Cultural and Paleontological Resources Assessment

TTM 20306 Project

Town of Apple Valley, San Bernardino County, California
APNs 0441-011-01, 441-021-11, 12, 15, 16, 17, 18 and 19

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Duke CRM Project Number: C-0306

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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ABBREVIATIONS

AB52	Assembly Bill 52
B.A.	Bachelor of Arts
CRHR	California Register of Historical Resources
CEQA	California Environmental Quality Act of 1970
CHRIS	California Historical Resources Information System
Client	MLH, LLC
€wc	Wood Canyon Formation
DUKE CRM	Duke Cultural Resources Management
EIR	Environmental Impact Report
Kgd	Biotite granodiorite
M.A.	Master of Arts
M.S.	Master of Science
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
PRC	Public Resources Code
Project	Tentative Tract Map 20306 Project
Qoa	Quaternary older alluvial deposits
SBCM	San Bernardino County Museum
SCCIC	South Central Coastal Information Center
Town	Town of Apple Valley
TCR	Tribal Cultural Resources
TTM	Tentative Tract Map

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) 20306 Project (Project), located in the Town of Apple Valley, County of San Bernardino, California. The Project area is approximately 102 acres and is located on Associated Parcel Numbers 0441-011-01 and 441-021-11, 12, 15, 16, 17, 18, and 19. 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. Our research indicates that there is a high sensitivity for paleontological resources in the Quaternary older alluvial deposits (*Qoa*) within the eastern half of the Project (directly south of Los Ranchos mobile home park). Therefore, significant and unique paleontological resources may be impacted by the project during earth disturbing activities in this area. These impacts would be considered potentially significant. In order to reduce the potential for impacts to paleontological resources to a level that is less than significant under CEQA and the General Plan Environmental Impact Report (EIR) for the Town of Apple Valley (Terra Nova 2009, p. III-80), full time paleontological monitoring is recommended from the outset of construction during ground disturbance associated with the eastern half of the Project. Monitoring may be reduced to part time or spot checking based on monitoring observations.

Two historic period archaeological sites were discovered during the field survey. Both sites were heavily disturbed by modern activity, with any scientifically significant artifacts likely already impacted. This disturbance limits the scientific significance and research potential of the material contained in the sites. Evaluation of these historic era deposits (C-0306-01H and C-0306-02H) has determined that neither meet the criteria for inclusion in the California Register of Historical Resources (CRHR) and no further research on these deposits is recommended. The condition of these artifacts, combined with the lack of other documented archeological resources in the Project area, suggests the Project has a low sensitivity for historic or prehistoric archaeology; 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 their 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 analyses of human remains and items associated with Native American burials.

INTRODUCTION

Duke Cultural Resources Management, LLC (DUKE C R M) is under contract to MLH, LLC (Client) to provide cultural/paleontological resources services for Tentative Tract Map (TTM) 20306 Project (Project), located in the town of Apple Valley, County of San Bernardino, California (Figure 1). The Project area encompasses approximately 102 acres within Associated Parcel Numbers 0441-011-01 and 441-021-11, 12, 15, 16, 17, 18 and 19 (Figures 2 & 3).

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 in the northern half of the Town of Apple Valley in southwestern San Bernardino County. The Project is bound on the north by Corwin Road and Los Ranchos mobile home park, on the east by open space, on the south by a housing development and open space, and on the west by Catholic Hill. The Project is in the north ½ of Section 5 of Township 5 North, Range 3 West on the USGS *Apple Valley North, California* 7.5' Quadrangle.

Regulatory Environment

CEQA

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

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 retain integrity of location, design, setting, materials, workmanship, feeling and/or 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 impacts to less than significant levels (PRC 21083.2). As stated by CEQA, a *unique archaeological resource* is 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.

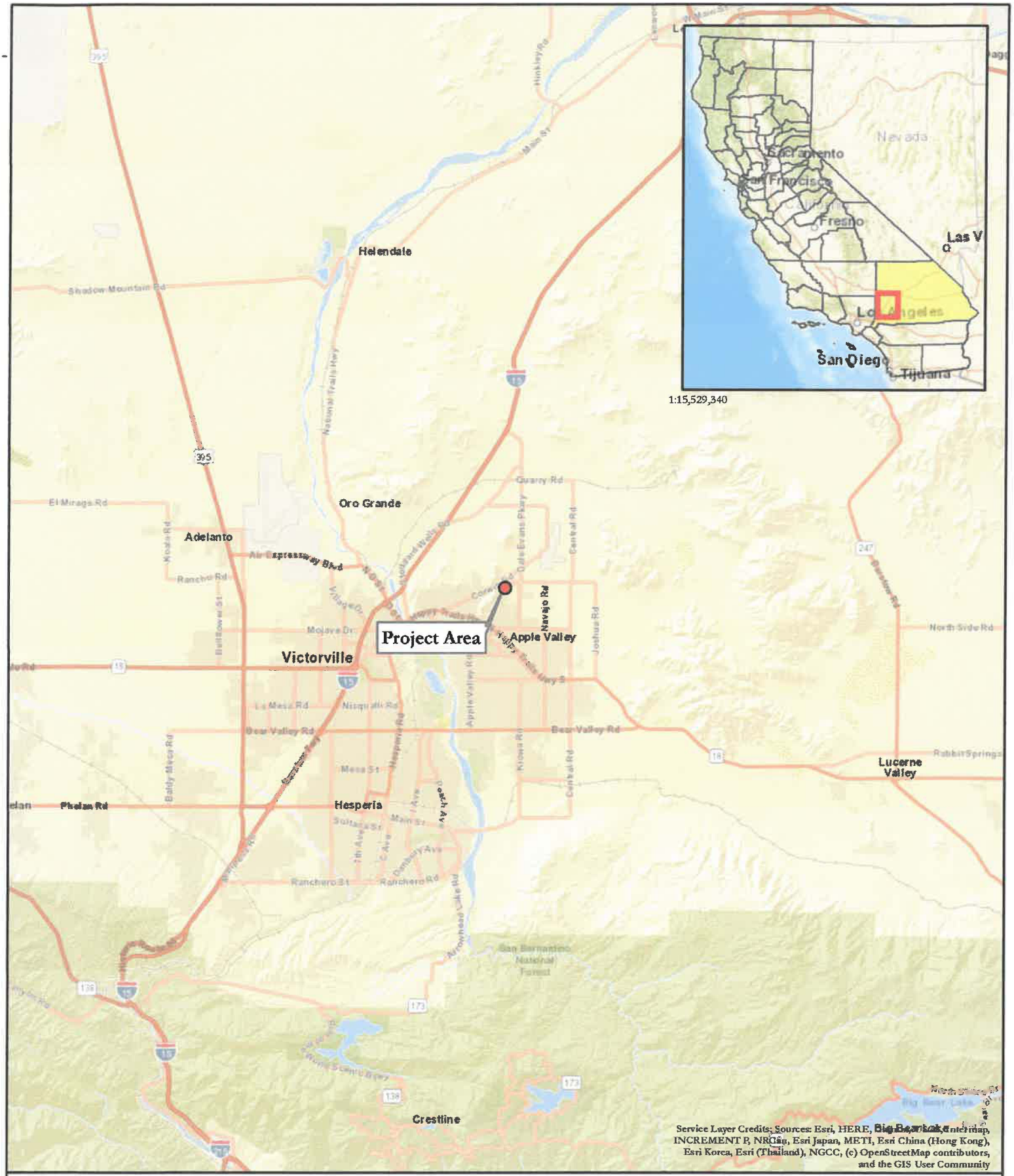

Figure 1- Project Vicinity

TTM 20306 Apple Valley, C-0306

DUKE CRM

Project Area

0 5 10 Miles

1 inch = 5 miles 1:316,800

N

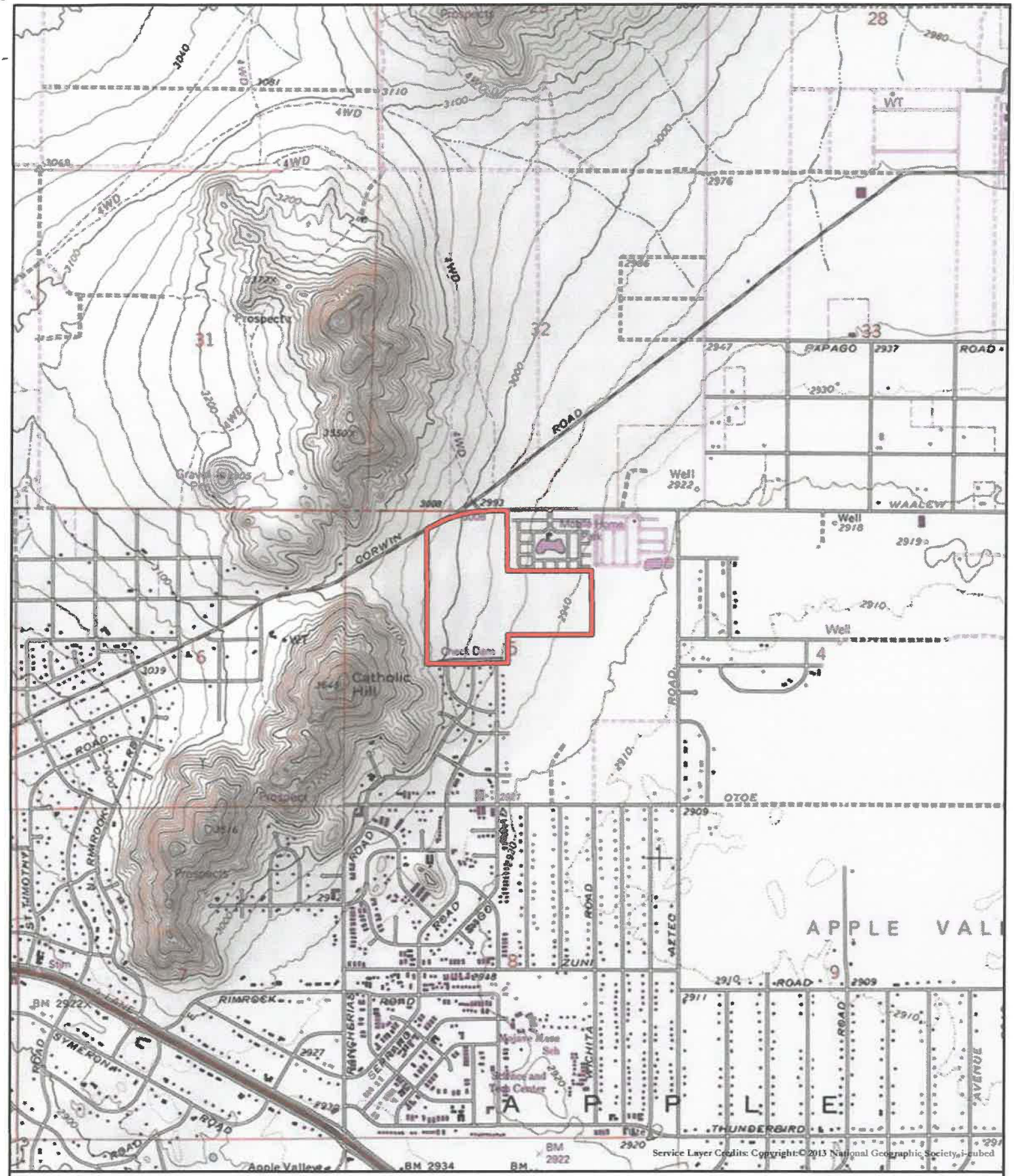

Figure 2- Project Location

TTM 20306 Apple Valley, C-0306

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Figure 3- Project Aerial
TTM 20306 Apple Valley, C-0306

DUKE CRM

Project Area

0 200 400 Feet
1 inch =400 feet
1:4,800
N

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 California state Assembly Bill 52 (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. Implementation of AB52 is the purview of the Lead Agency. DUKE CRM was not requested or scoped to conduct this consultation.

In addition, 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.

SETTING

Natural

California has been divided into 11 geomorphic provinces, each naturally defined by unique geologic and geomorphic characteristics (California Department of Conservation 2002). The Project is 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 system and many seasonally inundated shallow lakes or 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 the fault 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 on the North American tectonic plate that, in contrast to the Pacific plate 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 Nevada range of mountains and continue through southeastern California and into Arizona (Tosdal, et al. 1989). Being harder than the surrounding sedimentary deposits, igneous deposits are more resistant to erosion forming prominent local hills and mountains. The

Project is located on the eastern base of Catholic Hill composed of igneous rocks from the Middle Jurassic and metamorphosed sedimentary rocks from the Cambrian Period (541 to 485 million years BP). Local deposits are 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 underlain three geologic units (Figure 4).

Old alluvial deposits (Qoa)
Quaternary old alluvial deposits are composed of fine- to medium-grained, moderately consolidated brown sand and gravel of inactive alluvial fans (Hernandez and Tan 2007) from the Pleistocene Epoch (2.5 Ma to 11,700 years ago). This unit is obtained in the eastern half of the project (directly south of Los Ranchos mobile home park).

The climate of Southern California during the Pleistocene was cooler and moister than the modern Mediterranean climate (Lamb 1989). In contrast to the harsh, cold conditions in high latitudes near the ice sheets, southern California experienced a relatively milder climate during this time (Calder 1983). During this time, the area was inhabited by the familiar Pleistocene or "Ice Age" fauna, such as mammoth, mastodons, horses, camelids, and ground sloths (Stock 2001). Towards the end of the Pleistocene, the Colorado River delta would have started to form a "dam" between the Salton Trough and the Gulf of California, initiating the first iterations of the Lake Cahuilla when the river meandered west and infilled the trough (Waters 1980; 1983).

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 obtains almost all of the western half of the Project (west of Los Ranchos mobile home park), except for the southeast corner. Biotite granodiorite is not fossiliferous, due to its igneous nature.

Wood Canyon Formation (€wc)
The Wood Canyon Formation is composed of sedimentary rocks from the Cambrian Period that have been metamorphosed to biotite schist and arkosic quartzite and sandstone by the Jurassic-Cretaceous igneous activity (Hernandez and Tan 2007). The Wood Canyon Formation in the Project area is not fossiliferous, due to the associated metamorphism.

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.)

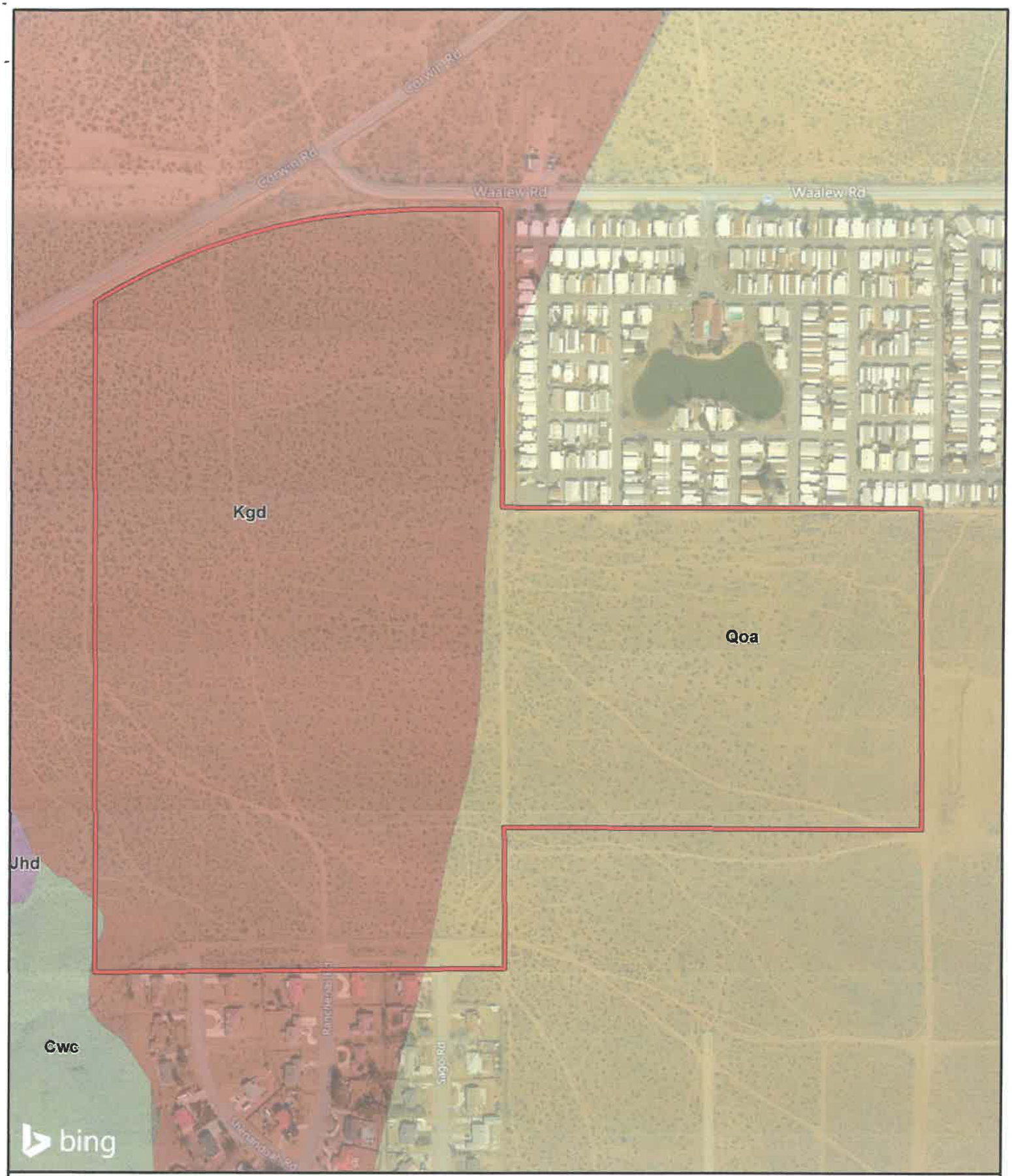

Figure 4- Project Geology
TTM 20306 Apple Valley, C-0306

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Geology from Hernandez and Tran
Qoa: old alluvial deposits
Kgd: biotitie grandodiorite
Jhd: hornblende diorite and gabbro
Cwc: Wood Canyon Formation

Project Area

0 200 400 Feet
N
1 inch =400 feet 1:4,800

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 (1955) 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·?č)* (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 and the Colorado River occurred 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 (King and Blackburn 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 (1978) 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 (*tsac*) 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 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

The historic era in California 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 Rodrigues Cabrillo, who claimed it for Spain in 1542. The first Europeans in the area were led by Captain Gaspar de Portolá, Spain's first military governor of California in 1769 (Rolle 1963). During the Mission Period, the Los Angeles Basin was serviced by the Mission San Gabriel Archangel, established in 1771. An outpost to the mission, the *San Bernardino de Sena Estancia*, was established in Redlands in 1819. The estancia was the closest church establishment to the Project area. It served to manage cattle grazing and induct Native Americans into the church. Much of the Mojave Desert was beyond Spanish colonial control, and few ventured 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 (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 that 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 Record Search

The San Bernardino County Museum (SBCM) performed a paleontological records search to locate fossil localities within the Project. In addition, Mr. Scherzer 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 Records Search

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) 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 was reviewed, which includes the NRHP, CRHR, California Historical Landmarks, and California Points of Historical Interest. 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 102-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 and is listed on the Registered Professional Archaeologist. He 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 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 (see Appendix A for staff resumes).

RESULTS

Records Search

The results of the records search at the SCCIC indicated that no previous cultural resource studies were included in the Project area, but 9 cultural studies have been conducted within a one-mile radius of the Project area. The results of these studies also indicated that there are no cultural resources located within the Project area. One cultural resource was located with one mile of the Project and consists of a historic built environment resource between 0.25-0.5 miles.

On September 27, 2019, the SBCM provided the results of their records search for fossil localities in or near the Project (Cortez 2019) (Appendix B, Paleontological Records Search Results). Combined with the records searches on online databases and published literature by B. Scherzer, one fossil locality was identified:

- SBCM 1.114.3 produced remains of horse (*Equus*), approximately 3 miles west of the project (Jefferson, 1991).

These records search findings are consistent with the General Plan EIR for the Town of Apple Valley (Terra Nova 2009, Exhibit III-5), which assigns a mid to high paleontological sensitivity to Pleistocene deposits (Table 1). In particular, the General Plan EIR (Terra Nova 2009, p. II-12) assigns a high sensitivity to Pleistocene sediment near Apple Valley Dry Lake, which is located less than three miles to the southeast (Figure 4).

Table 1. Geologic Units and their Paleontological Sensitivity

Age	Geologic Unit[1]	Fossils Present[2]	Paleontological Sensitivity
Pleistocene	Old alluvial deposits (*Qoa*)	Horse	High
Cretaceous	Biotite granodiorite	None	Low
Cambrian	Wood Canyon Formation	None	Low

[1] Hernandez and Tan (2007)
[2] Jefferson (1991)

Field Survey

The entire 102-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 (Figure 5, 6). Careful inspection was given to exposed subsurface stratigraphy when present. Observed exposed sediments were sandy to gravelly in texture and tan to brown in color (Figure 7). During the survey, two sites of historic refuse scatter were located. Site C-0306-01H is located south of the Los Ranchos Mobile Home Park, southeast of the intersection of Corwin Road and Waalew Road, and consists of domestic refuse from the 1920s – 1940s, including cans, glass bottle fragments, glass tumblers, ceramic sherds, structural debris, and a ceramic insulator (Figures 8, 9). Site C-0306-02H is located south of the intersection of Corwin Road and Waalew Road and consists of beverage and food cans from the late 1920s-early 1970s (Figures 9). This site contains a deposit that appears be a discrete dumping event from the late 1920s - early 1930s (Figure 10) (Appendix C, Site Records and Resource Location Map). Both sites C-0306-01H and C-0306-02H showed signs of modern disturbance and were not buried in the soil at any depth. No paleontological resources were observed during the field survey.

Figure 5: Eastern edge of Project area, view **west.**

Figure 6: Typical exposure of sediment at ground surface.

Figure 7: Site C-0306-01H, view west.

Figure 8: Sample of historic refuse at C0306-01H.

Figure 9: Site C-0306-02H, view northwest.

Figure 10: Refuse from a dumping event from the late 1920s -early 1930s.

RESOURCE EVALUATIONS

Cultural resources inventory of the Project identified two historic era trash deposits (C-0306-01H and C-0306-02H). As reported above, each site represents domestic refuse deposits ranging in age from the 1920s to the 1940s. The age of these deposits (more than 50 years in age) necessitates evaluation for the CRHR based on the four criteria presented in the Regulatory Environment section, above and are repeated 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.

The C-0306-01H historic refuse scatter consists of a range of domestic debris including approximately 30 large sanitary food cans, 20 flat top church key beverage cans, 15 meat cans, 10 upright tobacco cans, 10 meat cans, as well as numerous metal can lids. Also present were numerous clear, brown, aqua-marine, and green glass bottle fragments as well as fragments of clear glass tumblers. Fragments of stoneware and whiteware ceramic were also abundant. Other miscellaneous unidentifiable items included scraps of metal, one ceramic insulator, wood scraps, and one rubber heel of a shoe with nails in place.

The C-0306-02H historic refuse scatter consists of a range of beverage, food, and tobacco cans; consisting of approximately 40 flat top church key beverage cans, twenty sanitary cans, eight cone top beverage cans, two round punch cans, ten square meat cans, six square upright tobacco tins, four key-opening non-reclosure can keys. Also present were numerous clear, brown, aqua-marine, and like glass shards and glazed stoneware, refined earthenware, and terra cotta ceramic sherds.

Criteria 1 and 2 are applicable to sites with historical association to events or persons noteworthy to national, state or local history. Neither of the two deposits under investigation obtain those associations. Therefore, the sites are not recommended CRHR-eligible based on these criteria.

Criterion 3 is most applicable to buildings, structures and objects that are distinctive and often exceptional. Neither of the identified deposits are distinctive or exceptional as they are indicative of and similar to numerous historic era trash scatters found in the region. Therefore, the sites are not recommended CRHR-eligible based on this criterion.

Criterion 4 addresses the data potential of cultural deposits. Based on the field inventory, the materials within the deposits are similar to numerous historic era trash scatters found in the region. Inventory has exhausted what little data these deposits contain, and they do not meet the level of significance necessary for inclusion on the CRHR based on this criterion. Therefore, the sites are not recommended CRHR-eligible based on this criterion.

Evaluation of C-0306-01H and 0C-306-02H for CRHR eligibility has concluded that neither resource meets the necessary criteria for inclusion.

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.*

Our research indicates that there is a high sensitivity for paleontological resources in the old alluvial deposits (*Qoa*) that underlie the eastern half of the Project (directly south of Los Ranchos mobile home park). Therefore, significant and unique paleontological resources may be impacted by the project during earth disturbing activities in this area. These impacts would be considered potentially significant. In order to reduce the potential for impacts to paleontological resources to a level that is less than significant under CEQA and the General Plan EIR for the Town of Apple Valley (Terra Nova 2009, p. III-80), paleontological monitoring is recommended during ground disturbance associated with the eastern half of the Project.

Paleontological Monitoring – The high sensitivity of *Qoa* deposits for fossil occurrences necessitates that a paleontological monitor shall be present from the outset to observe ground disturbing activities in the eastern half of the Project (see Figure 4). The monitor shall work under the direct supervision of a qualified paleontologist (B.S. /B.A. in geology, or related discipline with an emphasis in paleontology and demonstrated experience and competence in paleontological research, fieldwork, reporting, and curation).

1. The qualified paleontologist shall be on-site at the pre-construction meeting to discuss monitoring protocols.
2. Paleontological monitoring shall start at full-time. If no paleontological resources are discovered after half of the ground disturbance has occurred, monitoring can be reduced to part-time or spot-checking.
3. The monitor shall be empowered to temporarily halt or redirect grading efforts if paleontological resources are discovered.
4. In the event of a paleontological discovery the monitor shall flag the area and notify the construction crew immediately. No further disturbance in the flagged area shall occur until the qualified paleontologist has cleared the area.
5. In consultation with the qualified paleontologist the monitor shall quickly assess the nature and significance of the find. If the specimen is not significant it shall be quickly removed, and the area cleared.

6. If the discovery is significant the qualified paleontologist shall notify the developer and Town of Apple Valley immediately.
7. In consultation with the applicant, the qualified paleontologist shall develop a plan of mitigation which will likely include salvage excavation and removal of the find, removal of sediment from around the specimen (in the laboratory), research to identify and categorize the find, curation of the find in a local qualified repository, and preparation of a report summarizing the find.

The two historic era sites encountered during the field survey were heavily disturbed by modern activity, with any scientifically diagnostic artifacts likely already removed. This limits the scientific significance and research potential of the material contained in the sites. Evaluation of C-0306-01H and 0C-306-02H for CRHR eligibility has concluded that neither resource meets the necessary criteria for inclusion. No further action is recommended. The lack of documented archeological resources in the Project area, suggests the Project has a low sensitivity for prehistoric archaeology or additional historic era 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 designate 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 analyses of human remains and items associated with Native American burials.

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1978 *Kitanmuk.* In California, edited by Robert F. Heizer, pp. 564-569. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, DC.

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1978 *Tataviam.* In California, edited by R.F. Heizer, pp. 535-537. Handbook of North American Indians, vol. 8, W.C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

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Sutton, Mark Q. and David D. Earle
2017 The Desert Serrano of the Mojave River. Pacific *Archaeological Society Quarterly* 53 (2&3):1-61.

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Waters, Michael Richard
1980 Lake Cahuilla: Late Quaternary Lacustrine History of the Salton Trough, California. M.S. Thesis, Department of Geosciences, University of Arizona, Tucson.

1983 Late Holocene Lacustrine Chronology and Archeology of Ancient Lake Cahuilla, California. *Quaternary Research* 19:373–387.

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1986 *Kawaiisu.* In Great Basin edited by Warren d'Azevedo, pp. 398-411. In Handbook of North American Indians, Vol. 11, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C

Appendix A

DUKE CRM Staff Resumes

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

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

Reid-Baldwin Adobe, Arcadia, 2019 – Present
San Jacinto GP & Update, San Jacinto, 2019 - Present
PCH Signal Improvements, Malibu, 2019 - Present
Ocean Place (Tract 17425), Seal Beach, 2019 - Present
Atlanta Avenue Widening, Huntington Beach, 2019 – Present
SR 57-60 IC and Golf Course, Diamond Bar, 2019 - Present
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
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
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
Lopez and Agua Dulce Canyons Restoration Due Diligence, Mountains Recreation and Conservation Authority, Angeles National Forest, 2014

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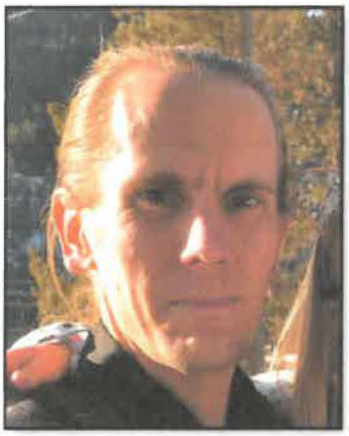
Benjamin Scherzer

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, VCS Environmental, 2020-present
Paleontologist, Red Tail Environmental, 2020-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

210 Mixed Flow Lane Addition, Highlands, 2020-present
Reid-Baldwin Adobe, Arcadia, 2019-present
San Jacinto GP & Update, San Jacinto, 2019-present
I-5 Widening, Aliso Viejo, 2018-2020
Sweeny Rd, Lompoc, 2018-2020
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
Gold Flora Farms, Desert Hot Springs, 2017-2019
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, 2017-2019
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
Sycamore to Peñasquitos 230 kV Transmission Line, San Diego, 2015
Lakeside Temescal Valley, Temescal Valley, 2015-2020
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

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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, March 2011 to present
Archaeologist/Principal, LSA Associates, 1997-2011
Archaeological/Paleontological Technician, Various Companies, 1995-97
Archaeological Technician/Teachers Assistant, Cabrillo College, 1994
Anthropological Laboratory Technician, UC Santa Cruz, 1994

Selected Project Experience

Reid/Baldwin Adobe, LA Arboretum, Arcadia, 2019-Present
Veteran Affairs Medical Clinic, Santa Rosa, 2019
Deane Dana Friendship Park, Rancho Palos Verdes, 2019
Makayla Mine Expansion Project, Olancha, 2019
Sweeny Road, Lompoc, 2018
Vantage Point Church, Eastvale, 2016 and 2018
VA West Los Angeles Campus Master Plan, 2017-Present
Avenue S-8 and 40th St. E. Roundabout, Palmdale, 2017-18
SR-110 Improvements, Los Angeles, 2017
Diamond Valley Estates Specific Plan, Hemet, 2017
VA West Los Angeles Campus Hospital Replacement, 2016-Present
Shoemaker Bridge Replacement, Long Beach, 2016-Present
Spruce Goose Hangar, Playa Vista, 2016
Rice Avenue at 5th Street Grade Separation, Oxnard, 2015-Present
Vila Borba, Chino Hills, 2013-Present
Skyridge Residential, Mission Viejo, 2011-Present
Baker Water Treatment Plant, Lake Forest, 2014-2015
VA Clinic, Loma Linda, 2014-Present
Evanston Inn, Pasadena, 2014-2016
Petersen Ranch, Leona Valley, 2013-2014
California Street/Highway 101, Ventura, 2014-Present
6th Street Bridge Replacement, Los Angeles, 2013-Present
I-15/I-215 IC Project, Devore, 2008-10
Colton Crossing Rail-to-Rail Grade Separation, 2008-11
City of LA DPW BOE, On-Call, Cultural/Paleo Services, 2008-11
Mid County Parkway, Riverside County, 2014-10
McSweeny Farms Specific Plan, Hemet, 2004-08
Mesquite Regional Landfill, Coachella Valley, 2006-08
Hacienda at Fairview Valley Specific Plan, Apple Valley2007-08
Majestic Hills Specific Plan, Hesperia, 2006-07
Chuckwalla Solar I Project, Desert Center, 2007-08
Needles Highway Improvement Project, 2004-06
Superstition Solar I Project, Salton Sea, Imperial County, 2008
Muddy Canyon Archaeological Project, Newport Beach, 1997-2001
Temecula 32, Archaeological Phase II Testing, 2007
Mammoth Lakes Parks/Rec and Trail System Master Plan, 2010
24th Street Improvements, City of Bakersfield, 2008-11
California Valley Solar Ranch, San Luis Obispo County, 2009-10
Delano-Alpaugh Water Pipeline, Kern/Tulare Counties, 2006-09
I-15/SR-79 IC Project, Temecula, 2006-10
Westlake Historic Resources Survey, Los Angeles, 2008-09
CETAP, western Riverside County, 1999-2001
Los Coches Creek Elementary School, near Alpine, 2003-06
Oak Valley Specific Plan 1 Amendment, Beaumont, 2004
San Nicolas Island, Naval Base Ventura County, CA, 1997

Appendix B

Paleontological Records Search Results

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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
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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,

Crystal Cortez, Curator of Earth Sciences
Division of Earth Sciences
San Bernardino County Museum

Confidential
Appendix C

Cultural Resource Site Records & Location Map

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

*Resource Name or #: C-0306-01H

P1. Other Identifier:

*P2. Location: ☒ Not for Publication ☐ Unrestricted
*a. County San Bernardino
*b. USGS 7.5' Quad *Apple Valley North, Calif* Date 1993 T 5N; R 3W; SW¼ of NE¼ of Sec 5 ; SBB.M.
c. Address: N/A City: Apple Valley Zip 92307
d. Zone NAD 83, Zone 11N 479927 mE/ 3823846 mN (centroid)
e. Other Locational Data: From I-15 in Victorville, CA take the D St. exit south then east for 2.7 miles. Turn left onto Corwin Rd. Continue on Corwin Rd. for 2.8 miles. The site is located south of the intersection of Corwin Road and Waalew Road.

*P3a. Description: This site consists of a historic refuse scatter (142 feet E-W, 71 feet N-S) located south of the Los Ranchos Mobile Home Park, southeast the intersection of Corwin Road and Waalew Road. Artifacts includes various sizes any types of cans (large food cans, beverage, tobacco, and meat); glass bottle fragments (clear, green, brown, aquamarine, and milk); fragments glass tumblers; ceramic sherds (stoneware and whiteware); and structural debris (bricks and concrete chunks) including a ceramic insulator.

*P3b. Resource Attributes: AH4, historic refuse scatter

*P4. Resources Present: ☐ Building ☐ Structure ☐ Object ☒ Site ☐ District ☐ Element of District ☐ Other:

P5a Photograph or Drawing

P5b. Description of Photo: Historic refuse scatter, concentration of late 1920s-early 1940s domestic refuse, view southeast

*P6. Date Constructed/Age and Source: ☐ Prehistoric ☒ Historic ☐ Both

*P7. Owner and Address: MLH, LLC P.O. Box 2611, Apple Valley, CA 92307

*P8. Recorded by: Megan Wilson Duke CRM, 18 Technology Drive, Irvine CA 92618

*P9. Date Recorded: 8/26/2019

*P10. Type of Survey: ☒ Intensive ☐ Reconnaissance ☐ Other
Describe:

*P11. Report Citation: B. Scherzer and M. Wilson (2019), *Archaeological and Paleontological Resources Assessment for the Apple Valley TTM No. 17720 Project, City of Apple Valley, County of San Bernardino, California* (Project C-0306)

*Attachments: ☐ None ☒ Location Map ☒ Site Map ☐ Continuation Sheet ☐ Building, Structure, and Object Record ☒Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Ph\otograph Record Other:

*A1. **Dimensions:** a. **Length:** 142 feet (E - W) x b. **Width:** 71 feet (N- S)
Method of Measurement: ☒ Paced ☐ Taped ☐ Visual estimate ☒ Other GIS
Method of Determination (Check any that apply): ☒ Artifacts ☐ Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (explain):
Reliability of Determination: ☒ High ☐ Medium ☐ Low Explain:
Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☒ Disturbances ☐ Site limits incompletely defined ☐ Other (Explain):

A2. **Depth:** ☐ None ☐ Present ☒ Unknown Method of Determination: No subsurface exploration

*A3. **Human Remains:** ☐ Present ☒ Absent ☐ Possible ☐ Unknown (Explain):

*A4. **Features**: None observed.

*A5. **Cultural Constituents**: The historic refuse scatter consists of a range of domestic debris including approximately 30 large sanitary food cans, 20 flat top church key beverage cans, 15 meat cans, 10 upright tobacco cans, 10 meat cans, as well as numerous metal can lids. Also present was numerous clear, brown, aqua-marine, and green glass bottle fragments as well as fragments of clear glass tumblers. Fragments of stoneware and whiteware ceramic were also abundant. Other miscellaneous items unidentifiable included scarps of metal, one ceramic insulator, wood scraps, and one rubber heel of a shoe with nails in place.

*A6. **Were Specimens Collected?** ☒ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

*A7. **Site Condition:** ☐ Good ☐ Fair ☒ Poor (Describe disturbances): Highly disturbed by wind and Off-Road-Vehicle activities

*A8. **Nearest Water**: Bell Mountain Wash 3.25 miles to the north

*A9. **Elevation:** 2,940 amsl

A10. **Environmental Setting**: Situated within the Mojave Desert within the Creosote Scrub, east of Catholic Hill. Numerous lizards and Jackrabbits present. Located in Biotite Granodiorite geologic unit, within a Piedmont Area-a board surface covered by a thin discontinuous veneer of coarse sand and gravel with scattered isolated outcrops of bedrock.

A11. **Historical Information**

*A12. **Age:** ☐ Prehistoric ☐ Pre-Colonial (1500–1769) ☐ Spanish/Mexican (1769–1848) ☐ Early American (1848–1880) ☐ Turn of century (1880–1914) ☒ Early 20th century (1914–1945) ☐ Post WWII (1945+) ☐ Undetermined Factual or estimated dates of occupation (explain):

A13. **Interpretations**: This historic refuse scatter appears to be result of multiple dumping events from a communal and/or commercial kitchen. This assertion is based on the high percentage of large capacity cans that are indicative of a large communal/ commercial kitchen. It is also notable that the site is located immediately east of an old dirt road that once lead directly to the Murray's Dude Ranch (P-36-008545) (Parr and Alcock 1996) approximately half-mile north of the site (UCSB 2019). The entire area where the site is located is riddled with off-road-vehicle roads and tracks, making the

A13. Interpretations (con't)

Murrays Dude Ranch was the world first dude ranch for African Americans and was in operation from the 1920s to 1940s (Parr and Alcock 1996).

More research is needed to firmly associate this refuse deposit to the Murray's Dude Ranch (P-36-008545), a place that was significant to the African American Experience historical context in California and the broader United States, specifically the Civil Rights historic theme (1895-1980). However, no clear association with the dude ranch has been established. Combined with disturbance (loss of integrity) the site is not recommended eligible for the CRHR.

A14. Remarks:

A15. References:

Parr, Robert E. and Gwyn Alcock
1996 *Primary Record, P-36-008545 Murray's Dude Ranch*. California Department of Parks and recreation. On file at the South Central Coastal Information Center, Fullerton.

Rock, Jim
1980 *Beverages: Canned Beer and Soda.* United States Forest Service, Pacific Southwest Region.

UCSB (University of California, Santa Barbra)
2019 Frame AXL-11W-85; 8-25-29. Collections, Aerial Photography, UC Santa Barbara Library. Online resource available at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/, last accessed August 2019

A16. Photographs:

Figure 1. East end of site, plan view

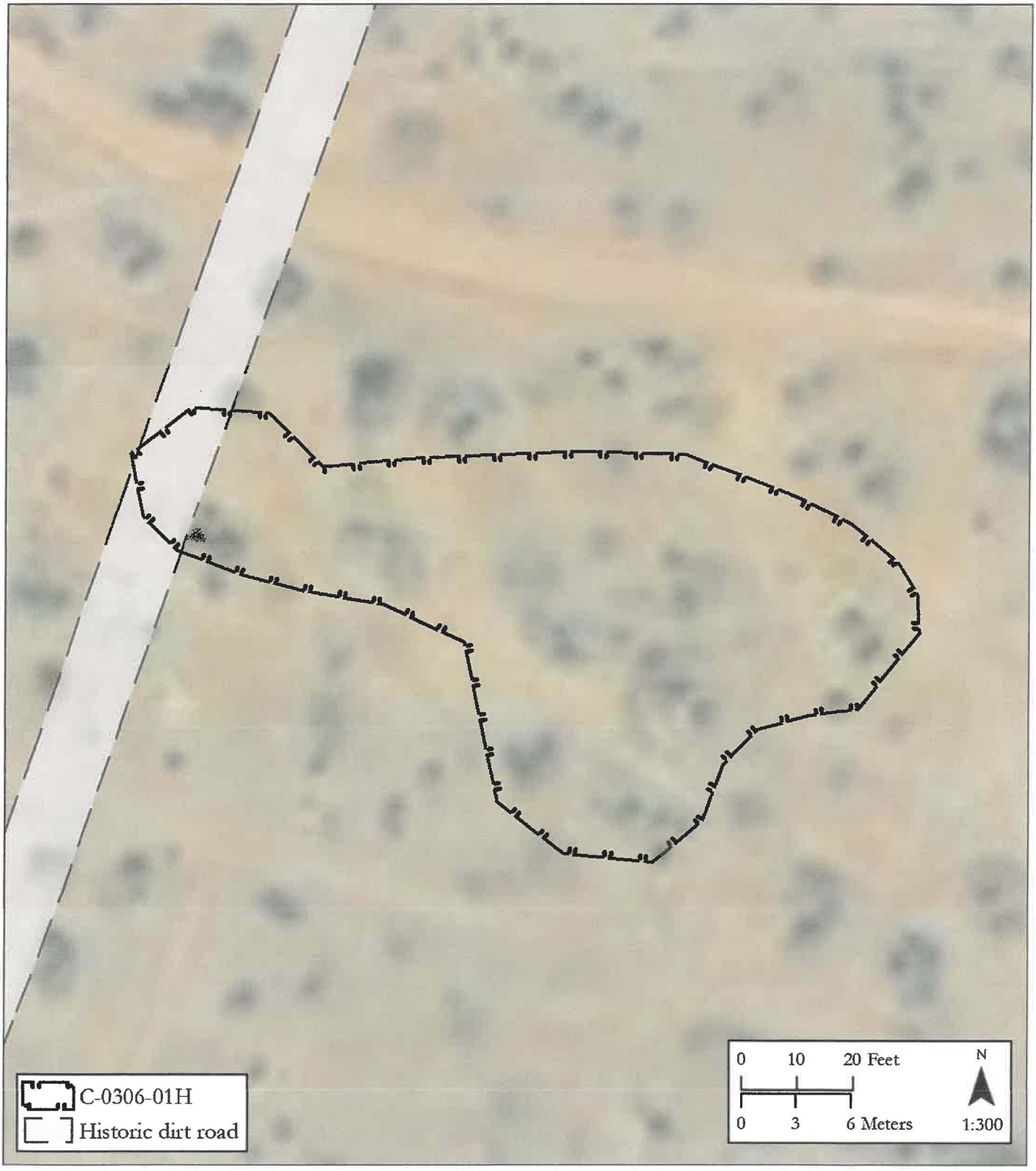
***A17. Form Prepared by:** Megan Wilson, M.A., R.P.A **Date:** 8/26/2019
Affiliation and Address: Duke CRM, 20371 Lake Forrest Dr, Ste. A-2, Lake Forrest, CA 92630

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary #
HRI#
Trinomial

***Drawn By:** Megan Wilson, DUKE CRM

***Resource Name or #** C-0306-01H
***Date of map:** 8/26/2019

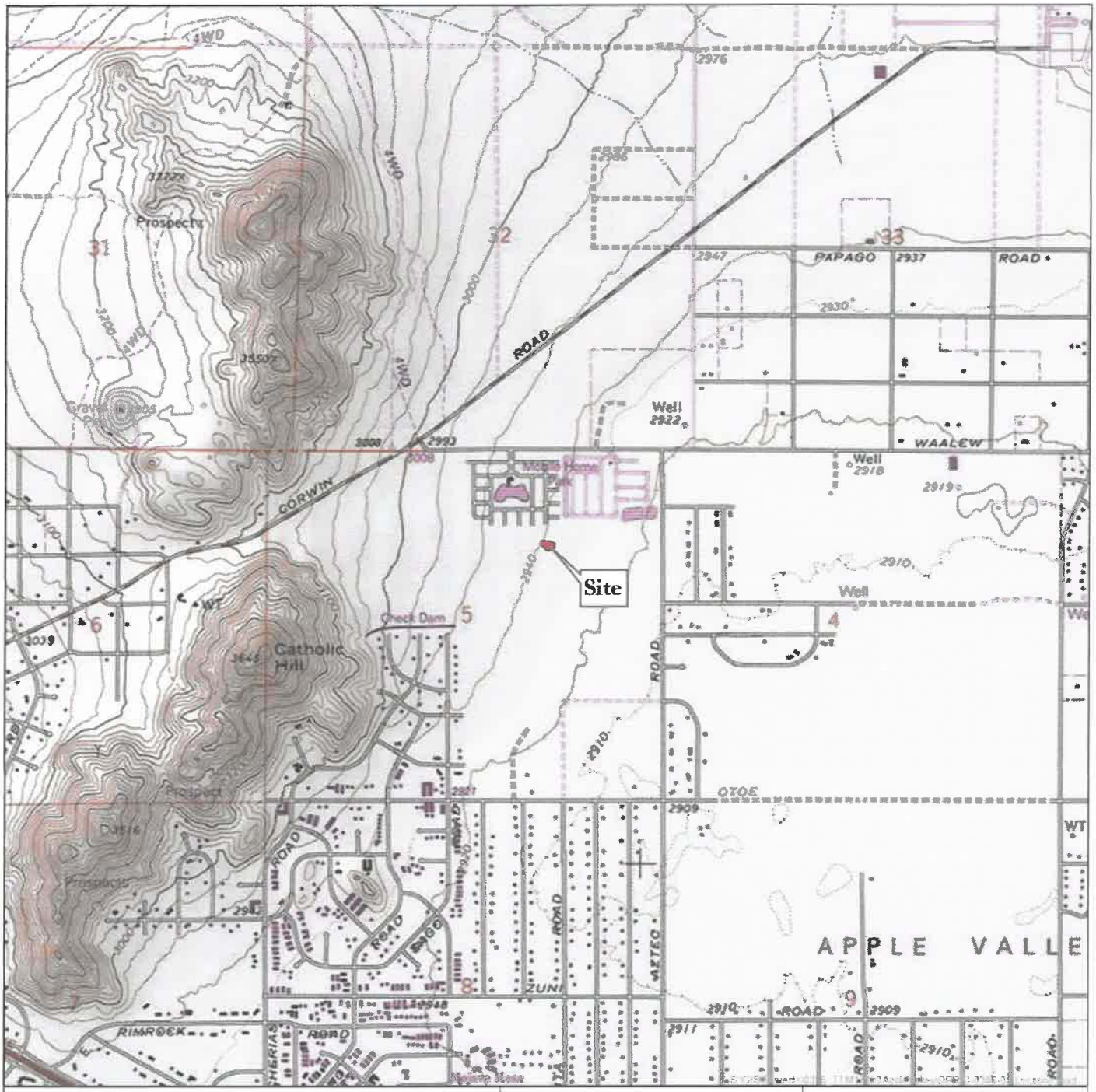


State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #** C-0306-01H

***Map Name:** Apple Valley North, Calif. 7.5' ***Scale:** 1:24,000 ***Date of map:** 1993



Historic Refuse Scatter

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed *This data represents an extension of the federal PLSS prepared by the California Department of Pesticide Regulation. Gaps and irregularities caused by civil land grants have been mathematically filled without the benefit of field surveys. Townships, ranges, and sections are an extrapolation, and might not exist in the federal survey.

Site Location Depicted on the Apple Valley North, Calif. USGS 7.5-Min. Quad.

Township 5 North, Range 3 West, Section 05

0 2,000 Feet N

0 300 Meters 1:24,000

* Required information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

*Resource Name or #: C-0306-02H

Page 1 of 5

P1. Other Identifier:

*P2. Location: ☒ Not for Publication □ Unrestricted

*a. County San Bernardino

*b. USGS 7.5' Quad Apple Valley North Date 1993 T 5N ; R 3W ; NE ¼ of NW ¼ of Sec 05 ; SBB.M.

c. Address: N/A City: Apple Valley Zip 92307

d. Zone NAD 83, Zone 11N (centroid) mE/ 480432.21 mN 3823528.92

e. Other Locational Data: From I-15 in Victorville, CA take the D St. exit south then east for 2.7 miles. Turn left onto Corwin Rd. Continue on Corwin Rd. for 2.8 miles. South of the intersection of Corwin Road and Waalew Road

*P3a. Description: This site consists of a highly dispersed refuse scatter of historic refuse (311 feet E-W, 30 feett N-S) located south of the intersection of Corwin Road and Waalew Road. Can varieties, primarily beverage and food cans date between the late 1920s-to 1930s with more recent (1970s) trash mixed in. This accumulation of refuse is likely the result of multiple episodes of littering common near roadsides. One deposit (Feature 1) appears be a discrete dumping event (approximately 25 E-W x 13 feet N-S) from the late 1920s to early 1930s and is the focus of this site record.

*P3b. Resource Attributes: AH4, historic refuse scatter

*P4. Resources Present: □ Building □ Structure □ Object ☒ Site □ District □ Element of District □ Other:

P5a Photograph or Drawing

P5b. Description of Photo: Historic refuse scatter (Feature 1), concentration of late 1920s-early 1930s domestic refuse, view Southeast

*P6. Date Constructed/Age and Source: □ Prehistoric ☒ Historic □ Both

*P7. Owner and Address:
MLH, LLC
P.O. Box 2611,
Apple Valley, CA 92307

*P8. Recorded by: Megan Wilson
Duke CRM, 18 Technology Drive,
Irvine CA 92618

*P9. Date Recorded: 8/26/2019

*P10. Type of Survey: ☒ Intensive □ Reconnaissance □ Other
Describe:

*P11. Report Citation: Wilson and Sherzer 2019, Archaeological and Paleontological Resources Assessment for the Apple Valley TTM No. 17720 Project, City of Apple Valley, County of San Bernardino, California (DUKE CRM Project C-0306)

*Attachments: □ None ☒ Location Map ☒ Site Map □ Continuation Sheet □ Building, Structure, and Object Record ☒Archaeological Record □ District Record □ Linear Feature Record □ Milling Station Record □ Rock Art Record □ Artifact Record □ Photograph Record Other:

*A1. **Dimensions:** a. **Length:** 311 feet (E - W) x b. **Width:** 30 feet (N - S)
Method of Measurement: ☒ Paced ☐ Taped ☐ Visual estimate ☒ Other GIS
Method of Determination (Check any that apply): ☒ Artifacts ☐ Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (explain):
Reliability of Determination: ☒ High ☐ Medium ☐ Low Explain: Surface scatter
Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☒ Disturbances ☐ Site limits incompletely defined ☐ Other (Explain):

A2. **Depth:** ☐ None ☐ Present ☒ Unknown Method of Determination: No subsurface exploration

*A3. **Human Remains:** ☐ Present ☐ Absent ☐ Possible ☒ Unknown (Explain): No subsurface exploration

*A4. **Features**: This historic refuse scatter consists of a highly dispersed scatter of historic refuse located south of Corwin Road. Tin can varieties, primarily beverage cans date between late 1920s-ealry 1970s. This accumulation of refuse is likely the result of multiple episodes of littering common near roadsides. One deposit (Feature 1) appears be a discrete dumping event (approximately 25 E-W x 13 feet N-S) from the late 1920s to early 1930s and is the focus of this site record.

*A5. **Cultural Constituents**: The historic refuse scatter consists of a range of beverage, food, and tobacco cans; consisting of approximately 40 flat top church key beverage cans, twenty sanitary cans, eight cone top beverage cans, two round punch cans, ten square meat cans, six square upright tobacco tins, four key-opening non-reclosure can keys. Also present was numerous clear, brown, aqua-marine, and like glass shards and glazed stoneware, refined earthenware, and terra cotta ceramic sherds.

*A6. **Were Specimens Collected?** ☒ No ☐ Yes

*A7. **Site Condition:** ☐ Good ☐ Fair ☒ Poor : Artifacts weathered by the harsh Mojave environment. Heavily scattered due to ORV activity and heavy traffic (foot and vehicle).

*A8. **Nearest Water**: Bell Mountain Wash 3 miles to the north

*A9. **Elevation:** 3000 amsl

A10. **Environmental Setting:** Situated within the Mojave Desert within the Creosote Scrub, northeast of Catholic Hill. Numerous lizards and Jackrabbits present. Located in Biotite Granodiorite geologic unit, within a Piedmont Area-a board surface covered by a thin discontinuous veneer of coarse sand and gravel with scattered isolated outcrops of bedrock.

A11. **Historical Information**: Toulouse 1971; Rock 1980; SODA 2019

*A12. **Age:** ☐ Prehistoric ☐ Pre-Colonial (1500–1769) ☐ Spanish/Mexican (1769–1848) ☐ Early American (1848–1880) ☐ Turn of century (1880–1914) ☒ Early 20th century (1914–1945) ☐ Post WWII (1945+) ☐ Undetermined Factual or estimated dates of occupation (explain):

A13. **Interpretations**: This historic refuse scatter represents an accumulation of refuse common along roadsides. The discrete deposits that dates to the late 1920s/early 1930s likely represents a dumping event of domestic refuse from one (possibly more) household(s) that was common prior to municipal sponsored garage collection.

Nothing suggests that the site is directly associated with a prominent historical event (Criterion 1/A). No evidence has been found to suggest that the site is directly associated with a prominent historical figure (Criterion 2/B). The site does not embody distinctive characteristics of a type, period, or method of construction, nor does it exhibit any architectural or engineering merits (Criterion 3/C). With no known historical associations and no important information to be gathered through subsurface testing, this historic refuse scatter has no archaeological data potential (Criterion 4/D) beyond what

A13. Interpretations Con't:

has already been documented and the site is not a potential historical resource/historic property under CEQA/NHPA. This historic refuse scatter is recommended not eligible for listing in the CRHR/NHPA.

A14. Remarks:

A15. References:

Rock, Jim 1980
Beverages: Canned Beer and Soda. USFS, Pacific Southwest Region

SODA 2019
KC Baking Powder, in Jim Rock Historic Can Collection. Southern Oregon Digital Archives. Electronic document, https://digital.sou.edu/digital/search/collection/, last accessed august 2019.

Toulouse 1972
Bottler Makers and Their Marks. Thomas Nelson Inc., New York, Camden.

A16. Photographs:

Figure 1. Diagnostic KC Baking Powder Lid (1928-1929: SODA 2019), from feature 1

***A17. Form Prepared by:** Megan Wilson, M.A., R.P.A **Date:** 8/26/2019

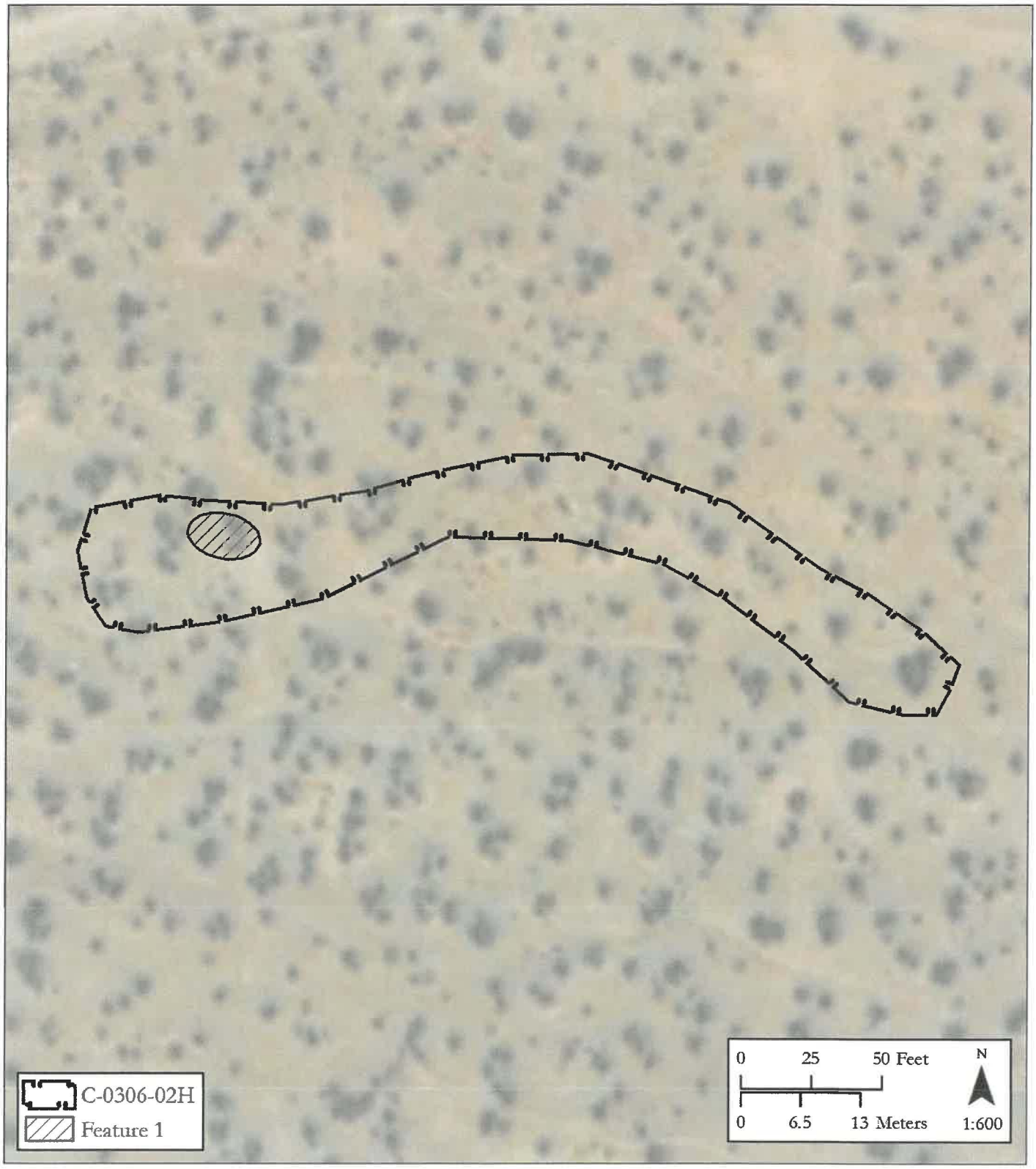
Affiliation and Address: Duke CRM, 18 Technology Drive, Suite 103, California 92618

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary #
HRI#
Trinomial

Page 4 **of** 5
***Drawn By:** Megan Wilson, DUKE CRM

***Resource Name or #** C-0306-02H
***Date of map:** 8/26/2019



State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

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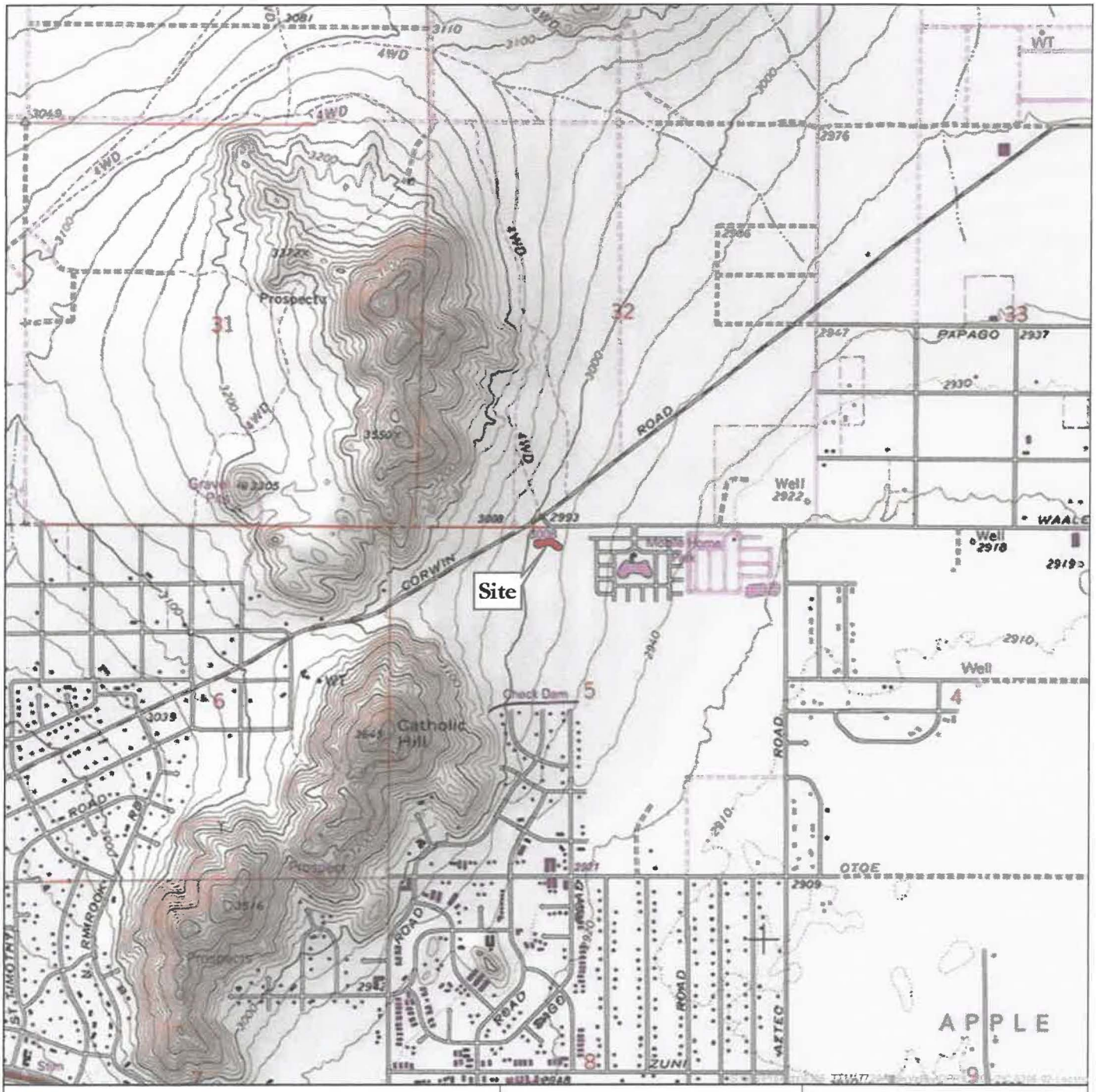
Trinomial

***Resource Name or #** C-0306-02H

***Map Name:** Apple Valley North, Calif. 7.5' ***Scale:** 1:24,000 ***Date of map:** 1993



Historic Refuse Scatter

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Site Location Depicted on the Apple Valley North, Calif. USGS 7.5-Min. Quad.

Township 5 North, Range 3 West, Section 05

0 2,000 Feet N

0 300 Meters 1:24,000

* Required information