# 12 Appendix C – Technical Memoranda

## 12.12 Class III Field Inventory

# A CLASS III FIELD INVENTORY
## *for the*
# PROPOSED EAGLE MOUNTAIN PUMPED STORAGE PROJECT, RIVERSIDE COUNTY, CALIFORNIA

*Prepared for:*

Eagle Crest Energy Company
One El Paseo West Building, Suite 204
74-199 El Paseo Drive
Palm Desert, California 92260

*Prepared by:*

Jerry Schaefer and Dave Iversen
ASM Affiliates, Inc.
2034 Corte del Nogal
Carlsbad, California 92011

PN 14011

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# MANAGEMENT SUMMARY

Eagle Crest Energy contracted ASM Affiliates, Inc. (ASM) to carry out a Class III field inventory for the proposed Eagle Mountain Pumped Storage Project Area of Potential Effects (APE) and a portion of a withdrawn alternative alignment in Riverside County, California. The proposed project consists of hydroelectric pumped storage that will provide system peaking capacity and electrical system regulating benefits to Southwestern electric utilities. ASM investigated 200-ft.-wide proposed and withdrawn alternative Transmission Lines and 60-ft.-wide preferred and alternative Water Lines, totaling approximately 33 linear miles, in addition to two proposed Interconnection Collection Substation locations, totaling 50 acres, and four potential Water Supply Well locations, for the Class III field inventory.

The project alignment crosses over previously recorded buried portions of the Colorado River Aqueduct (P-33-6726) and above ground portions of the Eagle Mountain Industrial Railroad. The Colorado River Aqueduct (P-33--6726) is evaluated as eligible for the National Register of Historic Places (NRHP), while the Eagle Mountain Industrial Railroad is not because of a lack of integrity. Nevertheless, the proposed project is expected to result in no impacts to these resources.

As a result of the survey, ASM recorded seven newly identified historic archaeological resources, including six historic sites and one historic-period isolate. Historic research and site integrity suggest that most of the newly identified historic sites and the historic isolate are not NRHP-eligible because they post-date World War II, represent road-side trash deposition associated with Desert Center, and have no historical or scientific values. The one significant site, P-33-17642, CA-RIV-9139 (Eagle Mountain 1), is in the withdrawn alternative transmission route and therefore outside the APE. It represents activity associated with military operations conducted during World War II as part of the Desert Training Center/California-Arizona Maneuver Area (DTC/C-AMA) under the command of General George S. Patton, and potentially related to an evacuation hospital complex servicing troop deployments throughout the training area. No treatment is recommended because it is located outside of the APE.

The one isolate is a 1914-1934-era California Highway boundary marker that although not NRHP-eligible is recommended to be avoided.

| | | |
|---|---|---|
| 1. Project Name. | A Class III Field Inventory for the Proposed Eagle Mountain Pumped Storage Project. | |
| 2. BLM State Permit Number. | CA-09-06, issued Nov. 8, 2008 | |
| 3. Field Authorization Number. | 66.24 09-07 | |
| 4. Dates of Field Survey. | March 17-25, 2009 | |
| 5. Total acreage of lands surveyed at BLM Class III level. | | 620 |
| Of Item 5 above: | | |
| | A) Acreage of BLM lands surveyed | 600 |
| | B) Acreage of other lands surveyed (Private, State, Other Federal) | 20 |
| 6. Total number of cultural properties in project Area of Potential Effect. | | 8 |
| Of Item 6 above: | | |
| | A) Total number of cultural properties for which site records were completed (newly recorded cultural properties). | 7 |
| | B) Number of new cultural properties on BLM lands | 7 |
| | C) Number of new cultural properties on other lands (Private, State, Other Federal) | 0 |
| 7. Of the cultural properties located within the Area of Potential Effect: | | |
| | A) Number of cultural properties that you are recommending as eligible for the National Register. | 0 |
| | B) Number of cultural properties you are a recommending as not eligible for the National Register. | 6 |
| Of Item 7A above: | | |
| | a) Number of cultural properties that can/will be avoided. | 7 |
| | b) Number of cultural properties that will be affected. | 0 |
| | c) Number of cultural properties that you are recommending data recovery/mitigation. | 0 |
| Of Item 7B above: | | |
| | a) Number of cultural properties that can/will be avoided. | N/A |
| | b) Number of cultural properties that will be affected. | N/A |

# 1. INTRODUCTION

The Eagle Mountain Energy Company proposes to develop the Eagle Mountain Pumped Storage Project, located near the towns of Eagle Mountain and Desert Center in Riverside County, California (Figure 1.1). The proposed project is a hydroelectric pumped storage project that will provide system peaking capacity and electrical system regulating benefits to Southwestern electric utilities. The project will use off-peak energy to pump water from the lower reservoir to the upper reservoir during periods of low electrical demand and generate on-peak energy by conveying water from the upper to the lower reservoir through the generating units during periods of high electrical demand. The upper and lower reservoirs will be formed from existing mining pits; however, two small dams will be required at the upper reservoir to create the proposed volume of energy storage. An important element of the project and the focus of this Class III field inventory is the 500 kV transmission line route that follows an alignment from the Eagle Mountain Mine through a pass to the east of Eagle Mountain Pumping Plant of the Colorado River Aqueduct, and south along the west side of Eagle Mountain Road to a point approximately 2 mi. north of Interstate 10. The route proceeds southeast from there to the Interconnection Collector Substation, located west of Desert Center. A now-withdrawn alternative transmission line route that was originally considered would have continued south along Eagle Mountain Road and then veered southwest to the alternative Network Connection Point. This alternative was withdrawn from consideration because of potential impacts to cultural resources associated with the evacuation hospital of the World War II Camp Desert Center. The survey results of these withdrawn elements are included in this report as they were included in the original BLM Fieldwork Authorization. The other principal project element is the water line that proceeds southeast from the Eagle Mountain Mine and parallel to an existing transmission line and gas corridor to the vicinity of the Desert Center Airport where four proposed well locations are under consideration.

ASM surveyed the Proposed and withdrawn Alternative Transmission Lines, Preferred and Alternative Water Lines, the Proposed and withdrawn Interconnection Collection Substation locations, and four potential Water Supply Well locations for the current Class III field inventory (Figure 1.2). Potions of the project on private Kaiser property could not be surveyed. The preferred 500 kV line that was surveyed is approximately 13.5 mi. long and 200 ft. wide, while the alternative line adds an additional 6 mi. of examined route. Each of the Interconnection Collector Substation areas covers 25 acres. The eastern substation is the preferred one for the reasons stated above. The water line routes extend for approximately 13.5 mi. and are 60 ft. wide. A total of approximately 620 acres was surveyed. Again, although ASM surveyed the original alternative routes for the current investigation, the project proponent is not considering these alternative alignments, and they are not currently a part of the proposed Eagle Mountain Pumped Storage Project. ASM conducted archaeological survey of the project area utilizing 15-m-interval pedestrian transects. The primary goal of the survey was to identify, record, and inventory all cultural resources, prehistoric and historic, through full-coverage survey, and to identify any resources that may be eligible for the National Register of Historic Places (NRHP). These results provide data in support of the Federal

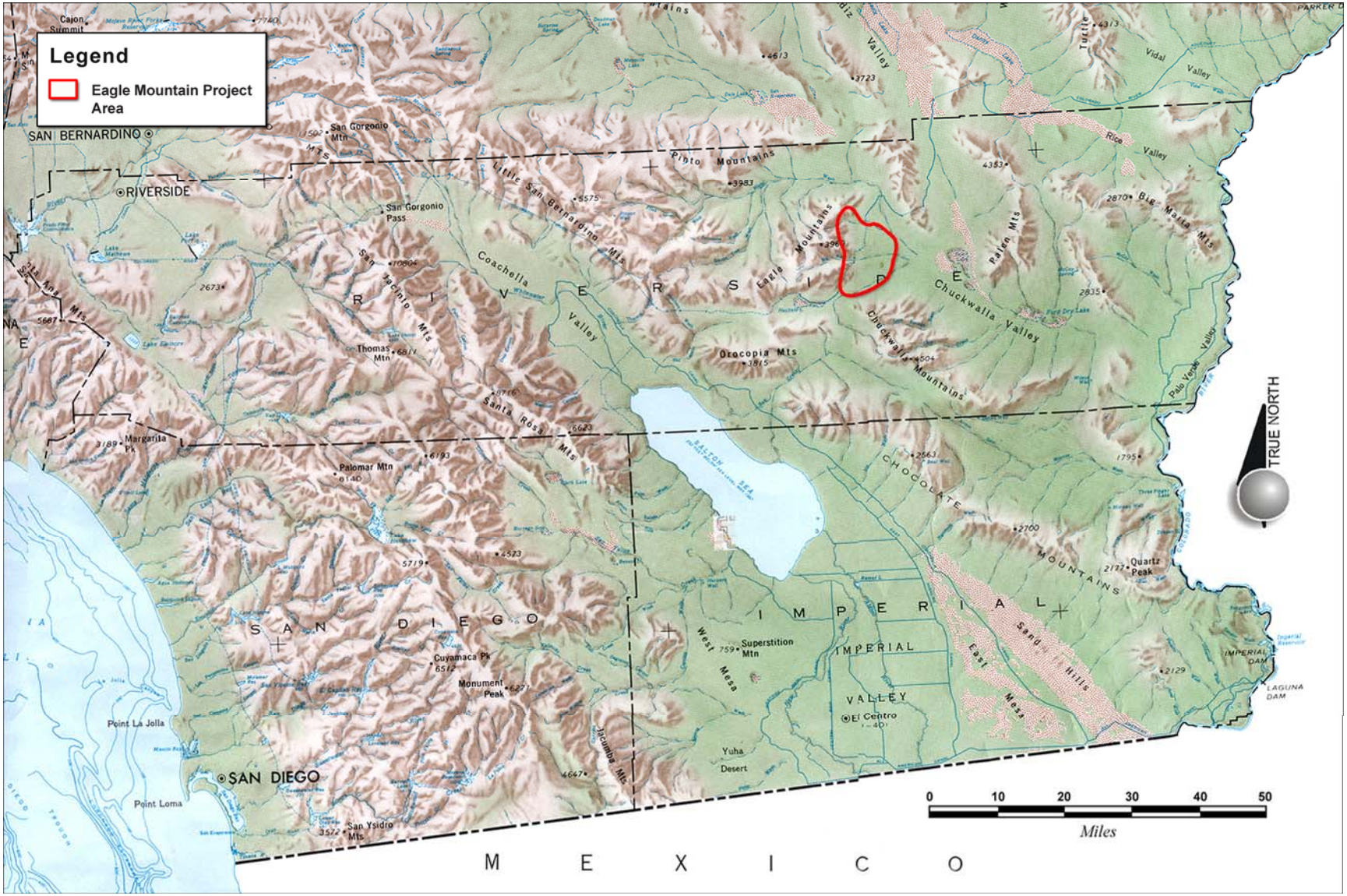


Figure 1.1 Eagle Mountain Pumped Storage Project vicinity.

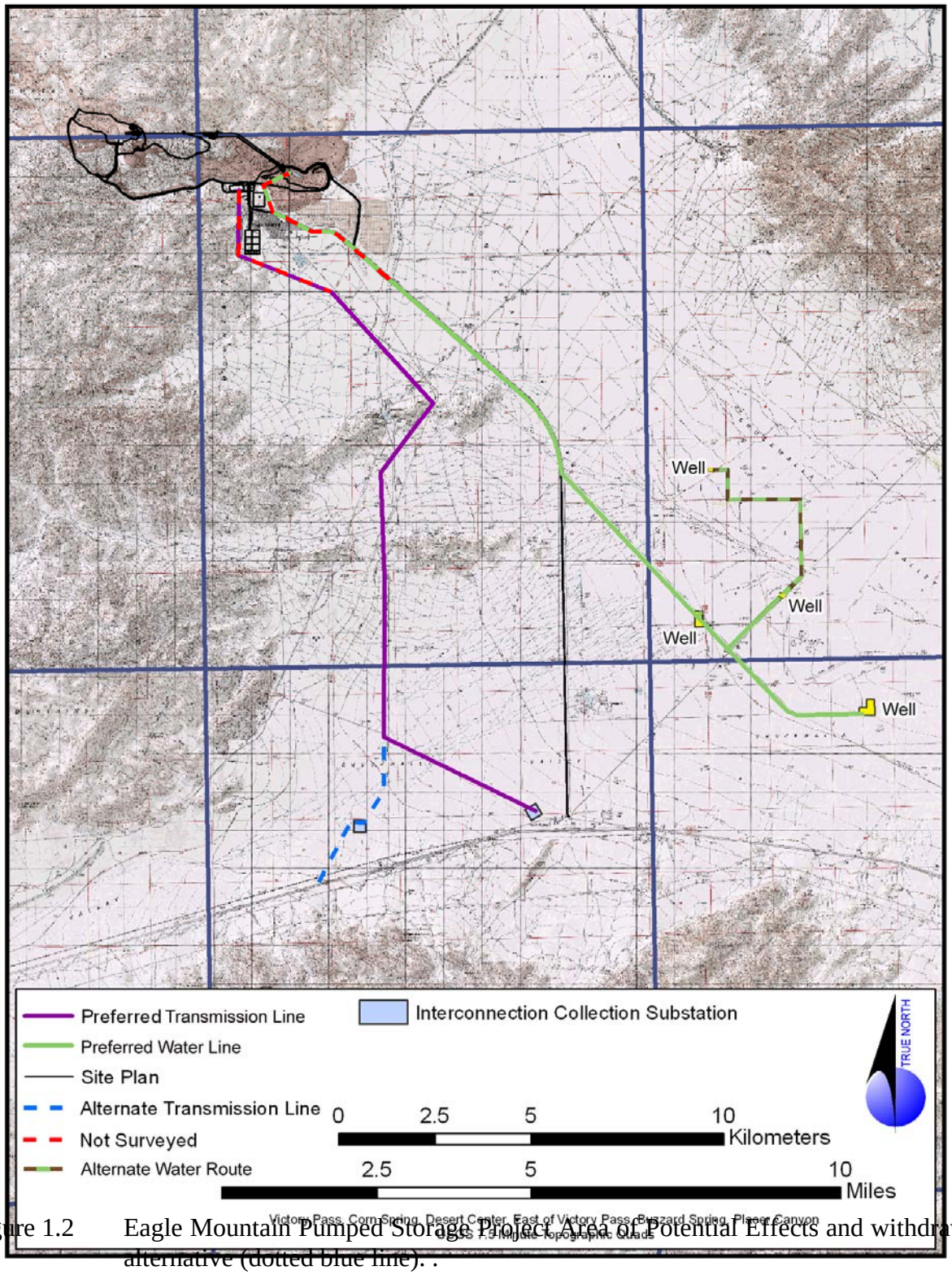


Figure 1.2 Eagle Mountain Pumped Storage Project Area of Potential Effects and withdrawn alternative (dotted blue line). .

Energy Regulatory Commission (FERC) and the BLM compliance obligations for compliance with Section 106 of the National Historic Preservation Act (36 CFR 800; 16 U.S.C. 470(f); 16 CFR 4.41; 64 CFR 26618.380.14).

The following ASM personnel participated in the project: Project Manager John R. Cook, Principal Investigator Dr. Jerry Schaefer, Senior Archaeologist Dave Iversen, and Assistant Archaeologists Michael Taylor, Doug Mengers, and Tom Sowles. ASM Associate Archaeologist Michelle Dalope conducted GIS mapping. Desktop Publisher Marcia Sandusky, and Graphic Designers Zee Malas and Ty Belcher carried out document production. ASM conducted fieldwork from March 17 to 25, 2009.

This report is divided into five chapters. Chapter 1 provides the introduction to the report. Chapter 2 describes the environmental and archaeological context of region and reviews environment, paleoecological reconstruction, cultural history, and previous archaeological research. Chapter 3 defines the survey design and methods. Chapter 4 presents the survey findings. Chapter 5 provides a summary and management recommendations. Confidential California State Department of Parks and Recreation (DPR 523) site forms and Figure 4.1 showing site locations are included as Appendix A to this report under separate cover.

# 2. ENVIRONMENTAL AND CULTURAL CONTEXT

The following discussion draws substantially upon the background information for a previous Class I report on the project (Schaefer 2009) plus additional information relevant to the resources discovered during the Class III survey.

This chapter describes the natural and cultural setting of the project area. The project traverses the north-central margin of the Colorado Desert, centering on the Chuckwalla Valley and northeastern Eagle Mountains. This region has a long cultural history extending back more than 10,000 years. The affiliation of a particular Native American group with Chuckwalla Valley is somewhat uncertain (Heizer 1978); ethnographic and historic evidence suggests possible links with three distinct groups: the Halchidhoma, Desert Cahuilla, and Chemehuevi. Since the Euro-American occupation of the region, the cultural landscape has been altered by a variety of land uses relating to travel, settlement, mining, water reclamation, and military preparedness.

Throughout the cultural history of the Colorado Desert, human activities have been closely tied to the distribution of natural resources and other aspects of the natural setting. Water, vegetation communities, animal habitat, and lithic raw material were not evenly distributed across the landscape. Prehistoric archaeological evidence is therefore also likely to be nonrandomly distributed, as the prehistoric hunter-gatherers keyed onto these critical resources during their seasonal rounds. Both short-term and long-term climatic fluctuations almost certainly also affected the intensity of land use over time. The natural topography influenced the location of trails and other land use patterns. Dynamic forces of erosion and of alluvial and eolian deposition also determined the preservation, integrity, and visibility of archaeological sites.

## NATURAL SETTING

The project area is located on the northern margin of the Colorado Desert Region area, which in turn is a northwestern subregion within the more widespread Sonoran Desert. This area typically consists of a series of northwest-to-southeast trending mountain ranges interspaced with basins filled with alluvial or lacustrine sediments. Elevations along the project corridor range from more than 1,600 ft. above mean sea level (amsl) in the northwest, on the eastern margin of Eagle Mountains, to 345 ft. amsl at the eastern extreme.

Few areas of North America are hotter or dryer than the Colorado Desert. Modern climatic conditions provide for dry, mild winters and dry, hot summers. Mean winter lows of 44º F and a mean summer highs of 104º F are typical, with record highs of 120º F. Rainfall data from Indio between 1877 and 1987 record an annual average of 5.54 in., with extremes between 0.18 and 11.50 in. annually. Violent summer storms are not unusual, but most precipitation falls in mid-winter. The Colorado River was the most reliable and abundant source of water in the region, supplemented by a few widely dispersed springs elsewhere. Water sources are extremely scarce through the Chuckwalla Valley, but several springs are widely dispersed in the mountains to the north and south, outside the project area. They include, from west to east, Lost Palms Oasis, Hayfield Springs, Corn Springs, and McCoy Springs. Such water sources were foci of prehistoric

activities. Dry lakes (playas) and pans represent more ephemeral water sources used during periods of relatively greater rainfall or especially wet winters. They include Palen Lake and Ford Dry Lake.

## Geomorphology and Geology

The project area owes many of its characteristic features to its location adjacent to the Salton Rift. This distinct physiographic feature consists of a massive graben created at an interface of the North American and Pacific tectonic plates. The San Andreas Fault and the Transverse Ranges are prominent geomorphic features marking this plate boundary. The mountain ranges and alluvial basins farther north and east are more characteristic of the Basin and Range Province, formed by crustal extension.

The Eagle Mountains are composed primarily of Precambrian igneous and metamorphic rocks, Mesozoic granitic rocks, and Pleistocene nonmarine sediments (*see* Figure 3.3.1-1 in the Environmental Impact Report)– lithologies of only limited usefulness to the region's prehistoric inhabitants, although Euro-American miners subsequently exploited them (Jennings 1967). Other ranges framing the project area include the Coxcomb, Palen, and McCoy mountains to the north of Chuckwalla Valley and the Chuckwalla, Little Chuckwalla, and Mule mountains to the south, adding pre-Cretaceous metasediments to the mix of lithologies. The project area proper runs almost exclusively through areas of Quaternary alluvium, lake deposits, and dune sand. Very active geomorphic processes of erosion and deposition along this route may have been responsible for poor preservation or visibility of archaeological sites.

One geological deposit in the Chuckwalla Valley – Alligator Rock – was the focus of extensive prehistoric lithic procurement activities. Located just southwest of Desert Center, Alligator Rock is a prominent ridge containing dikes of aplite, a relatively fine-grained plutonic rock composed of quartz and alkali feldspar. Thousands of years of procurement of aplite as a lithic raw material have resulted in a substantial quarry site complex that extends over a 1-mi.$^2$ area. The quarry site complex is listed on the NRHP as the North Chuckwalla Mountain Quarry District. The other major sources of prehistoric tool stone were the many pebble-covered desert pavements of fine-grained cryptocrystalline silica rock along the Colorado River Valley.

## Vegetation

The project route crosses two main vegetation communities: creosote bush scrub and desert microphyll woodland (Carrico et al. 1982). The creosote bush scrub community ranges from non-alkaline alluvial flats to rocky slopes. Characteristic species include creosote (*Larrea tridentata*) and white bursage or burrobush (*Ambrosia dumosa*). Well-drained alluvial slopes also support brittlebush (*Encelia farinosa*) and desert trumpet (*Eriogonum inflatum*). Annual grasses that occur throughout this community were primary food resources for prehistoric Native Americans.

The desert microphyll woodland community occurs in drainages descending from the mountains on either side of Chuckwalla Valley. Characteristic trees include catclaw (*Acacia gregii*), palo verde (*Cercidium floridum*), desert willow (*Chiopsis lindearis*), smoke tree (*Dalea spinosa*), and ironwood (*Olneya tesota*). Shrub species include sweetbush (*Bebbia juncea*), cheese bush

(*Hymenoclea salsola*), desert dandelion (*Malacothrix glabrata*), desert lupine (*Lupinus sparsiflorus*), desert marigold (*Baileya multiradiata*), and desert lavender (*Hyptis emoryi*). Native Americans harvested catclaw and palo verde bean pods in late spring and early summer to pound them into a nutritious meal. Willow bark fiber was made into cordage, skirts, breechcloths, and other objects, while firewood and construction materials were available from all the trees (Bean and Saubel 1972).

### Vertebrate Fauna

Mammals with the greatest economic importance to Colorado Desert peoples included desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), several rodent species, mule deer (*Odocoileus hemionus*), and Nelson's bighorn sheep (*Ovis canadensis nelsoni*). Predators that are known to occur in the area include mountain lion (*Felis concolor*), badger (*Taxidea taxus*), kit fox (*Vulpes macrotis*), and bobcat (*Felis rufus*). Desert cottontail is most abundant in sand dune areas such as those found in the eastern Chuckwalla Valley. Black-tailed jackrabbits have a more widespread distribution on desert floors, floodplains, washes, and rocky slopes. Mule deer were most likely to be encountered in desert washes, while the elusive bighorn sheep could be ambushed at desert tanks or oases when they came down from the mountain slopes to get water (Jaeger 1965; Ryan 1968).

Wild game played a less significant role in the diet of ethnohistoric Colorado River peoples than for the desert groups, but it may have had more importance in earlier times, prior to the introduction of horticulture. A wide variety of fish, reptiles, birds, and mammals are found along the Colorado River and its adjacent deserts, and many species had economic importance to the Colorado River peoples (Castetter and Bell 1951). Fish were the most important source of animal protein and included razorback sucker (*Xyrauchen texanus*), bonytail chub (*Gila elegans*), striped mullet (*Mugil cephalus*), various minnows (Cyprinidae), and machete (*Elops affinis*). Some of these species are now extinct on the lower Colorado River, having been replaced by introduced species such as catfish (Gobalet 1994; McGinnis 1984). Many species of raptors, wading birds, songbirds, and migratory waterfowl inhabited the riparian margins of the Colorado River. Raptors had ceremonial uses, while migratory birds and their eggs were exploited for food. Bird species included bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), osprey (*Pandion haliaetus*), Wilson's warbler (*Wilsonia pusillus*), American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), great blue heron (*Ardea herodias*), and clapper rail (*Rallus longirostris*).

## PALEOENVIRONMENTS

Evidence of prehistoric environmental conditions in the study region is very limited. Pollen-bearing stratified deposits from caves or lake beds are not as common in the Colorado Desert as they are in the Great Basin, where most of the desert climatic reconstructions are based. Evidence indicates that while early Holocene conditions were wetter and cooler than at present, permitting greater use of the study area and especially around the boundaries of Palen Lake and Ford Dry Lake. Generally modern desert conditions were already in existence by the end of the early Holocene period, with periods of more extensive drought in the Late Holocene (Thompson 1984).

Paleoclimatic reconstructions, based on pack rat (*Neotoma* sp.) midden analyses, indicate that at elevations below 1,000 ft. there has been little climatic change along the Lower Colorado and Gila rivers over the last 13,000 years (Van Devender 1990). The region may have been a refugium for Lower Sonoran creosote scrub habitat during the Pleistocene period (Cole 1986). At higher elevations in the mountains, pack rat midden analyses indicate the presence of a juniper woodland habitat in the Late Pleistocene, between 20,000 and 9,000 B.C. These xeric woodlands continued through the early Holocene between 9,000 and 6,000 B.C., before finally retreating to higher elevations during the Middle Holocene and being replaced with the current creosote scrub and desert riparian habitat (King and Van Devender 1977; Van Devender and Spaulding 1983). The last century has seen some of the hottest and driest conditions in at least the last 400 years (Hastings and Turner 1965:188).

Based on current information, the climatic history of the general region may be summarized as follows (Van Devender and Spaulding 1983):

- Late Pleistocene (20,000 to 9,000 B.C.): Cooler and wetter conditions supported pinyon-juniper woodlands, extensive deep lakes, and savannah grasslands or creosote scrub at low elevations.
- Early Holocene (9,000 to 6,000 B.C.): Gradual warming and drying conditions resulted in the shrinking of lakes and replacement of woodlands by creosote scrub communities at lower levels.
- Middle to Late Holocene (6,000 B.C. to present): Warm and dry conditions continued, dominated by summer monsoons in the desert Southwest and winter storms along the Pacific Coast. Lakes in low-lying basins completely dried up or became ephemeral in nature. Local fluctuations in temperature and aridity may have produced ecological variations of no greater magnitude than those known from historic records. Droughts may have been more frequent and severe during the period between 5,000 and 2500 B.C.

# CULTURAL SETTING

This section provides the background of the prehistoric cultural setting and of later historic occupation in the project vicinity and reviews previous archaeological work performed in the region.

## History of Research

An outline of Colorado Desert culture history has been generally accepted by the archaeological community, but not without the realization that it is a tentative construct, with many details that are still unknown or not well understood. Ironically, the problem is most acute along the lower Colorado River itself, where late prehistoric and ethnohistoric period occupations were most intense. Most of the major aboriginal occupation sites were on the lower terraces of the Colorado River, but none of these have been investigated, evidently because they are buried beneath many

feet of alluvial deposits, have been destroyed by agricultural development, or are now obscured by impenetrable stands of tamarisk and reeds.

The culture history for the region is based on the pioneering work of Malcolm J. Rogers in many parts of the Colorado Desert, primarily carried out during the 1920s and 1930s (Rogers 1939, 1945, 1966). Since then, several overviews and syntheses have been prepared, and each succeeding effort had been able to draw upon previous studies and add new data and interpretations. Rogers established the first systematic culture history and artifact typologies of the Colorado Desert. His investigations of San Dieguito and Archaic flaked stone tools and settlement patterns (Rogers 1929, 1939, 1958, 1966) and of Yuman ceramics and culture history (Rogers 1936, 1945) remain a foundation for current archaeological research in the area.

Most research during the last 25 years has been sponsored or mandated by government agencies for compliance with state and federal laws. Independent research has also been conducted for academic theses and dissertations and by local institutions such as Imperial Valley College and University of California, Riverside. Of particular note is the corpus of federal agency overviews and management plans that identified cultural contexts, research domains, and management issues for most of the Colorado Desert.

Margaret Weide and Pat Barker prepared one of the earliest syntheses of information on the Yuha Desert in southwestern Imperial County for the BLM (see Wilke 1978). This study included discussions relevant to the culture history of the Colorado Desert as a whole, including the Colorado River Valley (Weide 1974). An updated synthesis addressing the Colorado Desert Planning Units was prepared by Elizabeth von Till Warren and her collaborators (1981). This is a particularly succinct and useful review of information on environments, prehistory, and ethnography, although a bit out of date.

For southwestern Arizona, Randall H. McGuire and Michael B. Schiffer (1982) reviewed over 50 previous research projects and prepared cultural syntheses that are also applicable to southern California. One of the most valuable contributions in that volume is Michael R. Waters' (1982a, 1982b) study of Patayan ceramics, based largely on the unpublished notes and field collections of Rogers. More recently, Jerry Schaefer (1994a) updated and corrected Waters' discussion of the time ranges and spatial distribution of various Patayan ceramic types, based on a review of recent excavations in the Colorado Desert.

At present, the earliest sites in the vicinity of the project area date to the early-middle Archaic period (5,000-3,000 B.C.), as represented by the lithic complex in the Pinto Basin of Joshua Tree National Park (Campbell and Campbell 1935) and at ephemeral pans such as the ones found within the Chuckwalla Valley. Absolute dates for this period remain problematical (Schroth 1994; Warren 1984).

For the lower Colorado River Valley, Jeannne Swarthout and Christopher E. Drover (Swarthout 1981a, 1981b, 1981c; Swarthout and Drover 1981) prepared detailed overviews that divided the river into four reaches: from Lee's Ferry to Grand Wash Cliffs, from Grand Wash Cliffs to Davis Dam, from Davis Dam to the International Border, and the Lower Virgin River. These studies emphasized the limitations of previous work because of inconsistent site records and a lack of

stratified sites. However, they did provide a careful review of the environment and culture history, as well as presenting proposals for future research. The study of Reach 3, from Davis Dam to the International Border (Swarthout and Drover 1981), is most applicable to the study area and one of the best in the series. Two ethnographically based settlement models were presented, one for the Mohave in Mohave Valley and the other for the Halchidhoma and Quechan on the Colorado River. Although the lack of preserved sites on the valley floor makes it difficult to test Swarthout and Drover's models, related test implications can be developed for the temporary camps and resource extraction sites in the deserts away from the river.

A more recent overview of the lower Colorado River by Connie L. Stone (1991) extended the history of research and review of current research issues. Stone identified major cultural resource types, from rock rings to rockshelters, and provided summary statements of their potential research values and applicable investigative procedures. She also provided valuable maps of major intaglio and rock art sites, trail systems, and generalized prehistoric land use. Finally, Stone updated the discussion of management issues.

Statistical Research has been engaged in a series of surveys along the lower Gila and Colorado rivers. One aspect of these studies was the documentation of milling implement quarries, the closest of which is at Palo Verde Point (Schneider 1994). Of particular interest are the many geoglyph and rock art sites that Jeffrey H. Altschul and Joseph A. Ezzo interpreted as part of a ceremonial complex involving the entire Lower Colorado River region. A symposium highlighted the cultural significance of these sites for the Yuman tribes of the Colorado River and the productive results that can be derived from uniting Native American perspectives and scientific archaeological interpretation (Ezzo 1994; Ezzo and Altschul 1993).

Schaefer (1994b) proposed additional research issues that linked the treatment of archaeological sites in the desert and river valley zones. In another article, he summarized and critiqued recent data recovery projects in the Colorado Desert with an emphasis on understanding the chronology of Lake Cahuilla, settlement patterns, and the problems of interpreting sites on desert pavements (Schaefer 1994c). Most recently, Schaefer and Don Laylander (2007) offered a synthesis of work on Colorado Desert prehistory over the last 20 years.

## Cultural Periods and Patterns

Five successive periods, each with distinctive cultural patterns, may be suggested for the Colorado Desert, extending back over a period of at least 12,000 years. They include (1) Early Man (Malpais); (2) Paleoindian (San Dieguito); (3) Archaic (Pinto and Amargosa); (4) Late Prehistoric (Patayan); (5) Historic (Ethnohistoric and Euro-American).

### Early Man Period (Malpais Pattern) (50,000-10,000 years B.C.)

A complex of archaeological remains that has been hypothesized by some scholars to date between 50,000 to 10,000 B.C. represents the Malpais Pattern (Begole 1973, 1976; Davis et al. 1980; Hayden 1976). Rogers (1939, 1966) originally used the term for cleared circles, tools, and rock alignments that appeared to be ancient and that he later classified as San Dieguito I. Malpais has continued to be applied to heavily varnished choppers and scrapers found on desert pavements of the Colorado, Mojave, and Sonoran deserts that are believed to predate the

Paleoindian period of projectile point use. Although few would reject most of the items as being culturally produced artifacts and features, the methods used to date them are highly subjective and have been assailed on many grounds (McGuire and Schiffer 1982:160-164). Arguments in favor of early occupations in the Colorado Desert have been further eroded by the redating of the Yuha Man burial. Originally dated as over 20,000 years old on the basis of radiocarbon analysis of caliche deposits, more reliable dates of actual human bone fragments based on the accelerator mass spectrometer (AMS) radiocarbon method now place the burial at only about 5,000 years B.C. (Taylor et al. 1985).

**Paleoindian Period (San Dieguito Pattern) (10,000-6,000 years B.C.)**

Most of the aceramic lithic assemblages, rock features, and cleared circles in the Colorado Desert have been assigned to the San Dieguito pattern. Rogers first defined the pattern on the basis of surface surveys in western San Diego County, but he later refined his understanding of the pattern with at excavations at the C. W. Harris site, a few miles up the San Dieguito River from the Pacific coast (Rogers 1939, 1966). Rogers saw three phases of the San Dieguito pattern in its Central Aspect (which included the Colorado and Mojave deserts and the western Great Basin), and hypothesized that each successive phase was characterized by the addition of new, more sophisticated tool types to the preexisting tool kit.

Current understanding of the lithic technology of the San Dieguito pattern focuses on percussion-flaked cores and the resulting debitage, with little or no pressure flaking evident during the first two phases. Tools from San Dieguito I and II phases include bifacially and unifacially reduced choppers and chopping tools, concave-edge scrapers (spokeshaves), bilaterally notched pebbles, and scraper planes. Appearing in the San Dieguito II phase are finely made blades, smaller bifacial points, and a greater variety of scraper and chopper types. It appears that the San Dieguito III phase tool kit became appreciably more diverse with the introduction of fine pressure flaking. Tools include pressure-flaked blades, leaf-shaped projectile points, scraper planes, plano-convex scrapers, crescentics (which may have been amulets), and elongated bifacial knives (Rogers 1939, 1958, 1966; Warren 1967; Warren and True 1961). Various attempts have also been made to associate cleared circle features with the San Dieguito phases, but no convincing chronological scheme has yet emerged (Pendleton 1984).

Because of the largely surface character typical of desert sites and the scarcity of chronological indicators, it has been difficult to substantiate the validity of Rogers' phase designations as temporal indicators, that is, chronologically successive changes in the tool kit of a long-lived culture. Some of the variations may have developed contemporaneously, in response to ecological or aesthetic requirements. Subsequent excavations at the C. W. Harris site in coastal San Diego County also failed to confirm Rogers' original observation of a stratigraphic separation between San Dieguito II and III assemblages (Warren 1967:171-172). Indeed, without a stratified context to demonstrate succession, the distinctions may as likely be due to economic specialization at a specific site or to sampling error, rather than to technological change through time. Rogers (1966:39) also identified different settlement patterns for each phase, but Sheila J. Vaughan (1982:6-11) argued that these distinctions were inadequately defined and inconsistently applied.

The San Dieguito pattern, as reconstructed from assemblage characteristics and site associations, represented a hunter-gatherer adaptation by which small, mobile bands exploited small and large game and collected seasonally available wild plants. The absence or scarcity of milling tools in San Dieguito assemblages has been seen as reflecting a lack of hard nuts and seeds in the diet, as well as being a cultural marker separating the San Dieguito culture from the later Desert Archaic culture (Moratto 1984; Rogers 1966; Warren 1967). However, manos and portable metates are now increasingly recognized at coastal sites that have been radiocarbon-dated to earlier than 6,000 B.C. Arguments have also been made for the presence of a well-developed early grinding tool assemblage, based on finds from the Trans-Pecos area of Texas (Ezell 1984). In regard to the Colorado Desert, Lorann Pendleton (1984:68-74) noted that most ethnographically documented pounding equipment for processing hard seeds and wild mesquite and screwbeans was made out of wood and would not have been preserved at open archaeological sites.

Site distributions indicate some of the basic elements of the San Dieguito settlement system. The sites may be located on any flat area, but the largest aggregations occur on mesas and terraces overlooking large washes or the margins of lakes. These are areas where a variety of plant and animal resources were located and where water was at least seasonally available. Pendleton (1984) made a strong case, based on an ethnographic analogy with the Colorado River Yumans, that San Dieguito occupation in the eastern Colorado Desert would have been focused on the river floodplain. She tested her model with the large array of data from Picacho Basin and argued that desert areas away from the river were used only to a limited degree, to take advantage of special resources within the foraging radius of logistically organized collecting groups.

### Archaic Period (Pinto and Amargosa Patterns) (6,000 B.C.-A.D. 500)

The Pinto and Amargosa patterns are considered regional specializations within the widespread hunting-gathering adaptations that characterized the Archaic period (Campbell and Campbell 1935). Pinto and Amargosa sites occur more frequently in the Great Basin, Mojave Desert, and Sonoran Desert east of the Colorado River than in the Colorado Desert, where few Pinto or Amargosa (i.e., Elko series) projectile points have been identified on the desert pavements. It has been suggested that the California deserts were inhospitable during the Archaic period, particularly during the so-called Altithermal phase between 5,000 and 2,000 B.C., and that the mobile hunter-gatherers were forced to concentrate around limited locations or move to more habitable regions (Crabtree 1981; Schaefer 1994c; Weide 1974).

Some late Archaic sites have been identified along the boundary between the low desert and the Peninsular Ranges and at favored habitats at springs and tanks. The most substantial site from this period documented in the Colorado Desert is Indian Hill Rockshelter in Anza-Borrego Desert State Park, where 1.5 meters (m) of Archaic period cultural deposits were excavated below a late prehistoric component (McDonald 1992). Most significant were 11 rock-lined cache pits and numerous hearths, indicative of either a residential base or a temporary camp in which food storage was integral to the settlement-subsistence strategy. Also recovered were numerous Elko Eared dart points, flaked stone and milling tools, and three inhumations, one of which was radiocarbon dated to 4,070±100 years before present (B.P.) Two similar rock-lined pits were excavated at a small rockshelter in Tahquitz Canyon near Palm Springs (Bean et al. 1995). The small quantity of artifacts at the latter site suggested strategically stored food and seed processing equipment that was used by small mobile groups. More recently, a late Archaic period campsite

was also identified in 8-m deep dune deposits adjacent to the north shoreline of Lake Cahuilla (Love 1996). Other Archaic sites have been recently discovered in interlacustral deposits on the bed of Lake Cahuilla in the northern Coachella Valley and also the first substantial habitation site from this period has been found near Desert Hot Springs (Schaefer and Laylander 2007). Radiocarbon dates of almost 3,000 years B.P. and associated bird and fish bone confirm a late-Archaic-period Lake Cahuilla occupational horizon. Additional Archaic sites fairly certainly are still to be discovered, buried under alluvial fans and wash deposits, sand dunes, Lake Cahuilla sediments, or Colorado River valley alluvium.

### Late Prehistoric Period (Patayan Pattern) (A.D. 500-1900)

Major innovations during this period included the introduction of pottery making by the paddle-and-anvil technique and bow-and-arrow technology, perhaps around A.D. 800, and the introduction of floodplain agriculture at about the same time (Rogers 1945). Exact dating of early domesticates is lacking (Schroeder 1979). Agriculture and ceramics were probably introduced either from northwestern Mexico or from the Hohokam culture on the Gila River (McGuire and Schiffer 1982; Rogers 1945; Schroeder 1975, 1979).

Between A.D. 1,000 and 1700, desert peoples of this region appear to have extended their focus somewhat away from the Colorado River floodplains to a more mobile, diversified resource procurement pattern, with increased travel between the river and Lake Cahuilla to the west (Pendleton 1984). Long-range travel to special resource collecting zones and ceremonial locales, trading expeditions, and possibly warfare are reflected by the numerous trail systems seen throughout the Colorado Desert. Pot drops, trailside shrines, and other evidence of transitory activities are often associated with these trails (McCarthy 1982, 1993).
Several local varieties of pottery appeared during the Late Prehistoric period (Waters 1982a, 1982b). Many of the pictographs, petroglyphs, and bedrock grinding features in the Colorado Desert have also been associated with the Patayan pattern, although it is difficult to date such features directly or to determine their cultural affiliations. During this period, and possibly also in the preceding Archaic period, specific volcanic and sandstone rock outcrops along the Colorado and Gila rivers were exploited for the manufacture of stone pestles and portable milling slabs (Schneider 1993, 1994). With the completion of the final recession of Lake Cahuilla around A.D. 1700, the Patayan III phase emerged, apparently including a return to reliance on the Colorado River floodplain as well as some floodplain agriculture along the New and Alamo rivers in Imperial Valley, where mixed horticultural/hunter-gatherer economies were practiced.

### Historic Period (Native American Ethnohistoric and Euro-American Patterns) (post A.D. 1540)

The ensuing sections describe the ethnohistoric and historic occupation of the project vicinity. The discussion includes brief accounts of the Colorado River People, the Desert Cahuilla, and the Chemehuevi, and concludes with a description of Euro-American land use patterns pertaining to the project area.

### Colorado River People

The Halchidhoma were a Yuman-speaking group who lived along the Palo Verde Valley of the lower Colorado River Valley, in the vicinity of modern Parker and Blythe. Although somewhat distant from the project area, they are likely to have traveled between their homeland and the

Coachella Valley via the Chuckwalla Valley. In the early seventeenth century, they were living on the lower Colorado River below its junction with the Gila River, but in the eighteenth century they were reported in the area around Blythe. During the early nineteenth century, conflicts with their River Yuman neighbors, the Quechan and the Mohave, forced the Halchidhoma to move east to the middle Gila River, where they merged socially and culturally with the Maricopa. Because of these historical circumstances, traditional Halchidhoma culture is less well known than that of other River Yuman groups (Harwell and Kelly 1983; Spier 1933). However, studies of the other groups shed light on Halchidhoma lifeways (Bee 1981, 1983, 1989; Castetter and Bell 1951; Forbes 1965; Forde 1931; Knack 1981; Kroeber 1925; Pendleton 1984; Stewart 1983; Woods 1982).

Spanish explorers made the first historic accounts of the native inhabitants of the lower Colorado River. The first professional anthropological account was by Alfred L. Kroeber (1920, 1925), who conducted extensive fieldwork, particularly among the Mohave in the Needles area, between 1900 and 1910. Because the River Yumans were generally so successful in keeping Spanish missionaries out of their territory and because of their relative spatial and cultural isolation from Euro-Americans for a long period, the Colorado River Yumans maintained their languages, religion, and cultural practices to a much greater degree than most coastal California groups. Early ethnographers during the period between 1900 and 1950 were able to record a rich oral literature and reconstruct pre-contact lifeways to a considerable degree. However, many aspects of traditional technology, such as ceramics and the production of flaked and ground stone tools, had been lost due to the rapid adoption of Western material culture. A Yuman emphasis on spiritual concerns over material things and a preoccupation with warfare meant that a rich oral tradition of myths, epic stories, and battle narratives was still extant at the beginning of the twentieth century and continues down to the present.

The lower Colorado River area was characterized by shifting tribal territory and tribal boundaries throughout early historic times due to intensive inter-tribal warfare (Forbes 1965). When Hernando Alarcón sailed up the lower Colorado River in 1540, he described a condition of incessant warfare. During Juan de Oñate's 1605 expedition, he found the Halchidhoma living south of the Gila River confluence. In the area that included Palo Verde Valley, south of the ethnographically familiar Mohave, Oñate encountered a group labeled the Bahacecha, whose identification with any subsequently known ethnographic group is uncertain (Laylander 2004).

Almost a century passed until the Jesuit missionary Eusebio Francisco Kino's 1700 and 1701 visits to the juncture of the Gila and Colorado rivers. The Yuma crossing area was again visited by the 1774 and 1775-1776 Anza expeditions that brought settlers from Sonora to California. The Franciscan missionary Francisco Garcés left the second expedition at Yuma and explored the Colorado River as far north and east as the Hopi mesas. Garcés wrote one of the first detailed descriptions of the Halchidhoma, who at that period were found to have moved north between the Quechan and Mohave territories, from the Palo Verde Valley to the area just below Parker.

Spanish-Quechan interactions increased for a few years after the Anza expeditions, until two settlements with attached missions were established in 1780 near the confluence of the Colorado and Gila rivers. These efforts at Spanish colonization were motivated by the strategic important of the Colorado River crossing. However, conflicts between the settlers and the Quechan soon

led to an uprising and massacre of the Euro-Americans in 1781. Contacts between the River Yumans and outsiders were few and often hostile throughout the ensuing half-century.

It appears from historical accounts and Yuman oral histories that the Halchidhoma were in an almost constant state of war with the Quechan and Mohave. The Halchidhoma, in turn, established alliances with the Cocopa and Maricopa, among others, in their efforts to maintain their territory. Eventually the Halchidhoma could no longer withstand the two-front attacks from the north and south. They gradually moved off the river to join kindred River Yuman groups in Maricopa territory on the middle Gila River after a temporary stay in northern Sonora. By around 1825-1830, most Halchidhoma had left the Colorado River, and the last families left by 1840.

There is no complete description of the lifeways of the Halchidhoma as they were lived on the Colorado River, because the Halchidhoma had begun to be assimilated into the Maricopa more than a half century before scientific ethnographies began to be written. Today the Halchidhoma are most closely associated with the Laveen community on the Salt River Reservation in Arizona, although descendants are distributed over several reservations (Harwell and Kelly 1983:74). Leslie Spier (1933) was fortunate to have a Halchidhoma elder as the principal informant for his landmark study of Gila River Yumans. By this time, many elements of Piman and Maricopa culture had been adopted, but some valuable information could still be derived concerning oral traditions. It is reasonable to assume Halchidhoma lifeways were very similar to those of the Quechan and Mohave when they occupied the Colorado River. In principle, the following description of Yuman society would apply to all of the River Yumans.

The focus on riverine subsistence resources encouraged a mixed foraging way of life for the River Yumans. Foods procured by seasonal rounds of hunting, fishing, and gathering supplemented small-scale agricultural practices. According to Robert L. Bee (1983), the Mohave relied more heavily on agriculture than did the Cocopa in the Colorado River's delta or the Quechan. In their study of Yuman agricultural strategies, Edward F. Castetter and William H. Bell (1951) estimated that about half of the Mohave diet derived from farming. They estimated that the Cocopa, by contrast, derived only about 30 percent of their diet from agriculture because of greater access to a diversity of habitats; the Quechan (and presumably also the Halchidhoma) diet was intermediate between the Mohave and the Cocopa (Bee 1983).

Agricultural strategies were designed to optimize use of floodwaters bringing the necessary moisture to the fields, which tended to be quite small in size (2-3 acres). Aboriginal cultivated crops included maize, beans, squash, melon, and various semi-wild grasses. Seeds were planted in newly deposited sediments after the floodwaters had receded. The River Yumans also used more than 75 wild plant foods as food sources, the most important being mesquite and screwbean. The primary source of dietary animal protein came from fish caught in the Colorado River. Among the more important species were the humpbacked sucker and Colorado pike minnow. Regularly hunted game included small mammals such as rabbits, squirrels, and pack rats. Larger game that figured in the diet included deer and bighorn sheep, but these were probably hunted with less frequency and were less abundant than small game. However, their meat was highly regarded by the River Yumans, particularly in winter, when reliable sources of dietary fat were in especially short supply.

Swarthout and Drover's (1981) Model II characterizes the Quechan and Halchidhoma settlement and subsistence strategy on the Colorado River below Topoc. This model presumes a low reliance on cultigens, accounting for no more than 30 to 40 percent of the annual dietary intake (Castetter and Bell 1951:74). Residential bases were centered on the Colorado River but conformed to a bipolar pattern. Spring and summer houses were located near each agricultural field, but up on the mesas, where they would be safe from floods (Kelly n.d.:55), while open-air ramadas were constructed on the floodplains adjacent to the fields. During this time, small parties sought out wild vegetal resources along the floodplain and adjacent washes. Mesquite and screwbean were important staples that were relied upon as stored staples during the winter months, especially if domestic crop harvests were inadequate. The winter season was a time to relocate to residential bases on upper Colorado River terraces, lower bajadas, and lower mountain slopes. Winter homes were more substantial earth-covered lodges (Kelly n.d.:55). The population subsisted on stored domestic and wild foods, in addition to what wild game could be had. Additional temporary camps would be established in outlying areas for extracting specific animal, vegetal, or lithic resources. As soon as the spring floods subsided, the population would then resume their lower terrace residences.

Yuman groups were organized into patrilineal, exogamous, totemic clans (referred to as sibs in the early literature). Each clan or *cimul* was named after a plant, animal, or natural object, and this name was borne only by female members (Gifford 1918). There were no clan leaders, and the clan did not have special ceremonial or sociopolitical functions. Clans were not localized at specific rancherias; the latter contained members of several clans. Each localized rancheria or band recognized a leader (*pi'pa taxa'n*) who was called on to settle disputes, be responsible for the social and economic welfare of his people, decide on seasonal moves, and determine when to move the entire rancheria if necessary. His power was quite restricted, and he had limited influence. His position was achieved through dreaming, force of character, and demonstrated ability. Each tribal group also recognized a paramount chief (*kwoxot*) who might rise from the ranks of the rancheria leaders. This position may have become more important during the historic period as a result of contacts with Euro-American political and military institutions. A chief was not required to show prowess in warfare, and indeed he was expected to remain in the village or refrain from battle. Special war leaders (*kwanami*) were recognized for military tasks.

Unlike other southern California groups where the primary political allegiance and identity lay with the localized band, members of the River Yuman groups thought of themselves as belonging to a true nation. Julian H. Steward (1955:159-161) postulated that Yuman clans evolved from localized patrilineages like those found among the Cahuilla, but which had become dislocated and clustered into larger settlements as a result of the higher population densities afforded by horticulture. Growing population size in other areas of southern California brought about increasingly sedentary bands, but instead of band size growing there was shrinking of band territories. This pattern did not occur on the Colorado River, where people moved freely from one settlement to another. Entire settlements had to shift within the confines of the floodplain, depending on the location of arable land after each flood season. Steward identified warfare as another factor inhibiting the localization of clans and promoting increases in band size. Larger social groups afforded greater protection against enemy attacks.

The apparent emphasis on warfare in Colorado River Yuman culture has been the subject of considerable anthropological discussion. Chris White (1974) emphasized the ecological reasons for warfare, including environmental circumscription, high population density, and environmental instability. Edward W. Gifford (1931:161), Clifton B. Kroeber (1980), and Kroeber and Bernard L. Fontana (1986) stressed the deeply ingrained ideological and cultural values that were attached to personal battle in River Yuman culture. They argue that fighting was seen by its participants as a necessary means to enhance the spiritual power of the entire tribe, without regard to any material benefits. Probably both factors operated to shape the Yuman warrior tradition over time. Both ecological and cultural/ideological factors are intertwined in a complex and dynamic system, much as Roy A. Rappaport (1968) demonstrated for the role of warfare among New Guinea tribes people.

It is difficult to portray the complex and esoteric nature of River Yuman spirituality because it is a dynamic belief system in which dreaming, adherence to traditional learning, personal experiences, and varying patterns of acculturation affect its expression. This worldview stresses the interconnection of daily life with religion, in contrast to Western culture, in which the sacred and secular are more clearly segregated. The secular world exists concurrently with the spiritual world for traditional River Yumans, and the spiritual world can be experienced through dreams, vision quests, song cycles, the telling of the creation narrative, and many other oral traditions (Hinton and Watahomigie 1984; Kroeber 1925, 1948).

**The Desert Cahuilla: An Interior Southern California People**

Good ethnographic studies of the Cahuilla who live to the west of the project area are comparatively numerous (e.g., Barrows 1900; Bean 1972; Bean and Saubel 1972; Curtis 1926; Drucker 1937; Heizer 1974; Hooper 1920; Kroeber 1908; Patencio 1943; Strong 1929). Lowell John Bean (1978) summarized much of the information on the Cahuilla. While the principal residential loci of the Cahuilla were in the Coachella Valley and the Santa Rosa and San Jacinto Mountains, they were known to have traveled and maintained cultural contact with lower Colorado River peoples. The Chuckwalla Valley would have been one of their principal travel corridors for this purpose.

Cahuilla and other Takic ("Shoshonean") speakers of the Uto-Aztecan linguistic stock, such as the Luiseño, Serrano, and Gabrielino, may have migrated south from the southern Great Basin into coastal southern California and the Colorado Desert. However, the specific period or periods, directions, and circumstances of this migration remain unclear (e.g., Golla 2007; Koerper 1979; Laylander 2007; Moratto 1984:165; Sutton 2009). Some estimates based on glottochronology (a statistical and lexical study of two languages deriving from a common source to determine the time of their divergence) and the distribution of archaeological assemblages would put the movement somewhere between A.D. 1 and 1,000, most likely around A.D. 500 but possibly as early as 500 B.C. What role these Takic speakers had in the development of the Patayan pattern in the Colorado Desert remains unclear. The ancestors of the River Yumans are most often identified as the source of ceramics, cremation practices, agriculture, some architectural forms, and some stylistic and symbolic representations. The Takic migrations may have coincided with the introduction of bow-and-arrow technology, but no direct association has been established. They may have contributed specific hunting and gathering techniques as well as cosmological and symbolic elements to the Patayan cultural system.

A dozen or more politically autonomous landholding clans owned territories within the region. Ideally, each of these territories extended from the desert or valley floor to mountain areas, encompassing several biotic zones. Clans were composed of one or more lineages, each of which owned an independent community area within the larger clan area. Cahuilla oral histories indicate that some clans replaced others, often by force, and also that new lineages would bud off from clans to establish new territories. Cahuilla mythology and oral tradition indicate that when Lake Cahuilla dried up, it was the mountain people who resettled the desert floor. By 1850, at least 17 rancherias are known in the Coachella Valley, most of them associated with hand-dug wells, springs, or palm oases. Reservoirs, irrigation ditches, and agricultural fields are documented at least as far back as the early nineteenth century (Wilke and Lawton 1975:21, 30ff).

In addition to each lineage's residential area and other locations within a clan territory that it owned in common with other lineages, ownership rights to various food-collecting, hunting, and other areas were claimed by the various lineages. Individuals owned specific areas or resources, such as plant foods, hunting areas, mineral collecting places, and sacred spots used only by shamans, healers, and ritual practitioners.

While villages were occupied year-round, a large number of their inhabitants would leave at specific times to exploit seasonally ripening foods in different environmental zones. Temporary camps would be established in these food-collecting areas, and surpluses would be transported back to the main village. Mountain Cahuilla would move to the upper desert areas and establish temporary camps to process agave in late winter and early spring, and then move to lower desert areas to harvest mesquite beans in the late spring. Conversely, the Desert Cahuilla ascended the mountains in the fall for the pinyon and acorn harvests. Other springtime resources included yucca, wild onion, barrel cactus and other cactus fruits, goosefoot, and grass seeds. Other major upper-desert resources collected in summer included berries, manzanita, and wild plum. Fall was the season to gather grass seeds, chia, saltbush seeds, palm tree fruit, thimbleberry, wild raspberry, juniper berry, and choke berry. Many animal resources were hunted; bighorn sheep and deer hunts often coincided with the pinyon harvest. Rabbits were the most common game throughout the year.

Bean and Katherine Saubel (1972:20) estimated that no village was located more than 26 kilometers (km) from all of the food-gathering areas within its territory and that 80 percent of all food resources could be found within an 8-km foraging radius around the village. Such ideal proximity to diverse habitats was made possible by the steep topographic gradient on the eastern side of the San Jacinto and Santa Rosa mountains.

Cahuilla clans varied in population size from 100 to several thousand people. They were arranged so that each community was placed in an area near significant water and food resources. Communities were generally several kilometers from their neighbors, and within a community, houses and structures were placed at some distance from each other. Often a community would spread across 2-3 km. Each nuclear and extended family had houses and associated structures for food storage and shaded work places for processing foods and manufacturing tools. Each community contained the house of the lineage or clan leader: the *net*.

This position was often hereditary within families of high social status. The *paxa* was another hereditary leader with responsibilities for managing ritual events. Other important ceremonial positions included the shaman (*púul*), singer (*háwaynik*), and diviner (*tet♣ayawiš*). There were a number of non-official ritual practitioners.

Within each community was a ceremonial house (*kiš♣ámnawet*) where most major religious ceremonies of the clan were held. These took place with considerable frequency. The most significant ceremonies focused upon the proper care of the deceased members of the linage or clan. In addition to house and ceremonial structures, there were storage granaries, sweathouses, and song houses (for recreational music). Close to each community were many food resources, building materials, minerals, and medicines. Usually an area within 1-5 km contained the bulk of materials needed for daily subsistence, although the territory of a given clan might be larger, and longer distances were traveled to get precious or necessary resources that were located at higher elevations. While most daily secular and religious activities took place within the community, there were places at some distance from the community, such as acorn and pinyon groves, where people stayed for extended periods. Throughout the area there were sacred places used primarily for rituals, inter-clan meetings, caching sacred materials, and shamans' activities. Cave sites or walled cave sites were used for temporary camping, storing of foods, fasting by shamans, and use as hunting blinds.

The Desert Cahuilla began to become familiar with Europeans as early as 1797. Often their relatives in western Cahuilla areas were baptized and worked among the Spanish. In addition, runaway neophytes sought refuge among the desert tribes. The impact of the Spanish mission system and colonization along the coast was much less immediate and profound among the isolated desert and mountain groups. More direct influence was not felt until after the establishment of the San Bernardino *estancia* in 1819 and of a cattle ranch at San Gorgonio subsequently. When the Romero Expedition passed though the area in 1823-1824, it was clear that the Cahuilla were accustomed to seeing vaqueros employed by the rancho driving cattle through the area. Certainly by 1823 the Cahuilla were not only familiar with Hispanic ways but were comfortable in dealing with them, as evidenced by their reaction to the members of the Romero Expedition (Bean and Mason 1962). The expedition reported that the Cahuilla at Toro were engaged in agricultural pursuits, growing corn and melons, and were already familiar with the use of horses and cattle.

Political leadership became more centralized during the Spanish and Mexican periods, as Europeans recognized high-ranking or charismatic clan leaders as representing entire tribal areas (Strong 1929:149). Emerging as central figures were Juan Antonio among the Mountain Cahuilla and Chief Cabazon in the desert. As early as 1844, Juan Antonio led several mountain clans to the San Gorgonio Pass area to provide security for Rancho San Bernardino. His group played a significant role during the Mexican-American War, siding with the Mexicans against the Luiseño, who supported the American invaders (Phillips 1975).

The 1848 Treaty of Guadalupe Hidalgo obligated the Americans to preserve the liberty and property of the prior inhabitants of California. The U.S. government in 1850 appointed three commissioners to conduct negotiations with tribal leaders across California in order to settle all land rights issues. One of the 18 treaties to be drafted covered the Cahuilla, Serrano, and Luiseño

and was signed in Temecula on January 5, 1852. The tribal leaders were promised supplies, food, and technical training in return for accepting specified reservation lands. But as was so often repeated throughout the American West, local Euro-Americans lobbied against the treaty and the U.S. Senate never ratified it. The traditional territorial base of the Cahuilla continued to shrink as whites flooded into the area to claim the best farming and grazing lands.

European diseases were probably beginning to take their toll on the Cahuilla in the early 1800s, but they became particularly severe in the 1860s. The most dramatic episode was the great smallpox epidemic of 1863 that killed Juan Antonio as well as many bearers of traditional tribal culture. Survivors of previously autonomous clans clustered into the remaining villages or founded new settlements in an accelerated process of population aggregation and reorganization. This process continued through the following decades.

The Cahuilla land base was substantially reduced in the 1860s and 1870s as the U.S. government ceded alternate sections within 10 mi. of the new transcontinental railroad route to the railroad companies. Sections 16 and 36 of every township were also removed from federal control as a school tax base. Any de facto Native American control of larger territorial bases was undermined in 1876 when President Ulysses S. Grant issued an Executive Order setting aside small reservations for all groups classified as "Mission Indians." These reservations included the sections or parcels in which the Cahuilla had aggregated during the previous decades and in which they had made improvements for farming. The following year, another Executive Order by President Rutherford B. Hayes set aside even-numbered sections and certain other unsurveyed portions of townships for Indian reservations. The result was a checkerboard pattern of Indian-controlled land, encompassing 48 sections, spread across the eastern edge of the Santa Rosa and San Jacinto mountains and the Coachella Valley (Cultural Systems Research 1983). With various additions and withdrawals over time, this has remained the permanent land base of the Cahuilla to the present.

As traditional lifeways became more difficult to maintain, the Cahuilla adapted to their new geographical and political environment by taking jobs at American ranches, towns, and cities. The 1860s through 1880s was a period of increased acculturation, as new technologies, material goods, and practices were incorporated into the traditional lifeways of the reservation. Ceremonial practices remained particularly strong despite Catholic and Protestant influences on the reservations. Ceremonial houses still existed through the 1950s, 1960s, and early 1970s, and many cultural traditions still remain part of westernized lifestyles. Many Cahuilla retain an acute interest in the cultural heritage and cultural resources of their traditional territories.

**The Chemehuevi: A Great Basin People**

In late prehistoric times, the Chemehuevi occupied desert areas west of the Mohave and north of the Cahuilla. Subsequently, during the early historic period, they took over the portion of the lower Colorado River valley that had previously been held by the Bahacecha and the Halchidhoma. Chemehuevi speech is a dialect of the Southern Paiute or Ute language, belonging to the Numic branch of Uto-Aztecan family. Although the time of Chemehuevi entry into eastern California remains unclear, it was probably in the period between A.D. 1200 and 1500, when brown ware pottery and twined basketry became conspicuous in archaeological sites (Kelly and Fowler 1986).

The Chemehuevi lived in smaller and more mobile groups than the Cahuilla or the Yumans, in order to adapt to the sparser and more widely distributed resources of their desert. They subsisted primarily on small game and a wide variety of seasonally available wild plants. Seed plants were especially important.

The Chemehuevi were allied militarily with the Mohave and Quechan, and they were allowed plots of land to cultivate crops in Mohave territory. One of Isabel Kelly's consultants related that most Chemehuevi did not begin to move down to the Colorado River until after 1833 and before the founding of Fort Mojave in 1859 (Kelly n.d:28). This would also have been the period when the Halchidhoma left the river. As a result of their close association, the Chemehuevi share some elements of material culture with the Mohave, such as ceramic styles, square metates, some earth-covered house forms, storage platforms, song series, dream emphasis, warfare patterns, and personal adornment. Other aspects of Chemehuevi culture are distinctively Great Basin, such as their extremely fine basketry. The Chemehuevi have distinguished themselves from their Yuman neighbors by their very different mythology, worldview, religious practices, kinship system, and political organization (Laird 1976, 1984).

Like the Yumans, the Chemehuevi were great travelers and regularly visited the Kawaiisu, Serrano, Vanyume, Cahuilla, Quechan, and Kumeyaay. They may even have visited the western California coast to trade. They occasionally joined the Quechan and Mohave in battles against the Halchidhoma. When the Halchidhoma finally left the river by 1840, the Chemehuevi made use of some of the vacated river valley, particular the Parker and Chemehuevi valleys. However, hostilities broke out between the Chemehuevi and Mohave between 1865 and 1871 when the Mohave began moving south to inhabit the newly created Colorado River Reservation. The Chemehuevi retreated westward into the desert, where they took refuge with the Cahuilla near Banning and in the Coachella Valley, and with the Serrano at Twentynine Palms. Additional land was added to the Colorado River Reservation in 1874 in order to encourage the Chemehuevi to move there from areas near Blythe, Needles, Beaver Lake, and Chemehuevi Valley. Both peaceful and forceful efforts by the U.S. government to move the Chemehuevi onto the reservation were met with mixed results, and it was not until the early 1900s that the Chemehuevi agreed to move.

**The Euro-Americans and Other Newcomers**

The following brief discussion focuses on several historic-period themes for which cultural resources are most likely to be represented in the project area: features relating to mining and transportation, water conveyance, and World War II military training.

Mining

The first mining efforts in the general region may have taken place in the Cargo Muchacho Mountains (hard rock mining) and Potholes (placer mining) areas in 1780-1781 near Yuma, contemporary with the short-lived Franciscan missionary efforts at the confluence of the Gila and Colorado rivers. Extensive mineral exploration began in the early 1860s, when the Mother Lode gold mines in the Sierra Nevada were becoming played out and miners looked for new discoveries in other parts of the American West.

One of the first and largest mining booms occurred in the La Paz and Castle Dome districts on the Arizona side of the Colorado River opposite Blythe. Miners from California and Sonora poured into the area in the early 1860s and 1870s. The Bradshaw Road (Trail) was established as a stagecoach and supply haul route from 1862 to 1877 providing a major transportation link between Los Angeles and the ferry to Ehrenberg, Arizona (Johnston 1987). It ran from San Bernardino through the San Gorgonio Pass, down the Coachella Valley to Dos Palmas, through Salt Creek Pass between the Orocopia and Chocolate Mountains, then along the Chuckwalla Mountains and through the Little Mule Mountains to the Colorado River. It is generally accepted that this route follows the Native American Cocomaricopa Trail, although McCarthy (1982) identifies the major east-west trail through Chuckwalla Valley, CA-RIV-79, as the Cocomaricopa Trail. The greatest period of activity was between the 1870s through 1890s and was facilitated by the Southern Pacific Railroad, which reached Yuma in 1877, and by links on the river provided by commercial riverboat traffic (Vredenburgh et al. 1981:8). This improved means of access to the Colorado River and the initiation of a tri-weekly stage between Yuma and Ehrenberg in 1880 finally put the Bradshaw Road out of business.

Early prospects are known from Mule Mountains in 1861 and in the Big Maria Mountains and neighboring McCoy Mountains as early as 1862 when they were part of the Ironwood Mining District (Vredenburgh et al. 1981:24, 40; Warren et al. 1981:97). The Big Maria Mountains, originally called the Half-Way Mountains by the 1858 Ives expedition, were referred to as the Chemehuevi Mountains on maps from the 1860s (Gunther 1984:310-311). It was probably during this period that portions of the Big Marias, the McCoy Mountains (named after prospector William McCoy), and the Palen Mountains (named after prospector Matt Palen) were included in the Chemehuevi Mining District (Vredenburgh et al. 1981:40; Warren et al. 1981:105). By 1909, the so-called Chemehuevi Mountains were christened the Santa Marias and divided into the Big Maria (east) and Little Maria (west) ranges. Mineral deposits include gold, silver, fluorite, manganese, copper, gypsum, and uranium (Warren et al. 1981:96).

Eagle Mountain, at the northern end of the present project area, was the focus of prospecting by Joe Torres as early as late 1870s and early 1880s. He identified a magnetite deposit but made no claim as he was after precious metals. That distinction came to Jack Moore who in 1881-1882 staked a claim and with his father and two other partners founded the Eagle Mountain Mining District for the exploitation of iron, gold, and silver. The Iron Chief, Black Eagle, and other claims were among those with gold but also rich iron content. They failed to maintain the necessary assessment work to validate the claim, however, and the area was abandoned for mineral development until 1895. That year L. S. Barnes of Mecca, a former student of the Colorado School of Mines, began to consolidate the claims after examining Joe Torres' original iron ore samples. Barnes completed his consolidation by 1912 and sold the package to Henry E. Harriman, CEO of the Southern Pacific Railroad (SPRR). Harriman's goal was to challenge J. P. Morgan's U.S. Steel Trust by threatening a viable West Coast industry, thereby lowering the price of steel he had to pay for his own railroad. Harriman bought a steel mill in San Pedro, California and surveyed a rail spur. Possibly a bluff, he succeeded in lowering the price of steel for the SPRR but died before it could be determined if he meant to carry through with his scheme (Belden 1964a; Hilton 1949; Love 1994).

World War II saw an enormous demand for steel, but during this time the Joshua Tree National Monument was formed, including the Eagle Mountain claims, thus protecting the ore bodies from mining. Henry J. Kaiser then took interest in the Eagle Mountain claims. From road contracting, Kaiser distinguished himself as a member of the team who built Boulder and Bonneville dams. He owned a steel mill at Fontana and the Vulcan iron mine near Kelso in the Mojave Desert that supplied materials for his west coast shipyards. Requiring more steel, he managed to purchase the Eagle Mountain claims from the Harriman heirs with the proviso that the SPRR be used to ship the ore. Having won a legal challenge to the claims, Kaiser succeeded in having the Joshua Tree Monument boundaries shifted to exclude the Eagle Mountain properties. He then commenced work in 1944 to survey a new railroad route with a necessary limited grade of only 2 degrees between Eagle Mountain and the SPRR. Three routes were surveyed; the one chosen went south through Salt Creek to emerge between the Orocopia and Chocolate mountains at Durmid in the Coachella Valley where the line connected with the SPRR at Ferrum Junction, then continued west to the Fontana steel mill (Backman 1949; Belden 1964b). Construction on the railroad began in 1947 and was completed on June 23, 1948, as the Kaiser Industrial Railroad (Eagle Mountain Industrial Railroad).

Ore shipment from the mine began immediately, and by 1971 the Eagle Mountain Iron Mine was producing 90 percent of California's total iron output (USDI Bureau of Mines 1971). Over 4,000 people were employed in the operation, making the Eagle Mountain Mine Riverside County's largest employer. The company town of Eagle Mountain included schools, fire and police departments, civic facilities, 416 rental houses, 185 trailers, 383 dormitory rooms, and 32 apartments (Bull et al. 1991). Kaiser Steel's need to provide medical care for their employees evolved into what is now known as Kaiser Permanente. Competition from abroad and other economic factors caused the mine to close in 1983 after 35 years in operation. Much of the housing stock was either removed, left vacant, or vandalized. By 1994, a school, a new low security prison (1988-2001), and some rental properties remained at Eagle Mountain but it is largely relegated to a ghost town today (Love 1994).

Interstate 10, a major transportation artery connecting the Los Angeles area with Arizona and points east, runs near the southern edge of the project area. The route was probably also used prehistorically as it represented a relatively low (but dry) corridor for travel between the lower Colorado River in Palo Verde Valley and the Coachella Valley. During the early twentieth century, as the region's highway system was gradually developed, the route was known under a succession of different designations, including Legislative Route 64 and U.S. Route 60. As late as 1926, the portion of the route through Chuckwalla Valley was unimproved. Interstate 10 was finally completed by 1968.

Desert Center

The town of Desert Center was founded in 1925 by Stephen ("Desert Steve") Ragsdale and his wife. They originally arrived with their four children to the area in 1921 when they bought the homestead of Wilbur C. and Peter S. Gruendike, who in 1913 and 1916, respectively, each received a patent to 160 acres along the Chuckwalla Road between Mecca and Blythe (Gunther 1984:150, 212). Peter Gruendike dug a well and installed a windmill on his parcel, some 200 ft. north of the road and their ranch house. The ruins are today listed as site CA-RIV-187. The Ragsdales operated a service station there from 1921-1925 when the State of California moved the Mecca-Blythe Road 1.25 miles south and named it U.S. Route 60. In response, the

Ragsdales moved all their buildings about five miles to the southwest along the new highway and founded Desert Center, being 50 miles either way between Blythe and Indio. Ragsdale patented 40 acres at this location in 1927, which eventually grew to 700 acres on either side of the highway. He is said to have accomplished this by having his employees at the restaurant and store file for Desert Entry Lands while they lived and worked at Desert Center and then sell their parcels to Ragsdale. An ordained Methodist Minister, "Desert Steve" ran a dry privately-owed town, representing the law as a Deputy Sheriff. He even managed to organize a school district specifically for the education of his four boys. In addition to the Ragsdale home and those of his employees, the original town included a poured concrete café in the Southwestern adobe style, an attached gas station and mechanics shop, a market, post office, and school. The Ragsdale operation grew to include facilities at Shaver's Summit (later Chiriaco Summit), Box Canyon, Skyway, Hell, and Cactus City.

"Desert Steve" left Desert Center for Santa Rosa Mountain in 1950 after being accused of an affair with an office worker, leaving the business to his sons, Stanley, Thurman, and Herbert. Stephen died in 1971. Stanley eventually purchased the entire town and ran the café and gas station for decades. He died in 1999. The town remains as a waypoint on Interstate 10.

Water Conveyance

The Colorado River Aqueduct runs through the study area, with the Eagle Mountain Pumping Station located at the far eastern tip of the Eagle Mountains. The proposed 500 kV transmission line and water line cross underground portions of the aqueduct along Phoneline Road, 3.1 and 6.2 mi., respectively, north of the pumping station.

The aqueduct was constructed between 1931 and 1941 by the Metropolitan Water District (MWD) as one of the major Colorado River water delivery public works projects that included the construction of Boulder Dam and the All-American Canal. The first water deliveries began on January 7, 1939. The original engineering was conducted under a $2 million bond issued from the Department of Water and Power, with construction undertaken by MWD for $220 million. Originally conceived by William Mulholland and designed by MWD Chief Engineer Frank E. Weymouth, it was intended to provide Los Angeles with more drinking water, but since the end of World War II, the distribution system has been extended to serve much of southern California's domestic, agricultural, and industrial needs from Ventura to San Diego.

The intake pumps are located at Lake Havasu above Parker Dam on the Colorado River. From here, the aqueduct travels 242 mi. across the Colorado Desert through 63 mi. of open canals, 92 mi. of tunnels, and 84 mi. of buried conduit and siphons. The aqueduct terminates at Lake Mathews near Corona. Five pumping stations take the water over mountainous terrain. With a capacity of 1,600 $ft^3$ per second, the average annual throughput is estimated at 1.2 million acre-ft. per year (Bean 1968:398-401; Cooper 1968:87-89; Metropolitan Water District of Southern California 1941).

As the largest public works project during the Great Depression, the project employed 10,000 people at any one time and when completed, was recognized as a pivotal component of Los Angeles' enormous growth during World War II and in the following decades. It remains a linchpin in southern California's vital infrastructure. In 1955 and 1994, the American Society of

Civil Engineers (ASCE) recognized the Colorado River Aqueduct as one of the "Seven Engineering Wonders of American Engineering" (ASCE Website).

Desert Training Center/California-Arizona Maneuver Area (DTC/C-AMA)

The deserts of southern California and western Arizona became the focus of important training exercises during World War II. This activity left abundant physical traces on the landscape.

The Desert Training Center (DTC) was opened on April 30, 1942. The normally serene desert gave way to the rumble of tanks and staccato of machine guns for almost two years, until 1944. The largest military training installation ever to be created (approximately 10,130 mi.$^2$), the facility had General George S. Patton, Jr., as its first commanding officer (Bischoff 2000; Henley 1989; Meller 1946). Patton proclaimed the DTC as "probably the largest and best training ground in the United States" (Meller 1946:35). It served the vital purpose of conditioning troops to desert warfare conditions and tactics in preparation for the North African Campaign. The center was also used to field-test equipment and supplies. The original facility extended from the Colorado River on the east to a point slightly west of Desert Center on the west, and from Searchlight, Nevada, on the north, to Yuma, Arizona, on the south. This region was ideally suited for the purpose, in that it contained a variety of terrain types and no large population centers (Howard 1985:273-274).

Patton left with his troops for North Africa later in 1942, but the facility continued to operate throughout the war, processing several million troops. However, following the success in North Africa, an emphasis on desert warfare was no longer necessary. The name of the Desert Training Center was changed to the California-Arizona Maneuver Area (C-AMA or CAMA) on October 20, 1943, and its purpose was expanded to serve as a simulated theater of operations emphasizing large-scale logistics and not exclusively desert warfare tactics. This included solving complex communications and supply problems and Army Air Forces support of ground troops (Howard 1985). The facility provided training for combat troops, service units, and staff under conditions similar to a combat theater of operations. Under Major General Charles H. White, the training area was enlarged by another 6,251 mi.$^2$ and extended from Gila Bend on the east to Pomona on the west, and from Yuma on the south to Boulder City on the north (Howard 1985:281-282). Command would change three more times before C-AMA closed.

Headquarters and the first camp for the DTC/C-AMA was at Camp Young, located at a place called Shaver's Summit, now known as Chiriaco Summit after Joseph Chiriaco, from whom Patton bought 28 acres for a token sum of five dollars (Bischoff 2000:12-16). Camp Young is listed as a California State Historic Landmark (No. 985). This location and others along the Chuckwalla Valley corridor were chosen because of the easy access to supplies via the road to the Coachella Valley and the SPRR, and ample water to be derived from the Colorado River Aqueduct. Although most closely associated with Patton's short residence during the formative months of the DTC, Camp Young is located some 29 km west of Desert Center and the southern end of the study area.

In all, there were 11 major DTC/C-AMA camps, seven of them in California and four in Arizona. Camp Rice, home to the 5th Armored Division and Rice Army Airfield, was one of the smaller bases strategically located on the Atchison, Topeka and Santa Fe Railroad line west of

Parker (Lynch et al. 1982). Larger divisional camps that may have deployed troops into the project area include Camp Desert Center, Camp Iron Mountain, Camp Granite, and Camp Coxcomb, located north of Desert Center. A network of railroad lines and major roads connected all the divisional camps and depots. Farther out across the desert landscape were the smaller camps and bivouacs for specific field exercises. For example, a platoon might build rock blinds from which they could practice the defense of a mountain pass (Vredenburgh et al. 1981).

During the DTC period, exercises emphasized operating with a restricted water supply, sustaining operations remote from railheads, navigating and resupplying under the cover of darkness, and combined training with the Army Air Forces (Howard 1985:274). A four-phase training program was developed that would not exceed six weeks in duration. First phase training emphasized the individual, crew, squad, section, and platoon. The second phase concentrated on the company and battery. The third phase consisted of battalion training, and the fourth emphasized the combat team whereby armored units, air, and ground forces were all coordinated. The training program ended with an exercise lasting several days and covering about 300 mi. Advanced supply bases were established along projected routes, tactical maneuvers were conducted in darkness, and tactical bivouacs were established in the presence of hostile air and mechanized threats (Howard 1985:278; Meller 1946:13).
Training during the C-AMA period consisted of a 13-week program. Firing ranges of all types were constructed, and troops were trained with pistols, machine guns, rifles, and artillery. They also took courses in infantry tactics using live ammunition. Emphasis was placed on development of platoon efficiency. Platoons of 40 to 45 men were sent out on six-day field problems involving directional skills and coordination with supply units. The three final weeks consisted of maneuvers. The first exercise involved a defensive force establishing a position for the purpose of protecting a vital area or installation. The second exercise consisted of field maneuvers that simulated a campaign of approximately 11 days and 10 nights designed to test the endurance of units and their ability to fight and resupply over great distances while providing daily maintenance of equipment and recovery and evacuation of disabled vehicles (Meller 1946:62).

Spartan camp conditions were deliberately maintained to provide soldiers with a realistic, battle-ready experience. Through the history of C-AMA, orders were periodically given to prevent any center from lapsing into more comfortable conditions, although Camp Young appears to have been an exception. No units were allowed to stay too long at any center. The most mobile were supplied with B-rations and C-rations, and no screened eating areas would be provided. The Ground Surgeon was well aware that during the warmer seasons, flies would cause near-epidemics of dysentery. Screened eating areas were therefore advised for service units that had to remain in certain areas, such as base camps, for longer periods. However, orders were subsequently given that no new screened areas were to be built and old ones would not be maintained. Iced fresh food was also prohibited. Lowered morale from the monotony of B-rations, disease outbreaks and even some reported deaths, and public protest eventually led to some relaxation of these severe conditions. Shortly before C-AMA was closed, all units were allowed to enjoy A-rations (Meller 1946:50-55).

The divisional camp closest to the project area was Camp Desert Center, located between Camp Young and Desert Center and extending immediately east of Eagle Mountain Road and north of

the old highway that preceded Interstate 10. Very little documentary information is currently known for Camp Desert Center, nor is its specific history and range of functions clearly understood. The BLM did not include Camp Desert Center in its interpretive plan for the major camps of the DTC/C-AMA, although it includes preservation and interpretive goals for the other major sites (USDI Bureau of Land Management 1986). The 34,000-acre area included a cantonment with tent housing, an observer's camp, an ordinance camp, an evacuation hospital, a quartermaster truck site, and an extensive maneuver area. Bischoff (2000:58-60) reports that not much is left of Camp Desert Center except for rock-lined paths, tent pads, oiled road surfaces, and trash scatters with many gas, oil, and food containers. Locals report artifacts extending for a substantial distance north of Desert Center. Bischoff also reports 1940s-era refuse near the Eagle Mountain Mine Industrial Railroad, although that association may indicate that they postdate the DTC/C-AMA.

The full extent of the complex, including the hospital, has not been previously recorded. E Clampus Vitus historians have conducted more research on the hospital and have made a more committed identification of the site as such. With the BLM, they are about to unveil a new historical monument at the hospital site with the following text:

*36TH EVACUATION HOSPITAL (SM)*

*During the opening days of World War II, more than 18,000 square miles of the Arizona and California desert were designated by the U.S. Army as a military training facility. The facility, conceived by General George Patton and referred to as the Desert Training Center (DTC), was designed to prepare troops for the rigors of desert warfare in the invasion of North Africa. Operating from 1942–1944, the DTC expanded far beyond its original scope, and became known as the California-Arizona Maneuver Area (C-AMA) in 1943. Numerous camps were established throughout the desert, in addition to airfields, supply depots, hospitals, firing ranges, and maneuver areas. Over the two year life of the Desert Training Center, more than 1.2 million troops were hardened for battle in the deserts of California and Arizona.*

*Located just to the north are the archaeological remnants of the Evacuation Hospital Camp Site. The 36th Evacuation Hospital was stationed here for training from May to December 1943. Evacuation hospitals were 400 bed facilities that provided care to sick and wounded soldiers under combat conditions. The 36th was located at this site until it participated in IX Corps maneuvers, whereupon it moved by Camp Dunlap, near Niland. During this time it maintained a 100-bed base hospital here while the rest of the unit was deployed elsewhere. At the end of maneuvers, the entire hospital was relocated to this original site. The 36th Evacuation Hospital served in the Pacific Theater of operations where it took part in the New Guinea, Luzon and Leyte campaigns and the occupation of Japan and was stationed in Vietnam from 1966 to 1969.*

*This monument is dedicated to the men and women who served in this unit*
*By the Billy Holcomb Chapter of the Ancient Order of E Clampus Vitus*
*and the Bureau of Land Management.*

*May 2nd, 2009*

## Previous Cultural Resources Investigations

A search of cultural resource records at the Eastern Information Center (EIC) was performed on April 25, 2008, supplemented by reports available at ASM Affiliates. The search identified 26 previous reports within a 1-mi. radius of the project alignment, of which nine are mapped as including portions of the project area proper. A total of 31 cultural resources are recorded within a 1-mi. radius of the project area. Of these, only one falls at least in part within the preferred project: an underground portion of site CA-RIV-6726H, the Colorado River Aqueduct, which is crossed by both the Preferred Transmission and Water Lines. Additionally, the project alignment intersects the historic Eagle Mountain Industrial Railroad in at least two locations. The results of the records search are addressed in a separate report prepared by ASM for the proposed Eagle Mountain Pumped Storage Project (Schaefer 2009).

# 3. FIELD METHODS

The study area was subject to a full coverage pedestrian survey done at 15-m transect intervals. Full coverage survey, as it relates to this survey, is best defined as a 100 percent coverage involving systematic examination of blocks of terrain and linear alignments at a uniform level of intensity. Standard global positioning systems (GPS) aided in navigation, and a differential, post-processed, decimeter-level GPS unit recorded the location of each site datum at newly discovered sites. Thus, GPS systems obtained precise site location data.

The APE for survey coverage was supplied to BLM in a Fieldwork Authorization Request under ASM's Statewide Permit No. CA-09-06. BLM issued a Fieldwork Authorization, No. 66.24 09-07 on February 26, 2009. This survey design was a non-collection pedestrian survey. ASM recorded all new archaeological sites, defined as any concentration of three or more artifacts in a 25-$m^2$ area. Site boundaries were defined when over 50 m of open space separated artifact scatters. Isolated artifacts were defined as fewer than three artifacts in a 25-$m^2$ area. ASM assigned all cultural resources that meet the definition of an archaeological site with a temporary site number.

Site recording included definition of site boundaries, features, and formed artifacts. Detailed sketch maps demonstrate the relationship of the sites' location to topographic features and other landmarks. Site forms contain detailed information on environmental context, artifact content and density, cultural affiliation, and function. ASM completed California State Department of Parks and Recreation (DPR 523) site forms for submittal to the EIC for assignment of site trinomials to newly discovered sites (Appendix A). Recordation efforts included the plotting of each site on a USGS 7.5-minute quad map, and the establishment of a GPS recorded datum. Site forms are included in this technical report as an appendix. Digital photographs document the environmental associations and the specific features of all sites, as well as the general character of each survey area.

# 4. FIELD RESULTS

ASM surveyed approximately 33 linear mi., including accessible portions of the APE linear alignments (30.75 mi.) and withdrawn Alternative Transmission Line alignment (2.25 mi.) and withdrawn Interconnection Collection Substation. The surveyed portions of the APE include Proposed and Alternative Water Lines and four potential sites for Water Supply Wells (of which three were ultimately selected for Project use), the Transmission line route, and Proposed Interconnection Collection Substation location. Transmission Line routes were 200 ft. wide while Water Line routes were 60 ft. wide. A total of 640 acres were examined. ASM was unable to survey the northern ends of the Proposed Transmission and Water Lines or any other areas on Kaiser Steel property due to access issues (Figure 4.01).

The project area generally consisted of small alluvial terraces cut by east-west-trending intermittent drainages, with relatively well-defined desert pavements encountered in the southern end of the Transmission Lines. The survey alignment generally encompasses a relatively level landform with a gentle, south-trending slope, with the Proposed Transmission Line crossing over a relatively small saddle immediately west of Victory Pass. Vegetation within the surveyed areas typically consisted of sparse creosote, mesquite, palo verde, sage, cholla cactus, brittlebush, desert lupine, desert dandelion, and desert marigold, providing excellent ground visibility at the time of survey. The southern end of the Preferred Water Line and the majority of the Alternative Water Line contained relatively recently abandoned jojoba fields, with extensively plowed furrows and modern plastic and metal irrigation systems.

ASM identified numerous isolated tin cans in secondary contexts within intermittent drainages throughout the survey area, as have most previous surveys. The most ubiquitous can type consisted of church-key-opened, flat-top beverage cans with crimped machine-soldered seams. The cans generally measured $2\ ^{11}/_{16}$ x $4\ ^{3}/_{4}$ in. or $2\ ^{11}/_{16}$ x $3\ ^{3}/_{8}$ in. (Figure 4.2). Some of this material appears to derive from the gas station, store, and housing at Desert Center. These cans, while pervasive throughout the survey area, tended to cluster in larger numbers near Eagle Mountain Industrial Railroad and may be associated with the construction and/or maintenance of this mining railroad. Based on their likely age, secondary contexts, and potential association with the mining railroad, none of these cans were recorded as archaeological resources. The railroad was not recorded as a site.

ASM encountered portions of the Eagle Mountain Industrial Railroad within the Proposed Transmission Line. The current grade appears relatively recently improved, based on the condition of the riprap and base grade, and the presence of modern concrete and metal drainage culverts spanning underneath the grade. Additionally, examined portions of the existing steel tracks revealed date inscriptions from the 1970s, with relatively well-preserved wooden ties.

**Figure Removed to Confidential Appendices**

Figure 4.1 Areas surveyed with APE and withdrawn alternative and sites recorded by ASM for the Eagle Mountain Pumped Storage Project Class III Field Inventory.

The recorded portion of the Colorado River Aqueduct (P-33-006726) crossing the Proposed Transmission and Water Line is a subsurface tunnel. Consequently, ASM did not encounter this site during the current investigation except for the overlying road and earthern berm. The survey resulted in the identification of six historic archaeological sites and one historic isolate (see Figure 4.1). One of the sites (Eagle Mountain 1) is located in the northern end of the withdrawn Alternative Transmission Line alignment, while the remaining resources are all recorded in the easternmost Proposed Interconnection Collection Substation location. The following sections describe the results of site recordation for each of the newly identified resources.

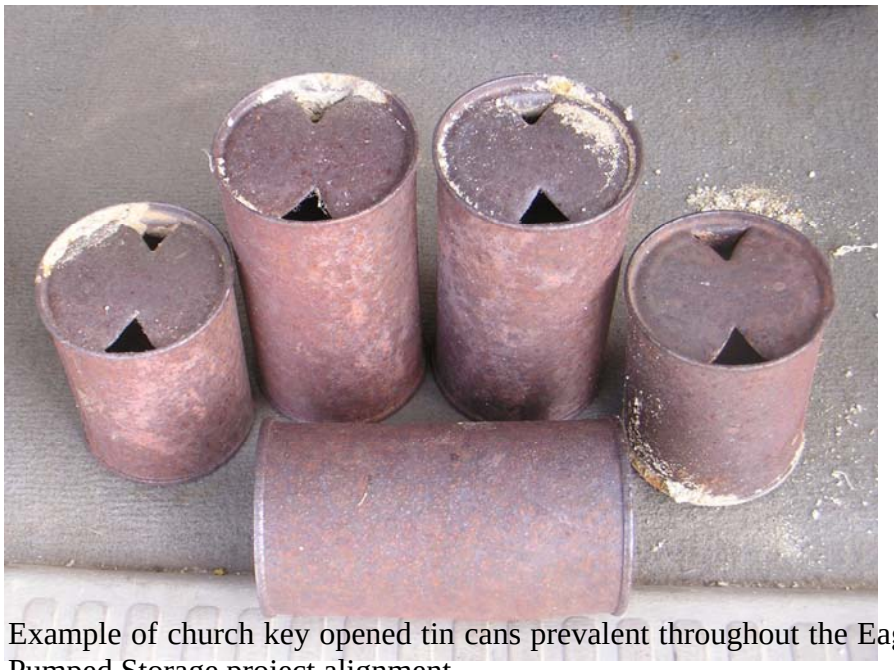

Figure 4.2 Example of church key opened tin cans prevalent throughout the Eagle Mountain Pumped Storage project alignment.

# P-33-17642, CA-RIV-9139 (EAGLE MOUNTAIN 1)

The site is located north of Interstate 10 on the west side of Eagle Mountain Road in the northern end of the withdrawn Alternative Transmission Line. It measures approximately 175 m north south and 140 m east west. Eagle Mountain 1 consists of a series of tent pads and related features constructed from locally occurring cobbles (Figure 4.3). The site is probably associated with General Patton's World War II DTC/C-AMA operations, specifically an evacuation hospital assigned to camp Desert Center. Historic debris in the vicinity of the tent pads probably represents dumping activity before and after military operations conducted at the site. The site sits on a relatively well-formed desert pavement bisected by intermittent drainages. Sparse vegetation covers portions of the site, consisting primarily of creosote and mesquite with lesser amounts of other desert brush. A number of dry washes intersect the site boundary. The site is open and exposed to erosion. Modern off-road vehicle tracks cross most of the site.

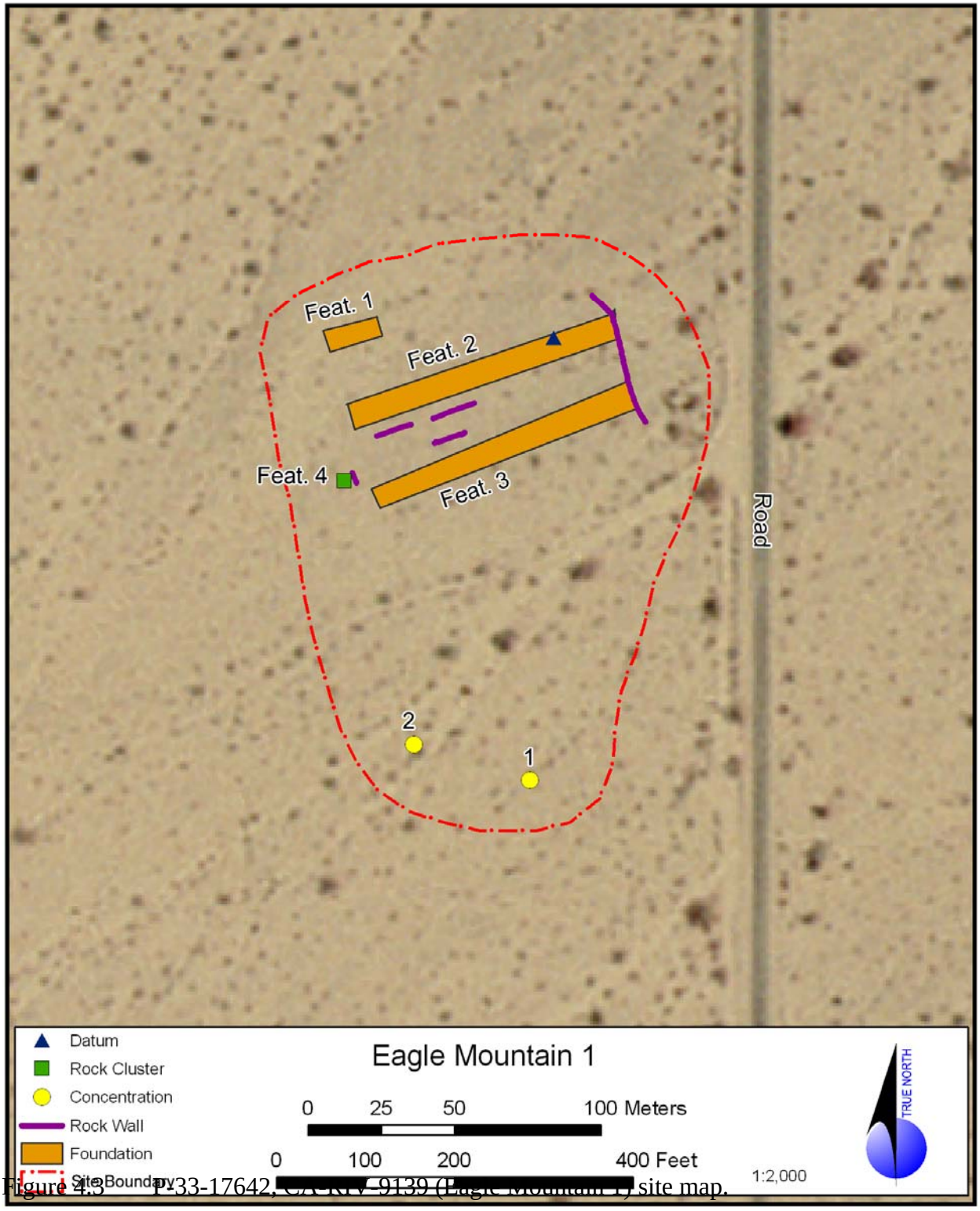


Figure 4.3 P33-17642, CA-RIV-9139 (Eagle Mountain 1) site map.

The site contains a total of four features, including three tent pad features and a possible flag pole base. The tent pads consist of alignments of locally occurring cobbles, arranged east to west along a magnetic north orientation, on cleared portions of the ground surface. Feature 1 consists of a single pad measuring 27 x 64 ft. (Figure 4.4). The interior of the pad measures approximately 50 ft., with 4-ft.-wide entryways on the center of the east and west sides. Rectangular shaped cobble alignments flank either side of the entryways, potentially representing small "yards" at the front and back of the tent. Medium-sized river cobbles compose the yard alignments, with the interior of the pad lined with smaller rocks and gravel (Figure 4.5). Features 2 and 3 each contain four aligned pads, individually measuring 27 x 64 ft. and constructed in the same arrangement as Feature 1. The easternmost pad of Feature 2 contains an additional 12-ft.-square cobble outline with a rock alignment shaped in a "V" pattern, used here as the site datum (Figure 4.6). A linear cobble alignment connects the outside eastern end of the two features. The remnants of a stone-lined path or roadway lie between Features 2 and 3. Feature 4 is a circular alignment of cobbles at the western end of Feature 2 and 3. The circular feature measures approximately 48 x 36 in., and may represent the base of a flagpole or distinguishing marker (Figure 4.7).

Six tin cans are located in the vicinity of the site features, including a crimped-seam rotary-open sanitary can measuring 4 x 2 $^{1}/_{2}$ in., a 4 x 3 $^{1}/_{2}$ in. machine-soldered-seam key-strip-open can, and four crimped-seam rectangular screw-top cans, one measuring 6 $^{1}/_{2}$ x 4 $^{1}/_{4}$ x 9 $^{1}/_{2}$ in., one 3 $^{1}/_{16}$ x 2 $^{1}/_{8}$ x 2 $^{1}/_{2}$ in., and two top fragments with heavily eroded handles

Figure 4.4 Eastern overview of P-33-17642, CA-RIV-9139 (Eagle Mountain 1) Feature 1.

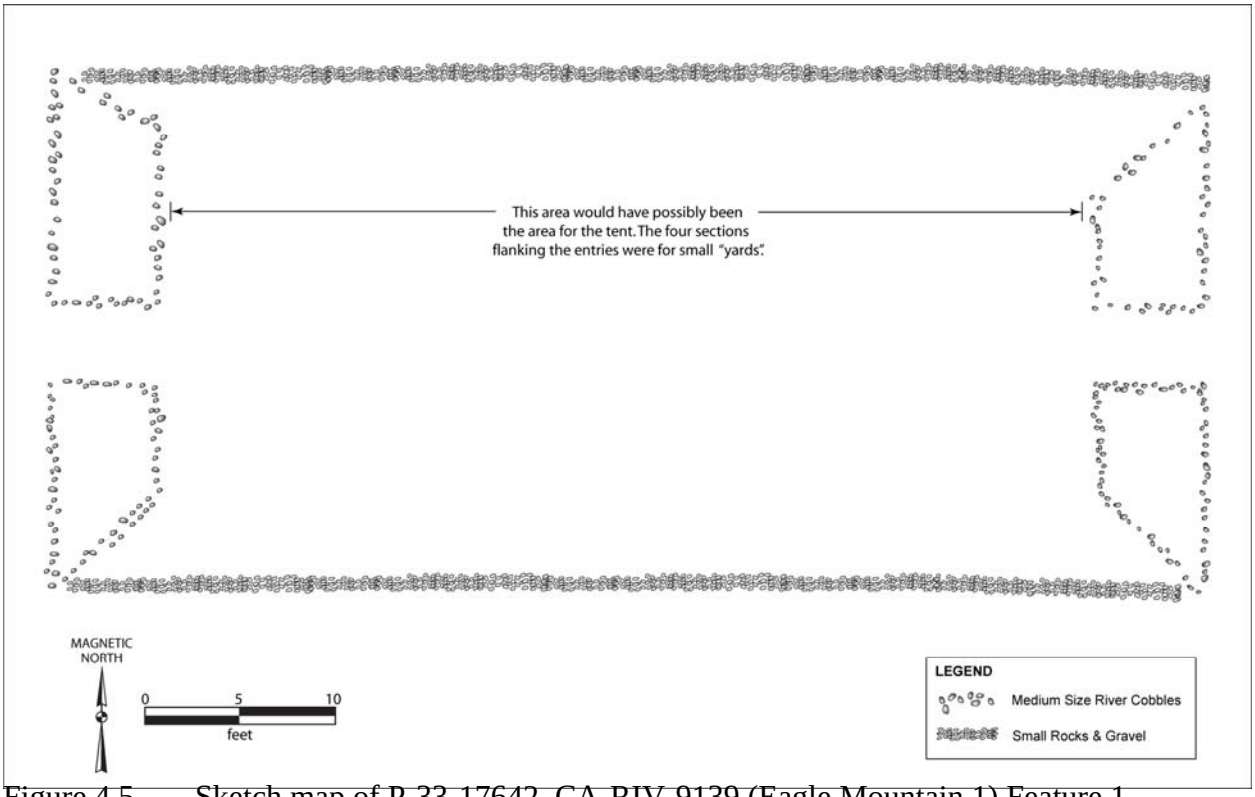


Figure 4.5 Sketch map of P-33-17642, CA-RIV-9139 (Eagle Mountain 1) Feature 1.

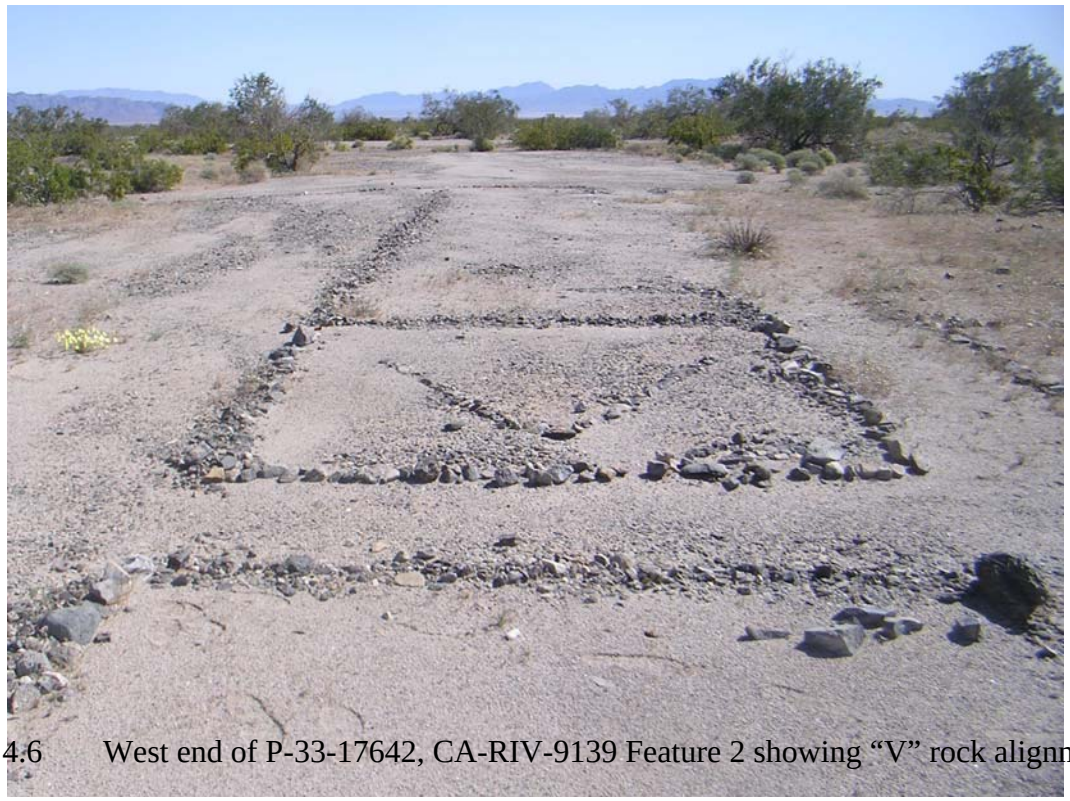

Figure 4.6 West end of P-33-17642, CA-RIV-9139 Feature 2 showing "V" rock alignment.

Figure 4.7 P-33-17642, CA-RIV-9139 (Eagle Mountain 1) Feature 4 view east

Two small artifact concentrations lie on the edge of drainages to the south of the site features. Concentration 1 consists of 15 tin cans and 10 amethyst glass fragments. Can types include seven crimped-seam knife-cut sanitary cans, seven crimped-seam hole-in-cap cans, and one aerosol can. The sanitary cans consist of four cans 3 x 4 $^{5}/_{8}$ in. in size and three measuring 4 x 4 $^{11}/_{16}$ in., all with "Sanitary" stamped on the base. Hole-in-cap cans at the concentration measure 3 x 4 $^{7}/_{16}$ in., and the aerosol can is 2 $^{7}/_{8}$ x 4 $^{3}/_{4}$ in. Concentration 2 contains one hole-in-top crimped-seam can with punched holes measuring 3 x 4 $^{3}/_{16}$ in., a crimped seam rotary opened sanitary can 3 x 3 $^{1}/_{2}$ in. in size, and a key-strip can lid with "Radiant Roast" embossed on the top.

The site features conform well to others found at DTC/C-AMA locations at Camp Young Camp Desert Center, among others (Bischoff 2000). However, the artifacts associated with the site appear to postdate World War II, with the exception of Concentration 1, which potentially predates the war based on the can types and occurrence of amethyst glass, and thus probably represents distinct and separate dumping episodes not associated with military activity conducted at the site.

# P-33-17643, CA-RIV-9140 (EAGLE MOUNTAIN 2)

This site is located north of Interstate 10 along the north edge of a dirt road trending west off of Ragsdale Road. The site consists of two discreet concentrations containing modern and historic debris, encompassing an area 55 m east-west by 25 m north-south (Figure 4.8).

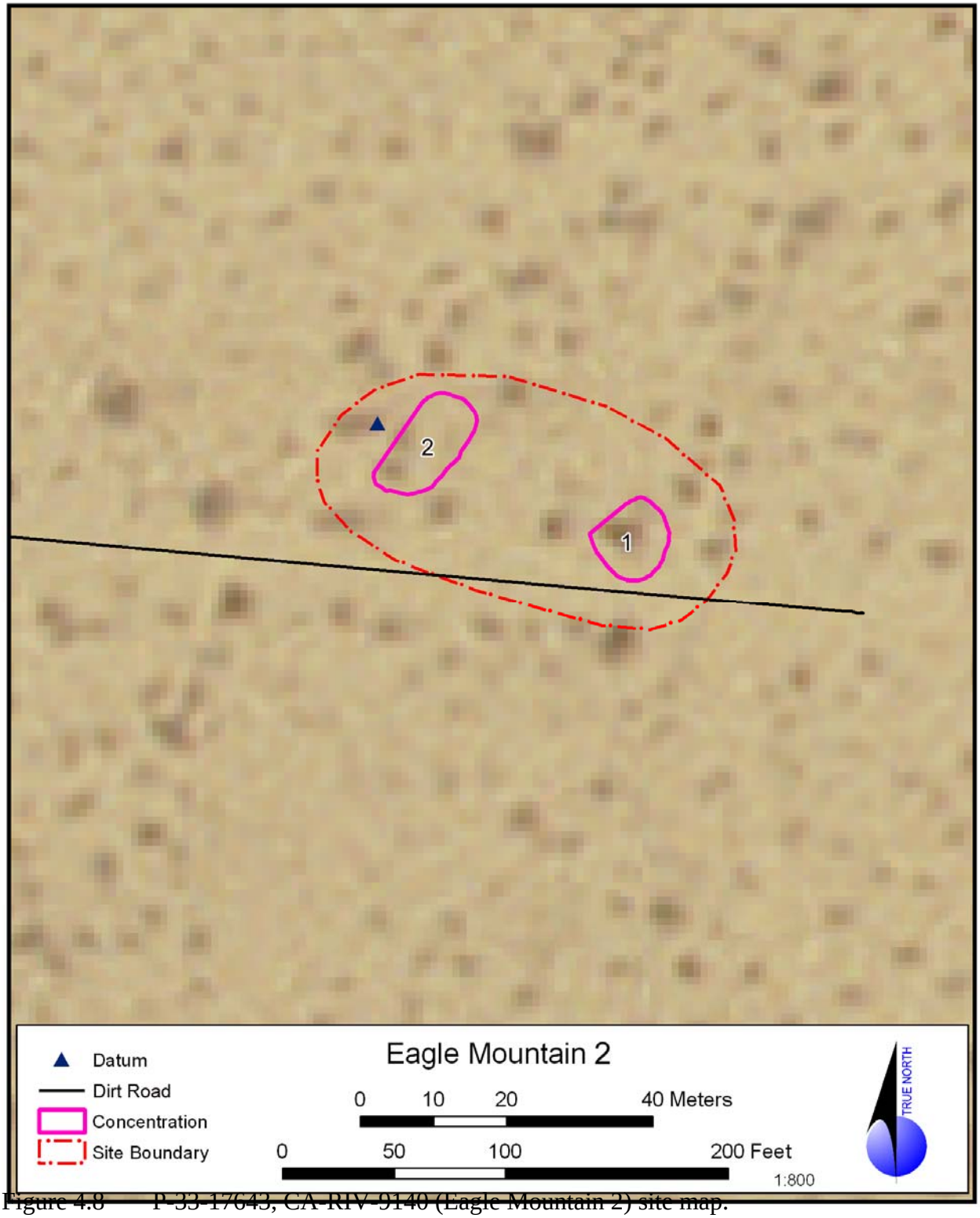


Figure 4.8 P-33-17643, CA-RIV-9140 (Eagle Mountain 2) site map.

A limited number of cans and metal fragments connect the two concentrations. The site sits on a level terrace above and between two large, intermittent drainages. Vegetation on site consists of creosote and mesquite. Dry washes bound the east and west ends of the site. Cans are eroding into the drainages on the east edge of Concentration 1 and through the central portion of Concentration 2. A dirt road bisects the southern edge of the site.

Concentration 1 measures approximately 10 m in diameter, and is located at the base of a large mesquite tree (Figure 4.9). The concentration contains over 100 artifacts, including tin cans and bottle glass. Tin cans identified consist primarily of flat-top beverage cans, including over 30 interlocked machine-soldered-seam church-key-opened cans with "Shasta Orange Soda" labels and measuring $2\ ^{11}/_{16}$ x $4\ ^{13}/_{16}$ in., and at least 10 pull-tab cans of the same size. At least five flat-top-crimped machine-soldered-seam cans display rotary openings, potentially representing fruit/vegetable containers. Diagnostic bottle glass identified in the concentration appears to date to the 1950s, including clear milk fragments with "Fresh/Milk/Carnation/Company/REG CAL" on red applied color labels with round bases and square bodies, embossed with "Owens Illinois, Duraglas" at the base, and an intact Owens Illinois aspirin bottle with continuous thread, metal cap, a year code of 4 and a plant code of 7 (Alton, Illinois, c. 1934).

Concentration 2 is approximately 16 x 8 m in size, sits on the eastern edge of a dry wash at the base of a large mesquite tree and contains metal wire, ceramic insulators, window glass, bottle glass, paint cans, and sanitary cans. Sanitary cans within the concentration consist primarily of crimped machine soldered seam cans, approximately 20 each with P38 openings and rotary openings, and at least five P38-opened cans. Bottle glass in Concentration 2 includes a brown Sani-Clor bleach bottle base and clear soda bottle fragments with Owens Illinois year code 8 and plant code 23 (Los Angeles, c. 1956).

## P-33-17694, CA-RIV-9141 (EAGLE MOUNTAIN 3)

The site consists of a small, discreet historic trash dump, consisting of metal cans, glass fragments, ceramic fragments, and metal scraps (Figure 4.10). The site sits on a slight rise between the two washes, and measures approximately 5 m east-west by 3 m north-south. Two creosote bushes define the dump boundary. Dry washes bound the east and west ends of the site. The site is subjected to natural erosion through alluvial processes. An old dirt road trending east west is between 5 and 10 m south of the site.

Identified artifacts appear to date to the late 1940s to 1950s, and include over 100 brown and clear bottle glass fragments, at least five straw-colored milk bottle glass fragments, over 20 brown medicine bottle glass fragments, approximately five pink baking dish glass fragments, more than 20 glazed ceramic vessel fragments, at least five metal mason jar lids, and various rusted metal scraps, in addition to crimped machine-soldered-seam flat top ($n > 20$), sanitary ($n > 10$), and hole-in-top tin cans ($n = 2$). One Owens Illinois glass bottle base displayed a plant code of 12 (Gas City, Indiana).

Figure 4.9 Western overview of P-33-17694, CA-RIV-9141 (Eagle Mountain 2) Concentration 1, with the archeologist standing in the background at Concentration 2.

Figure 4 ountain 2)

# P-33-17645, CA-RIV-9142 (EAGLE MOUNTAIN 4)

Eagle Mountain 4 is a small (5-x-3-m), north-south trending historic trash dump, consisting of metal cans, glass fragments, ceramic fragments, and metal scraps. The site sits on a slight rise between the two drainages and clusters around a creosote bush (Figure 4.11). Intermittent drainages bound the east and west sides of the site. Artifacts from the site are eroding down the associated drainages. A modern trash pile containing tires, milled lumber, rebar, cable, and chain-link fencing lies approximately 20 m northwest of the site. An old dirt road contours the drainage west of the site.

Historic artifacts identified at the site appear to date from the late 1940s to the 1950s and include over 20 sanitary cans, six hole-in-top cans, more than 30 brown bottle glass fragments, at least 20 clear bottle glass fragments, a glass pipette fragment, approximately five white transfer-print ceramic fragments, and various metal scraps and screen. All of the tin cans identified at the site display crimped machine-soldered seams, with rotary, internal-friction, and P38 openings on sanitary cans and punched holes and key-strip-opened hole-in-top cans. Diagnostic glass artifacts include a clear Best Foods Mayonnaise jar base fragment with an Owens Illinois year code of 0 and Clorox Bleach brown bottle glass fragments.

Figure 4.11 Southeastern view of cans clustered around creosote bush at P-33-17645, CA-RIV-9142 (Eagle Mountain 4).

# P-33-17646, CA-RIV-9143 (EAGLE MOUNTAIN 5)

Three discreet historic refuse dumps consisting of tin cans and bottle glass comprise the site, with washed-out cans among and between the three concentrations. The site lies on an alluvial fan, sparsely covered with mesquite, creosote, and low lying brush. Dry washes border the site's east and west ends, and bisect the site. Artifacts are eroding out of the concentrations through alluvial activity. An old dirt road runs along a north-south trending drainage between Concentration 1 and 2, intersecting with an east-west-trending dirt road running through the center of the site (Figure 4.12). Modern debris is dispersed across the site.

Concentration 1 is approximately 5 m in diameter, and contains over 200 glass fragments, including clear, green, brown, and cobalt bottle glass fragments, mason jars, medicine bottles, and glassware (Figure 4.13). One brown glass alcohol bottle base fragment is embossed with "ONE/QUART" and contains the mark "MG" (possibly Maywood Glass Co., Compton, California). Tin cans from the concentration ($n > 50$) all display crimped machine-soldered seams, and include rotary-opened sanitary cans, hole-in-top cans with punched hole openings, meat tins, and tobacco tins.

Concentration 2 measures approximately 20 x 10 m, and includes more than 100 clear, aqua, brown, green, and milk glass fragments representing beer and other beverage bottles, cold cream jars, bleach bottles, condiment bottles, and glassware. Identified bottles include a Purex bleach bottle base, Old Quaker whisky flask, and a possible Orange Crush bottle. The concentration also includes over 30 tin cans, primarily P38 opened sanitary cans with crimped machine-soldered seams, tobacco tins (Figure 4.14) and one flat-top interlocked machine-soldered-seam can with a church-key opening. Modern debris, including bottle glass and corrugated metal, is interspersed within the concentration.

Concentration 3 is less than 50 cm in diameter and contains over 20 clear, green, and milk glass fragments from beverage bottles and cold cream jars. The concentration also includes at least six unidentifiable tin cans embedded within the sediment.

# P-33-17647, AC-RIV-9144 (EAGLE MOUNTAIN 6)

A discreet refuse dump containing historic household and construction debris characterizes this site (Figure 4.15). The site sits on a small rise surrounded by intermittent drainages (Figure 4.16). Mesquite, creosote, and small, ground-level brush cover portions of the rise. Dry washes surround the landform containing the site. Artifacts from the site are washing into the surrounding washes.

Artifacts identified at the site include over 100 wire nails, metal hooks, hinges, nuts, and bottle caps, as well as wire, light bulbs, two tin cans, and over 50 clear, brown, aqua, and milk glass bottle fragments. The tin cans from the site both represent crimped machine-soldered-seam sanitary cans with rotary openings.

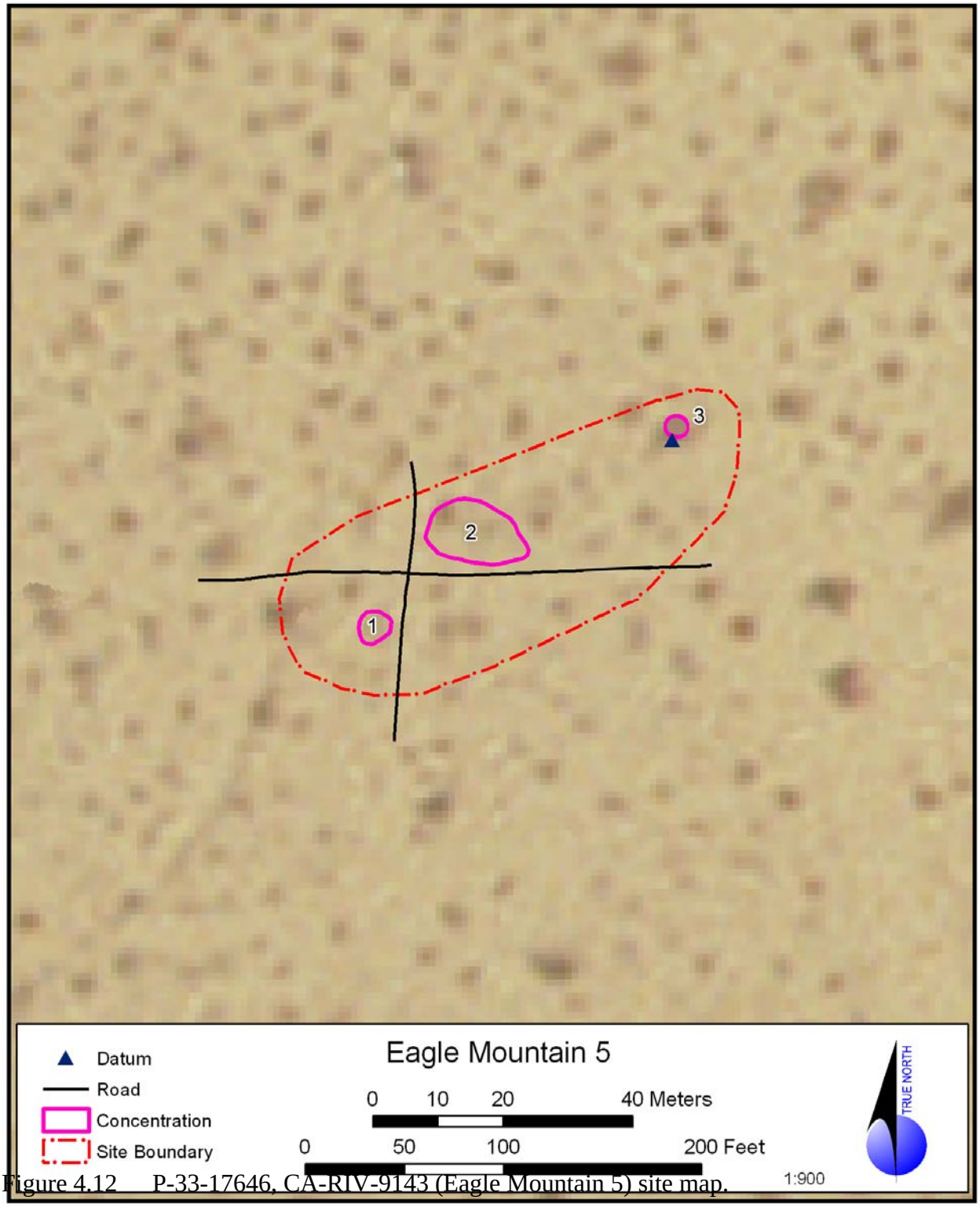


Figure 4.12 P-33-17646, CA-RIV-9143 (Eagle Mountain 5) site map.

Figure 4.13 Southern overview of P-33-17646, CA-RIV-9143 (Eagle Mountain 5) Concentration 1.

Figure 4.14 Example of tobacco tins identified within P-33-17646, CA-RIV-9143 (Eagle Mountain 5) Concentration 2.

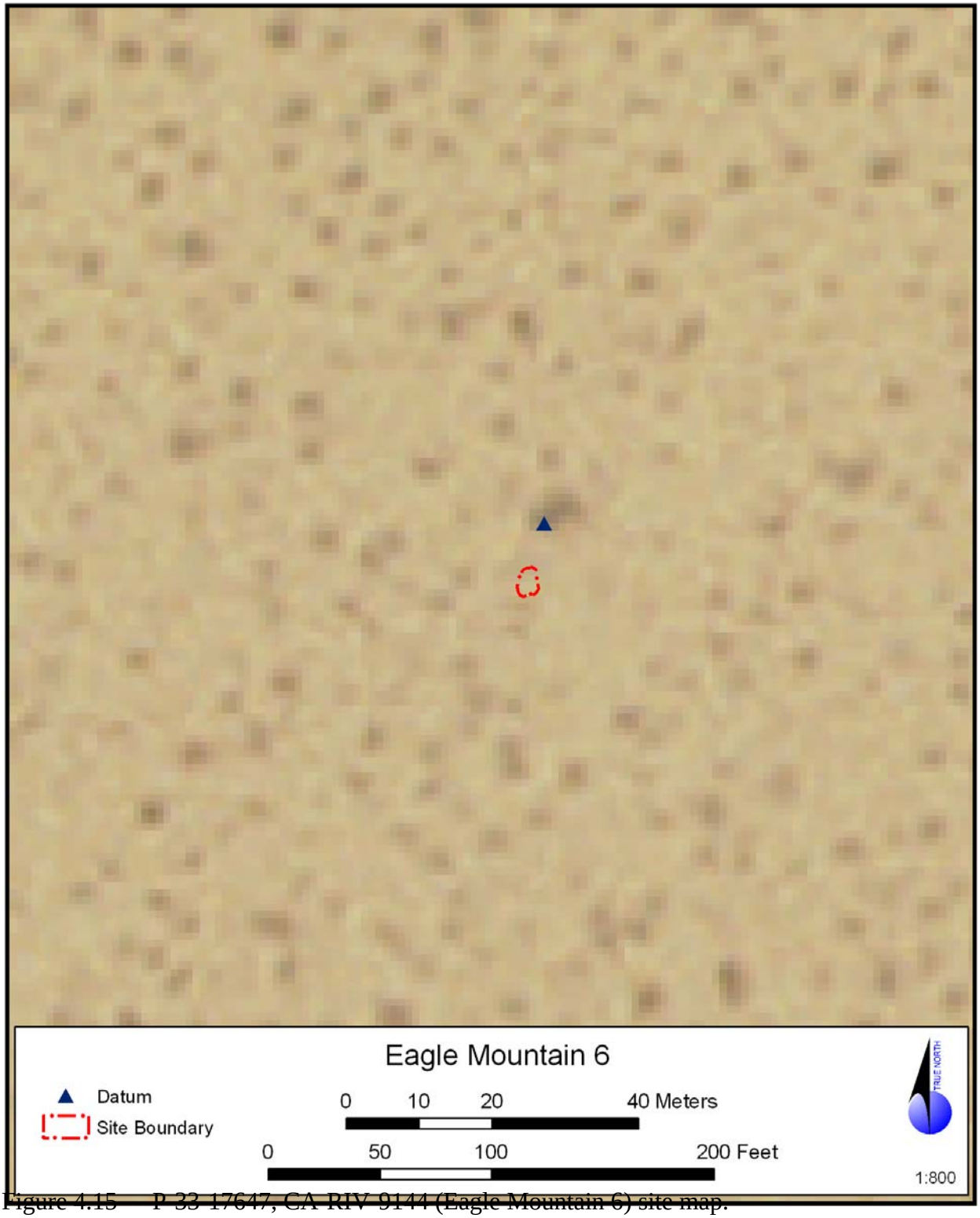


Figure 4.15 P-33-17647, CA-RIV-9144 (Eagle Mountain 6) site map.

Figure 4.16 Southern overview of P-33-17647, CA-RIV-9144 (Eagle Mountain 6).

# (P-33-17648) ISOLATE 1

The isolate consists of a concrete post embedded in the ground with a "C" inscribed on its eastern end, representing a California highway right-of-way monument (Figure 4.17). It was recorded as an "isolate" on a DPR Primary Record but could also be interpreted as an "object" An abandoned dirt road trending east west off of Ragsdale Road runs north of the marker. The marker is embedded in a compact desert pavement, with at least four aqua bottle glass fragments from the same vessel scattered on the ground surface east of the isolate. Such monuments were used between 1914 and 1934. This one may date to a survey for the Mecca-Blythe road and predate the 1925 relocation of the route 1.25 miles to the south as U.S. Highway 60.

Figure 4.17 East side of California Highway marker, P-33-17648 (Isolate 1) with aqua bottle glass in foreground.

# 5. CONCLUSIONS AND RECOMMENDATIONS

The following sections provide a brief discussion regarding the results of the archaeological survey, evaluations for eligibility to the NRHP, and recommendations for future management of cultural resources identified within the areas surveyed for the proposed Eagle Mountain Pumped Storage Project.

## CRITERIA FOR EVALUATION

Section 106 of the NHPA directs Federal agencies to consider the effects of undertakings on historic properties that are eligible to be listed in the NRHP. To be eligible for listing the NRHP, a resource must satisfy the following criteria:

> The quality of significance in American history, architecture, archeology, 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:
>
> **A.** That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> **B.** That are associated with the lives of persons significant in our past; or
>
> **C.** That 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.** That have yielded or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

## DISCUSSION

ASM surveyed approximately 33 linear miles, including the Proposed and withdrawn Alternative Transmission Lines, Water Lines, in addition to a Proposed and withdrawn Alternative 25-acre Interconnection Collection Substation locations and four potential Water Supply Well locations. ASM was unable to survey the northern ends of the Proposed Transmission and Water Lines due to access issues at the Kaiser Mine. In any event, the Mine and Townsite have been previously recorded as site P-33-6913 for the proposed Eagle Mountain Landfill Project. In regard to that project the State Historic Preservation Officer on concurred with the BLM determination that the 429-acre Eagle Mountain Townsite and the Eagle Mountain Mine were not eligible for listing in the NRHP because neither were more than 50 years old and neither exhibited exceptional significance (Letter from Cherilyn Widell to Henri R. Bisson, District Manager, BLM California Desert District, Dec. 12, 1996) (Appendix B).

ASM did not encounter the recorded portion of the Colorado River Aqueduct (P-33-6726) as crossing the Proposed Transmission and Water Lines, as this site is a subsurface tunnel where the proposed line crosses, but ASM did encounter portions of the Eagle Mountain Industrial Railroad in the northern end of the Proposed Transmission Line. The Colorado River Aqueduct (P-33--6726) is very likely to be eligible listing in the NRHP based on its historical significance under Criteria "A" and "C" (Schaefer 2009). In 1998 the Historic American Engineering Record of the National Park Service formally recorded the Aqueduct for the Metropolitan Water District. The U.S. Army Corps of Engineers may have previously determined it to be NRHP-eligible (Cristopher Dalu, BLM, Palm Springs/South Coastal Field Office 2009, personal communication). It is recommended as eligible for listing in the NRHP under Criteria "A" and "C" on the regional and national levels. The Proposed Transmission Line and Waterline, however, span buried portions of the aqueduct of which only a road and earthern berm are indicators of its alignment. Little or no impacts to integrity of setting, feeling, or materials are therefore expected from the proposed project.

The Eagle Mountain Industrial Railroad lacks integrity of materials and only its original alignment remains. Even though it is now over 50 years old, it is recommended that it also be evaluated as not eligible for listing in the NRHP, along with the Eagle Mountain Townsite and Mine. All of the materials have been replaced in the 1960s and 1970s and the proposed Eagle Mountain Landfill project calls for its reuse.

The survey resulted in the recordation of six previously unidentified historic archaeological sites and one historic period isolate. Site P-33-17642, CA-RIV-9139 (Eagle Mountain 1), located in the northern end of the Alternative Transmission Line, consists of a series of tent pads and related features constructed from locally occurring cobbles, representing military operations associated with the World War II Desert Training Center (DTC) initially commanded by General George S. Patton. The DTC/C-AMA operated between 1942 and 1944, and represents a relatively significant period in Southern California history. The site may characterize a portion of the evacuation hospital complex at camp Desert Center, or possibly troop activities associated with Camp Desert Center or other installations of the DTC/C-AMA, such as Camp Young or Camp Coxcomb. It appears likely that the trash scatters identified on the site surface represent deposition both prior and subsequent to military occupation of the area. Buried trash deposits from the time of DTC/C-AMA might likely occur within the site boundaries, however. It is recommended to be eligible for listing in the NRHP under Criterion "A" and possibly Criterion "D" at the local, regional, and national level due to its association with the World War II mobilization effort (Bischoff 2000). Although additional survey would be necessary to determine what other DTC/C-AMA facilities are in the immediate facility, it is recommended for consideration on a multiple resource nomination, at the very least. Site P-33-17642, CA-RIV-9139 (Eagle Mountain 1), however, lies outside the current APE and therefore no further consideration or treatment is warranted for Section 106 compliance. BLM, however, may want to consider some protection from continued use of Eagle Mountain Road.

The remaining recorded cultural resources, sites P-33-17643-17647, CA-RIV-9140-9144 (Eagle Mountain 2-6) are all located within the Proposed Interconnection Collection Substation location. All are evaluated as not eligible for listing in the NRHP. The historic-period sites within the Substation location all appear to represent the disposal of household refuse along a

dirt road during the late 1940s or 1950s, most likely from the community of Desert Center via Ragsdale Road. Because of their spatial dislocation from specific Desert Center households or enterprises proper, these sites are not associated with known persons or specific activities or time periods with historic significance. Additionally, the artifacts associated with the site, while retaining integrity of location and in some cases condition, do not signify resources that would lead to a greater understanding of the time period in the Desert Center area. In comparison, trash deposits from the 1920s that were associated with "Desert Steve" Ragsdale's homestead at Gruendike Well or his initial move to Desert Center might have greater significance at a local level.

A concrete California Highway marker (P-33-17648), potentially installed in the late 1920s to the 1930s, characterizes the historic period isolated find. Isolates are generally not eligible for listing in the NRHP because they lack sufficient information to be important to history. The California Highway marker likewise does not contribute to the historic record of the general area or of the region as a whole. Hence, it is unlikely that any of these sites or the isolate represent significant cultural resources.

# RECOMMENDATIONS

The final section of this report provides brief management recommendations concerning each of the sites recorded during the current survey. Avoidance of archaeological sites is the simplest and most cost effective way to mitigate adverse affects to any cultural resources potentially eligible for the National Register of Historic Places (NRHP). However, avoidance is not always feasible, and eligibility evaluations are often necessary. Although the project alignment crosses portions of both the Colorado River Aqueduct (P-33-006726, CA-RIV-6726H) and the Eagle Mountain Industrial Railroad, the project is unlikely to pose significant adverse effects to these sites. While P-33-17643-17647, CA-RIV-9140-9144 (Eagle Mountain Nos. 2-6) are located in the Proposed Interconnection Collection Substation, and are unlikely to be avoided, they do not represent significant cultural resources and are evaluated as not eligible for listing in the NRHP. No further treatment is therefore recommended.

Although P-33-17648 (Isolate No 1), the California Highway monument, is evaluated as not eligible to the NRHP, such objects that were erected between 1914 and 1934 bear witness to early efforts at developing state and national highway transportation infrastructure. They have been previously recorded along state routes such as Route 66 in San Bernardino Counties and Old Highway 80 in Imperial County:
(http://www.goldenstatehwys.net/state/c_block_california.htm). If at all feasible, efforts should be made to avoid impacts to the monument.

P-33-17642, CA-RIV-9139 (Eagle Mountain 1), on the other hand, is associated with a significant period in Southern California and national history and is likely to be NRHP-eligible as a contributor to a multiple resource. It is located outside of the APE, however, and no further treatment is recommended beyond normal avoidance measures associated with the use of Eagle Mountain Road.

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# APPENDICES

# APPENDIX A

## Confidential Site Records

This information is privileged and not for release. It has been redacted from this document and bound under separate cover, titled:

Confidential Cultural Resources - Appendix to the Environmental Impact Report

# APPENDIX B

## BLM-SHPO consultation letter concerning the Eagle Mountain Mine and Townsite

STATE OF CALIFORNIA — THE RESOURCES AGENCY

PETE WILSON, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO 94296-0001
(916) 653-6624
FAX: (916) 653-9824

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December 12, 1996

REPLY TO: BLM910[illegible]

Henri R. Bisson
District Manager
Bureau of Land Management
California Desert District Office
6221 Box Springs Boulevard
RIVERSIDE CA 92507-0714

Dear Mr. Bisson:

RE: EAGLE MOUNTAIN LANDFILL PROJECT

Thank you for notifying me that the BLM is re-opening consultation on the Eagle Mountain Landfill project. Subsequent to our 1991 consultation, the San Diego Superior Court ruled that the Environmental Impact Report for the project should include the Eagle Mountain Townsite, not included in the 1991 APE, in the project description. The APE has now been expanded to include all patented lands that make up the Townsite of Eagle Mountain, approximately 429 acres. The BLM also wishes to consult now on the eligibility of the the Eagle Mountain Mine, located in the earlier APE but not evaluated.

Pursuant to the terms of the Programmatic Agreement regarding the identification, evaluation and treatment of historic properties managed by the BLM in California, you have determined that neither the Eagle Mountain Townsite nor the Eagle Mountain Mine are eligible for inclusion in the National Register of Historic Places. You have documented that both properties are less than 50 years of age and that neither property exhibits exceptional significance under National Register Criteria Exception G. You have further determined that an isolated milling stone artifact (Field No. EM-ISO#1) is not eligible for inclusion in the National Register. I concur with your determinations.

If you have questions, please do not hesitate to contact Lucinda Woodward at (916) 653-9116.

Sincerely,

Cherilyn Widell
State Historic Preservation Officer