Appendix 5.6-D
Phase I Survey of 768 Acres
and Phase II Test Excavation of
20 Archaeological Sites
PHASE I SURVEY OF 768 ACRES AND PHASE II TEST EXCAVATION OF 20 ARCHAEOLOGICAL SITES, CENTENNIAL PROJECT, LOS ANGELES COUNTY, CALIFORNIA

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September 2015
PN 24180.00
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MANAGEMENT SUMMARY

A Phase I survey of approximately 768-acres and Phase II test excavations and determinations of significance at 20 prehistoric archaeological sites were completed within the Centennial Specific Plan Area, Tejon Ranch, Los Angeles County, California. This work was completed by ASM Affiliates, Inc., in 2015. The Phase I survey included 728-acres within the Specific Plan Area, on its eastern edge, and approximately 40 off-site acres. Both survey areas are located on the open flats of the Antelope Valley. No cultural resources of any kind were identified or recorded within the surveyed acreage.

The 20 tested sites are CA-LAN-3233, -3234, -3235, -3236, -3237, -3238, -3239, -3240, -3241, -3242, -3243, -3244, -3245, -3246, -3247, -3249, -3250, -3251, -3252 and -3253. Fieldwork at these sites included GPS mapping, the hand excavation of test units, shovel test pits and surface scrapes, and the collection of all identified surface artifacts and archaeological indicators. Two of these sites, CA-LAN-3235 and -3249, had been recorded as possible cairns. Phase II testing determined that they were natural surface exposures of decomposing bedrock. They therefore do not constitute cultural resources and are not significant or CRHR-eligible. Two sites, CA-LAN-3240 and -3242, were determined to have small and shallow subsurface deposits. Both sites appear to be camps or small seasonal habitations, most likely occupied by single families. Both of these sites have the potential to yield information useful for understanding prehistory, and they are recommended as significant and potentially CRHR-eligible. It is recommended that they be preserved in place or that Phase III data recovery be conducted at them, to mitigate potential adverse impacts.

The remaining sixteen sites (CA-LAN-3233, -3234, -3236, -3237, -3238, -3239, -3241, -3243, -3244, -3245, -3246, -3247, -3250, -3251, -3252 and -3253) were all determined to consist exclusively of surface scatters of tools and stone tool manufacturing waste. One site, CA-LAN-3241, is a combination of plant processing station and quarry workshop. The fifteen remaining sites are small quarry workshops associated with natural cobbles lenses. Phase II studies resulted in the recovery of all archaeological specimens at these locations, thereby constituting scientifically consequential information from and about these resources. None of these sites contain temporally diagnostic artifacts. Based on this last fact, they are recommended as not significant or CRHR-eligible and development and use of the locations of these 16 sites will not result in significant adverse impacts to cultural resources.
1. INTRODUCTION AND REGULATORY CONTEXT

1.1 PURPOSE AND SCOPE

At the request of the Centennial Founders, LLC, an intensive Phase I archaeological survey/Class III inventory was conducted for approximately 768-acres, and Phase II test excavations were completed on 20 archaeological sites (Figure 1 and Figure 2, Confidential Appendix A), within the Centennial Specific Plan Project (Project) area on the Tejon Ranch in northern Los Angeles County, California. The 20 sites are CA-LAN-3233, -3234, -3235, -3236, -3237, -3238, -3239, -3240, -3241, -3242, -3243, -3244, -3245, -3246, -3247, -3249, -3250, -3251, -3252 and -3253.

These studies augment earlier Phase I surveys and Phase II test excavations on other portions of the Project area by W&S Consultants (2002, 2003, 2007). The 2015 fieldwork was conducted by ASM Affiliates, Inc., with David S. Whitley, Ph.D., RPA, serving as principal investigator, and Peter Carey, M.A., RPA, as field director. Background studies for the 2015 investigation were completed between May and June 2015, with field research conducted from June to August 2015.

The study was undertaken to provide compliance with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, in anticipation of potential development of the specific plan area. Its purpose was to identify all extant cultural resources within 600-acres, previously unsurveyed portion, of the Project area, and approximately 40 unsurveyed off-site acres, as well as to assess the nature and significance of 20 previously identified but not evaluated archaeological sites.

1.2 PROJECT DESCRIPTION

The Centennial Project includes development of a master planned community on approximately 12,323-acres of largely undeveloped land located entirely within the privately-owned Tejon Ranch. It is located in the northwestern portion of the Antelope Valley in unincorporated Los Angeles County and is contiguous to the southern boundary of Kern County. The Project would develop approximately 6,157 acres into a series of communities and planning areas that would be built over a period of approximately 20 years. The remainder of the Project property would be preserved as open space for drainages and for conservation areas included with the County’s designated San Andreas Significant Ecological Areas (SEA) No. 17. No development would occur in the SEA within the Project boundary.

The Project includes the development of approximately 19,333 dwelling units ranging from estate to small lot, single-family and multi-family attached and detached residences, including townhomes, condominiums and apartments on approximately 4,943-acres of land designated for residential development. The Project includes Business Park uses (office, research and development, and warehousing or light manufacturing uses) on approximately
1. Introduction and Regulatory Context

597-gross acres; Commercial uses on approximately 96-acres; Civic/Institutional uses (schools for higher education, medical facilities, transit centers, and a library) on approximately 109-acres; and Recreation/Entertainment (such as clubhouse, farmers market, childcare facilities, health clubs) on approximately 75-acres. Proposed sites for major infrastructure facilities that would serve the entire community (e.g., wastewater reclamation facilities, water treatment facility, materials recovery facility, etc.) encompass approximately 188-acres, and K-12 schools would be located on approximately 148-acres. Approximately 5,839-acres (about 47 percent) of the 12,323-acres Project site are proposed for active and passive recreational use or natural resource protection in the form of parks, greenways, and open space.

1.3 REGULATORY CONTEXT

The purpose of this archaeological investigation was to assist with CEQA and NHPA Section 106 compliance; specifically, to ensure that significant impacts to historical resources or properties do not occur as a result of the development and use of the Project area.

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when “historically significant” or “unique” cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or listing in the California Register of Historical Resources (CRHR). In practice, as discussed below, the federal NHPA criteria for significance applied under Section 106 (36 CFR 800) are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

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

Unique resources under CEQA, in slight contrast, are those that represent:

An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets 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 (PRC § 21083.2(g)).

Assembly Bill 52 amended CEQA in 2015. It requires government-to-government consultation between CEQA lead agencies and Native Californian tribal organizations for all Notices of Preparation, Negative Declarations and Mitigated Negative Declarations, including consultation in the consideration of mitigation measures. It also established the category of tribal cultural resources, to be considered in the process of determining potential project adverse impacts.

Section 106 of the NHPA is applicable to federal undertakings, including projects financed or permitted by federal agencies, regardless of whether the activities occur on land that is managed by federal agencies, other governmental agencies, or private landowners. Activities that may in part involve federal lands (e.g., a pipeline crossing a portion of federal lands) or the federal mineral estate, regardless of surface ownership, require federal permitting and Section 106 compliance.

The purpose of Section 106 is to determine whether adverse effects will occur to significant cultural resources, defined as “historic properties” that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for NRHP eligibility are defined at 36 CFR §60.4:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

(a) Are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) Are associated with the lives of persons significant in our past; or

(c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) Have yielded or may be likely to yield, information important in prehistory or history.

Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered NRHP. Such properties will qualify, however, either if they are
integral parts of districts that otherwise meet the criteria, or if they fall within the following categories:

(a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
(b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
(c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.
(d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
(e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
(f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
(g) A property achieving significance within the past 50 years if it is of exceptional importance. (http://www.achp.gov/nrcriteria.html).

Under both sets of laws, regulations and guidelines, adverse impacts or effects occur when the characteristics that qualify a resource for CRHR/NRHP listing, or that make it significant or unique, are altered in such a fashion that they reduce the integrity of location, design, setting, materials, workmanship, feeling or association. Except in instances where view-shed is identified as one of the qualifying characteristics of a historical resource, adverse impacts typically result from direct physical destruction or physical damage to all or part of a site or structure (e.g., § 15064.5(b)). Put another way, adverse impacts are those that alter a resource’s significance-qualifying characteristics.

A series of additional state and federal laws, regulations, executive orders and directives further guide cultural resources compliance and protection, including especially resources with potential or established Native American significance. Among others, State Health and Safety Code § 7050.5 and the Native American Historic Resource Protection Act (PRC § 5097.98) establish the required treatment procedures for Native American burials. NHPA Section 106, similarly, requires consultation with federally recognized tribes for federal undertakings, while the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (43 CFR 10) establishes a systematic process for the treatment of burials and mortuary remains. PRC § 5097.9 mandates noninterference or free expression or exercise of Native American religion on public lands, as does the American Indian Religious Freedom Act (AIRFA) of 1978 (42 USC 1996-1996a) and Executive Order 13007 (1996).

California Health and Safety Code Section 7050.5 states further that, in the event of a discovery of human remains of any kind or origin, no further disturbance will occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to California Public Resources Code Section 5097.98. Construction must halt in the area of the
discovery of human remains, the project proponent must ensure that the area is protected, and consultation and treatment will occur as prescribed by law. The protection of human remains is also addressed by California Public Resources Code Sections 5097.94 and 5097.99.
2. ENVIROMENTAL AND CULTURAL OVERVIEW

2.1 PROJECT LOCATION AND ENVIRONMENTAL BACKGROUND

The 2015 Centennial study area is located in northern Los Angeles County, California, north of Highway 138, east of the West Branch of the California Aqueduct, and south of the Tehachapi Mountains and the aqueduct East Branch. Oso Canyon wash forms the northern limit of the study area. This places the study area at the westernmost edge of the Antelope Valley. The west side of the study area consists of dissected topography comprising broad and relatively low east-west trending ridge systems with small intervening drainages. Elevation ranges roughly from 3100 to 3400-feet (ft) above mean sea level (amsl) in this area. Importantly, these low ridges are typically capped by cobble lenses. These lenses are predominated by quartzite and igneous cobbles and gravels, but they are polygenetic in origin and they also contain small but potentially significant quantities of cryptocrystallite (CCS) and metavolcanic (fine-grained volcanic) specimens. These are usually smaller than the quartzite and igneous cobbles. These lenses appear to have an important factor in the location and nature of the studied sites.

The eastern portion of the 2015 study area, immediately east of and below these rolling ridges, consists of the open flats of the Antelope Valley. Elevation in this portion of the study area is about 3000-ft amsl, on average.

Introduced grasses currently cover the west side of the study area, which has been used for many years as range land, while the flatter east side is farmed. It is uncertain for this reason what the environmental setting may have been prehistorically, and this is almost certain to have changed at various times in the ancient past, with paleoclimatic shifts. Historically, prior to the introduction of livestock in the 19th century, the project area may have been covered by a desert chaparral plant community. This is an open community predominated by chamise and bunch grasses (Schoenherr 1992). It is also possible that Joshua Tree Woodlands may have been present, however, inasmuch as this plant community is present east of the study area while a small remnant stand still occurs a few miles to the west, near the intersection of I-5 and Hwy. 138.

2.2 ETHNOGRAPHIC BACKGROUND

The general vicinity of the project area was apparently a contact point between five separate ethnolinguistic groups immediately prior to the arrival of Euro-Americans in California. Combined with the fact that almost no ethnographic research was conducted in this area until well after the period of Spanish missionization – and thus long after the original inhabitants had been removed from their traditional homelands – considerable confusion has existed concerning aboriginal landholdings in this area. A series of recent ethnohistorical studies, synthesized by W&S Consultants (2007), however, have done much to clarify this situation. This synthesis is summarized below, and it is now apparent that this general region was occupied by the Kitanemuk, Southern Valley Yokuts, Interior Chumash, Tataviam and Kawaiisu. Of this group of five, the
Kitanemuk, Interior Chumash and Tataviam are the most likely occupants of the lands comprising the study area, per se.

The Interior Chumash (probably speakers of the Ventureño Chumash, itself a Hokan language) controlled upper Piru Creek, Grapevine Canyon, and the Gorman area, a few miles west of the study area limits. Their domain extended eastward beyond Castaic (or Tejon) Lake (not modern Castaic Reservoir, which is considerably further south) on the Tejon Ranch, where the historic village of Kashtiq was located. Their territory extended southeastwards to Quail Lake, known in Chumash as Shraqang. The Chumash then either occupied or lived very close to the western limits of the study area, perhaps including the area immediately around Quail Lake, a short distance west of the study area.

The Kitanemuk occupied the south and central "heart" of the Tehachapi Mountains and the adjacent northwestern end of the Antelope Valley. These are speakers of the Serran branch of the Takic (Uto-Aztecan) language stock, and they are sometimes referred to as Haminat. They were closely related linguistically to other Serran Takic groups, such as the Serrano proper and Vanyume, who lived along the northern front of the transverse ranges. The Kitanemuk however probably did not extend down onto the San Joaquin Valley floor, which was occupied by the Yokuts. The northwestern edge of Kitanemuk territory appears to have fallen between Tunas and Paso Creeks, judging from known village locations, with most of their territory extending eastwards. The Kitanemuk may have occupied the current study area, near the open flats of the Antelope Valley.

According to Kroeber (1925), however, a wedge of Tataviam speakers extended up into the Tehachapis, separating the Chumash from the Kitanemuk, perhaps by controlling the headwaters of Pastoria Creek. They also occupied the La Liebre Mountains and probably the westernmost end of the Antelope Valley (Johnson and Earle 1990:196). Information on the Tataviam is limited, according to King and Blackburn (1978), in part because they were removed from their territory and taken to Mission San Fernando in the eighteenth and early nineteenth century. But, based on a few existing word lists, descriptions provided by early travelers, mission placenames, and the recollections of other aboriginal informants, the Tataviam language is generally accepted as representing a Takic language of the Uto-Aztecan family (ibid). In this sense, it was related to other Takic languages in the Los Angeles County region, such as Gabrielino/Fernandeño (or Tongva) of the Los Angeles Basin proper, and the Kitanemuk.

The Tataviam are believed to have primarily inhabited the upper Santa Clarita drainage from about Piru eastwards to the Agua Dulce/Vasquez Rocks area; southwards as far as Newhall; and northwards to include the middle reaches of Piru Creek (on the west), and the Liebre Mountains and the westernmost fringe of the Antelope Valley on the east. Their northeastern boundary most likely ran along the southern foothills of the Tehachapi Mountains – thus within the study area – and then crossed to the southern slopes of the Sawmill Mountains and the Sierra Pelona, extending as far east as Soledad Pass, but they may have controlled Quail Lake and La Liebre Ranch, placing them within the study area. Ethnographically, at least, they do not appear to have controlled the San Andreas rift zone of Elizabeth Lake, Lake Hughes and the Leona Valley, which was occupied by the Kitanemuk, who also inhabited the eastern side of the Antelope Valley from approximately Neenach through the Fairmont Buttes area, to about the mouth of the Soledad Pass.
2. Environmental and Cultural Background

Only a few historic Tataviam villages have been identified; most of these are located on the southwestern side of Tataviam territory, near Piru Creek and (modern) Castaic Reservoir. But *hwi’tahovea* is a village at La Liebre headquarters (CA-LAN-3254/H), south of Highway 138. This was a historic (post-Mission) period village (i.e., the Mission records do not include references to this village), and thus it may have only been occupied after circa AD 1830. But putatively to the south of this site, an unidentified ridge contains another important village known as *kwitsa’o*. This is the village alternatively given in the Mission records as *cuecchao*, *quecchao* and (less likely) *quisaubit*, from which 53 baptisms at Mission San Fernando John Johnson, personal communication 2002). Note, however, that *hwi’tahovea* is a Serrano/Kitanemuk name. It thus seems possible that it is synonymous with the Tataviam name of *kwitsa’o*; that is, that these both refer to the same village. As this circumstance suggests, then, a fundamental lack of information on this group exists because, by 1810, all Tataviam had been baptized and many were absorbed by other groups through intermarriage. The last fluent speaker of Tataviam died in 1916 although Tataviam descendants still practice other components of their cultural traditions to this day.

The sum of the evidence, in other words, places the Tataviam with some certainty at La Liebre Ranch headquarters, south of Highway 138, perhaps at Quail Lake and, potentially though less certainly, into the Tehachapi Mountains. But a reasonable case can also be made for Chumash territory extending at least to the west edge of Quail Lake. The potential use of the study area by the Kitanemuk is less certain, but they also occupied portions of the western Antelope Valley and, for this reason, cannot be excluded as possible inhabitants either. The study area, in this sense, it probably best conceptualized as an area of contact and interaction between these three tribal groups.

Despite the proximity of the Chumash, Kitanemuk, Yokuts and Tataviam, historical accounts suggest that amity-enmity alliances may have partly structured regional inter-group relationships. The Chumash appear to have maintained an alliance with the Kitanemuk, and the Yokuts and Tataviam a similar relationship, with more strained relationships between these two alliance groups. Despite these possible political differences, all of the groups were culturally very similar.

The Chumash, for example, followed a hunting-gathering-fishing subsistence pattern which incorporated a heavy reliance on maritime resources, including pelagic and littoral fishes, and shellfish – at least for groups living along the coast. Indeed, the bountiful sea resources that they exploited along the Santa Barbara coast may have been a key factor in their evolutionary success: at the time of the arrival of the Spanish the Chumash had reached levels of population density, and complexities in social organization, unequaled worldwide by other non-farming groups. These included permanent coastal villages along the Santa Barbara Channel area containing as many as 1000 inhabitants, as well as a hierarchical sociopolitical organization consisting of at least two major chiefdoms. Further, based on recent reconstructions using mission registers, the Chumash appear to have had a matrilocal, and perhaps matrilineal, clan-based society.

The Interior Chumash of course lacked direct access to the marine resources that contributed to such unusually high population densities along the Santa Barbara coastline. Adaptation to the environment was therefore more closely tied to terrestrial resources, including especially the
acorn-bearing oak, with cultural patterns in general very similar to surrounding interior groups, such as the Yokuts. Notably, however, the Interior Chumash are particularly renowned for their rock paintings or pictographs, important concentrations of which are located on the San Emigdio Ranch and the Carrizo Plain (roughly 25 and 75 miles northwest of the Centennial study area, respectively.) Ethnographic information demonstrates that their cave paintings were made by shamans, and that they depict the supernatural experiences these medicine men had on their vision quests.

Less ethnographic information exists on the Kitanemuk and Tataviam. Like many south-central California groups, however, they may have been organized into recognized and distinct tribelets. These were land-owning groups linked by shared territory and descent from a common ancestor. The tribelet was headed by a chief who was assisted by a variety of assistants. A shaman also existed who served as religious officer but the shaman did not have any direct political authority in a strict sense. Like other groups in the region, their subsistence emphasized the acorn-bearing oak, with the addition of a wide variety of other plants and game.

2.3 ARCHAEOLOGICAL BACKGROUND

The Tehachapi Mountains and western Antelope Valley region, even though far from remote from other portions of California, has received minimal archaeological attention compared to other areas of the state. In part this is probably due to the fact that the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel and central Mojave Desert areas. Although our knowledge of the prehistory of this region is therefore limited in specific details, enough is known to determine that the archaeological record is broadly similar to south-central and central California as a whole (W&S Consultants 2007; ASM Affiliates 2014). Based on this fact, the general prehistory of the region containing the Centennial study area can be outlined as follows.

Initial occupation of the region occurred at least as early as the Paleoindian Period, or prior to about 10,000 YBP (years before present). Evidence of this early use of the region has been revealed by the discovery of characteristic fluted and stemmed points found around the margins of Tulare and Buena Vista Lakes, in the foothills of the Sierra, and in the Mojave Desert proper. (In each case these are locations that are many miles distant from the study area.)

Both fluted and stemmed points are particularly common around the lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar that found in other portions of the far west at this same time, although little else is known about these earliest peoples. Additional finds consist of a Clovis-like projectile point discovered in a flash-flood cut-bank near White Oak Lodge on the Tejon Ranch in 1953, northeast of the study area. More recently, a similar fluted point has been found near Bakersfield, while a number are known from the Edwards Air Force Base and Boron area of the western Mojave Desert. Although it has now been well-established that human occupation of the state occurred during the Late Pleistocene, little can yet be inferred about the nature and distribution of this occupation.
Substantial evidence for human occupation of California first occurs during the middle Holocene, from roughly 7500 to 4000 YBP. This period is known as the Early Horizon, and is sometimes alternatively referred to as the Early Millingstone along the Santa Barbara Channel. In this southern area, population concentrated along the coast, with minimal visible use of inland areas. Adaptation appears to have emphasized hard seeds and nuts, with tool-kits dominated by mullers and grindstones (manos and metates). Minimal evidence of Early Horizon occupation has been found in most inland portions of the state. In part this is due to a severe cold and dry paleoclimatic period which occurred at this time.

Evidence for an Early Millingstone occupation of this specific region is, admittedly, very limited, and has been found at only three sites, located in the Santa Clara River Valley, to the south. In two cases, temporal attribution was based on the presence of a small number of Olivella barrel beads. Such bead types have subsequently proven unreliable temporal indicators, throwing doubt on significant human inhabitation of this region before about 4000 years ago. Further, excavations at one of these putative early locales, the Escondido Canyon Site, failed to uncover evidence for occupation prior to about 2700 years B.P. (W&S Consultants 2007). At the third site, on the Newhall Ranch, a late Early Millingstone Horizon occupation was hypothesized based on the presence of significant quantities of metates in the lowest stratigraphic level of the site deposit (Waugh 1999), which was a former walnut orchard and is currently a farm field. The concentration of large heavy artifacts at the base of the deposit is almost certainly the result of their downward movements in the soil profile, accelerated by disturbance, rather than an in situ early deposit.

Perhaps not surprisingly, Phase II test excavations for the Tejon Mountain Village project, a short distance north of the current study area, failed to find evidence of Early Horizon occupation of the Tehachapi Mountains, although it is possible that some use of the area occurred that left little or no visible archaeological trace (W & S Consultants 2005). Furthermore, the lack of evidence for Early Horizon occupations at the base of subsequent Middle Horizon deposits during the excavations for that project indicates that, if there was an Early Horizon use of the area, it was culturally discontinuous with the subsequent occupants of the Tehachapis. Regardless of specifics, it is clear that Early Horizon population density was low in interior south-central California overall, and, if any kind of occupation and specialized subsistence adaptation existed, it was probably tied to plant food gathering rather than hunting.

Environmental conditions improved dramatically after about 4000 YBP, during the Middle Horizon (or Intermediate Period). This period is known climatically as the Holocene Maximum and it was characterized by significantly warmer and wetter conditions than were experienced previously. Archaeologically it was marked by a large population increase and radiation into new environments along the south-central California coast and the Mojave Desert. In the Delta region to the north, this same period of favorable environmental conditions was marked by the appearance of the Windmiller culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of the acorn processing technology. Penutian
speaking peoples (which would include the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps, to have brought this technology with them (cf. Moratto 1984). Likewise the so-called "Shoshonean Wedge" in southern California, or the Takic speaking groups that included the Gabrieliño/Fernandeno, Tataviam and Kitanemuk, may have moved into this region at this time (Sutton 2009), rather than at about 1500 BP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of the Upper Santa Clara/Agua Dulce region, south of the study area, is substantial, in that it has been found at a number of sites and has been based on radiocarbon, obsidian hydration and typological dating. The Agua Dulce village complex, for example, includes occupation extending back to this period, at which point population of the village may have been 50 or more people. Similarly, the inhabitation of the Hathaway Ranch region, near Lake Piru, and on Newhall Ranch, near Valencia, appears to have begun during the Intermediate Period (W & S Consultants 2007). To the northwest, there is little or no evidence for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages. Also to the northwest, on the Carrizo Plain, appears to have experienced a major population expansion during the Middle Horizon (Whitley et al. 2007).

Phase II test excavations for the Tejon Mountain Village project, north of the current project, demonstrated a substantial Middle Horizon occupation in the Tehachapis; all tested habitation sites included at least some deposit from this period, and some of the villages were only inhabited at this time. The existing evidence now suggests that a similar pattern occurred in the inland Ventura County region, as well as possibly in the Antelope Valley and western Mojave Desert, the southern Sierra Nevada, and the Coso Range region. In all of these areas, a major expansion in settlement, the establishment of large site complexes, and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on very local circumstances and events, this was a major Southern California-wide occurrence (ASM Affiliates 2014).

The beginning of the Late Horizon is set variously at 1500 and 800 B.P., although a consensus seems to be growing for the shorter chronology for this time period. Regardless of specific date, the appearance of the Late Horizon correlates with another series of periodic droughts at circa A.D. 800-1200 which decimated major portions of western North America. This is known, climatically, as the Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about A.D. 1860. In much of inland south-central California, the Carrizo Plain, and the Mojave Desert, including in the Antelope Valley, a large-scale abandonment of sites occurred approximately at the start of this period (Whitley et al. 2007). For the ancestral Chumash, this appears to correlate with an increase in coastal populations, suggesting a shift from inland to seashore occupation rather than a drop in total numbers of people. Along Buena Vista Lake, in the southern San Joaquin Valley, population appears to have been increasingly concentrated towards the later end of the Medieval Climatic Anomaly (Culleton 2006).

Based on the results of the Phase II testing for the Tejon Mountain Village project, however, the Late Horizon circumstances did not result in wide-spread abandonment of the Tehachapi
Mountains. This area is unusually well-watered and probably was not subjected to the same degree of desiccation as occurred elsewhere in interior south-central California. Some Middle Horizon villages were abandoned before the start of the Late Horizon, but those sites with Late Horizon occupation appear to have been more intensively occupied during the last 1,000 years, and no significant population change has yet been identified. The Tehachapis experienced intensification rather than the abandonment seen in surrounding areas during the last millennium. Regardless of regional circumstance, the ethnographic Native American tribes and conditions are recognized as a direct outgrowth of the Late Horizon occupations of this portion of south-central California.

2.4 HISTORICAL BACKGROUND

Perhaps because of its distance from the coast and then-existing communication routes, Euro-American settlement and development of the Tejon Ranch/Tehachapi Mountains region was a little later dating than in other parts of southern California. As a result, its early Euro-American history to about the 1850s principally involved the explorers who traversed the area. The Tehachapis, Upper Santa Clara Valley and Antelope Valley region was traversed by a series of the most famous explorers of California during this part of its history. For example, Pedro Fages crossed the area in 1772, passing through Lake Hughes and Tejon Pass; Fr. Garcés, with de Anza, traveled through the Lake Hughes and Castaic region and probably spent a week on what would become the Tejon Ranch, in 1776; Fr. Jose Maria Zaldivea, coming from Santa Barbara in 1806, found Castac Lake and Cañada de las Uvas (Grapevine Canyon); Jedediah Smith, in 1827, also went through the region during his fur-trapping expedition; as did John C. Frémont and his guides, Kit Carson and Alex Godoy, in 1830 and 1844. And in 1847-1848, Frémont spent the winter in the original Tejon Pass area, now known as Tehachapi Pass, on the Tejon Ranch (ASM Affiliates 2014).

During the latter portion of this exploratory period, from 1843 to 1846, grants for four large ranches were awarded that, eventually, would be united into the Tejon Ranch by Edward Fitzgerald Beale between 1855 and 1865. Most likely, this flourish of interest in this then isolated portion of southern California was precipitated by the discovery of gold in Placerita Canyon, to the south of the Tejon, in 1842. The first of these awards was the Rancho Los Alamos y Agua Caliente ("cottonwoods and hot water"), acquired by Pedro Carillo from Governor Micheltorena on 2 October 1843. Less than two months later (11 November 1843), the original Rancho El Tejon ("the badger") was awarded to José Antonio Aguirre and Ignacio del Valle by the governor, representing a grant of almost 100,000 acres. Less than two weeks subsequently (22 November 1843), the approximately 22,000 acres Rancho Castac (Chumash for "spring-eye"; in Spanish "ojo de agua") was obtained by José María Covarrubias. Finally, on 21 April 1846, Rancho La Liebre ("the hare") was granted to José Maria Flores. It was 11 square leagues, or almost 49,000 acres in size (ibid.). The study area primarily falls within Rancho La Liebre, with a small southwestern portion of it extending into fee lands that were not originally part of these land grants.

Partly influenced by the political and other disruptions that occurred at the end of the 1840s, including conflict with tribes in the southern San Joaquin Valley, these land grants were all but unused by their grantees. One result was an early encroachment on them by Euro-
2. Environmental and Cultural Background

Americans who assumed the lands were unclaimed and therefore open for settlement, or who knew about the land grants but paid them little heed. For example, in spring, 1850, Dr. Darwin French moved onto Tejon Ranch proper and built an adobe. Due to unrest among Native Americans in the southern Sierra Nevada, he departed in 1851, subsequently becoming renowned for his involvement in the exploration and settlement of the Death Valley region. Likewise Alonzo Ridley and David McKenzie came into the Tejon region to trade with the Native Americans in May 1852. Around this same time Samuel A. Bishop moved into the area, settling on what was Castac Rancho (ASM Affiliates 2014). But probably the best known, and ultimately most important, of the early "settlers" who, in effect, squatted on rancho lands, was Edward F. Beale, who in 1853 created the first Indian reservation on what he thought was unclaimed land, available for government use.

Beale (born 1822, died 1893), as noted above, ultimately united these four ranchos into the El Tejon Ranch between 1855 and 1865. His first purchase was Rancho La Liebre, which he acquired in 1855 for $1500.00. Beale purchased El Tejon for $21,000.00, and Los Alamos y Agua Caliente for $1700.00, in 1865. In 1866 he completed his empire with the purchase of Castac for $65,000.00. This had passed from the original grantee, Covarrubias, to Albert Packard of Santa Barbara, who subsequently sold it to Samuel Bishop. Beale purchased it from Bishop. Because the original Spanish land-grants for these ranchos did not represent a contiguous holding, Beale "re-adjusted" the boundaries of Los Alamos y Agua Caliente northward between Castac and La Liebre to form a unified property. The result was a ranch of about 265,000 acres – roughly half the size of the state of Rhode Island (ASM affiliates 2014).

Note that there are certain discrepancies in the historical accounts concerning these ranchos, particularly La Liebre. While there is agreement that this rancho was first awarded to one José Maria Flores, there were a number of individuals with this name in California in 1846 and there are contradictory statements concerning which one was the recipient. A small silver mine, La Trinidad, was purportedly also discovered on La Liebre in 1859, but that this never experienced significant production (W & S Consultants 2007).

Despite the discrepancy in the accounts, La Liebre Ranch was apparently first sold to William C. Walker on 2 August 1855 for $1500. Walker resold the 48,825 acres six days later for the same price to Beale's wife. This was the first land sale in the Antelope Valley. Shortly after the purchase, Beale built an adobe on the ranch and moved his family there (ibid).

Beale is an important, albeit somewhat overlooked, figure in southern California history. A descendant of a series of famous American naval heroes, he began his adulthood as a midshipman (and eventually Lieutenant) in the U.S. Navy. This brought him to California where he was a hero in the Battle of San Pasqual during the Mexican War, and served as the official messenger who brought the first word of the discovery of gold at Sutter's Fort back to Washington, D.C., in 1848. Retiring from the Navy in 1851, he went to work as the California business agent for Commodore Stockton and Aspinwall’s steamship company. In nine months he netted $100,000.00 for this company, of which $13,000.00 was his commission. This provided the foundation for his ultimate wealth, and signaled his business acumen (ibid).
Beale’s personal familiarity with the Tejon region apparently began with his appointment as Commissioner of Indian Affairs for California and Nevada, by President Fillmore, in 1852. Unlike many associated with federal Indian affairs in the 19th century, Beale was both sympathetic towards and honest with his Indian charges. As noted above, he established the Sebastian Indian Reservation on the Tejon at the foot of the Tehachapis, near the old ranch headquarters on Paso Creek, which contained about 2500 Indians cultivating approximately 3000 acres of wheat, with 10 miles of irrigation ditches, by 1854 (W&S Consultants 2007).

The Sebastian Reserve, as it was officially known, was originally planned to cover 75,000 acres but, probably due to political reasons, was reduced in size to only 25,000 acres, and its boundaries were never surveyed (ASM Affiliates 2014). Its territory is hence unclear, beyond certain specifically identified village locations and the fields around them. What is certain is that the reserve fell on the open flats of the southern San Joaquin Valley, extending southwards to include the mouths of the canyons, where permanent creeks debouched onto the valley floor. Villages were established at these canyon mouths, which provided water for farming, and fields were established immediately below; large deep ditches (rather than fences) were excavated around the irrigated fields to keep out cattle. The mouth of Grapevine Canyon may have contained the westernmost village on the reserve; others are known to have existed at the mouths of Live Oak, Pastoria, El Paso, Tejon and Chanac Creeks (above), as well as at some areas in between. The reservation was, thus, a long distance north of both Rancho La Liebre and the current study area.

At this same time Beale was also instrumental in convincing the U.S. Army that a fort would be well-situated on the Tejon, both to protect the Indians on the Sebastian Reservation from exploitation by Euro-Americans, and to prevent raiding into the greater Los Angeles Basin by "renegade" Indians from the Tulare County and Colorado River regions.

Initially a contingent of soldiers was quartered on El Paso Creek, at what was then the headquarters of the Sebastian Reserve. They were shifted to Fort Tejon, in what is now referred to as the "Tejon Pass," in 1854, and the modern town of Lebec. The fort fell on Rancho Castac, which was then owned by Bishop. The fort continued in use, with a break at one point, until the end of the Civil War. A civilian settlement sprung-up around the fort and, at its peak, it was the third largest population center in southern California (after Los Angeles and El Monte). When finally abandoned on 11 September 1864, the fort was returned to Bishop, per the original terms of his agreement with the U.S. Army. Shortly thereafter, Castac Rancho (including the fort) was acquired by Beale.

Beale’s success as Commissioner of Indian Affairs was apparently his downfall, as he found that treating the Indians fairly created many enemies among those concerned with using the Bureau of Indian Affairs as a source for illicit gains. He was forced out over trumped-up charges concerning the misappropriation of funds, despite the fact that he received strong support from the press and public. After demonstrating that the charges were invalid, Beale began his acquisition of the Tejon Ranch. With the purchase of the La Liebre Ranch, Beale moved into the Tejon region. His original home, the adobe at La Liebre Ranch headquarters, is still standing, and is the oldest structure in the Antelope Valley (W&S Consultants 2007).
Ultimately Beale moved his residence to the El Tejon headquarters on El Paso Creeks. A fire in 1917 destroyed his original adobe there (ibid).

The purchase of the Tejon however did not terminate Beale's career as a public official. Subsequently he was appointed the first Surveyor-General of California and Nevada by President Lincoln; a Brigadier General for the State of California militia; and, by President Grant, Minister to the Austro-Hungarian Empire. In addition, Beale was instrumental in the creation of the U.S. Army Camel Corps, authorized by Jefferson Davis (who was then Secretary of War) in 1857. With this appointment, he brought camels into the Tejon region, where they were used for a number of years as pack animals (ASM Affiliates 2014).

During this period, and even though Fort Tejon was, for a decade, a "major" population center in southern California (with 920 inhabitants, exceeded only by Los Angeles, with 4385, and El Monte, with 1004), the Tejon was still geographically remote and isolated. Granted, it was traversed by the first stage route, the Butterfield Overland mail stage established in 1858, which had stops at Lake Elizabeth, Cow Springs, Fort Tejon and the "Sinks of the Tejon" ("Los Alamitos," below the confluence of the Tejon and Chanac Creeks) on the ranch. But the stage was somewhat of a draw to outlaws: for many years the ranch was known as the "Refuge of the Bandits," and served as a haunt for Joaquin Murrieta and Tiburcio Vasquez and their gangs. Moreover, because of various economic competitions with the directors of the Southern Pacific Railroad, the rails were routed 50 miles to the east, through the Antelope Valley, to avoid traversing Beale's land in 1876, continuing its geographical isolation from other parts of southern California (ibid).

Nonetheless the Overland stage route did cross close to the study area, skirting Quail Lake before heading to Gorman Station – the last stop before Fort Tejon. Quail Lake was originally known as La Laguna Seca, 'dry lake' (Latta 1976:31), and thus presumably did not hold perennial or potable water; hence the stage station at nearby Gorman. (Topographical conditions suggest that the stage route followed the path of Highway 138, south of Quail Lake and outside of the study area, staying on the flats to the south rather than unnecessarily traversing the hilly terrain on the north). The Gorman station was built by Charles Johnson and his wife Isabel in 1863, who constructed a log cabin "public house" at this spot. When Johnson died his wife continued to run the establishment and it became known as Rancho La Viuda, 'widow's ranch.' She eventually sold it to David Alexander (who also owned Rancho San Emigdio), and he ultimately sold it to James Gorman, Sr., who was a veteran of the Mexican War and worked as a meat-hunter for Fort Tejon (W&S Consultants 2007).

Initially, the economic emphasis of the Tejon Ranch was in sheep and, at its peak, over 125,000 were grazing on the ranch. It was not until the 1880s, after a number of years of drought, that cattle were introduced on the ranch (although Beale had recorded the Tejon brand – the crescent and the cross – in 1865). By 1891, there were about 25,000 head of cattle and 7500 sheep grazing on the ranch. Following Beale’s death in 1893, the ranch was inherited by his son, Truxton, who completed the transition to cattle (ASM Affiliates 2014).

Truxton Beale sold the Tejon Ranch in 1912 to a syndicate headed by Harry Chandler (original developer of the San Fernando Valley) and General Harrison Gray Otis (founder of
the Los Angeles Times) for $3,000,000.00. Among the blue-ribbon subscribers to the syndicate, each of whom paid $50,000.00 to enroll, was H.J. Whitley, original developer of "Hollywoodland" (now known as "Hollywood"), along with a series of other southern California notables. This formed the nucleus of what has evolved into the modern Tejon Ranch Company. The syndicate increased the acreage of the ranch to 281,000 acres through a series of strategic purchases. Because cattle activities did not immediately prove profitable, sales of various rights-of-way to public utilities initially aided the company’s cash flow. More recently, the ranch has operated in part by leasing acreage to various farming, oil and cattle interests. By 1957, 70% of the land of the Tejon Ranch was operated under lease (ibid).

The first commercial oil production on the ranch, by the Reserve Oil and Gas Company, was developed in August 1937, with the field abandoned by mid-1943. Shortly thereafter the shallower Richfield Oil Corporation pool was discovered. Originally called the "Grapevine Oil Field," this is now more commonly known as the "Tejon Oil Field." The western portion of this field was also drilled by the British-American Oil Producing Company, the Wilshire Oil Company, Chanslor-Canfield Midway Oil, and the Drilling and Production Company. These oil fields are located on the flats of the San Joaquin Valley, far to the north of the study area.

Oil exploration within La Liebre Ranch, in contrast, was restricted to the drilling of about a half-dozen test wells in 1953 - 1954. These were shallow wells (approximately 1200 - 2400 feet) drilled in search of over-thrust oil pools. Bedrock proved to be shallow in this area, however, eliminating this potential, and the wells were all abandoned as non-producers (Jeff Warren, personal communication, 2002). No commercial oil production ever occurred within La Liebre Ranch, as a result.

Today large-scale farming, oil and gas production, and cattle grazing continue on the ranch. The current study area has, as its current primary use, livestock (cattle) grazing and farming on the flats. These reflect the fact that this portion of the ranch is still peripheral to the major economic activities within the landholding. Moreover, this is a further reflection of the fact that the study area historically was peripheral to the major events, activities and developments on the ranch.

2.5 PREVIOUS RESEARCH IN THE 2015 STUDY AREA

The 2015 Centennial study, as indicated above, consisted of a Phase I survey/Class III inventory of approximately 768-acres, on the east side of the study area, and Phase II test excavations and determinations of significance/CRHR and NRHP eligibility evaluations of 20 sites, all located in the western portion of the current study area. All of the sites considered during this Phase II study were first discovered during a 2001 Phase I survey of the property (W & S Consultants 2002). The 2001 study covered approximately 14,000 acres and resulted in the recording of 63 sites. Twenty of these sites fall within the current study area, all of which were recorded as prehistoric (Native American) or potential prehistoric resources. Locations of the sites are shown on Figure 1 (Confidential Appendix A). At that time of discovery, they were described as follows:
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CA-LAN-3233 (temporary designation CT-38): Site CT-38 is a low-density cobble quarry/workshop measuring about 30-m in diameter that is associated with a small cobble concentration. Two quartzite cobble tools, 2 quartzite cores, 2 quartzite flakes and 1 igneous flake were observed at this location, which is of unknown age. The site is located approximately 300-m E of the paved two-lane National Cement Road along the southern toe slope of an E-W trending ridge-line, and it was in good condition at the time of recording.

CA-LAN-3234 (CT-39): This site was also recorded as a low-density cobble quarry/workshop associated with a small cobble concentration. Its size was estimated at 30-m in diameter. When recorded, it contained 4 quartzite cores, and it is of unknown age. The site is located roughly 350-m E of the paved two-lane National Cement Road along the southern toe slope of an E-W trending ridge-line that is 300-m N of Highway 138. The site was in good condition in 2002.

CA-LAN-3235 (CT-40): This site was described as a rock cairn containing mixed igneous clasts ranging from fist to boulder size, measuring 2 by 3-m in overall area. The site is located approximately 300-m N of Highway 138 on the western end of the long E-W trending ridge-line that contains site CA-LAN-3237. It was in good condition but is of unknown age and function, potentially representing a prehistoric (Native American) or historic (Euro-American) feature, or a natural (non-cultural) concentration of cobbles.

CA-LAN-3236 (CT-41): This site was described as a low-density cobble quarry/workshop associated with a small cobble concentration. Its size was estimated at about 30-m E-W by 100-m N-S. At the time of recording, 5 quartzite cores were noted at this location. Its age is unknown. It is located approximately 60-m SE of CA-LAN-3237 and 360-m N of Highway 138 on the same E-W trending ridge line that contains sites CA-LAN-3237 and -3235. The site was in good condition in 2002.

CA-LAN-3237 (CT-42): This was described as a small (approximately 60-m in diameter), low-density cobble quarry/workshop associated with small cobble concentration. Three quartzite cores and 1 quartzite flake were observed at this location. The site is located approximately 60-m NW of CA-LAN-3236 and 480-m N of Highway 138, on the same E-W trending ridge line that contains sites CA-LAN-3235 and -3236. The age of this site is unknown but it was in good condition when recorded.

CA-LAN-3238 (CT-43): This site was recorded as a medium density cobble quarry/workshop consisting of a lithic scatter and associated cobble concentration. It measured approximately 20-m E-W by 40-m N-S. Approximately 30 archaeological specimens were noted at this location, consisting of quartzite angular shatter, cores, cobble tools, 1 quartzite flake and 4 jasper flakes. The site is located about 450-m N of Highway 138 and 250-m N of CA-LAN-3235, along the southern edge of a long E-W trending saddle. It was in good condition when recorded but is of unknown age.

CA-LAN-3239 (CT-44): This site was identified as a medium density cobble quarry/workshop consisting of discontinuous lithic scatters and associated cobble concentrations. Its size was estimated at 60-m E-W by 300-m N-S. About 30 archaeological
specimens were observed on the site, including quartzite angular shatter, cores, cobble tools and 3 flakes. It is located about 600-m N of Highway 138 and 900-m NE of CA-LAN-3238, along the top of a large E-W trending ridge-line. In 2002 it was in good condition but is of unknown age.

**CA-LAN-3240 (CT-46):** This site was recorded as a low-density lithic scatter measuring about 90-m E-W by 350-m N-S. It contained 12 jasper flakes and a granitic metate at the time of recording, thereby contrasting with the cobble/quarry workshops that represent the majority of the study area sites. The site was also noted as sitting on a well-oxidized sandy loam, suggesting that this location may differ in age from the other sites, potentially being older. The site is located on a N-S trending bluff that is situated on the southern edge of the Oso Creek wash, near the northern limit of the 2015 study area. The site was in good condition when recorded.

**CA-LAN-3241 (CT-47):** This site was recorded as a plant processing station associated with a small cobble concentration. It measured about 125-m in diameter. Two bifacial igneous manos, 3 quartzite cobble cores, 1 hammerstone, 1 granitic metate, 1 jasper uniface flake tool and 1 piece of jasper angular shatter were observed on the site. As at nearby CA-LAN-3240, soils here comprised well-oxidized sandy loam, suggesting that the site may be the same (potentially early) age as this previous locality. This site is located 200-m E of CA-LAN-3240, on the northern end of a broad NE - SW trending ridge that is situated on the southern edge of, and overlooking, the Oso Creek wash. The site was in good condition in 2002.

**CA-LAN-3242 (CT-48):** This site was described as a low-density cobble quarry/workshop associated with a small cobble concentration. It measured about 90-m E-W by 150-m N-S. Artifacts noted at the time of recording included 1 rhyolite uniface cobble tool, 1 quartzite hammerstone fragment, 1 jasper core and 1 jasper flake. The site is located approximately 30-m NE of bench mark Pipe-3062, along the northeastern toeslope of the same NE - SW trending ridge line that contains sites CA-LAN-3243 and -3244 (below). This places it immediately overlooking the open flats of the western Antelope Valley, to the east. The site was in good condition in 2002 but is of unknown age.

**CA-LAN-3243 (CT-49):** This site was recorded as a medium density cobble quarry/workshop associated with a large continuous cobble concentration. It was thought to cover an area measuring 60-m E-W by 180-m N-S. About 35 archaeological specimens were noted, including quartzite cobble cores, hammerstones, flakes and 1 jasper flake. It is located about 180-m SW of bench mark Pipe-3062, along the top of the same NE - SW trending ridge line that contains site CA-LAN-3244. The site was in good condition but is of unknown age.

**CA-LAN-3244 (CT-50):** This is a low-density cobble quarry/workshop associated with a large discontinuous cobble concentration. It was measured at approximately 60-m N-S by 700-m E-W, and about 50 specimens were observed on it, including quartzite cobble cores, hammerstones, flakes and 2 jasper cores. It is located about 450-m SW of benchmark Pipe-3062, on the same NE - SW trending ridge line that contains site CA-LAN-3243 (Figure 4). Site CA-LAN-3244 is of unknown age and was in good condition when recorded.
CA-LAN-3245 (CT-51): This site was described as a medium-density cobble quarry/workshop associated with a large continuous cobble concentration. It measured about 60-m N-S by 200-m E-W. In 2002 about 35 archaeological specimens were noted, including quartzite cobble cores, hammerstones and flakes. The site is located about 800-m SW of benchmark Pipe-3062 and 200-m S of site CA-LAN-3244. Though its age is unknown, it was in good condition when recorded.

CA-LAN-3246 (CT-52): This site was recorded as another low-density cobble quarry/workshop associated with a small cobble concentration. It covered an area estimated at about 30-m in diameter. Two quartzite hammerstones and 2 quartzite flakes were observed on the site, which is located approximately 150-m NE of Quail Lake along the southwestern edge of a large broad bluff that is immediately W of the paved two-lane National Cement access road. The site was in good condition when recorded and is of unknown age.

CA-LAN-3247 (CT-53): This site was recorded as a low-density cobble quarry/workshop associated with a small cobble concentration. It measured about 30-m N-S by 60-m E-W. Two cores, 1 uniface cobble tool and 1 piece of angular shatter, all made of quartzite, were observed at this site. This site is located in a saddle at the top of a large knoll (map elevation 3154-ft) approximately 350-m S of site CA-LAN-3245, and thus towards the eastern side of the study area. The site was in good condition. Its age is unknown.

CA-LAN-3248 (CT-54): This was described as a medium-density cobble quarry/workshop associated with a large continuous cobble concentration. It covered an area roughly 60-m E-W by 200-m N-S. About two-dozen archaeological specimens were noted on this site, including quartzite cobble cores, tools and angular shatter. The site is located about 200-m W of the East Branch of the California Aqueduct canal and 90-m SE of a large knoll (map elevation 3445-ft). It was in good condition but its age is unknown.

CA-LAN-3249 (CT-55): This is the second rock cairn discovered during the Phase I survey. It measured about 1 x 2-m in size and contained mixed igneous clasts ranging from fist to boulder size. The cairn is located about 450-m E of the East Branch of the California Aqueduct canal and 350-m N of site CA-LAN-3250. Its rocks are covered by lichen and hence it may be old. It was in good condition when recorded.

CA-LAN-3250 (CT-56): This was described as a low-density cobble quarry/workshop associated with a small cobble concentration. It covered an area estimated at 30-m in diameter. One core, 1 hammerstone and 1 uniface cobble tool, all made of quartzite, were noted on the site. It is located approximately 425-m E of the East Branch of the California Aqueduct canal and 350-m S of site CA-LAN-3249. It was in good condition, although of unknown age.

CA-LAN-3251 (CT-57): This is another recorded low-density cobble quarry/workshop associated with a large discontinuous cobble concentration. It measured about 150-m N-S by 350-m E-W and contained a total of about 30 specimens, including quartzite cobble cores,
2. Environmental and Cultural Background

cobble tools and angular shatter. It is located 75-m S of site CA-LAN-3252 on a large flat ridge that is immediately E of the East Branch of the California Aqueduct canal. Its age is unknown and it was in good condition when recorded in 2002.

**CA-LAN-3252 (CT-58):** This was described as a low-density cobble quarry/workshop associated with a large discontinuous cobble concentration. It measured about 90-m N-S by 450-m E-W. About two-dozen archaeological specimens were noted on the site including quartzite cobble cores, cobble tools and angular shatter. It is located 75-m N of site CA-LAN-3251 on a long narrow ridge that is immediately E of the East Branch of the California Aqueduct canal. It was in good condition when recorded. Its age is unknown.

**CA-LAN-3253 (CT-59):** This site was recorded as a low-density cobble quarry/workshop associated with small cobble concentration. It was estimated to be about 60-m N-S by 90-m E-W in size. At the time of recording, 1 basalt flake, 1 basalt uniface cobble tool and 1 quartzite uniface cobble tool were noted on the site. It is located on a long narrow E-W trending ridgeline that is approximately 600-m N of the intersection of Highway 138 and the National Cement paved two-lane access road. The site’s age is unknown. It was in good condition in 2002.

2.6 Research Design

Previous studies in the larger Centennial Project area resulted in the identification of 63 sites in approximately 14,000-acres (W&S Consultants 2002). Twenty-four of the sites within the Project Area of Potential Effect (APE), located north of Highway 138 and west of the West Branch of the aqueduct, were evaluated for significance (W&S Consultants 2005, 2007). Five of these sites were historical (Euro-American) in age; three were bedrock mortar (BRM) stations; while one midden deposit and one cupule concentration were tested. These last five prehistoric sites were all located towards the western and northern ends of the APE, in the foothills of the Tehachapis rather than on the open flats of the Antelope Valley. The remaining 14 tested sites were all prehistoric surface lithic scatters. These were associated with cobble lens on low ridges, in contexts equivalent to the sites evaluated during this current study, with artifact assemblages primarily consisting of cores, lithic reduction waste and core-cobble complex tools. Their assemblage sizes ranged from three to 20 specimens and averaged nine specimens per site. None of these 14 previously studied sites included subsurface deposits or contained temporally diagnostic artifacts. They were interpreted primarily as quarry/workshops but the presence of some core-cobble complex tools suggested that plant foraging and processing, possibly involving agave, may also have occurred at certain of the sites (ibid.).

Based on the information collected during the original recording (W&S Consultants 2002) of the sites evaluated during the current study, they appear similar to the 14 lithic scatters that were previously tested, in both size and in their artifact assemblage components. Given the equivalence in the settings of the 20 sites with those tested previously, and the outward similarities in their artifact assemblages, certain basic research questions can be posed.

- Is there evidence for functional differences in these sites, seen as a whole? What is the range of functional variability in these sites?
2. Environmental and Cultural Background

- Are there temporal indicators or datable materials in the 20 sites that allow for chronological placement?
- If so, how does the chronological evidence relate to the general patterns of prehistory that have been identified in the Tehachapi Mountains and surrounding regions?

Of particular concern with respect to the last question is whether the temporal use of these small sites relates to the Middle Horizon population peak or instead to the Late Prehistoric Horizon period of depopulation, or includes both periods. The potential presence of temporal diagnostics and/or datable materials is crucial to the resolution of that issue, as well as to the research potential of the sites as a whole.
3. STUDY METHODS

3.1 INTRODUCTION

The 2015 cultural resources study involved two components: an intensive Phase I survey/Class III inventory of approximately 768-acres of land, located on the east side of 2015 study area; and a Phase II test excavation and determination of significance (NRHP/CRHR eligibility evaluation) of 20 sites located within the current study area. These sites had been recording during the 2001 survey of the 14,000-acres Centennial project area (W & S Consultants 2002) and had not been previously tested. We discuss the methods involved in the 2015 study below.

Fieldwork for this study was conducted in June through August 2015. David S. Whitley, Ph.D., RPA, served as principal investigator, assisted by Peter Carey, M.A., RPA, field director, and Robert Azpitarte, crew chief, with Stacey Escamilla, Jon Malamma, Michael Huerta, Morgan Bird, Amber Tedrow, Steve Teteak and Mercedes Bandimere serving as archaeological field technicians. Gloria Montes Morgan, representing the Tejon Indian Tribe, served as Native American monitor and tribal liaison for the project.

3.2 RECORDS SEARCH

A records search was completed by the South Central Coastal Information Center (IC), California State University, Fullerton, on 18 May 2015 (Confidential Appendix B). The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study area; (ii) if the study area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the field project was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the National Register of Historic Places (NRHP), Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest.

The western portion of the current study area, as noted above, had been surveyed in 2001 and 20 sites had been recorded on it (W&S Consultants 2002). The approximately 768-acres requiring a Phase I survey had not been previously surveyed, although five additional surveys had been conducted within a 0.5-mile radius of this unsurveyed acreage. Two historical resources had been recorded immediately adjacent to this 2015 survey area during these previous studies. These are the California Aqueduct (P-19-4154) and State Highway 138 (P-19-190643). Both of these resources fall within right-of-ways and are not within the survey area or project boundaries.

Although the reports have not yet been entered into the IC system, a Phase I survey along Highway 138 and evaluations of two sites were completed in the immediate Project vicinity by Ecorps in 2014 and 2015, for the Caltrans District 7 State Route 138 Improvement Project. These are CA-LAN-4632, a moderate density basalt scatter, and CA-LAN-4633, a very small
sparse lithic scatter. Surface collection and subsurface testing were completed on both sites, both of which were recommended as not NRHP or CRHR eligible (Wendy Blumel, personal communication 2015).

### 3.3 PHASE I SURVEY

The Phase I survey included 728-acres of contiguous unsurveyed fields at the eastern extreme the Project, and about 40-acres of off-site lands that will contain water-lines and pumping facilities, resulting in a total survey area of approximately 768-acres.

Field methods for the survey included intensive, on-foot examination of the ground surface for evidence of archaeological sites, in the form of artifacts, surface features (such as bedrock mortars or house pits), and archaeological indicators (e.g., organically enriched midden soil or burnt animal bone); the identification and location of any new or previously discovered sites; tabulation and recording of surface diagnostic artifacts; site photography and sketch mapping; preliminary evaluation of site integrity; and site recording or, in the case of previously recorded sites, site record updating. The California Office of Historic Preservation Instructions for Recording Historic Resources and DPR 523 forms were followed and employed for site recording.

The study area was examined by walking parallel 15-m transects. The unsurveyed fields were cultivated (alfalfa and feed corn) at the start of June 2015. Survey in them was conducted immediately following the harvesting of each individual field, accordingly, to ensure ground surface visibility. The off-site survey areas consisted of a linear transect running from Highway 138 north along 300th Street West, with laterals to three pump locations at the north end of the route (Figure 3, Confidential Appendix A). A 30-m wide transect was surveyed for the linear pipeline route and laterals, with a 15-m wide transect on each side of the route along the road. One acre was surveyed at each pump location. Surface visibility, overall, was excellent.

### 3.4 PHASE II TESTING

Phase II archaeological fieldwork at the 20 study sites was intended to establish the nature and significance of each cultural resource, and to thereby provide baseline data from which a determination of the ultimate disposition of these cultural resources could be made. This required the collection of a representative sample of artifacts and archaeological indicators from each of these cultural resources, the establishment of the vertical and horizontal boundaries of each cultural deposit, and an analysis of the recovered artifact assemblage from these archaeological localities.

Procedures followed in the collection of data useful for establishing the nature and significance of the sites included mapping, photographic documentation, surface collecting of artifacts lying on the ground surface, mapping of surface features, and test excavation of pits to establish the presence or absence of a subsurface archaeological deposit, as well as to characterize such a deposit if found to be present on the sites considered in this study.
Existing site records were also updated (Confidential Appendix C). Though these procedures were systematized so that the recovered data would be comparable between each site, as well as with previous studies in the region, the magnitude of effort varied somewhat between the sites, reflecting the field conditions specific to each locale. We discuss each of these field methods below, with details on the level of effort expended at each site provided in the subsequent chapter.

3.4.1 Surface Collection

In order to determine the maximum areal extent of each site, the initial field procedure was to locate, map and collect all surface remains present on the ground surface. In order to identify all such remains, the general area of each site was walked by crew-members using 2-m transects. Identified artifacts and archaeological indicators were then marked with flagging tape. A high-precision Trimble Geoexplorer GPS unit, with sub-meter accuracy, was used subsequently to map all artifacts, which were numbered and collected by these provenience points.

Because surface artifacts may become naturally embedded in the top few centimeters of topsoil, one or more surface shovel scrapes (SC) were completed on each site. These measured 0.5 by 1-m in size, with the scraped soil screened through 1/8th inch mesh. These scrapes extended to an approximate depth of about 2 to 3-cm and were intended to potentially increase the number of surface artifacts recovered from each site.

3.4.2 Test Excavations

Two methods were employed to test for the presence of subsurface deposits: hand excavated test units (TU), 1 by 1-m in size, and shovel test pits (STP). Employing a procedure used at all sites tested during this Phase II project, the number and location of the test pits placed on each site were predicated on an evaluation of localized geomorphological conditions present. Specifically, recognizing that subsurface archaeological remains could only be expected in areas where depositional processes contributed to the accumulation of soils, and that areas of active degradation would not only lack subsurface deposits but would also most likely contain surface finds (if found to be present) out of original context, test pits were placed in areas where the probability of deposition was deemed highest on each site, and subsequently located to delineate any such discovered deposits. In general, such depositional areas include toeslopes and foots of hills; swales; and areas where active rodent activity or vegetative vigor indicate soil accumulation and depth. Conversely, areas of daylighting bedrock and erosional ridges, hilltops and slopes were conceded a minimal amount of testing, because of the limited likelihood that they could accumulate buried archaeological remains.

Excavation units dug on each site were designated numerically. Each unit was dug with pick, shovel and trowel in arbitrary 10-cm spits or levels. Spoils from each of these levels was screened through 1/8th-inch mesh. All artifacts and archaeological indicators were collected and bagged by unit level. All excavation was continued through two culturally sterile levels.
(i.e., 20-cm), or until sterile parent soil or decomposing bedrock was encountered. The highest corner of each test unit was used as that unit’s datum, when TUs were not on level ground, for subsurface measurements. These were recorded as centimeters below datum (cmbd).

STPs were approximately 30-cm in diameter. These were dug in approximate 20-cm levels, with all removed soils screened through 1/8th-inch mesh.

All surface archaeological specimens were mapped, numbered and collected. Subsurface artifacts and specimens were collected by unit and excavation level for laboratory processing and analysis.

### 3.4.3 Laboratory Procedures

Following the completion of the Phase II fieldwork, the recovered artifact assemblages were taken to the ASM Affiliates laboratory for washing, processing and analysis. After each specimen was washed and labeled, metrical and typological analyses were performed. We provide measurements and weights for the various artifacts and archaeological indicators in the artifact catalog included in this report (Appendix D).
4. FIELD RESULTS

Results for the Phase I survey of approximately 768-acres and the test excavation of 20 sites are provided below.

4.1 PHASE I SURVEY

The intensive Phase I survey of the approximately 768-acres on the east side of the study area, including the off-site areas, was phased to coincide with the harvesting of the agricultural fields which covered most of this acreage in June 2015. Survey was accordingly conducted shortly after the fields were harvested (in the case of the alfalfa fields, after the crop was cut and bailed). Surface visibility was generally excellent for this fact.

Soils in this area consisted of sand/sandy loam with few lithic clasts. As noted above, this area was flat with minimal topographical relief.

No cultural resources of any kind were identified during the Phase I survey.

4.2 PHASE II TEST EXCAVATIONS

Site photographs are included in site record update forms in Confidential Appendix C.

4.2.1 CA-LAN-3233

CA-LAN-3233 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 300-m east of the paved two-lane National Cement Road along the southern toe slope of an east/west trending ridgeline. Soil on site consists of a loamy sand with dispersed granite and quartz rocks. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Four surface artifacts, labeled A1 through A4, were collected from the site (Confidential Appendix D). A1 is a white quartzite primary flake (3.6 x 1.0 x 1.3-cm), A2 is a red quartzite cobble core (12.1 x 9.3 x 8.8-cm), A3 is a brown/gray quartzite secondary flake (3.5 x 3.1 x 1.0-cm), and A4 is a brown/white quartzite primary flake (6.5 x 3.4 x 1.5-cm). Based on the distribution of these artifacts, the site area that is 21-m southeast/northwest by 13-m southwest/northeast.

Test Excavations:

One subsurface test unit (TU-1), two subsurface shovel test pits (STP-1 and STP-2), and one surface shovel scrape (SC-1) were excavated on the site. Soil conditions across the site are
uniform, consisting of an brown (Munsell 10YR 5/3) loamy sand A Horizon with loose, single grains, ~10 percent subangular to subrounded gravels, no ped structure, and moderate bulk density.

TU-1 was excavated three levels down to 30-cmbd with no cultural material recovered. The unit was terminated because it was culturally sterile and due to an increasing number of fist to boulder-sized rocks.

STP-1 was excavated to a depth of 45-cmbd with no cultural materials recovered. STP-2 was excavated to a depth of 40-cmbd with no cultural material identified.

No cultural materials were recovered from shovel scrape SC-1.

**Results:**

Site CA-LAN-3233 is a small, low density surface lithic scatter that lacks a subsurface component. All identified artifacts are quartzite, which occurs naturally in an exposed cobble lens on the site surface. The site is best interpreted as an expedient quarry/workshop, used sporadically or, perhaps, on only one occasion. Its age is unknown.

**4.2.2 CA-LAN-3234**

CA-LAN-3234 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 300-m east of the paved two-lane National Cement Road along the southern toe slope of an east-west trending ridgeline. Soil on site consists of a loamy sand with dispersed granite and quartz rocks. Vegetation includes a moderate cover of annual grasses and rabbit brush.

**Surface Collection:**

Three surface artifacts, labeled A1 through A3, were identified on and collected from the site. A1 is a white quartzite primary flake (4.8 x 3.5 x 1.1-cm), A2 is a white/brown quartzite cobble core (15.3 x 12.5 x 8.8-cm), and A3 is also a white/brown quartzite cobble core (11.6 x 8.1 x 8.1-cm). The artifact distribution indicates that the site area is 27-m southeast/northwest by 11-m southwest/northeast.

**Test Excavations:**

One subsurface test unit (TU-1), two subsurface shovel test pits (STP-1 and STP-2), and one surface shovel scrape (SC-1) were excavated. Soil conditions across the site are uniform, consisting of an A Horizon of a brown (10YR 5/3) loamy sand with loose, single grains, ~10-15 percent subangular to subrounded gravels, no ped structure, and low to moderate bulk density. A gradual contact occurred with a B Horizon at approximately 20-cmbd. The B
4. Field Results

Horizon consists of a yellowish brown (10YR 5/6) loamy sand, 10-15 percent subangular to subrounded gravels, blocky ped structure, and high bulk density.

TU-1 was excavated to 50-cmbd with no cultural material recovered.

STP-1 and STP-2 were excavated to 60-cmbd with no cultural material identified.

No cultural materials were recovered in shovel scrape SC-1.

**Results:**

Site CA-LAN-3234 is a small, low density surface lithic scatter that is associated with a small cobble concentration. It represents quarry/workshop activities, perhaps from a single use. The site does not contain a subsurface deposit and its age is unknown.

**4.2.3 CA-LAN-3235**

CA-LAN-3235 was originally recorded by W & S Consultants in 2001 as a rock cairn containing mixed igneous clasts ranging from fist to boulder size. No surface artifacts were reported and, at the time of recording, it was uncertain whether the site was prehistoric/Native American, historic/Euro-American, or natural in origin. The site is located approximately 490-m east of the Los Angeles Aqueduct on the west side of a north/south trending drainage. Soil on site consists of a loamy sand with granite and quartz rocks. Vegetation includes a minimal cover of annual grasses.

No surface artifacts were identified during the 2015 fieldwork at the site.

One subsurface test unit, TU-1, was excavated. Soil conditions consisted of an A Horizon brown (10YR 5/3) loamy sand with approximately 10 percent subangular gravels, an abundance of cobbles (both igneous and quartzite), and moderate bulk density. The unit was dug to 30-cmbd but light gray (10YR 7/2) decomposing granite was encountered within the first 10-cmbd level in the northwest corner. No artifacts of any kind were encountered.

**Results:**

CA-LAN-3235 appears to represent a natural concentration of exposed but heavily decomposing bedrock cobbles, not a cairn resulting from human actions. It does not constitute a cultural resource.

**4.2.4 CA-LAN-3236**

CA-LAN-3236 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 370-m north of Highway 138 along the ridge of a meandering, but generally
east/west trending ridgeline. Soil on site consists of a loamy sand with dispersed granite and quartz rocks. Vegetation includes a moderate cover of annual grasses and rabbit brush.

**Surface Collection:**

Three surface artifacts were identified, labeled A1 through A3, and collected. All three artifacts are white/brown quartzite cobble cores. A1 measures 15.7 x 12.5 x 9.5-cm, A2 measures 10.5 x 7.5 x 5.2-cm, and A3 measures 10.4 x 7.6 x 4.0-cm. Based on the distribution of these artifacts, site size is 55-m east/west by 10-m north/south.

**Test Excavations:**

One subsurface test unit, TU-1, four subsurface shovel test pits (STP-1 through STP-4), and two surface shovel scrapes (SC-1 and SC-2) were excavated at the site. TU-1 was placed near the site datum and was excavated to a depth of 30-cmbd. No cultural material encountered.

STP-1 and STP-4 were excavated to 40-cmbd, STP-2 was excavated to a depth of 35-cmbd, and STP-3 was excavated to 60-cmbd. No cultural material was identified in any of the four STPs.

Shovel scrapes SC-1 and SC-2 failed to yield any cultural materials.

**Results:**

Site CA-LAN-3236 is a surface lithic quarry workshop associated with a cobble exposure. It does not contain a subsurface component. Its age is unknown and it represents ephemeral exploitation, perhaps only a single use of this location. The age of the site is unknown.

### 4.2.5 CA-LAN-3237

CA-LAN-3237 was originally recorded by W & S Consultants in 2001 as a small, low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 490-m north of Highway 138 along a northern trending extension of a meandering, but generally east/west trending ridgeline. Soil on site consists of a loamy sand with dispersed granite and quartz rocks. Vegetation includes a moderate cover of annual grasses and rabbit brush.

**Surface collection:**

Four surface artifacts were identified on the site, labeled A1 through A4, and collected. A1 is a white quartzite primary flake (2.9 x 1.7 x .5-cm), A2 is a white/pink quartzite cobble core (9.6 x 8.6 x 6.4-cm), A3 is a white/brown assayed quartzite core (8.6 x 7.1 x 6.1-cm), and A4 is a white/brown quartzite cobble core (9.2 x 8.2 x 7.2-cm). Based on the distribution of these artifacts, site dimensions are 21-m north/south by 14-m east/west.
4. Field Results

Test Excavations:

One subsurface test unit, TU-1, two shovel test pits (STP-1 and STP-2), and two surface shovel scrapes (SC-1 and SC-2) were excavated on the site. Soil conditions were uniform across the site, consisting of an A Horizon of brown (10YR 5/3) sandy loam with no ped structure, ~15 percent subangular to subrounded gravels and moderate to high bulk density. This extended to about 10 – 20-cmbd depth, where a gradual contact with the B Horizon was encountered. The B Horizon consists of yellowish brown (10YR 5/6) loamy sand with approximately 10 percent subangular to subrounded gravels, blocky ped structure, and high bulk density. In general terms, the bulk density of the soil increases with depth across the site while the number of rocks over 5-cm in diameter decreases.

TU-1 was excavated to a maximum depth of 30-cmbd with no cultural material encountered.

STP-1 was excavated to 40-cmbd while STP-2 was excavated to a depth of 45-cmbd. No cultural material was identified in either STP.

No cultural materials were recovered in the SC-1 and SC-2 shovel scrapes.

Results:

Site CA-LAN-3237 consists of a small, low density surface quarry/workshop associated with an exposed cobbled lens. It does not contain a subsurface deposit. Its age is unknown but it appears to represent ephemeral use of the cobbled resource, perhaps consisting of only a single quarrying event. The age of the site is unknown.

4.2.6 CA-LAN-3238

CA-LAN-3238 was originally recorded by W & S Consultants in 2001 as a low density lithic workshop. The site is located approximately 500-m north of Highway 138 along the ridge of a meandering, but generally southeast/northwest trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Six surface artifacts were identified, labeled A1 through A6, and collected from the site. A1 is a piece of white cryptocrystallite (CCS) shatter (2.6 x 1.3 x 1.0-cm), A2 is a piece of red CCS shatter (2.3 x 2.3 x 0.9-cm), A3 is a piece of brown CCS shatter (2.6 x 2.4 x 1.4-cm), A4 is piece of brown quartzite shatter (10.0 x 7.8 x 4.2-cm), A5 is a brown quartzite primary flake (6.9 x 6.1 x 1.4-cm) and A6 is a red CCS core (5.8 x 4.3 x 3.4-cm). Updated surface site measurements are 35-m southwest/northeast by 19-m southeast/northwest.
4. Field Results

Test Excavations:

One test unit (TU-1), two subsurface shovel test pits (STP-1 and STP-2), and two surface shovel scrapes (SC-1 and SC-2) were excavated at this site. Soil conditions were uniform across the site, with a brown (10YR 5/3) loamy sand A Horizon with approximately 10 percent subangular gravel, no ped structure, and moderate to high bulk density. Igneous and quartzite rocks up to 20-cm in diameter were prevalent in the soil.

TU-1 was excavated to a depth of 30-cmbd. One brown CCS secondary flake was recovered from the screen during excavation. This originated in the first few centimeters (i.e., topsoil) of the unit, essentially in the first shovel scrape layer. Rodent disturbance was noted in the excavation.

STP-1 was excavated to 50-cmbd and STP-2 was excavated to 30-cmbd. No cultural material was identified in either STP.

No cultural materials were recovered in SC-1 and SC-2 the shovel scrapes.

Results:

Site CA-LAN-3238 is a small surface lithic scatter. The presence of angular shatter a core and a primary flake indicate its use as a quarry/workshop. This appears to have the exploitation of both quartzite and CCS in the cobble lens that is present on the site surface. The single piece of debitage recovered in TU-1 is a surface specimen that was covered by a thin coating of soil, and the site lacks a subsurface archaeological deposit. The age of the site is unknown.

4.2.7 CA-LAN-3239

CA-LAN-3239 was originally recorded by W & S Consultants in 2001 as a medium density cobble quarry/workshop consisting of discontinuous lithic scatters and associated cobble concentrations. The site is located approximately 690-m north of Highway 138 on top of an east/west trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Seventeen surface artifacts were identified, mapped and collected. These were labeled A1 through A17. A1 is a brown rhyolite primary flake (3.8 x 2.6 x 0.9-cm), A2 is a piece of brown/white quartzite shatter (8.4 x 5.5 x 3.0-cm), A3 is a pink metavolcanic flake tool (7.6 x 5.8 x 3.0-cm), A4 is a pink/white quartzite primary flake (4.2 x 2.4 x 1.6-cm), A5 is a battered brown/white quartzite cobble hammerstone (8.9 x 6.6 x 6.6-cm), A6 is a brown/pink quartzite flake tool (12.2 x 5.7 x 2.9-cm), A7 is a brown/white quartzite cobble core (7.8 x 5.9 x 5.6-cm), A8 is an assayed pink/brown quartzite cobble core (14.1 x 9.3 x 4.6-cm), A9 is a brown/white quartzite cobble tool (11.0 x 10.0 x 3.7-cm), A10 is a white
4. Field Results

quartzite primary flake (5.3 x 4.2 x 1.0-cm), A11 is a purple quartzite cobble core (9.5 x 7.7 x 5.9-cm), A12 is a tan/white quartzite cobble tool (9.1 x 7.8 x 5.5-cm), A13 is a red/white quartzite primary flake (6.5 x 3.0 x 2.4-cm), A14 is a brown/white quartzite cobble core (10.2 x 9.1 x 6.5-cm), A15 is a brown/white quartzite cobble tool (8.7 x 5.3 x 3.7-cm), A16 is a red/brown quartzite hammerstone (8.3 x 4.5 x 3.2-cm), and A17 is a piece of white/gray CCS shatter (3.1 x 2.9 x 1.5-cm).

Based on the distribution of these surface artifacts, site measurements are 153-m east/west by 22-m north/south.

Test Excavations:

One test unit (TU-1), six shovel test pits (STP-1 through STP-6), and four surface shovel scrapes (SC-1 through SC-4) were excavated at this site. Soil conditions across the site are uniform, consisting of a brown (10YR 5/3) loamy sand A Horizon containing a large number of fist to boulder-sized rocks with approximately 5 percent angular to subangular gravels, no ped structure, and low to moderate bulk density. This caps a yellowish brown (10YR 5/6) B Horizon, encountered with a gradual contact between about 28 – 30-cmbd, containing ~5-10 percent angular to subangular gravels, blocky ped structure, and high bulk density. The bulk density of the soil increases with depth while rocks greater than 3-cm diameter are rare in the B Horizon.

TU-1 was excavated to a depth of 30-cmbd with no cultural material encountered.

STP-1, STP-2, STP-4, and STP-6 were excavated to 30-cmbd and STP-3 and STP-5 to a depth of 40-cmbd. No cultural material was identified in any of the six STPs.

No cultural materials were recovered in the four shovel scrapes (SC-1 through SC-4).

Results:

Site CA-LAN-3239 is a surface lithic scatter containing a variety of materials. These include rhyolite, metavolcanic (perhaps also basalt), CCS and, predominantly, locally available quartzite. The site appears to have served as an occasionally-employed quartzite quarry as well as a more general workshop, based on the presence of cobble tools (potentially used for plant pulping or other heavy chopping tasks). No subsurface deposit is present at the site. The age of the site is unknown.

4.2.8 CA-LAN-3240

CA-LAN-3240 was originally recorded by W & S Consultants in 2001 as a potential special activity area. The site is located approximately 330-m southeast of the California Aqueduct and approximately 180-m south of an unnamed, paved two-lane road on top of a north/south trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.
4. Field Results

**Surface Collection:**

Six formal artifacts were identified, labeled A1 through A6, and collected from the surface of the site. A1 is a red/orange CCS flake tool (2.7 x 2.7 x 1.1-cm), A2 is a brown rhyolite flake tool (5.4 x 3.2 x 1.6-cm), A3 is a brown rhyolite flake tool (5.7 x 2.4 x 1.0-cm), A4 is a white/brown CCS core (4.1 x 3.4 x 2.1-cm), A5 is a white CCS Stage II biface fragment (3.8 x 3.4 x 0.9-cm), and A6 is a white CCS flake tool (2.6 x 1.5 x 0.5-cm). In addition to the formal artifacts, 37 flakes or pieces of lithic debitage were also collected from the surface of the site. These included 32 CCS, 3 rhyolite, 1 quartzite, and 1 obsidian specimen.

Updated site surface measurements are 132-m north/south by 69-m east/west.

**Test Excavations:**

Five test units (TU-1 through TU-5), ten shovel test pits (STP-1 through STP-10), and six shovel scrapes (SC-1 through SC-6) were excavated at the site. Soil conditions across the site are uniform. These consist of a brown (10YR 5/3) loamy sand A Horizon that extends to about 23-cmbd. It has less than 5 percent subangular gravels, no ped structure, and high bulk density. A yellowish brown (10YR 5/6) B Horizon lies below a gradual contact at about 23-cmbd. The B Horizon is less than 5 percent subangular gravels, with blocky ped structure, and very high bulk density. Rocks greater than 3-cm in diameter are rare, regardless of stratum.

TU-1 was excavated to a depth of 40-cmbd and a total of two flakes were recovered. One white CCS tertiary flake was collected from Level 1 (0-10-cmbd) and one piece of red CCS shatter was collected from Level 2 (10-20-cmbd). TU-2 was also excavated to a depth of 40-cmbd and a total of three flakes were recovered. One piece of red CCS shatter was collected from Level 1 (0-10-cmbd) and two white/brown CCS tertiary flakes were collected from Level 2 (10-20-cmbd). TU-3 was excavated to a depth of 20-cmbd with no artifacts recovered. TU-4 was excavated to a depth of 30-cmbd with a total of two flakes recovered. Two red CCS tertiary flakes were identified in the screen and collected from Level 1 (0-10-cmbd). TU-5 was excavated to a depth of 30-cmbd and one red CCS tertiary flake was collected from the screen from Level 2 (10-20-cmbd).

STP-1, STP-2, STP-3, STP-6, and STP-10 were all excavated to a depth of 40-cmbd; STP-5, STP-7, STP-8, and STP-9 were excavated to a depth of 50-cmbd; and STP-4 was excavated to 45-cmbd. No cultural material was identified in any of the 10 STPs.

Shovel scrapes SC-3 through SC-5 contained no cultural material, while SC-1, SC-2, and SC-6 contained a total of four CCS flakes. One red CCS tertiary flake was recovered from SC-1, two white/brown CCS tertiary flakes were collected from SC-2, and one piece of red CCS shatter was recovered from SC-6.
Results:

Site CA-LAN-3240 appears to represent a small campsite with a small, low density subsurface deposit. A metate, used for grinding plant foods (probably seeds), had been observed on the site when originally recorded but could not be relocated during the Phase II test. Along with the other artifacts, this nonetheless suggests that a wide range of activities may have occurred at this location, including plant processing and tool maintenance and manufacture as well as quarrying, and that the site may have served as a small camp. The wide range of lithic materials, some of which are not local to the study area, support the interpretation of the site as a camp; obsidian almost certainly originated in the Coso source, 130 miles to the northeast. The low density and shallow subsurface deposit (maximum depth, approximately 20-cm) likewise suggests periodic but low intensity use of this site. No temporally diagnostic artifacts were recovered and the site’s age is unknown. The presence of a single obsidian flake, however, may indicate that the site pre-dates roughly AD 1200, when the obsidian trade from eastern California collapsed. Ongoing hydration analysis of this specimen will allow an evaluation of this interpretation.

4.2.9 CA-LAN-3241

CA-LAN-3241 was originally recorded by W & S Consultants in 2001 as a plant processing locale associated with a small cobble concentration. The site is located approximately 150-m south of a paved, unnamed two-lane road at the northeastern end of a northeast/southwest trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Eleven surface artifacts were identified, labeled A1 through A11, and collected from the site. A1 is an unshaped, shallow basin granitic metate (39.5 x 28.9 x 17.8-cm), A2 is a gray/brown quartzite cobble core (7.5 x 6.7 x 6.4-cm), A3 is an unifacial igneous mano (10.5 x 8.4 x 6.6-cm), A4 is a fine-grained volcanic (FGV) core (7.2 x 5.9 x 4.9-cm), A5 is a white CCS flake tool (2.7 x 2.3 x 0.5-cm), A6 is a pink quartzite bifacial mano (11.0 x 8.2 x 5.1-cm), A7 is an unshaped, shallow basin granitic metate (35.4 x 24.0 x 5.6-cm), A8 is a gray/brown quartzite cobble core with edge grinding (9.8 x 7.4 x 7.5-cm), A9 is a white CCS Stage III biface fragment (3.0 x 2.7 x 0.7-cm), A10 is a piece of beige CCS shatter (3.4 x 3.1 x 1.6-cm), and A11 is a white/red CCS primary flake (1.8 x 1.9 x 0.6-cm).

Updated site measurements are 36-m north/south by 18-m east/west.

Test Excavations:

Four test units (TU-1 through TU-4), five STPs (STP-1 through STP-5), and four shovel scrapes (SC-1 through SC-4) were excavated within CA-LAN-3241. Soil conditions across the site are uniform, consisting of a brown (10YR 5/3) loamy sand A Horizon with less than 5
percent subangular gravels, no ped structure, and high bulk density. The yellowish brown (10YR 5/6) B Horizon, encountered as a gradual contact at about 8-cm, has less than 5 percent subangular gravels, blocky ped structure, and very high bulk density.

TU-1 was excavated to a depth of 20-cmbd and no artifacts were recovered. TU-2 and TU-3 were both excavated to a depth of 20-cmbd with no cultural material recovered. TU-4 was excavated to a depth of 30-cmbd with two brown CCS flakes recovered in Level 1 (0-10-cmbd). Both flakes originated in the upper few centimeters of the level (i.e., topsoil).

All STPs were excavated to a depth of 35-cmbd before termination due to the extreme soil compaction. No cultural materials were encountered in any of the STPs.

Shovel scrapes SC-1 and SC-2 lacked subsurface prehistoric remains. SC-3 yielded one red jasper flake, which was located on the surface of the. SC-4 also yielded one red jasper flake within the topsoil.

**Results:**

CA-LAN-3241 yielded a surface artifact assemblage that includes a small number of groundstone (manos and metates) used for plant processing; cores, flakes and shatter, resulting from tool manufacture; and flake tools, used for a variety of cutting and piercing tasks. No subsurface deposit is, however, present at the site. The nature of the artifacts suggests that the site jointly served as a plant processing station and quarry/workshop. Given its proximity to CA-LAN-3240, it is likely that CA-LAN-3421 served as a special activity area associated with that nearby campsite. Assuming this is correct, the two sites would be the same age, although this has not yet been fully established.

**4.2.10 CA-LAN-3242**

CA-LAN-3242 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 950-m south of a paved, unnamed two-lane road at the terminus of the eastern toe-slope of a northeast/southwest trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

**Surface Collection:**

Eight surface artifacts were identified, labeled A1 through A8, and collected from the site. A1 is a beige CCS core (6.4 x 5.2 x 3.6-cm), A2 is a brown/gray CCS cobble tool (8.9 x 7.1 x 4.5-cm), A3 is a brown rhyolite core tool (8.4 x 7.9 x 3.5-cm), A4 is a piece of brown/black CCS shatter (2.4 x 1.8 x 0.8-cm), A5 is a gray quartzite core (6.1 x 5.8 x 3.4-cm), A6 is a purple rhyolite core tool (9.1 x 8.0 x 2.5-cm), A7 is a piece of gray/brown CCS shatter (6.6 x 5.0 x 2.4-cm), and A8 is a FGV secondary flake (2.2 x 1.8 x 0.5-cm).
Updated site measurements are 30-m north/south by 20-m east/west.

**Test Excavations:**

One test unit (TU-1), five shovel test pits (STP-1 through STP-5), and two shovel scrapes (SC-1 and SC-2) were excavated. TU-1 was excavated to a depth of 50-cmbd with four flakes recovered. One obsidian tertiary flake was recovered in the screen from Level 1 (0-10-cmbd), one brown/black CCS tertiary flake was collected from the screen from Level 2 (10-20-cmbd), and two obsidian tertiary flake fragments were recovered in the screen from Level 3 (20-30-cmbd).

STP-1 was excavated to 60-cmbd; STP-2 was excavated to 45-cmbd; STP-3 and STP-4 were both excavated to 50-cmbd; and STP-5 was excavated to 53-cmbd. No cultural material was identified in any of the five STPs.

No cultural materials were recovered in the SC-1 and SC-2 shovel scrapes.

**Results:**

CA-LAN-3242 appears to be represent a small and very low density subsurface deposit extended to approximately 20-cmbd. Artifacts on the site surface, though limited in number, are indicative of quarrying and primary reduction (cores and angular shatter), while the core tools are most likely the result of heavy pounding activities, perhaps plant processing. The artifact assemblage, in general terms, is similar to many of the other quarry workshops tested during this project, which lack subsurface deposits. The presence of such a deposit in this case appears to represent a unique geomorphological context, at the toeslope of a low ridgeline, which would provide an upslope source of soil for the slow burial of artifacts below the ground. The small assemblage, furthermore, includes 30% core/cobble complex tools, and three of the five pieces of debitage are obsidian tertiary flakes, suggesting that at least some habitation occurred at this locale inasmuch as tertiary flakes are typically associated with tool maintenance rather than production.

The variety of kinds of lithic materials, including obsidian almost certainly originating at the Coso source, over 130 miles to the northeast, is indicative of trade. The low density of subsurface materials suggests that the site was sporadically used, but potentially over a long period of time. The age of the site is unknown. Based on the presence of obsidian, it is believe to pre-date roughly AD 1200; this hypothesis may be clarified by obsidian hydration dating.

**4.2.11 CA-LAN-3243**

CA-LAN-3243 was originally recorded by W & S Consultants in 2001 as a medium density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 1,300-m south of a paved, unnamed two-lane road and 345-m southwest of site CA-LAN-3242, along a generally east/west trending ridgeline. Soil on site consists of
4. Field Results

loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

**Surface Collection:**

Seventeen surface artifacts were identified, labeled A1 through A17, and collected from the site. A1 is an igneous mano (13.2 x 7.9 x 5.3-cm), A2 is a pink quartzite cobble core (11.2 x 8.0 x 5.7-cm), A3 is a pink/brown quartzite cobble core tool (10.8 x 7.3 x 3.6-cm), A4 is a gray/brown quartzite cobble core (10.3 x 8.5 x 6.6-cm), A5 is a gray quartzite secondary flake (4.4 x 3.8 x 1.5-cm), A6 is a gray/brown quartzite cobble core (4.4 x 5.2 x 3.4-cm), A7 is a white quartzite primary flake (10.1 x 4.7 x 3.1-cm), A8 is a red CCS core (3.2 x 3.1 x 2.1-cm), A9 is a purple quartzite cobble core (8.6 x 6.5 x 4.3-cm), A10 is a white/pink quartzite cobble core (13.4 x 9.2 x 8.9-cm), A11 is a white/pink quartzite cobble core (8.8 x 7.9 x 2.7-cm), A12 is a white/brown quartzite cobble core (8.8 x 7.9 x 2.7-cm), A13 is a gray/brown quartzite cobble core (8.5 x 5.2 x 3.2-cm), A14 is a white/brown quartzite core (6.6 x 4.4 x 3.5-cm), A15 is a brown quartzite hammerstone (8.7 x 6.1 x 2.2-cm), A16 is a gray quartzite secondary flake (4.9 x 3.8 x 1.3-cm), and A17 is a white/brown CCS secondary flake (5.9 x 4.6 x 1.4-cm).

Updated site measurements are 112-m east/west by 30-m north/south.

**Test Excavations:**

One test unit (TU-1), six shovel test pits (STP-1 through STP-6), and four shovel scrapes (SC-1 through SC-4) were excavated at CA-LAN-3243. Soil conditions were uniform across the site, consisting of a brown (10YR 5/3) loamy sand A Horizon with approximately 10 percent subangular to subrounded gravels, an abundance of fist to large igneous and quartzite cobbles, no ped structure, and moderate bulk density.

TU-1 was excavated to a depth of 20-cmbd, where decomposing bedrock was encountered, with no cultural material present.

STP-1 was excavated to a depth of 50-cmbd; STP-2 and STP-3 were excavated to a depth of 40-cmbd; STP-4 was excavated to a depth of 30-cmbd, and STP-5 and STP-6 were excavated to a depth of 20-cmbd. No cultural material was identified in any of the six STPs. The varying depths of the STPs demonstrate variability of bedrock depth across the site.

No cultural materials were recovered in the six shovel scrapes.

**Results:**

Site CA-LAN-3243 is a moderate density surface lithic scatter exhibiting two primary activities: quarrying the quartzite and other cobbles available on-site and, to a lesser extent, plant processing. No subsurface deposit is present at this site and its age is unknown.
4. Field Results

4.2.12 CA-LAN-3244

CA-LAN-3244 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a large, discontinuous cobble concentration. The site is located approximately 1590-m south of a paved, unnamed two-lane road and approximately 260-m west-southwest of site CA-LAN-3243 along the same generally east/west trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Twenty-three surface artifacts were identified, labeled A1 through A23, and collected from the site. A1 is a brown/black CCS primary flake (4.1 x 3.0 x 0.8-cm), A2 is brown/red quartzite core (6.9 x 7.1 x 4.9-cm), A3 is a brown/white CCS core tool (7.9 x 7.8 x 5.4-cm), A4 is a brown/white piece of CCS shatter (4.7 x 3.2 x 2.6-cm), A5 is a red/white quartzite flake tool (4.9 x 3.7 x 1.7-cm), A6 is a white quartz primary flake (6.3 x 4.5 x 2.2-cm), A7 is a brown/red quartzite cobble core (8.3 x 7.4 x 4.9-cm), A8 is a brown/red quartzite cobble core (10.0 x 7.1 x 5.2-cm), A9 is a pink/brown quartzite primary flake (3.9 x 3.2 x 1.4-cm), A10 is a piece of brown CCS shatter (3.1 x 2.7 x 1.5-cm), A11 is a brown/gray quartzite cobble core (7.1 x 6.8 x 2.8-cm), A12 is a pink/gray quartzite cobble tool (10.8 x 9.6 x 6.6-cm), A13 is a pink/white quartzite core tool (6.6 x 4.4 x 2.4-cm), A14 is a pink/brown quartzite cobble core (12.6 x 10.0 x 6.0-cm), A15 is a red igneous hammer stone (10.7 x 6.9 x 4.9-cm), A16 is a brown/pink quartzite cobble core (9.4 x 6.5 x 5.7-cm), A17 is a brown/white quartzite cobble core (9.6 x 7.5 x 4.2-cm), A18 is a pink quartzite cobble core (13.8 x 11.6 x 5.0-cm), A19 is a brown/pink quartzite cobble core (11.8 x 9.5 x 5.6-cm), A20 is a brown/white tested quartzite cobble (7.8 x 5.6 x 5.0-cm), A21 is a tan/white CCS core (7.0 x 5.6 x 4.0-cm), A22 is a brown/white CCS core (8.2 x 6.2 x 4.3-cm), and A23 is a red/white quartzite cobble tool (8.0 x 6.1 x 4.2-cm).

Updated site measurements are 323-m east/west by 74-m north/south.

Test Excavations:

One test unit (TU-1), eight shovel test pits (STP-1 through STP-8), and four shovel scrapes (SC-1 through SC-4) were excavated. Soil conditions across the site are uniform. A brown (10YR 5/3) loamy sand A Horizon extended to approximately 15-cm db. This is characterized by approximately 10 percent subangular gravels, no ped structure, and moderate bulk density. A gradual contact below that depth revealed a yellowish brown (10YR 5/6) B Horizon with approximately 15 percent subangular gravels, blocky ped structure, and very high bulk density. Occasional cobbles were present throughout the unit.

TU-1 was excavated to a depth of 30-cm db with no cultural material encountered.

STP-1 was excavated to a depth of 40-cm db; STP-2, STP-3, STP-6, STP-7, and STP-8 were excavated to a depth of 50-cm db; and STP-4 and STP-5 were excavated to a depth of 30-cm db. No cultural material was identified in any of the eight STPs.
4. Field Results

No cultural materials were recovered in the four shovel scrapes.

Results:

Site CA-LAN-3244 is a moderate density surface lithic scatter consisting of a quarry/workshop associated with a natural quartzite cobble lens. The site lacks a subsurface deposit and its age is unknown.

4.2.13 CA-LAN-3245

CA-LAN-3245 was originally recorded by W & S Consultants in 2001 as a medium density cobble quarry/workshop associated with a large, continuous cobble concentration. The site is located approximately 1,750-m south of a paved, unnamed two-lane road and approximately 95-m south of site CA-LAN-3244 along a generally east/west trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Nine surface artifacts were identified, labeled A1 through A9, and collected from the site. A1 is a brown/red CCS cobble core (9.9 x 9.2 x 7.0-cm), A2 is a red/black CCS core (6.5 x 5.9 x 3.0-cm), A3 is a red piece of CCS shatter (3.9 x 3.7 x 1.7-cm), A4 is a brown/gray quartzite cobble core (9.1 x 8.2 x 8.2-cm), A5 is a pink/white quartzite primary flake (10.0 x 3.5 x 3.6-cm), A6 is a brown/white piece of quartzite shatter (5.9 x 3.6 x 1.5-cm), A7 is a brown/white quartzite cobble tool (9.9 x 6.4 x 4.6-cm), A8 is a brown/white quartzite cobble core (13.9 x 12.8 x 10.7-cm), and A9 is a brown/tan tested CCS cobble with the refitted flake removal (13.0 x 11.6 x 6.6-cm).

Updated site measurements are 151-m southwest/northeast by 32-m southeast/northwest.

Test Excavations:

One test unit (TU-1), six subsurface shovel test pits (STP-1 through STP-6), and four shovel scrapes (SC-1 through SC-4) were excavated at CA-LAN-3245. Soil conditions across the site are uniform, consisting of a brown (10YR 5/3) loamy sand A Horizon with approximately 10 percent subangular gravels, no ped structure, and high bulk density. This extends to about 9-cmdb where a gradual contact leads to a yellowish brown (10YR 5/6) B Horizon with approximately 15 percent subangular gravels, blocky ped structure, and very high bulk density. Occasional cobbles present throughout the unit.

TU-1 was excavated to a depth of 30-cmdb with no cultural material encountered.

STP-1 through STP-5 were excavated to a depth of 40-cmdb and STP-6 was excavated to a depth of 30-cmdb. No cultural material was identified in any of the four STPs.
No cultural materials were recovered in the four shovel scrapes.

Results:

Site CA-LAN-3245 is a surface lithic scatter consisting of a quarry/workshop. This primarily involved the exploitation of a lens of natural quartzite cobbles but the presence of CCS cores and flakes demonstrate that imported lithic materials were also worked at the site. No subsurface deposit is present and the age of the site is unknown.

4.2.14 CA-LAN-3246

CA-LAN-3246 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 135-m northeast of Quail Lake, approximately 235-m south of the California Aqueduct, and approximately 295-m west of the paved two-lane National Cement Road on a broad, generally northwest/southeast trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Two surface artifacts were identified, labeled A1 and A2, and collected from the site. A1 is a brown/red quartzite cobble core measuring 13.4 x 9.9 x 8.5-cm and A2 is a brown/white quartzite cobble core measuring 9.6 x 7.5 x 5.9-cm.

Updated site measurements are 8-m north/south by 7-m east/west.

Test Excavations:

One test unit (TU-1), two shovel test pits (STP-1 and STP-2) and one shovel scrape (SC-1) were excavated at this site. Soil conditions across the site are uniform, consisting of a brown (10YR 5/3) loamy sand A Horizon with approximately 10 percent subangular gravels, an abundance of cobbles, no ped structure, and low bulk density.

TU-1 was excavated to a depth of 30-cmbd and one CCS flake was recovered from Level 1 (0-10-cmbd). The flake was identified in the screen and originated from soil from the first few centimeters of the unit (i.e., topsoil).

STP-1 was excavated to a depth of 50-cmbd and STP-2 was excavated to a depth of 40-cmbd. No cultural material was identified in either STP.

No cultural materials were recovered in the shovel scrape.
4. Field Results

Results:

Site CA-LAN-3246 is a very small, low density surface lithic scatter, probably resulting from a single prehistoric visit. No subsurface deposit is present at this site and its age is unknown.

4.2.15 CA-LAN-3247

CA-LAN-3247 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 2,050-m north of Highway 138 and approximately 410-m south of site CA-LAN-3245 along the ridge of a meandering, but generally southwest/northeast trending ridgeline. Soil on site consists of loamy sand with dispersed igneous and quartzite cobbles. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Four surface artifacts were identified, labeled A1 through A4, and collected from the site. A1 is a beige quartzite cobble core (8.5 x 8.0 x 5.0-cm), A2 is a brown/white quartzite core (10.8 x 9.2 x 3.8-cm), A3 is a brown/white quartzite primary flake (5.5 x 5.5 x 0.7-cm), and A4 is a brown/white piece of quartzite shatter (6.2 x 5.5 x 5.5-cm).

Updated site measurements are 45-m east/west by 15-m north/south.

Test Excavations:

One test unit (TU-1), two shovel test pits (STP-1 and STP-2), and one shovel scrape (SC-1) were excavated at CA-LAN-3247.

Soil conditions across the site are uniform, consisting of a brown (10YR 5/3) loamy sand A Horizon with approximately 5-10 percent subangular gravels, no ped structure, and moderate bulk density. A gradual contact with a yellowish brown (10YR 5/6) B Horizon with approximately 15 percent subangular gravels, blocky ped structure, and very high bulk density was encountered at approximately 20-cmbd.

TU-1 was excavated to a depth of 20-cmbd with no cultural material encountered.

STP-1 was excavated to a depth of 55-cmbd and STP-2 was excavated down to 45-cmbd. No cultural material was identified in either STP.

No cultural materials were recovered in the shovel scrape.
4. Field Results

Results:

Site CA-LAN-3247 is a very small, low density surface lithic scatter resulting from quarrying the locally available quartzite cobble lens. No subsurface deposit is present and the site age is unknown.

4.2.16 CA-LAN-3249

CA-LAN-3249 was originally recorded by W & S Consultants in 2001 as a rock cairn containing mixed igneous clasts ranging from fist to boulder size. No surface artifacts were reported when originally recorded. The site is located approximately 490-m east of the California Aqueduct on the west side of a north/south trending drainage. Soil on site consists of loamy sand with granite and quartz rocks. Vegetation includes a minimal cover of annual grasses.

No surface artifacts were observed at the site in 2015.

One test unit (TU-1) was excavated at the site to determine if the site contained a subsurface prehistoric component. It was excavated to a depth of 30-cmbd before reaching decomposing granite bedrock in the northwestern corner of the unit. The A Horizon consisted of brown (10YR 5/3) loamy sand with approximately 10 percent subangular gravels, and abundance of cobbles (both igneous and quartzite), and moderate bulk density. No cultural materials were identified in the excavation, and the apparent concentration of cobble on the ground surface represents daylighting, decomposing bedrock.

Results:

Test excavations demonstrated that CA-LAN-3249 is natural, not cultural, in origin and it thus does not constitute a cultural resource.

4.2.17 CA-LAN-3250

CA-LAN-3250 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 380-m east of the California Aqueduct on the north side of an east/west drainage north of a spring. The site has served as a cattle resting area for many years and is heavily disturbed. Soil on site consists of a loamy sand with dispersed igneous and quartzite rocks. Vegetation includes a moderate cover of annual grasses and some rabbit brush.

Surface Collection:

Two surface artifacts were identified, labeled A1 and A2, and collected from the site. A1 is a red quartzite assayed cobble core measuring 16.6 x 11.2 x 9.3-cm and A2 is a black obsidian late stage biface/projectile point measuring 2.9 x 1.8 x 0.7-cm.
4. Field Results

Updated site measurements are 36-m east/west by 12-m north/south.

Test Excavations:

One test unit (TU-1), two shovel test pits (STP-1 and STP-2), and one shovel scrape (SC-1) were excavated at the site. Soil conditions across the site are uniform. They consist of a dark grayish brown (10YR 4/2) loamy sand with blocky ped structure, very high bulk density and ~10 percent subangular gravels. The bulk density of the soil increases with depth with an occasional presence of cobbles.

TU-1 was excavated to 30-cmbd and lacked cultural materials.

STP-1, STP-2 and STP-4 through STP-6 were excavated to 30-cmbd, and STP-3 was excavated to a depth of 35-cmbd. All of the STPs lacked cultural material.

No cultural materials were identified in shovel scrape SC-1.

Results:

Site CA-LAN-3250 is a very low density surface lithic scatter with a limited artifact assemblage consisting of an assayed quartzite cobble/core and an obsidian biface fragment. The paucity of artifacts is indicative of ephemeral site use, perhaps a single episode. No subsurface deposit is present and the site age is unknown, though the obsidian is suggestive of a roughly pre-AD 1200 date.

4.2.18 CA-LAN-3251

CA-LAN-3251 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a large but discontinuous cobble concentration. The site is located approximately 80-m east of the California Aqueduct on a large, flat east/west trending ridge. Soil on site consists of a loamy sand with dispersed granite and quartzite rocks. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Eleven surface artifacts were identified, labeled A1 through A11, and collected from the site. A1 is a brown CCS cobble core (7.5 x 6.0 x 4.1-cm), A2 is a brown/white piece of quartzite shatter (8.7 x 6.2 x 3.3-cm), A3 is a white quartzite primary flake (3.5 x 2.2 x 0.9-cm), A4 is a white/pink piece of quartzite shatter (11.8 x 8.7 x 3.0-cm), A5 is a pink/white cobble core (11.5 x 9.8 x 7.0-cm), A6 is a pink quartzite cobble core (6.5 x 5.3 x 5.2-cm), A7 is a pink quartzite cobble core (9.8 x 8.2 x 4.4-cm), A8 is a pink quartzite cobble core (13.4 x 10.0 x 8.8-cm), A9 is a pink assayed quartzite cobble (8.2 x 7.6 x 5.4-cm), A10 is a pink piece of quartzite shatter (6.8 x 4.3 x 3.7-cm), and A11 is a pink quartzite core tool (6.3 x 4.6 x 3.2-cm).
Updated site measurements are 90-m northeast/southwest by 50-m southeast/northwest.

**Test Excavations:**

One test unit (TU-1), six shovel test pits (STP-1 through STP-6), and four shovel scrapes (SC-1 through SC-4) were excavated. Soil conditions across the site are uniform consisting of brown (10YR 5/3) loamy sand A Horizon with no ped structure, and less than 5 percent subangular gravels. The bulk density of the soil increases with depth but is generally moderate. Rocks that are over 5-cm in diameter are rare.

TU-1 was excavated to a maximum depth of 30-cmbd and no cultural materials were recorded.

STP-1, STP-2 and STP-4 through STP-6 were excavated to 30-cmbd, and STP-3 was excavated to a depth of 35-cmbd. No cultural materials were present in the STPs.

All four shovel scrapes also lacked any cultural materials.

**Results:**

Site CA-LAN-3251 is a large but low density quarry/workshop associated with a natural quartzite cobble lens. The site lacks a subsurface archaeological deposit and its age is unknown.

**4.2.19 CA-LAN-3252**

CA-LAN-3252 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 120-m east of the California Aqueduct on a broad east/west trending ridge. Soil on site consists of loamy sand with dispersed igneous and quartzite rocks. Vegetation includes a moderate cover of annual grasses and rabbit brush.

**Surface Collection:**

Six surface artifacts were identified, labeled A1 through A6, and collected from the site. A1 is a purple quartzite cobble core (5.0 x 3.5 x 2.8-cm), A2 is a purple FGV/rhyolite core tool (6.9 x 6.2 x 4.1-cm), A3 is a white quartzite secondary flake (2.6 x 2.0 x 0.5-cm), A4 is a white quartzite primary flake (4.5 x 2.4 x 1.1-cm), A5 is a pink quartzite cobble core (8.3 x 7.1 x 5.6-cm), and A6 is a white/pink quartzite core tool (9.5 x 5.7 x 2.4-cm).

Updated site measurements are 96-m east/west by 35-m north/south.
4. Field Results

Test Excavations:

One test unit (TU-1), four shovel test pits (STP-1 through STP-4), and two shovel scrapes (SC-1 and SC-2) were excavated. Soil conditions are uniform across the site. These consist of a brown (10YR 5/3) loamy sand A Horizon with no ped structure, ~10-15 percent subangular to rounded gravels, minimal rock content, and high bulk density.

TU-1 was excavated to a maximum depth of 30-cmbd with no cultural materials present.

STP-1, STP-3 and STP-4 were excavated to 40-cmbd, while STP-2 was excavated to a depth of 60-cmbd. No cultural materials were recovered from any of the STPs.

Both shovel scrapes similarly lacked any cultural materials.

Results:

Site CA-LAN-3252 is a low density surface lithic scatter/quarry workshop. It lacks a subsurface archaeological deposit and its age is unknown.

4.2.20 CA-LAN-3253

CA-LAN-3253 was originally recorded by W & S Consultants in 2001 as a low density cobble quarry/workshop associated with a small cobble concentration. The site is located approximately 340-m northeast of the paved two-lane National Cement access road on a narrow east/west trending ridgeline. Soil on site consists of a loamy sand with dispersed igneous and quartzite rocks. Vegetation includes a moderate cover of annual grasses and rabbit brush.

Surface Collection:

Two surface artifacts were identified, labeled A1 and A2, and collected from the site. A1 is a white piece of quartzite shatter measuring 6.5 x 3.4 x 2.6-cm and A2 is a red/gray igneous flake tool measuring 9.5 x 5.7 x 2.4-cm.

Updated site measurements are 30-m east/west by 11-m north/south.

Test Excavations:

One test unit (TU-1), four STPs (STP-1 through STP-4), and two shovel scrapes (SC-1 through SC-4) were placed at CA-LAN-3253. Soil conditions across the site are uniform. The A Horizon consists of brown (10YR 5/3) loamy sand with no ped structure, moderate to high bulk density, and ~5-10 percent subangular gravel. This extends to about 10-cmbd where a gradual contact yields a yellowish brown (10YR 5/6) B Horizon with a blocky ped structure, ~5-10 percent gravel content, and high bulk density.
4. Field Results

TU-1 was excavated to a maximum depth of 30-cmbd with no cultural material encountered.

STP-1 and STP-2 were excavated to 40-cmbs. STP-3 and STP-4 were excavated to 30-cmbs. No cultural materials were present in any of the STPs.

Both shovel scrapes lacked cultural material.

**Results:**

Site CA-LAN-3253 is a very low density surface lithic scatter, perhaps resulting from a single use of the site. It lacks a subsurface deposit and its age is unknown.
5. SUMMARY AND RECOMMENDATIONS

5.1 SUMMARY AND ANALYTICAL CONSIDERATIONS

Phase I survey of approximately 768-acres included a 728-acres addition to the Centennial project area, and approximately 40-acres off-site that may be required by the proposed project. Intensive on-foot examination of this acreage, all located at the extreme east end of the Specific Plan area on the open flats of the Antelope Valley, failed to result in the identification or recording of cultural resources of any kind.

Phase II test excavations and determinations of significance were completed on twenty previously recorded sites (Table 1), all of which are located east of the West Branch of the California Aqueduct, on low rolling hills and ridges. The artifacts from these sites were mapped, collected and analyzed. The recovered collections will be curated by the Tejon Indian Tribe.

Table 1. Site summary

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<tr>
<th>Site (CA-LAN-</th>
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</tr>
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<td>Quarry workshop</td>
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<td>3237</td>
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<td>3238</td>
<td>Quarry workshop</td>
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<tr>
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<td>Quarry workshop</td>
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<td>Campsite</td>
</tr>
<tr>
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</tr>
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<td>3253</td>
<td>Quarry workshop</td>
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</tbody>
</table>
5. Summary and Recommendations

Sites CA-LAN-3240 and -3242 have archaeological deposits that extend to about 20-cm depth. CA-LAN-3240 had the largest artifact assemblage recovered during this project, totaling 57 artifacts and archaeological indicators. These included five flake tools, used for small cutting and scraping tasks, 27 secondary and tertiary waste flakes, resulting from lithic tool manufacture and maintenance, and one core. The predominance of smaller (secondary and tertiary as opposed to larger primary) waste flakes, the limited number of cores, and the absence of angular shatter indicate that quarrying and primary lithic reduction were not significant activities at this site. Although it could not be relocated in 2015, a metate was present when this site was originally recorded, indicating that some amount of plant processing also occurred at this location.

Lithic materials present at CA-LAN-3240 were diverse. Many of these are locally available, though not necessarily on the site per se, but one obsidian flake was recovered. The closest obsidian source to the Project area is in the Coso Mountains, roughly 130 miles to the northeast, making this the most likely source for this material and, in any case, indicating that the site’s occupants were involved in some degree of long-distance trade.

No temporal diagnostics were recovered from the site. The Coso obsidian trade in this portion of California primarily occurred between about 4000 to 800 YBP, or mostly during the Middle Horizon, however. This suggests (but does not prove) that this site may be 800 years or more old. The low subsurface artifact density of this site, regardless of its age, suggests occasional but non-intensive occupation, probably by a small group (such as a single family). The site can be interpreted as a dispersal phase campsite based on this fact, most likely associated with the spring exploitation of locally available plant resources.

The second campsite, CA-LAN-3242, had a small artifact assemblage, limited to 10 specimens. These included two cores, five secondary and tertiary flakes, two pieces of angular shatter, and three core/cobble complex tools. Despite the limited size of this assemblage, it contains a high diversity of kinds of artifacts relative to many of the other sites. The cores and angular shatter are indicative of quarrying and primary lithic reduction whereas three obsidian tertiary flakes are more characteristic of tool maintenance, found at occupation sites. This suggests that the site served as a campsite, with the subsurface deposition of lithic materials resulting from the site’s location, at the toeslope of a ridge, providing a natural upslope source for soil deposition.

As noted above in reference to CA-LAN-3240, the presence of obsidian at CA-LAN-3242 is indicative of long distance trade, and suggests that the site may have been occupied sometime between roughly 4000 and 800 YBP.

Site CA-LAN-3241, in contrast, lacked a subsurface deposit and had a small artifact assemblage limited to 13 specimens. This was predominated by groundstone, four examples of which represent 31% of the site assemblage. The remainder of the assemblage included three cores, one piece of angular shatter, three lithic flakes and two flake tools. The mix of primary lithic production (three cores, one primary flake, one angular shatter, or 38% of the
total) and groundstone (two metates and two manos) indicate lithic quarrying combined with plant processing. Given the proximity of the site to CA-LAN-3240, it is likely that CA-LAN-3241 served as an activity area associated with this larger site. The age of CA-LAN-3241, however, is unknown.

The assemblages from the 15 quarry workshops range from two to 23 artifacts in size, with an average of 7.6 specimens per site. These surface site assemblages for the 15 sites totaled 114 artifacts and archaeological indicators (Table 2). Fifty-four, or 47%, of these are cores; 39 (32%) are debitage; 15 (13%) are core/cobble complex tools; 4 (4%) are flaked stone tools; and two (2%) are groundstone. As these figures indicate, 86% of the recovered specimens resulted from lithic production of some kind, with the vast majority consisting of primary lithic reduction. A small quantity of other tools indicates that additional activities occurred at just under half of the sites, including plant foraging and processing. Overall, however, these other tasks appear ancillary to the exploitation of the cobble sources at these site locations.

Despite this fact, lithic exploitation and production at the sites appears to have been casual rather than systematic. It is unlikely that cobbles were assayed and the better examples were transported elsewhere for further reduction, based on excavations at habitation sites in the general region. Test excavations in the nearby Tehachapi Mountains, for example, indicate that quartzite and fine-grained volcanics (basalt and rhyolite) were rarely used lithic materials, accounting for only a few percent of the lithics at these sites (W&S Consultants 2005). Quartzite and fine-grained volcanics are more common at CA-LAN-3206, a small habitation site at the far west end of the Centennial Specific Plan area, but they still contribute less than one-quarter of the total (W&S Consultants 2007), yet these are the two most common materials in the assemblages from the 15 sites investigated in 2015.

None of these sites contained temporal diagnostics, and there ages are unknown.

The assemblage components of these 15 sites, however, compare favorably to the assemblages previously recovered from 14 surface quarry workshops in the Centennial Specific Plan area (W&S Consultants 2004, 2007; see Table 2). When the two data sets are combined, 38% of the total of 240 recovered archaeological specimens are cores, 37% are debitage, 20% are core/cobble complex tools, 3% are flaked stone tools, and <1% are groundstone. Three-fourths of the combined assemblages, in the aggregate, resulted from lithic production.

With the exception of a small number of obsidian specimens, suggesting that at least certain of these sites roughly pre-date AD 1200, none of this total of 29 sites contain chronological information, severely limiting any research conclusions that may be derived from them. That said, they are indicative of a sporadic and low intensity prehistoric use of the Centennial area, though the absence of information about when this occurred limits the scientific value of these sites.
## Table 2. Site Artifact Types and Counts

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<tr>
<th>Site CA-LAN-</th>
<th>N</th>
<th>Cores</th>
<th>Debitage* N</th>
<th>Core/cobble Tools</th>
<th>Flake Tools</th>
<th>Ground-stone</th>
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5. Summary and Recommendations

<table>
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<tr>
<th>Total</th>
<th>253</th>
<th>96</th>
<th>93 (37%)</th>
<th>49 (19%)</th>
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* Debitage - All flakes & angular shatter
* Material - Q = All quartzite; M = Mixture of materials

Percentages rounded off

5.2 RECOMMENDATIONS

Phase II test excavations and determinations of significance were completed at the locations of 20 previously recorded cultural resources within the Centennial Specific Plan area. Two of these locations, CA-LAN-3235 and -3249, both originally recorded as possible cairns, proved to be natural exposures of decomposing bedrock cobbles. Neither of these locations constitute cultural resources and they are thus determined not significant or CRHR-eligible.

Two cultural resources, designated CA-LAN-3240 and -3242, were determined to comprise small campsites with shallow subsurface archaeological deposits. These two prehistoric sites contain information that may be important in prehistory and, for this reason, they are recommended as significant, and potentially CRHR-eligible. It is recommended that both sites either be preserved in open space, or that potential adverse impacts to them be mitigated by Phase III data recovery.

The remaining sixteen sites are CA-LAN-3233, -3234, -3236, -3237, -3238, -3239, -3241, -3243, -3244, -3245, -3246, -3247, -3250, -3251, -3252 and -3253. All of these sites consisted solely of surface artifacts and archaeological indicators, without subsurface deposits. CA-LAN-3241 proved to be a small plant processing station and quarry workshop. The remaining 15 sites are all quarry workshops associated with natural cobble lens. None of these sites contained temporally diagnostic artifacts. Phase II test excavations resulted in the recovery of all archaeological specimens at these locations, thereby constituting scientifically consequential information from and about these resources. This has served to mitigate any potential adverse impacts that might result from development or use of these site locations. No additional archaeological work is recommended for these locations. It is recommended that an archaeologist be contacted in the unlikely event that archaeological resources are exposed during construction or grading at these site locations, however, to assess the nature and significance of the discovery.
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