitivity (BSS) model created to predict areas where archaeological resources were most likely to occur in the 367-acre project area to minimize the costs and disruptions associated with construction monitoring and emergency site treatment.

Golden Avenue Bridge, Placentia, 2017. Role: Project Manager/Principal Archaeologist. Mr. Duke's team was under contract to provide records search, field survey, Native American Coordination, APE Map and prepare a Caltrans-format ASR. Three prehistoric resources and 12 historic resources were located within 1 mile of the project APE. No archaeological resources were identified.

Vanderham Monitoring, Jurupa Valley, 2017-2018. Role Project Manager/Principal Archaeologist. Mr. Duke's team was under contract to provide archaeological/paleontological monitoring during ground disturbance subject to CEQA and mitigation measures set forth in the Initial Study and Mitigated Negative Declaration. DUKE CRM then prepared a combined archaeological/paleontological monitoring report for the City of its findings. One fossil locality was recovered from the project and accessions into the collection of the Western Science Center.

Soto Street Widening, Los Angeles, 2017. Role: Project Manager/Principal Archaeologist. Mr. Duke's team was under contract to provide archaeological/paleontological services for the 7.5-acre project in compliance with CEQA and NHPA. DUKE CRM conducted a records search, field survey, and provided Native American Coordination. DUKE CRM drafted a combined cultural/paleontological report of its findings. No archaeological/paleontological resources were identified within the project boundaries; however, paleontological research identified numerous fossil localities within 5 miles in geological deposits similar in age to those underlying the project area. Therefore, paleontological monitoring is recommended for ground disturbance in the project area.

Riverside Transmission Reliability Project (RTRP), 2017. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to provide Native American consultation services on behalf of the CPUC (AB-52) with Pechanga Band of Luiseño Indians and Gabrieleño Band of Mission Indians-Kizh Nation, prepare technical memorandums and participate in four Native American consultation meetings regarding cultural resources in the project area. DUKE CRM conducted a supplemental records search at the EIC and reviewed the prior cultural resources survey documents prepared for the project.

Camp Pendleton TL 695 & TL6971, Oceanside, 2016-2017. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to review and comment on cultural and paleontological resource reports, assist in the Native American consultation required under AB-52, conduct a site visit, and provide technical assistance. Mr. Duke was the Project Manager; he coordinated with the CPUC, Panorama Environmental, SDG&E, Marine Corps Base Camp Pendleton staff, Pechanga Band of Luiseño Indians, and the SDG&E consultant team.

California High-Speed Rail, Palmdale to Burbank Section, 2017. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted 3rd Party review of archaeological, historical, and paleontological inventory reports prepared by other consultants for the Palmdale to Burbank Section of the California High-Speed Rail (HSR). The Palmdale to Burbank Section is approximately 44 miles running from the Antelope Valley in the Mojave Desert up through the San Gabriel Mountains, down into the San Fernando Valley. The HSR crosses the Angeles National Forest. There were 70 cultural resources recorded within the project boundaries.

Livermore Community Solar Farm, LLC, Livermore, 2016. DUKE CRM was contracted to perform a cultural resources assessment and historic evaluation in compliance with CEQA for the 72-acre project. DUKE CRM conducted a records search, Native American consultation and a archaeological field survey of the project. DUKE CRM documented and evaluated an historic ranch complex for eligibility for the California Register of Historic Resources. Role: Project Manager/Principal Archaeologist.

SR-110 Improvements, Los Angeles, 2017. Role: Project Manager/Principal Archaeologist. Mr. Duke's team was under contract to provide cultural resource services in compliance with CEQA, Section 106, NHPA and Caltrans requirements. DUKE CRM conducted a research, a windshield site visit and prepared one archaeological memo and one paleontological memo summarizing the results, impacts and recommendations for further work on the project.

SR-710 Gap Closure, Los Angeles, 2017. Role: Project Manager/Principal Archaeologist. DUKE CRM was contracted to provide an HPSR with HRER for this LACMTA project proposed to improve mobility and relieve congestion in the area. DUKE CRM conducted a records search and reviewed Caltrans Historic Bridge Inventory and historic properties within the APE. DUKE CRM also prepared project location and APE maps attached to the HPSR. DUKE CRM assisted the City with Native American consultation.

Duarte 3rd and Oak Residential, Duarte, 2016. Role Project Manager/Principal Archaeologist. Mr. Duke's team performed a cultural resource assessment and historical evaluation in compliance with CEQA. This work included a records search, archival/historical research, a historic survey, and a significance evaluation. Two properties within the project date to the historic period but were determined to be not eligible for listing on the California Register of Historical Resources and neither is a historical resource under CEQA.

Bridge Road Bridge, Santa Paula, CA, 2016. DUKE CRM provided archaeological and paleontological services including an ASR, HPSR, PIR, Native American consultation, and an APE Map. Work on this project put on hold before DUKE CRM finished the technical studies.

Veterans Affairs West Los Angeles Campus Hospital Replacement, 2016-Present. Role: Project Manager/Principal Archaeologist. Mr. Duke's team conducted an archaeological assessment for the VAWLA Medical Center Hospital Replacement Project to identify archaeological resources that may be impacted during development of the project. Recent studies discovered two historical archaeological sites and two prehistoric archaeological sites. Field survey and geotechnical monitoring did not identify any archaeological resources within the project. DUKE C R M recommended that no recorded archaeological resources would be impacted by the project.

Veterans Affairs Greater Los Angeles Healthcare System Campus Master Plan, 2017-2018. Role: Project Manager/Principal Archaeologist. DUKE CRM was contracted to provide an Archaeological Sensitivity Model for the project which revitalizes the campus to be more Veteran-focused. Construction of new facilities could impact both previously recorded and undiscovered cultural resources and buried archaeological sites not visible during archaeological survey or testing. The model provided a baseline for planning future development on the property and is designed to minimize the costs and disruptions associated with construction monitoring and emergency site treatment.

Veterans Affairs West Los Angeles Campus Homeless Housing/Spring Structures Project, Los Angeles, 2018. DUKE CRM was under contract to perform archaeological buried sites testing for the proposed 2.5- acre Homeless Housing/Spring Structures project at the VA Greater Los Angeles Healthcare System Campus in West Los Angeles. DUKE CRM excavated seven archaeological trenches and screened samples from each trench to identify any buried archaeological resources that may be impacted by the proposed project in accordance with Section 106 of NHPA. Given the highly disturbed nature of the soils, DUKE CRM concluded that no archaeological resources would be impacted and did not recommend additional measures relating to archaeology.

Coolwater-Lugo Transmission Line, Barstow to Victorville, 2014-2015. Role: Project Manager/Principal Archaeologist. DUKE CRM staff performed cultural and paleontological 3rd party review for the CPUC and BLM, and provided EIR assistance. This project was especially complex given that it involved many significant cultural resources and was located on BLM land.

Spruce Goose Hangar, Google, Playa Vista, 2016. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to provide Archaeological Consulting & 3rd Party Review for archaeological investigations inside the Spruce Goose Hangar.

Bay Bridge Pump Station and Force Mains Rehabilitation, Newport Beach, 2017. DUKE CRM provided cultural/paleontological resource services. Tasks included background research, a field survey, impacts analysis, and a letter report Role: Project Manager/Principal Archaeologist.

Evanston Inn, Pasadena, 2014-16. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted archaeological monitoring for this project. The Evanston Inn is a historic hotel that is being converted to a residential project. DUKE CRM conducted a records search at the SCCIC. During ground disturbance our archaeologists monitored construction. We discovered approximately 30 historic items; however, this material was not intact. DUKE CRM prepared an inventory that we attached to our report. The material was determined to not be significant as it could not answer any import research questions. There were no delays to the overall construction schedule.

Baker Water Treatment Plant, Lake Forest, 2014-2015. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted archaeological/paleontological monitoring as part of the fulfillment of the mitigation measures. DUKE CRM identified marine fossils in the Oso Sand Member of the Capistrano Formation.

Tracy Hills Specific Plan, Tracy, 2015. Role: Project Manager/Principal Archaeologist. DUKE CRM prepared a cultural and paleontological resource assessment report for this 2,700-acre project. Work completed includes a records search, archival research, field survey, resource evaluation, and Native American consultation. DUKE CRM archaeologists discovered nine cultural resources. All but one of the cultural resources were not considered historical resources for the purposes of CEQA. The one historical resource is the California Aqueduct. DUKE CRM recommended that a monitor be present during grading of one of the sites, due to the potential for buried archaeological resources. We recommended that paleontological monitoring should be conducted during deep excavation due to a high potential for fossils below approximately five feet.

Veterans Affairs Loma Linda Outpatient Clinic, 2014-2015. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted archaeological and paleontological construction monitoring. In addition, DUKE CRM has provided Native American monitoring by working directly with the San Manuel Band of Mission Indians. The site is located adjacent to the protohistoric Serrano village of Guachama. While no intact archaeological deposit had been discovered, historic and prehistoric artifacts were identified. DUKE CRM worked with the grading and construction crews to ensure compliance with NEPA while avoiding any delays to the construction schedule.

Sycamore-Peñasquitos Transmission Line, San Diego, 2014-2015. DUKE CRM was contracted to provide cultural and paleontological 3rd party review and EIR assistance.

Lago Los Serranos, Chino Hills, 2014. Role: Project Manager/ Principal Archaeologist. DUKE CRM provided archaeological and paleontological monitoring. DUKE CRM found limited and non-significant fossil resources per CEQA. DUKE CRM complied with the mitigation monitoring conditions.

International Autocrafters, Inc., Menifee, 2014. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to perform cultural/paleontological resource services for this 1.37-acre project. As a part of this effort, DUKE CRM conducted records searches for cultural and paleontological resources, and a field survey for resources within or adjacent to the project boundaries. Our research indicates that there was

high sensitivity for paleontological resources below five feet in depth with the project boundaries. In order to mitigate this potential impact to less than significant under CEQA, DUKE CRM recommended paleontological monitoring below five feet in depth from the current surface.

Rialto Unified School District, Compressed Natural Gas and Transportation Yard, Rialto, 2014. Role: Project Manager/Principal Archaeologist. DUKE CRM was contracted to provide a cultural resources assessment for this 6-acre project. This included research for cultural/paleontological resources, Native American scoping and a field survey and preparation of a cultural resource assessment report of our findings. Our research indicated that there was moderate potential to directly impact cultural (historical) resources under CEQA and a low sensitivity for paleontological resources at or near the surface and a potentially high sensitivity below 10 feet, impacting resources according to CEQA. In order to mitigate those potential impacts to a level that is less than significant under CEQA, DUKE CRM recommended archaeological/paleontological monitoring below 10 feet in depth.

The Westerlies, Oxnard, CA, 2014-2015. DUKE CRM was contracted to provide a cultural resources assessment for the 6.6-acre residential condominium project in compliance with CEQA. As part of that effort, DUKE CRM conducted a records search, field survey, retained a Chumash Native American monitor at the request of the City and provided archaeological support. No cultural materials were discovered.

Dhammakaya International Meditation Center, Azusa, 2013-2014. Role: Project Manager/Principal Archaeologist. DUKE CRM completed a cultural and paleontological resource assessment of the Dhammakaya property. Tasks included research, field survey, architectural survey, historic evaluation of the property. Due to substantial collective losses in integrity of design, materials, and feeling, the MacNeil Mansion-Manresa Retreat Property is not eligible for listing in the California Register of Historical Resources; however, the Property remains eligible for its current designation of "Potential Landmark" under the City's Historic Preservation Ordinance and is therefore considered a historical resource per CEQA. Recommendations were made regarding preservation of significant historic details and elements of the property. The project as designed had a less than significant impact to the MacNeil Mansion-Manresa Retreat Property with proposed mitigation. Mitigation measures include archaeological monitoring in the northwest portion of the property (near an early historic period structure) and paleontological monitoring in the southern half of the property when excavation exceeds approximately five feet in depth and in the northern half of the property when excavation exceeds two foot in depth (due to high paleontologic sensitivity in two separate geologic formations).

Veterans Affairs West Los Angeles Campus Seismic Retrofit, 2013-14. DUKE CRM completed a cultural resources study for this project. DUKE CRM coordinated with a diverse project team including multiple branches of the VA at the Campus and in Washington D.C. In addition, we consulted with Native American groups and other consultants who completed smaller projects on the Campus. Our tasks included a cultural resources records search, field survey, Native American coordination, and preparing an archaeological survey report. The report included a survey for the entire campus, but our APE and mitigation focused on the Seismic Retrofit project. Two historic archaeological resources were recorded dating to the early development of the Campus as the Pacific Branch of the National Home for Disabled Volunteer Soldiers (NHDVS) founded in 1888. Because of the developed nature of the property our emphasis was on the potential for discovery of prehistoric and historical archaeological resources during the implantation phase of development.

Santa Rosa Road Widening Project, City of Camarillo, 2014. DUKE CRM was contracted to provide cultural resources services for supplemental reports. DUKE CRM prepared a supplemental HPSR, ASR, and APE Map for this local assistance project. No cultural resources were identified within the APE. Several of the adjacent parcels contained historic buildings, however they were exempt from further consideration. DUKE CRM worked with Caltrans staff to expedite review of these studies in support of the tight project schedule.

California Street Off-Ramp/Highway 101, City of Ventura, 2014 - Present. DUKE CRM is under contract to provide cultural resources support for this project. DUKE CRM is preparing an ASR and Extended Phase I Survey (XPI) for this project. The project is located in the downtown Ventura area. Prior to the construction of Highway 101 this area consisted of a neighborhood dating to the 1800s-1890s. The San Miguel Chapel site is located immediately adjacent to the project boundaries. The XPI will determine whether or not there are any archaeological resources buried under the current off-ramp and commercial properties that make up the project APE.

Lakeside, Temescal Valley, 2014-2017. DUKE CRM was contracted to provide Phase I and Phase II archaeological services for the 590-acre Lakeside Temescal Valley project. The Phase I study included a records search, field survey, and Native American consultation; and determined that six prehistoric archaeological sites would be physically impacted by the project. Subsequently, a Phase II archaeological excavation was conducted each of these sites, which included the preparation of a research design, mechanical trenching and hand excavations, laboratory analysis, and a detailed technical report. Five of the six sites were recommended eligible for both the National and California Registers; the sixth site will remain preserved. DUKE CRM assisted with extensive consultation with Native American Tribes and conducted a preliminary ethnographic landscape study.

Rice Avenue at 5th Street Grade Separation, Oxnard, 2015-2017. DUKE CRM was under contract to provide Area of Potential Effects Map, Archaeological/Paleontological studies and ASR and PIR, cultural landscape study, historical property survey report (HPSR), Native American consultation and Extended Phase I Survey (XPI), lab analysis and report for this project. DUKE CRM identified three archaeological resources within and/or adjacent to the project. The XPI was conducted to identify possible archaeological resources buried within or immediately adjacent to the APE.

New Model Colony East Bridges Over Cucamonga Creek and Deer Creek Flood Control Channels at Schaefer Avenue, Edison Avenue, Eucalyptus Avenue, and Merrill Avenue, Ontario, 2015. DUKE CRM was contracted to provide a cultural/paleontological resource assessment for this project. As a part of the assessment, DUKE CRM conducted records searches and field survey to identify any cultural/paleontological resources within the proposed project boundaries. No potential historical resources were located within the project boundaries due to construction and modern agriculture activities. However, the project area contains shallow Pleistocene sediments with a high sensitivity for fossils below a depth of 5 feet. Therefore, DUKE CRM recommended paleontological monitoring below 5 feet.

Serrano Ridge Project, Temescal Valley, 2015. DUKE CRM was under contract to provide paleontological monitoring for construction of 87 residential lots in a 25.13-acre lot in the existing Sycamore Creek development. Four weekly monitoring site visits occurred, with field notes, photos and documentation, excavation activities and exposed fossils. Only one fossil locality produced 5+ fossil specimens.

Marywood Pastoral Center, Orange, 2014-2015. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to provide cultural/paleontological resource assessment and construction monitoring. As a part of this effort, DUKE CRM conducted a records search including a review of all

recorded historic and prehistoric archaeological sites within a 1-mile radius of the project boundary as well as pertinent reports. The paleontological research indicated no fossil localities reported within the project boundaries. However, geological formations have produced a significant number of fossil specimens in the area which could be impacted by the proposed project during ground disturbance greater than the infill soil depth of 90 feet; therefore, paleontological resources could be encountered during construction and a PMP should be developed to mitigate any further potential adverse impacts to paleontological resources.

Emmanuel Church, Victorville, 2014. DUKE CRM was under contract to provide cultural/paleontological resource services for this 11.33-acre church expansion project. As a part of that effort DUKE conducted records searches, and intensive-level field survey to identify any previously known cultural/paleontological resources. The field survey did not discovery cultural or paleontological resources at the surface. The research conducted indicated a high sensitivity for both prehistoric archaeological resources and paleontological resources during ground disturbing activities. Under CEQA, DUKE CRM recommended a less than significant finding with archaeological/paleontological mitigation be incorporated.

Cherryann-United Methodist, Moreno Valley, 2014. Role: Project Manager/Principal Archaeologist. DUKE CRM was contracted to conduct a cultural resource assessment for this wireless facility in compliance with Section 106 of the NHPA and regulations implementing the NHPA. As part of this effort, DUKE CRM conducted a records search for cultural resources and other online resources. A pedestrian field survey was also conducted of the project APE and a vehicular survey of the surrounding area. The records search identified a prehistoric archaeological site 500' southwest of the facility. No cultural resources were identified in the direct APE so there is little potential for indirect impacts.

Lincoln Specific Plan, Whittier, 2014. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted an archaeological and paleontological assessment for the Lincoln Specific Plan. The project is located at the site of the former Fred C. Nelles Youth Correctional Facility. A records search at the SCCIC and NHMLAC, Native American consultation, and a field survey were conducted. The Nelles Facility was built in 1891 and is listed as California Historical Landmark No. 947. It is also eligible for the National Register of Historic Places. Our study determined that there is a high sensitivity for early historic buried components of the Nelles Facility. In addition, it was determined that future excavation could impact buried paleontological resources at depth. A mitigation monitoring plan was recommended that included historic archaeological monitoring in excavation in the top 7 feet of excavation and paleontological monitoring below 7 feet.

Rancho Road Widening, City of Westminster, 2014. Role: Project Manager/Principal Archaeologist. DUKE CRM was contracted to provide cultural resources support for this local assistance project. DUKE CRM prepared an HPSR, ASR, and APE Map for this project. No cultural resources were identified within the APE. Several of the adjacent parcels contained historic buildings. DUKE CRM worked with Caltrans staff to reduce the size of the APE so that these resources were not within the APE. This was largely due to the limited nature of the project and its potential to impact these built-environment historic resources.

Petersen Ranch, Leona Valley, 2013-2014. Petersen Ranch is approximately 3,900 acres and is a Mitigation/Conservation Bank (Project). Mr. Duke's role on this project was cultural resources Principal Archaeologist. DUKE CRM conducted a records search, Native American consultation, and a field survey. The 236-acre restoration area is considered the project area of potential effects (APE) for the purposes of Section 106 of the National Historic Preservation Act (NHPA) The records search did not identify any archaeological resources within the project APE. However, three cultural resources were located within the 3,900 Project footprint: CA-LAN-1074H-an adobe structure, possibly 140 years old, CA-LAN-1073/H- an isolated prehistoric stone biface and an iron cannonball from the Gun Club which was/is located on the

property, and CA-LAN-3478H-remnants from the old Foothill Ranch during the records search. The field survey identified two isolated prehistoric artifacts (Iso-1 and Iso-2) and a small prehistoric artifact scatter (S-1, 2 manos and a core). The isolates had limited research potential and were not considered significant or eligible for the National Register of Historic Places (National Register); while the artifact scatter may have additional artifacts associated with it buried or obscured by vegetation and could be potentially eligible for the National Register. DUKE CRM recommended avoidance of this site or if impacts were unavoidable conducting Phase II Archaeological evaluation/excavation to determine if it is eligible for the National Register.

Olive View Medical Center, San Fernando, 2012-14. Mr. Duke's role on this project was Principal Archaeologist. DUKE CRM prepared a Phase I Archaeological Survey Report and conducted archaeological monitoring. For the Phase I Mr. Duke conducted the records search, field survey and report preparation. He also led the consultation efforts with Native Americans on behalf of the County and FEMA. The results of the survey were negative, meaning that no archaeological resources were identified and there were no delays to the project. However, SHPO recommended archaeological monitoring due to a perceived high potential for historical archaeological resources.

Thomas Ranch, Corona, 2013-2014. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted archaeological and paleontological monitoring and negotiated the Cultural Resources Treatment and Monitoring Plan. Mr. Duke worked with both the Pechanga Band of Luiseño Indians and the Soboba Band of Luiseño Indians to reach consensus on the treatment of cultural resources. It was decided that any artifacts would be turned over to the Pechanga for permanent curation. The Pechanga and Soboba alternated weeks of monitoring rather than both Tribes being reimbursed the entire time of monitoring.

Wyle Laboratories Testing Project, Norco, 2013-15. DUKE CRM was contracted to provide archaeological monitoring for hazardous materials soil testing at the Wyle Laboratories in Norco. A prior study identified prehistoric archaeological resources within the area of the proposed testing. DUKE CRM worked with the Pechanga Band of Luiseño Indians and the project team during testing in areas of the property that were adjacent to, and/or within archaeological resources.

6th Street Viaduct Replacement Project, City of Los Angeles, 2013. Role: Project Manager/Principal Archaeologist. DUKE CRM is under contract to provide archaeological and paleontological support for the construction phase of this project. The viaduct is comprised of two bridges: 1) a bridge over the Los Angeles River and the UPRR, BNSF, Metrolink, and Metro Railroads; and 2) a bridge over U.S. Highway 101. Mr. Duke's role on this project is Project Manager and Principal Archaeologist for archaeology. DUKE CRM prepared an Environmentally Sensitive Area (ESA) Action Plan for archaeology and worked with Bruce Lander who prepared a Paleontological Mitigation Plan (PMP). These documents will be used to specify how archaeological and paleontological resources shall be treated during construction of this multi-year, multi-phase project. DUKE CRM will be responsible for overseeing the implementation of the archaeological and paleontological monitoring program on behalf of the City to ensure that mitigation measures are adhered to.

Alon Bakersfield Refinery Crude Flexibility Project, Bakersfield, 2013. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to conduct a cultural resources assessment in compliance with CEQA for this 427-acre improvement project. As part of this effort, DUKE CRM conducted a records search, Native American consultation, field survey and historic resource evaluation which identified one cultural resource within the project boundaries and 12 within a ½ mile radius. None of the Native American consulted had specific information about cultural resources that may be impacted by the project. The historic-built environment evaluation found four historic buildings with the project boundaries; however, none of them were considered historically significant under CEQA.

BP Pier B, Building 2, Port and City of Long Beach, 2013. Role: Project Manager/Principal Archaeologist. DUKE CRM conducted a records search and historic evaluation of Building 2. DUKE CRM was assisted by Heritage Preservation Consultants; a sub-consultant. BP Pipelines proposed to demolish Building 2 as it is no longer in use. The Port of Long Beach required that the building be evaluated for historic significance. The results of our efforts determined that Building 2 is not eligible for the National Register of Historic Places. However, the building appears to be eligible as a City of Long Beach Landmark. The City has 11 criteria which a building can possible meet to be considered eligible; however, a building need only meet one criterion to be considered eligible. Building 2 is considered eligible under criteria K (It is one of the few remaining examples in the city, region, state or nation possessing distinguishing characteristics of an architectural or historical type).

A-1 Self Storage, San Juan Capistrano, 2013. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to conduct archaeological monitoring for this project.

46 Cambridge Court, Coto de Caza, Orange County, CA, 2013. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to provide cultural/paleontological resource services for this residential lot of 1.6 acres in compliance with CEQA. This effort included records searches to identify any cultural or paleontological resources, a field survey and preparation of a cultural/paleontological resource assessment. Our efforts indicated that the project area was moderately high sensitivity for both cultural (archaeological) and paleontological resources. Monitoring was recommended during construction to mitigate to a level that is considered less than significant.

3 Tracts, Escondido, 2013. Role: Project Manager/Principal Archaeologist. DUKE CRM completed a cultural resources records search and field survey of three separated tracts in the City of Escondido. The records search was completed through the South Coastal Information Center, located at San Diego State University. A paleontological study was completed through the San Diego Natural History Museum. No cultural resources were identified during the study.

Laverne Avenue Retention Basin Project, Barstow, 2013. DUKE CRM was retained by the City of Barstow to conduct a Class III Cultural Resources survey for the Barstow BLM for this project. The project will include improvements to control run-off flows which are collected within existing residential areas south of the Interstate 15 and conveyed through I-15 ROW within concrete box culverts. DUKE CRM conducted a records search, an intensive-level field survey and pedestrian survey to check the status of previously recorded cultural resources and to identify any previously recorded cultural resources. Our research and field survey indicate that the cultural resources observed within the APE were not eligible for the National Register. The area had been previously disturbed. A finding of no adverse effect under Section 106 was recommended. No further investigations were needed.

AT&T Mobility, On-Call, 2011-2014. DUKE CRM has conducted cultural resources studies for multiple cell site installations throughout southern and central California. Tasks completed include: records searches, field surveys, Native American consultation, and reports. Several of these projects have included installations located within and near archaeological resources.

Mobilitie, On-Call, 2011-2012. Role: Project Manager/Principal Archaeologist. Mr. Duke conducted records searches, field surveys and prepared reports for various wireless facilities throughout southern and central California.

Sepulveda Boulevard Bridge Widening, Manhattan Beach, 2012-13. Mr. Duke's role on this project is Project Manager/Principal Archaeologist. DUKE CRM prepared a Phase I Archaeological Survey Report. Mr. DUKE's team conducted a field survey, records search, and report preparation. The results of the assessment were negative, meaning that no archaeological resources were identified and there were no delays to the project. Caltrans is the lead agency for NEPA; the City is the lead agency for CEQA.

Lamb School Residential Subdivision, Huntington Beach, 2013. Role: Project Manager/Principal Archaeologist. DUKE C R M conducted the cultural resources mitigation measures required by the City. This included historical documentation of the school building and site, and archaeological and paleontological construction monitoring. The DPR site record were submitted to the South Central Coastal Information Center and the monitoring report was submitted to the City.

Wardlow School Residential Subdivision, Huntington Beach, 2013. Role: Project Manager/Principal Archaeologist. DUKE C R M conducted the cultural resources mitigation measures required by the City. This includes historical documentation of the school building and site, and archaeological and paleontological construction monitoring. DPR site record were submitted to the South Central Coastal Information Center and the monitoring report was submitted to the City.

Scalzo Property, San Juan Capistrano, 2012. Role: Project Manager/Principal Archaeologist. Mr. Duke conducted a due diligence study for this 16-acre property. This work included research, site visit, and brief letter report.

1st Street over Glendale Boulevard, Los Angeles, 2012. Mr. Duke's role on this project was Project Manager/Principal Archaeologist. DUKE CRM was under contract to prepare a Phase I Archaeological Survey Report and Historic Property Survey Report. Mr. Duke's team conducted a field survey and report preparation. The results of the assessment were negative, meaning that no archaeological resources were identified and there were no delays to the project.

San Fernando Road Widening at Balboa Road, Los Angeles, 2012. Role: Project Manager/Principal Archaeologist. DUKE CRM was under contract to prepare a Phase I Archaeological Survey Report and Historic Property Survey Report. Mr. Duke's team conducted the research, field survey, and report preparation. The results of the assessment were negative, meaning that no archaeological resources were identified and there were no delays to the project. DUKE C R M also prepared a Paleontological Identification Report.

Hearst Castle Telecommunications Tower, Pacific Bell Wireless/Cingular Wireless/T-Mobile, 2000, 2001, 2012. Mr. Duke was responsible for completing and overseeing three separate studies on the Hearst Castle property which is listed on the National Register of Historic Places. The first 2 studies in 2000 and 2001 were prepared for the initial placement of the tower and power run, respectively. These reports were reviewed and approved by the County of San Luis Obispo and the State Historic Preservation Officer (SHPO). In 2012, Mr. Duke prepared a compliance report for the placement of new antennas on the tower. The 2000 and 2001 studies were completed while with a former employer.

California Avenue Widening, Long Beach, 2011. Role: Project Manager/Principal Archaeologist. DUKE CRM prepared a Phase I Archaeological Survey Report. DUKE CRM conducted the research, field survey, and report preparation. The results of the assessment were negative, meaning that no archaeological resources were identified and there were no delays to the project.

Palomar Mountain Fuels Modification, 2011. Role: Project Manager/ Principal Archaeologist. DUKE CRM conducted a Phase I archaeological survey of 11.5 acres. The survey report was completed quickly and was accepted by the Palomar Mountain Fire Safe Council and the BLM without any comments.

Mid County Parkway, Riverside County, CA, 2004-2011. Role: Task Manager/ Principal Archaeologist. The studies for the Mid County Parkway project included a 32-mile corridor (from Interstate 15 to State Route 79) in western Riverside County. The archaeological survey covered 3,680 acres and identified 91 archaeological sites. An extended Phase I survey (limited excavation) was conducted at 79 of the sites. Ultimately Phase II excavations were conducted at eight of the sites. Four archaeological sites were

determined eligible for the National Register. A built environment historic resources survey was conducted and one historic dairy was determined eligible for the National Register. This project included extensive consultation with Indian Tribes. All work was conducted in compliance with Section 106 of the NHPA, NEPA, and CEQA. FHWA, Caltrans, and RCTC were the lead agencies and Jacobs Engineering was the lead engineering firm under contract to RCTC. Employer: LSA Associates.

Colton Crossing Rail-to-Rail Grade Separation, Colton, CA, 2008-2011. Role: Project Manager/ Principal Archaeologist. The Colton Crossing project involved the separation of the at-grade crossing of the UP and BNSF railroads. The Colton Crossing is a historically significant railroad crossing where a stand-off between the SP and California Southern railroads took place. Despite SP's efforts the California Southern railroad was granted access across SP's right-of-way. Research showed that the project's APE contained numerous historic buildings and was very active in historic times. Under Mr. Duke's direction an archaeological survey and an extended Phase I survey (limited excavation) were conducted. Sixteen historical archaeological sites were discovered; these included building remnants and refuse deposits. None of the archaeological sites were determined eligible for the National Register. A built environment historic resources survey evaluated the UP and BNSF railroads, the SP passenger depot, the American Railway Express Company building, and the historic South Colton neighborhood; none of which were determined eligible for the National Register. All work was conducted in compliance with Section 106 of the NHPA, NEPA, and CEQA. FHWA and Caltrans were the lead agencies working in cooperation with SANBAG, FRA, UP, and BNSF. HDR was the lead engineering firm under contract to SANBAG. Employer: LSA Associates.

I-15/I-215 Interchange Project, Devore, San Bernardino County, 2008-11. Role: Task Manager. Mr. Duke was the cultural resources task manager. Under Mr. Duke's direction an ASR, HRER, and HPSR were prepared. An archaeological site was recorded immediately adjacent to the project boundaries, within the APE. Mr. Duke and his staff worked closely with the Caltrans archaeologist to record and evaluate this site for the National Register without conducting a Phase II excavation. In doing this, the client saved thousands of dollars and almost one year on their schedule. His staff also evaluated a portion of historic Route 66 and several related historic buildings. Employer: LSA Associates.

24th Street Improvements, City of Bakersfield, 2008-2011. Mr. Duke's role on this project was Cultural Resources Task Manager/Principal Archaeologist. Mr. Duke prepared the Historic Property Survey Report. He managed a team of archaeologists, paleontologists, and historians to complete the HRER, ASR, PIR/PER, and APE map. He conducted the archaeological field survey. His team identified 93 historic period buildings/structures, including two historic districts. Employer: LSA Associates.

Alta East Wind Project, Mojave, Kern County, CA 2010-11. CH2M HILL, Inc., requested a paleontological resources assessment for the Alta East Wind Project northwest of the City of Mojave in southeastern Kern County, California. The project includes developing pads for wind generation turbines, turbine access and service roads, management facilities, and a transmission line running from the center of the project south to connect with an existing distribution grid. The study area includes five sections of land that contain sediments that have potential for paleontological resources. The early Pliocene Horned Toad Formation contains the late Hemphillian Warren Local Fauna, with 24 fossil mammalian taxa. The literature review identified 34 fossil localities in the Horned Toad Formation, 12 of which were verified within project boundaries. The field survey located an additional 69 localities within project boundaries. Because of the potential for direct impacts to all paleontological resource localities, mitigation procedures are summarized. A project-specific paleontological resources impact mitigation program (PRIMP), including fossil salvage by qualified paleontologists, was recommended to accompany development of this project. Employer: LSA Associates.

I-215/SR-74 Interchange Improvements Project, Perris: Paleontological Mitigation Monitoring, 2010-11. Mr. Duke was the Task Manager for this project. The scope of work included paleontological monitoring during grading operations and environmental awareness (paleontological focus) training. He was responsible for working with the qualified paleontologist and coordinating field assignments for this project. Mr. Duke and his staff worked a communication system with the grading contractor that allowed for minimal

field effort while achieving compliance. This allowed for savings to the overall budget. Employer: LSA Associates.

Aliso Canyon Park Improvements, Los Angeles, 2010. Under contract to the City of Los Angeles, Bureau of Engineering Mr. Duke prepared a Phase I Archaeological Survey Report. Mr. Duke was the project manager and principal-in-charge for this project. He oversaw the research, field survey, and report preparation. The results of the assessment were negative, meaning that no archaeological resources were identified and there were no delays to the project. Employer: LSA Associates.

Five Winds Ranch Conservation/Mitigation Bank, Yucaipa, San Bernardino County, 2010. Mr. Duke served as the Principal-in-Charge for this project. He coordinated with staff biologists and archaeologists to complete a general biological survey, a waters/wetland delineation, a cultural resources survey, a Mitigation Banking Feasibility Study, a draft and final Mitigation Banking Prospectus, and a Bank Enabling Instrument. Several cultural resources were identified, both historic and prehistoric in nature. These resources were not impacted and therefore no additional work was necessary. Employer: LSA Associates.

Mammoth Lakes Parks and Recreation and Trail System Master Plan, 2010. Mr. Duke prepared a cultural resources assessment for the Draft Parks and Recreation Master Plan (PRMP) and the Draft Trail System Master Plan (TSMP) EIRs. He conducted a records search, site visits, and prepared a report documenting the effort and making management recommendations. The cultural resource assessment was completed pursuant to California Environmental Quality Act (CEQA). Employer: LSA Associates.

P.I. Market Archaeological Monitoring, Pismo Beach, 2007. Mr. Duke oversaw the completion of archaeological monitoring associated with the demolition of the P. I. (Philippine Islands) Market. The P.I. Market opened in 1936 by Filipino immigrant Jorge Tejada. Over the years the Market became a central place for the Filipino community. The Market closed in 1972 due to competition and the development of the modern Supermarket. The Market was evaluated for the California Register of Historical Resources and determined not eligible. The finding also determined that archaeological monitoring of demolition may discover historic artifacts of public interest. While no significant finds were made, a few household items were collected. This project was completed while with a previous employer.

Rancho Vista Boulevard (Ave. P) Grade Separation Project, Palmdale, 2007-10. Mr. Duke's role was Principal Archaeologist, providing project supervision and regulatory expertise. Under contract to the City of Palmdale and LAN Engineering, Mr. Duke's team conducted a records search and field survey, and prepared an Archaeological Survey Report and Historic Properties Survey Report which was reviewed and approved by Caltrans. The results of the assessment were negative, meaning that no archaeological resources were identified and there were no delays to the project. Employer: LSA Associates.

California Valley Solar Ranch, California Valley, San Luis Obispo County, 2009-10. Role: Principal-in-Charge. California Valley Solar Ranch is a 4,000-acre project located on the Carrizo Plain in eastern San Luis Obispo County. Mr. Duke was the Principal-in-Charge for this project. His team conducted a records search, field survey, Native American scoping, and prepared an archaeological survey report. His team identified, recorded, and evaluated several historical archaeological sites. Employer: LSA Associates.

Melrose Triangle, West Hollywood, 2009-10. Under contract to the City of West Hollywood Mr. Duke oversaw the preparation of a historic resources survey which included research, field surveys, and preparation of a historic context and survey report. Mr. Duke acted as the principal-in-charge for this project. Employer: LSA Associates.

Hollyhock House, Barnsdall Park, Los Angeles, 2009-10. Under contract to the City of Los Angeles, Bureau of Engineering Mr. Duke oversaw the preparation of a supplemental historic structure report which included research, field inspection, and preparation of a report. Mr. Duke acted as the principal-in-charge for this project. Employer: LSA Associates.

Delano-Alpaugh Water Reclamation Pipeline, Kern and Tulare Counties, 2006-2009. Mr. Duke prepared a cultural resources assessment study for the Delano-Alpaugh Water Reclamation Pipeline

(DAWRP) while working for a previous employer. His role was cultural resources task manager and principal Archaeologist. The project was approximately 11 miles Long. The research and field survey were conducted to determine whether the DAWRP project would result in impacts to any historical resources and/or unique archaeological resources. The cultural resources assessment was completed pursuant to CEQA and Section 106 of the NHPA. His team completed a cultural resources records search and a field survey. The project was immediately adjacent to Allensworth State Historic Park and National Register Historic District. The field survey identified two historical archaeological sites adjacent to the project alignment. Employer: LSA Associates.

Professional Hospital Supply, Temecula, 2008. Mr. Duke and his staff were retained by the Garrett Group to conduct an Archaeological and Paleontological Monitoring Program for the 32-acre Professional Hospital Supply Project in the City of Temecula. The construction monitoring program is the result of an agreement between the City of Temecula and the Pechanga Band of Mission Indians due to the presence of a portion of an archaeological site near the project boundaries. No cultural or paleontological resources were identified. Employer: LSA Associates.

Lancaster Highlands Project, Meridian Land Development Company, 2007. Mr. Duke oversaw the completion of a cultural resource assessment for the 1,891-acre project. All work was completed for Meridian Land Development Company. Tasks included a records search and field survey for archaeology and paleontology. Employer: LSA Associates.

Temecula 32, Archaeological Phase II Testing, 2007. Mr. Duke and his staff were retained by the Garrett Group to conduct an intensive pedestrian survey and test excavation in and around the reported location of a prehistoric lithic scatter. However, no remnants associated with the site were identified on or beneath the surface. Therefore, Mr. Duke recommended that this site should not be considered "a unique archaeological resource" or "historical resource" under CEQA. LSA worked with the Pechanga Band of Luiseño Indians and they monitored all field activities. Employer: LSA Associates.

I-15/SR-79 Interchange Project, Riverside County, 2006-10. Role: Task Manager. Mr. Duke was the cultural resources task manager. This project is located on top of a significant, National Register-listed archaeological site that is also very sacred to the Luiseño Band of Indians. Under Mr. Duke's direction an ASR, ESA Action Plan, and HPSR were prepared. Due to the sensitivity surrounding the sacred site Mr. Duke and his staff consulted regularly with the Caltrans archaeologist, Native American Coordinator, and Native Americans. Employer: LSA Associates.

Residence "A," Barnsdall Park, Los Angeles, 2009. Under contract to the City of Los Angeles, Bureau of Engineering Mr. Duke oversaw the preparation of a historic structure report which included research, field inspection, and preparation of a report. Mr. Duke acted as the principal-in-charge for this project. Employer: LSA Associates.

Westlake Historic Resources Survey, Los Angeles, 2008-09. Under contract to the Community Redevelopment Agency of Los Angeles (CRA LA) and Chattel Architecture Planning and Preservation, Inc. Mr. Duke oversaw the preparation of a historic resources survey which included research, field surveys, and preparation of a historic context and survey report. Mr. Duke acted as the principal-in-charge for this project. Employer: LSA Associates.

Needles Highway Improvement Projects, County of San Bernardino, 2004-08. Role: Cultural Resources Task Manager. To complete this project Mr. Duke oversaw the completion of archaeological and paleontological research and field surveys along Needles Highway between the City of Needles and Aha Macav Parkway. During the study a total of 45 cultural resources identified; 14 were previously recorded and 31 were newly recorded. These resources include 33 prehistoric cultural resources, four historic cultural resources, two cultural resources with historic and prehistoric components, and six cultural resources of unknown age. All work was completed in compliance with CEQA, NEPA, and NHPA. Employer: LSA Associates

Superstition Solar I Project, Salton Sea, Imperial County, 2008. Role: Principal-in-Charge. Superstition Solar I was a 5,600-acre project located on BLM Land. Mr. Duke was the Principal-in-Charge for this project. His team conducted a records search, reconnaissance survey, Native American scoping, and prepared a Class III Intensive Survey Research Design. Employer: LSA Associates.

Thomas Mountain Fuels Reduction Project, near Idyllwild, CA, 2008. Mr. Duke and his colleague Virginia Austermann worked with the San Bernardino National Forest (SBNF) to complete a cultural resources assessment of the proposed 10,465-acre Thomas Mountain Fuels Reduction project located in the San Jacinto Ranger District of the San Bernardino National Forest, Riverside County, California. The proposed project was an undertaking that could have affected heritage resources, and the archaeological survey of the area of potential affect (APE) was conducted in compliance with Section 36 CFR Part 800 of Section 106 of the NHPA. The report presented the results of the records search, numerous field surveys completed by others from 1980 through 2007, and Native American consultation. In total nineteen cultural resources were documented and considered for planning purposes. Working with the SBNF archaeologist, our team applied the 1996 *Programmatic Agreement for Compliance with Section 106 of the National Historic Preservation Act for Undertakings on the National Forests of the Pacific Southwest Region.* Mr. Duke's role was Principal-in-Charge overseeing all contract negotiations and providing quality control. Employer: LSA Associates

Magnolia Boulevard Widening, Los Angeles, 2008. Under contract to the City of Los Angeles, Bureau of Engineering Mr. Duke prepared a Phase I Archaeological Survey Report. Mr. Duke was the project manager and principal-in-charge for this project. He oversaw the research, field survey, and report preparation. The results of the assessment were negative, meaning that no archaeological resources were identified and there were no delays to the project. Employer: LSA Associates

South District Maintenance Yard, Los Angeles, 2008. Under contract to the City of Los Angeles, Bureau of Engineering Mr. Duke oversaw the preparation of a historic resources survey which included research, field surveys, and preparation of a historic context and survey report. Mr. Duke acted as the principal-in-charge for this project. Employer: LSA Associates

Fire Station 82, Los Angeles, 2008. Under contract to the City of Los Angeles, Bureau of Engineering Mr. Duke oversaw the preparation prepared of a historic resources survey which included research, field surveys, and preparation of a historic context and survey report. Mr. Duke acted as the principal-in-charge for this project. Employer: LSA Associates

Chuckwalla Solar I Project, Desert Center, Riverside County, 2007-08. Chuckwalla Solar I was a 4,000-acre project located on BLM Land. Mr. Duke was the Principal-in-Charge for this project. His team conducted a records search, intensive field survey, Native American scoping, and prepared a Class III Intensive Survey Report. Employer: LSA Associates

McSweeny Farms, Hemet, CA, 2004-2008. Mr. Duke directed all cultural resources efforts for the McSweeny Farms project. He conducted third-party review of prior Phase I archaeological survey and extended Phase I survey. His team conducted Phase II and geoarchaeological excavations at several sites throughout the project, one of which is a large, regional prehistoric village site. Mr. Duke worked with SunCal, the City of Hemet, the Army Corps of Engineers (ACOE), and local Indian Tribes to balance the needs of each party. In addition, his team provided archaeological and paleontological monitoring for the project. He worked with Tribal monitors to document important archaeological sites, while maintaining the overall project schedule. Employer: LSA Associates

Hacienda at Fairview Valley Specific Plan, Apple Valley, Mojave Desert, CA, 2007-08. The Fairview Valley Specific Plan project is located near the Town of Apple Valley in the high desert. Under Mr. Duke's direction a team of archaeologists conducted a records search, field survey, and prepared a technical report for the County of San Bernardino. The team identified 73 cultural resources and determined that only 15 of these resources are considered significant under CEQA. The team worked with the project applicant and design team to avoid or mitigate impacts to all of the significant cultural resources. Employer: LSA Associates.

Majestic Hills Specific Plan, Hesperia, Mojave Desert, CA, 2006-07. The Majestic Hills Specific Plan project is located in the City of Hesperia in the high desert. Under Mr. Duke's direction a team of archaeologists conducted a records search, field survey, and prepared a technical report for the City. The team identified 32 cultural resources and determined that 11 of these resources are considered significant under CEQA. The team worked with the project applicant and design team to avoid or mitigate impacts to all of the significant cultural resources. Employer: LSA Associates.

Temecula Education Center, 2006. Mr. Duke and his staff were retained by the City of Temecula to conduct an Archaeological Monitoring Program for the Temecula Education Center Project. The construction monitoring program for the 40-acre site is the result of an agreement between the City of Temecula and the Pechanga Band of Mission Indians due to the presence of a portion of site CA-RIV-237 within the project boundaries. Minimal archaeological data were recovered.

Mesquite Regional Landfill, Imperial County, CA, 2004-2006. Under contract to the Sanitary Districts of Los Angeles County, Mr. Duke conducted a Class III Data Recovery project for ten Native American cultural resources within the boundaries of the proposed Mesquite Regional Landfill (MRL) Project, located in Imperial County, California. This effort was combined with a supplementary cultural resource reconnaissance of adjacent Bureau of Land Management (BLM) land to identify the extension of these resources beyond the project boundaries. Employer: LSA Associates.

20th Street West Extension, Palmdale, 2006. Mr. Duke's role was Principal Archaeologist, providing project supervision and regulatory expertise. Dr. Lange led the field survey and prepared the report. Under contract to the City of Palmdale and LAN Engineering, Mr. Duke and his team conducted a records search and field survey, and prepared an Archaeological Survey Report. The results of the assessment were negative, meaning that no archaeological resources were identified and there were no delays to the project. Employer: LSA Associates.

Southern California Edison, Southern and Central, CA, 2003-2005. Mr. Duke worked with SCE on its deteriorating poles program. As poles are deteriorating, SCE replaces them with new poles. Prior to pole replacement archaeological surveys were conducted of each pole location. The majority of this work has been conducted on federal lands. Under his direction archaeologists have surveyed over 2,000 pole locations in the Inyo National Forest, Angeles National Forest, San Bernardino National Forest, Sequoia National Forest, and under the jurisdiction of California and Arizona offices of the Bureau of Land Management (5 different field offices). In this process, his team recorded more than 35 archaeological resources ranging from isolated chipped stone to historic mining sites. His historian evaluated the Catalina Tile Company manufacturing plant on Catalina Island for the California Register of Historical Resources. Mr. Duke worked closely with SCE staff and various Federal agencies to ensure a quick review and approval of the cultural resources efforts. Employer: LSA Associates

Community and Environmental Transportation Acceptability Process (CETAP), Riverside, CA, 1999-2001. Mr. Duke participated in a reconnaissance survey that recorded over 500 prehistoric and historic resources. The results of the cultural resource efforts were reported in a HPSR, HRER and an ASR. Mr. Duke assisted in preparing the reports and provided management for the cultural resources aspect of this project. Employer: LSA Associates

Los Coches Creek Elementary School, near Alpine, CA, 2003–2006. Mr. Duke conducted a Phase I archaeological survey and oversaw subsequent Phase II test excavations. All work was conducted under the authority of the U.S. Army Corps of Engineers (ACOE). Mr. Duke worked with the El Cajon Union School District and the ACOE to avoid impacts to a majority of the cultural resources on site. Employer: LSA Associates

Whipple-Havasu Circuit, SCE, near Lake Havasu, CA, 2003. Role: Project Manager/Principal Archaeologist. Mr. Duke's team conducted an archaeological survey of 249 poles along 25 miles of land located on the Chemehuevi Indian Reservation and BLM lands. The project was located within the boundaries of the Desert Training Center (DTC); however, no DTC cultural resources were observed. Seven

cultural resources were identified: four prehistoric sites, two prehistoric isolates, and one 1920s historic camp. All work was completed in compliance with NHPA and NEPA. Employer: LSA Associates

McCoy Circuit, SCE, Near Blythe, CA, 2003. Role: Project Manager/Principal Archaeologist. Mr. Duke's team conducted an archaeological survey of 388 poles along 19 miles of land located on BLM lands. The project was located within the boundaries of the Desert Training Center (DTC); however, no DTC cultural resources were observed. Four cultural resources were identified within or adjacent to the project boundaries: one historic/prehistoric site with an intaglio, two historic sites, and one prehistoric site. All work was completed in compliance with NHPA and NEPA. Employer: LSA Associates.

Limonite Senior Project, Pedley, CA, 2004. Role: Principal Archaeologist. Mr. Duke's team conducted CEQA Phase I survey of the 30-acre project, archival research for previously recorded resource within the project, updated site record recommending to the California Register and reviewed final report. Employer: LSA Associates.

Trailmark Specific Plan, Romoland, CA, 2004-2005. Role: Principal Archaeologist. Mr. Duke managed team field work for CEQA evaluations of four prehistoric sites, two historic sites, and one combination prehistoric and historic site. Mr. Duke directed field excavations, including 1x1 test units, shovel test pits, mechanical trenching, and surface collection, supervised artifact analysis, crew members and reviewed final report. Employer: LSA Associates

Stoneridge Estates, Moreno Valley, CA, 2004. Role: Principal Archaeologist. Mr. Duke oversaw the survey of approximately 300 acres and the recordation of 12 prehistoric sites as well reviewed final report. Employer: LSA Associates.

Gibbel Estates Project, 80 Acres, Hemet, CA, 2004. Role: Principal Archaeologist. Mr. Duke's team conducted CEQA survey of 80 acres, recordation of one new prehistoric site, the Phase II evaluations of new site and one previously recorded site recommended eligible to the California Register. Supervised field director, field crew and reviewed final report. Employer: LSA Associates.

Rancho Bella Vista, Riverside County, CA, 2004. Role: Principal Archaeologist. Mr. Duke's team conducted artifact analysis of collections recovered at three sites during construction monitoring. Mr. Duke oversaw, Lab Director, technician and field crew as well as reviewed final report. Employer: LSA Associates.

Murrieta Springs (Tract Map Number 29707), Murrieta, CA, 2004. Role: Principal Archaeologist. Mr. Duke's team prepared site records for a newly recorded site discovered during construction monitoring, conducted artifact analysis of the collection from this new site. Mr. Duke reviewed final report. Employer: LSA Associates.

Oak Valley Specific Plan 1 Amendment, Beaumont, CA, 2004. Role: Principal Archaeologist. Mr. Duke's team conducted the CEQA survey of this 2,600-acre project, recordation of the historic architectural resources. Mr. Duke edited and reviewed final report. Mr. Duke supervised a Field Director, and 4 field crew members. Employer: LSA Associates.

Xavier College Preparatory High School, Thousand Palms, CA, 2004. Mr. Duke's team conducted the CEQA Phase I survey of 100 acres. He supervised the Field Director and Field Crew and reviewed the final report. Employer: LSA Associates.

French Valley Assemblage, Menifee, CA, 2004. Mr. Duke served as Principal Archaeologist for the CEQA Phase I survey of this 160-acre project and edited and reviewed and final report. Employer: LSA Associates.

Menifee 60 Project, Menifee, CA, 2004. Mr. Duke served as Principal Archaeologist for the CEQA Phase I survey of 60 acres, supervised Field Director and Field Crew as well as edited and reviewed the final report. Employer: LSA Associates.

Orchard Hills (Planning Area 1), Irvine, 2002. Under contract to the Irvine Company, Mr. Duke conducted Phase II archaeological excavation on several sites. Mr. Duke served as the field director and co-Principal Investigator. This work was completed by Mr. Duke while with another employer.

Santa Rosa Geysers Recharge Project, Santa Rosa County, 1999. Mr. Duke participated an archaeological field survey for the Geysers Recharge Project. This work was completed while with a former employer.

Muddy Canyon Archaeological Project (Crystal Cove-Phase IV), Newport Coast, Orange County, 1999-02. Mr. Duke served as field crew and cartographer for the Phase II test excavations and field director and cartographer for Phase III data recovery excavations. Mr. Duke supervised up to 15 archaeologists excavating at eight prehistoric archaeological sites.

Fort Irwin, National Training Center, CA, 1999. Role: Crew Chief/Teaching Assistant. Mr. Duke assisted in a Field School for CSU, Fullerton. He instructed students in proper survey techniques, artifact identification, and site record preparation. In addition, Mr. Duke co-authored the survey report.

San Nicolas Island, Naval Base Ventura County, CA, 1997. Role: Field crew. Mr. Duke was part of an excavation and lab crew conducting test excavations at various archaeological sites. Laboratory sorting was conducted in the evenings. Employer: Petra Resources

Salton Sea Navy Test Base, CA, 1996-97. Role: Field crew. Mr. Duke was part of a survey crew conducting intensive surveys on the west shore of the Salton Sea. Excavation was conducted at sites that appeared to be significant. Employer: KEA Environmental

Chocolate Mountains Gunnery Range, CA, 1996. Role: Field crew. Mr. Duke was part of a survey crew conducting intensive surveys in the Chocolate Mountains. Employer: KEA Environmental

Mission Santa Cruz Archaeological Excavations, 1993. Mr. Duke participated in the 1993 Cabrillo College Archaeological Field School. Archaeological excavations occurred outside the chapel in search for the corner of the original mission building.

Allan Brown Site (CA-SCR-20) near Bonny Doon, Santa Cruz County, 1993. Mr. Duke participated in the 1993 Cabrillo College Archaeological Field School. As part of the archaeological survey Mr. Duke surveyed the Allan Brown site in Santa Cruz County.

Fort Hunter-Ligget/Los Padres National Forest, Monterey County, 1993. Mr. Duke participated in the 1993 Cabrillo College Archaeological Field School. As part of the archaeological survey Mr. Duke conducted archaeological survey on the Los Padres National Forest and a portion of Fort Hunter-Ligget.

Pfeiffer State Beach, Monterey County, 1994. Mr. Duke was a Teaching Assistant for the Cabrillo College Archaeological Field School for the summer of 1994.

Other Projects

Stadium Arco Station, San Diego, 2003-04
Cingular/PBMS, ~2,000 Facilities, Southern Calif., Nevada, and Arizona, 1997-2001
AT&T Wireless, ~1,000 Facilities, Southern California, 1998-2001
Bonita Canyon Sports Park, Newport Beach, 1997
Hicks Canyon Retention Basin, Irvine, CA, 1996
Testing of Phase III, Las Trancas Canyon, Newport Coast, 1995
Data Recovery of Site CA-ORA-64, Newport Beach, 1995

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Megan Patricia Wilson

Archaeologist/GIS Analyst

Expertise

Cultural Resources Management
California Archaeology and History
Geographical Information Systems
Trimble, Pathfinder, TerraSync, GPS Software
Section106, NEPA, and CEQA Compliance
Native American Consultation

Education

CSU, Fullerton, M.A., Anthropology, 2014
UCLA B.A., Anthropology, 2006

Professional Registrations

RPA, No. 30984245

Certifications

GIS Certification, CSU, Fullerton, 2013

Professional Memberships

Society for California Archaeology
Society for American Archaeology
Society for Historical Archaeology
Orange County Historical Society

Professional Experience

Archaeologist and GIS Analyst, Duke CRM, 2019-Present
Archaeologist and GIS Manager, Cogstone RMI, 2014-2019
Assistant Archaeology Curator, John D. Cooper Center, 2012-2014
Lab Assistant, California State University, Fullerton Archaeology Lab, 2011-2012
Archaeological Field Technician, The Keith Companies, 2003

Selected Project Experience

Purple Line Extension (Westside Subway), Metro/FTA, Los Angeles, 2019
Brea 265 Specific Plan, City of Brea, 2019
Ontario International Airport Evaluation, City of Ontario, 2019
Irvine General Plan, Update, 2019
River Street Marketplace, City of San Juan Capistrano, 2019
Lake Forest General Plan Update, City of Lake Forest, 2018
I-5/Venta Spur Trail Bicycle and Pedestrian Bridge, City of Irvine, 2018
Newport Crossing Development, Newport Beach, 2018
La Verne General Plan Update, City of Laverne, 2018
I-605 Katella Interchange Improvements Project, 2018
Chino High School, City of Chino, 2018
SR 57 Widening Project-Orangewood to Katella, Caltrans District 12, 2018
Harriet M. Weidner Regional Park, City of Huntington Beach, 2017
Park Place Extension and Grade Separation EIR EA, Caltrans District 7, El Segundo, , 2017
Accelerated Charter Elementary School, Los Angeles Unified School District, Los Angeles, 2017
Del Sur Solar EIR, Lancaster, 2016
Little Corona Infiltration/Buck Gully, Newport Coast Watershed Management Plan, Newport Beach, 2016
Longboat Solar Photovoltaic, EDF Renewable Energy, Barstow and Lenwood, 2016
I-5 Jeffrey Open Space Trail (JOST) Segments 1 & 2, Irvine, City of Irvine/Caltrans District 12, 2015
Sweany Pipeline, Phase II, Laguna Beach County Water District, Crystal Cove State Park, 2014
Little Tujunga Canyon Road Project, Angeles National Forest, 2015
Greenville-Banning Channel Rehabilitation, OC Public Works, Costa Mesa, 2014
Lopez and Agua Dulce Canyons Restoration Due Diligence, Mountains Recreation and Conservation Authority, Angeles National Forest, 2014

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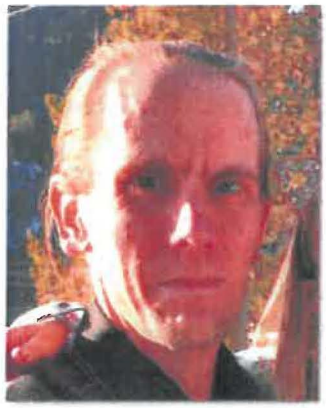
Benjamin Scherzer

Paleontologist



Expertise

Paleontological Resources Management
Fossil excavation
Fossil preparation
Stratigraphy
Natural gas mudlogging
Directional drilling

Education

M.S., Earth Science, 2008, MSU, Bozeman, MT
B.A., Geology/Math, 2002, Earlham College, IN

Professional Registrations

Paleontologist, County of Orange
Paleontologist, County of Riverside

Professional Memberships

Society of Vertebrate Paleontology
Geological Society of America
Society for Sedimentary Geology
American Association of Petroleum Geologists, Pacific Section
South Coast Geological Society
Western Association of Vertebrate Paleontologists

Publications and Professional Papers

Scherzer, B. 2017. A possible physeteroid (cetacea: odontoceti) from the Yorba member of the Puente Formation, Orange County, California.

Scherzer, B. 2016. An archaic baleen whale (Cetacea: Mysticeti) from the Vaqueros Formation, and other fossil material from the Skyridge Project, Orange County, California.

Scherzer, B. 2015. Miocene teleost fish from Chino Hills: preliminary results from the Vila Borba Project, San Bernardino County, California.

Professional Experience

Paleontologist, DUKE CRM, February 2014-present
Paleontologist, L&L Environmental, 2017-2018
Stratigrapher, Archeological Resource Management Corp., 2015-2018
Paleontological Specialist II, SD Natural History Museum, 2013-2018
Paleontological Specialist II, SWCA (Pasadena), 2012-2015
Paleontologist, SWCA (Vernal, UT), 2011-2012
Fossil Preparator, Carter County Museum, 2010-2011
Physical Science Technician, Badlands National Park, 2010
Mudlogger/Geologist, Pason Systems USA, 2006-2009
Paleontological Field Assistant, ARCADIS US, 2006-2007

Selected Project Experience

Prairie Avenue Bridge Rehabilitation, Torrance, 2019-present
San Jacinto GP & Update, San Jacinto, 2019-present
I-5 Widening, Aliso Viejo, 2018-present
Sweeny Rd, Lompoc, 2018-present
Atlanta Avenue Widening, Huntington Beach, 2018-present
Ocean Place, Seal Beach, 2018-present
Lake Forest Civic Center, Lake Forest, 2018-present
Vanderham Monitoring, Jurupa Valley, 2017-2018
Ave S-8 and 40th St Roundabout, Palmdale, 2017-present
Gold Flora Farms, Desert Hot Springs, 2017-present
I-5 HOV Truck Lanes, Santa Clarita, 2017-2018
Brasada Homes, San Dimas, 2017-2018
Indus Light Industrial Building, Chino Hills, 2017-2018
Murrieta's Hospitality Commons, Murrieta, 2017
6th Street Viaduct, Los Angeles, 2017-present
I-15 TEL, Riverside and San Bernardino Counties, 2017
Lewis Street, Anaheim, 2017
The Crossings, Chino Hills, 2016-2017
Reata Glen, Mission Viejo, 2016-2018
Greenville-Banning Channel, Costa Mesa, 2016
Fairfield Ranch, Chino Hills, 2016
Diamond Valley, Hemet, 2017
Marywood Residential, Orange, 2016-2017
Rancho Mission Viejo, Mission Viejo, 2015-2018
Santa Margarita Water District Tesoro Reservoirs, Mission Viejo, 2015
Evanston Inn, Pasadena, 2015
Village of Terrassa, Corona, 2015
Sycamore to Peñasquitos 230 kV Transmission Line, San Diego, 2015
Lakeside Temescal Valley, Temescal Valley, 2015-present
Vila Borba, Chino Hills, CA, 2013-present
RP-Outfall Relocation, Ontario, 2014
Serrano Ridge, Temescal Valley, 2014
Lago Los Serranos, Chino Hills, 2014
Baker WTP, Lake Forest, 2014
Skyridge Residential, Mission Viejo, 2014-present
Pacific Highlands, San Diego, 2014
Sol y Mar, Ranchos Palos Verdes, 2013-2014
Mojave Solar Power, Hinkley, 2013
Genesis Solar Energy, Blythe, 2012-13

Appendix C

Paleontological Records Search Results

2024 Orange Tree Lane, Redlands, CA 92374 | Phone: 909.798.8616 Fax: 909.307.0539
www.SBCounty.gov

SAN BERNARDINO COUNTY

San Bernardino County Museum
Division of Earth Sciences

Crystal Corte
Curator of Earth Science

email: Crystal.cortez@sbcm.sbcounty.or

27 September, 2019

Duke CRM
Attn: Ben Scherzer
18 Technology Dr., Ste. 103
Irvine, CA 92618

PALEONTOLOGY RECORDS REVIEW for proposed TTM 4514-4 and TTM 17720 Projects

Dear Mr. Scherzer,

The Division of Earth Sciences of the San Bernardino County Museum (SBCM) has completed a records search for the above-named project in San Bernardino County, California. The proposed TTM 4514-4 and TTM 17720 projects are located in the City of Apple Valley, Section 31, Township 6 North, Range 3 west, as shown on the United States Geological Survey (USGS) 7.5 minute Apple Valley North, California quadrangle (1971).

For this review, I conducted a search of the Regional Paleontological Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no recorded paleontological resource localities are present within the proposed project. Previous geologic mapping indicates that the proposed project sites have surface exposures of Quaternary alluvium of Holocene age that overlay porphyritic felsite and quartz monzonite presumably deposited during the Cretaceous.

This records search covers only the paleontological records of the San Bernardino County Museum. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Please do not hesitate to contact us with any further questions that you may have.

Sincerely,

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