

4.5 Cultural Resources

The purpose of this Section is to identify existing cultural resources within the Project area, analyze potential cultural resources associated with the development of the proposed Project, and identify mitigation measures that would avoid or reduce the significance of any identified impacts.

In addition, another purpose of this Section is to identify potential Indian Trust Assets within the Project area, analyze potential impacts associated with development of the proposed Project, and identify mitigation measure that would avoid or reduce the significance of any identified impacts. Thresholds of significance for the impact analysis are derived from *Indian Trust Asset Policy and NEPA Implementing Procedures 1994*.¹

This Section is derived from technical reports prepared by ESA² and Paleo Solutions, Inc.³ These reports are included in Appendix G of the Draft EIR. Thresholds of significance for the impact analysis are derived from Appendix G of the 2011 *CEQA Guidelines*.

4.5.1 Environmental Setting

Summary of Cultural Resources

Cultural resources are defined as prehistoric and historic sites, structures, districts, and landscapes, or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or other reason. Under CEQA, paleontological resources, although not associated with past human activity, are grouped within cultural resources. For the purposes of this analysis, cultural resources may be categorized into four groups: archaeological resources, historic resources, including architectural/engineering resources, contemporary Native American resources, and paleontological resources.

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric-era (before European contact) or historic-era (after European contact). The majority of such places in California are associated with either Native American or Euro-American occupation of the area. The most frequently encountered prehistoric or historic Native American archaeological sites in the State are village settlements with residential areas and sometimes cemeteries; temporary camps where food and raw materials were collected; smaller, briefly occupied sites where tools were manufactured or repaired; and special-use areas like caves, rock shelters, and rock art sites.

¹ Bureau of Reclamation, *Indian Trust Asset Policy and NEPA Implementing Procedures*, August 1994, pages 7-13.

² Environmental Science Associates, *Phase 1 Cultural Resources Assessment for the Cadiz Groundwater Conservation and Storage Project, San Bernardino County (CA)*, January 2011.

³ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November, 2010; Kelly, I. T., and C.S. Fowler, "Southern Paiute", in *Handbook of North American Indians, Volume 11: Great Basin*, edited by Warren L. D'Azevedo, Smithsonian Institution, Washington, 1986, page 368-397.

Historic-era archeological sites may include foundations or features such as privies, corrals, and trash dumps.

Historic resources include standing structures, infrastructure, and landscapes of historic or aesthetic significance that are generally 50 years of age or older. In California, historic resources considered for protection tend to focus on architectural sites dating from the Spanish Period (1529-1822) through the early years of the Depression (1929-1930), although there has been recent attention paid to World War II (WWII) and Post War era facilities. Earlier historic resources are often associated with archaeological deposits of the same age. Some resources, however, may have achieved significance within the past 50 years if they meet the criteria for exceptional significance.

Contemporary Native American resources, also called ethnographic resources, can include archaeological resources, rock art, and the prominent topographical areas, features, habitats, plants, animals, and minerals that contemporary Native Americans value and consider essential for the preservation of their traditional values. These locations are sometimes hard to define and traditional culture often prohibits Native Americans from sharing these locations with the public.

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plant and animal fossils. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. As defined in this Section, paleontological resources are the fossilized remains or traces of multi-cellular invertebrate and vertebrate animals and multi-cellular plants, including their imprints from a previous geologic period. Fossil remains such as bones, teeth, shells, and leaves are found in the geologic deposits (rock formations) where they were originally buried. Paleontological resources include not only the actual fossil remains, but also the collecting localities and the geologic formations containing those localities.

Natural Setting

The Project area is located in the Mojave Desert, which is situated within the southern Basin-and-Range geomorphic province. The terrain consists of a series of broad, shallow southeast-trending valleys. Several playas, or closed basin sinks, exist on the valley floors. North-south trending weathered mountain ranges, not usually exceeding 4,000 feet in elevation, surround the valleys. However, the New York Mountains at the northern edge of the Fenner Watershed are over 7,500 feet in elevation. The elevation of the Project area ranges from 600 feet above mean sea level (amsl) at Bristol Dry Lake to over 900 feet amsl at the Fenner Gap.

The eastern Mojave Desert is characterized as an arid desert climate with low annual precipitation, low humidity, and relatively high temperatures. Winters are mild and summers are hot, with a large range in daily temperatures. Temperature and precipitation vary greatly with altitude, with higher temperatures and lower precipitation at low altitudes and lower temperatures

and higher precipitation at higher altitudes. Average annual precipitation varies from about 4 inches in Bristol Valley to more than 12 inches in the New York Mountains.⁴

The primary plant community in the Mojave Desert is the creosote scrub community, which is dominated by creosote bush and white bursage. Other plant communities include the cactus scrub community, which includes barrel cactus, calico cactus, and ocotillo, and the saltbrush series, which includes saltbrush, mesquite, arrowweed, and goldenbrush. Common animals include desert cottontail, jackrabbit, kangaroo rat, packrat, chuckwalla iguana, desert tortoise, and desert quail.

The area provided many sources of food for its prehistoric inhabitants. Rodents, jackrabbits and cottontails, and occasionally deer and waterfowl would have been hunted. Mesquite, pinon nuts, live oak acorns, and Manzanita berries were all important plant food sources.⁵

Prehistoric Setting

The prehistory of the Mojave is generally described in terms of cultural “complexes.” A complex is a specific archaeological manifestation of a general mode of life, characterized archaeologically by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. Complexes are typically associated with particular chronological periods (Table 4.5-1).

**TABLE 4.5-1
 CULTURAL COMPLEXES**

| Time Period | Complex | Dates |
|-----------------|------------------|-----------------------|
| Pleistocene | Paleo-Indian | 10,000 – 8,000 B.C. |
| | Lake Mojave | 8,000 – 6,000 B.C. |
| Early Holocene | Deadman Lake | 7,500 – 5,200 B.C. |
| | Pinto | 6,000 – 3,000 B.C. |
| Middle Holocene | Gypsum | 2,000 B.C. – A.D. 200 |
| | Rose Spring | A.D. 200 – 1100 |
| | Late Prehistoric | A.D. 1100 to contact |

SOURCE: ESA, 2011.

Paleo-Indian (10,000-8,000 B.C.)

The Paleo-Indian period is sparsely represented in the Mojave, but is characterized primarily by large, fluted Clovis Projectile points. This limited evidence suggests that early human occupants

⁴ CH2M Hill, *Cadiz Groundwater Conservation and Storage Project*, July 2010, pages 2-2, 2-3.

⁵ Bean, Lowell John, and Sylvia Brakke Vane, *The Native American Ethnography and Ethnohistory of Joshua Tree National Park: An Overview*, produced for the National Park Service, August 2002.

of the Mojave probably lived in small, mobile groups in temporary camps near permanent water sources.⁶

Lake Mojave Complex (8,000-6,000 B.C.)

Lake Mojave sites have been found primarily around Fort Irwin, Lake Mojave, Lake China, Rosamond Lake, and Twentynine Palms, located near extinct water sources with the margins of pluvial lakes being the preferred settlement area. Subsistence and settlement patterns are likely to have been a direct response to climatic fluctuations occurring during the Pleistocene to Holocene transition. High mobility designed to exploit ever-changing resource bases, coupled with a reliance on more permanent resources (water sources), was likely. In particular, the Lake China basin seems to have been a preferred resource location. Lake Mojave populations were organized into small, mobile groups and practiced a forager-like subsistence strategy. Sites appear to have been repeatedly occupied, with artifact assemblages from both large and small sites being functionally identical.⁷

In terms of material culture, the Lake Mojave Complex is typified by stone tools such as Lake Mojave and Silver Lake projectile points, bifaces, steep-edged unifaces, crescents, and some ground stone implements. The use of heavy projectile points, bifaces, and scrapers would suggest exploitation of large game. However, faunal assemblages and protein residue analyses from Fort Irwin represent heavy reliance on small game, such as rodents, reptiles, and lagomorphs (hares/rabbits/pikas). Ground stone wear is generally light, which suggests minor use of hard seeds. Marine shell beads and non-local lithic materials indicate trade and/or long-distance foraging. Heavily battered cobble tools are often recovered, but the nature of their use is unclear.⁸

Deadman Lake Complex (c. 7,500 to c. 5,200 B.C)

This complex is a newly proposed complex that has yet to be fully defined and recognized. Thus far, sites from the Deadman Lake Complex are geographically restricted to Twentynine Palms in the southeastern Mojave Desert and appear to overlap with the Paleo-Indian and Pinto complexes.⁹ Artifact types include small- to medium-size contracting-stemmed or lozenge-shaped points, battered cobbles and core tools, bifaces, flaked tools, and milling equipment. Similar projectile points have been recovered from Ventana Cave in Arizona. Lithic materials include large quantities of coarse- to fine-grained igneous rock and smaller amounts of both local and exotic obsidian. *Olivella* shell beads are present, with both *O. biplicata* from the Pacific coast and *O. dama* from the Sea of Cortez represented.

⁶ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, "Advances in understanding Mojave Desert Prehistory", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, pages 229-245.

⁷ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, "Advances in understanding Mojave Desert Prehistory", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, pages 234-237.

⁸ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, "Advances in understanding Mojave Desert Prehistory", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, pages 234-237.

⁹ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, "Advances in understanding Mojave Desert Prehistory", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 239.

The Pinto Complex (6,000 to 3,000 B.C.)

Archaeological deposits dating from the Pinto Period suggest that Pinto settlement patterns consisted of seasonal occupation by small, semi-sedentary groups that were dependent upon a combination of big and small-game hunting and collection strategies, which could include the exploitation of stream or water resources. Typically, sites of this period are found along lakeshores and streams or springs, some of which are now dry, and in upland areas. Larger sites tend to be near well-watered locations, with smaller sites in other areas. In comparison to smaller sites, larger sites exhibit substantial midden deposits and greater variation in artifact types. These larger sites were probably centralized locations from which foraging parties journeyed to seasonal resources.¹⁰

The extent of regional mobility at this time is uncertain. A lack of lithic material diversity might indicate that foraging activities were not as expansive as in the previous complex.¹¹ However, *Olivella* shell beads are still present, which indicates at least some degree of contact with coastal groups.

Material culture representative of this period include roughly formed projectile points, “heavy-keeled” scrapers, choppers, and a greater prevalence of flat millingstones and manos (Warren, 1984: 410-414).¹² Pinto series projectile points appear to have been frequently reworked, suggesting they were used primarily as spear tips and not darts.¹³

Faunal assemblages are similar to those of the Lake Mojave Complex, with a slight increase in small fauna taxa coupled with a decrease in artiodactyls.¹⁴ The rise of millingstones and manos indicates a more intensive use and processing of plant resources and site placement may have been in part based on access to plant resources. New dates indicate that intensive plant exploitation was occurring by circa 7000 B.C., which is contemporaneous with coastal California groups.¹⁵

At the end of the Middle Holocene, around 3000 B.C., environmental conditions became much drier and hotter, and few sites in the Mojave date to the period between 3000 and 2000 B.C.,

¹⁰ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, “Advances in understanding Mojave Desert Prehistory”, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 238.

¹¹ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, “Advances in understanding Mojave Desert Prehistory”, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 238.

¹² Warren, C. N., “*The Desert Region*”, In *California Archaeology*, 1984.

¹³ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, “*Advances in understanding Mojave Desert Prehistory*”, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 238.

¹⁴ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, “Advances in understanding Mojave Desert Prehistory”, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 239.

¹⁵ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, “Advances in understanding Mojave Desert Prehistory”, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, pages 238-239.

suggesting that the area may have been largely abandoned during this period of unfavorable climate.¹⁶

Gypsum Complex (c. 2,000 B.C. to A.D. 200)

The Late Holocene was characterized by a wetter and cooler climate than the Middle Holocene. Settlement patterns suggest small, temporary camps concentrated near streams. At the same time, we see more evidence of inter-tribal trade, particularly between the desert and the coast, and increasing social complexity.¹⁷ The artifact assemblage associated with this period includes an increase in the prevalence of millingstones and manos, and it is believed that it was during this period that the pestle and mortar were introduced. These technological developments may point to the increased consumption of seeds and mesquite.¹⁸ Other artifacts associated with the Gypsum Period include Elko corner-notched series, concave base Humboldt series, and contracting-stemmed Gypsum series projectile points. Ritual activities are indicated by the presence of quartz crystals, paint, and rock art.¹⁹ Towards the end of the Gypsum period, there is evidence for the use of the bow and arrow.²⁰ Interestingly, there is a scarcity of Gypsum period sites in the southern and eastern extent of the Mojave Desert.²¹

Rose Spring Complex (c. A.D. 200 to 1,100)

The general cultural pattern for this period is a continuation of that of the preceding Gypsum Period. The increase in cultural complexity continued into this period and the archaeological record attests to established trade routes between desert and coastal populations by way of shell beads and steatite, as well as an introduction of Anasazi influence from the eastern Great Plains as evidenced by the appearance of turquoise and pottery.²²

Archaeological sites from this period are more numerous and contain more well developed middens, indicating an increase in population and a more permanent settlement pattern.²³

¹⁶ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, "Advances in understanding Mojave Desert Prehistory", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 241.

¹⁷ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, "Advances in understanding Mojave Desert Prehistory", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 241.

¹⁸ Warren, C. N., "The Desert Region", In *California Archaeology*, 1984, Page 416.

¹⁹ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, *Advances in understanding Mojave Desert Prehistory*, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 241.

²⁰ Warren, C. N., "The Desert Region", In *California Archaeology*, 1984, page 415.

²¹ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, "Advances in understanding Mojave Desert Prehistory", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 241.

²² Warren, C. N., "The Desert Region", In *California Archaeology*, 1984, pages 421-422.

²³ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, "Advances in understanding Mojave Desert Prehistory", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 241.

Additionally, evidence of structures such as wickiups and pit houses also supports more permanent settlements. Sites tend to be located near springs, washes, and lakeshores.²⁴

Material culture related to this period includes large quantities of obsidian artifacts, Rose Spring and Eastgate series projectile points, knives, drills, pipes, bone awls, millingstones, manos, mortars and pestles, marine shell ornaments, slate pendants, and incised stones.²⁵ The bow and arrow continued in use.

The Late Prehistoric Period (A.D. 1100 to European Contact)

By the Late Prehistoric period, an extensive network of established trade routes wound their way through the desert, routing quality goods to populations throughout the Mojave Region. It is also believed that these trade routes encouraged or were the motivating factors for the development of an “increasingly complex socioeconomic and sociopolitical organization” in Late Prehistoric peoples in Southern California. Housepit village sites are prevalent during this period, as are the presence of Desert series and Cottonwood projectile points, brownware and buffware ceramics, steatite shaft straighteners, painted millingstones, and, to a lesser degree, coastal shell beads. By the end of this period, however, a decline in trade occurred and well-established village sites were abandoned, perhaps as a result of rising temperatures (known as the Medieval Climatic Anomaly).²⁶

Ethnographic Setting

Mojave oral tradition, supported by archaeological evidence, suggests that the Yuman-speaking Mojave Indians were among the earliest residents in the Mojave Desert. They moved from the area approximately 500 years ago to the Colorado River where they were documented by Father Francisco Garcés, a Spanish explorer, in 1776. Another Spanish explorer, Juan de Onate, may have observed this group as early as 1604 based on his descriptions of the “Mojave” people along the Colorado River.²⁷

However, at the time of European contact the Project area was occupied by the ethnohistoric Desert Chemehuevi group of the Southern Paiute. This group comprised the Southern Numic portion of the Uto-Aztecan language family.²⁸ The Chemehuevi inhabited the area between Needles, Blythe, Twentynine Palms, and the Colorado River, which contained the primary settlements. However, the Project is located in an area that was primarily utilized for seasonal resource exploitation or for specific resources, such as salt.

²⁴ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, “Advances in understanding Mojave Desert Prehistory”, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 241.

²⁵ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, “Advances in understanding Mojave Desert Prehistory”, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, pages 241-242; Warren, C. N., “The Desert Region”, In *California Archaeology*, 1984, page 420.

²⁶ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, “Advances in understanding Mojave Desert Prehistory”, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, 2007, page 242; Warren, C. N., “The Desert Region”, In *California Archaeology*, 1984, pages 424-428.

²⁷ Kroeber, A. L., *Handbook of the Indians of California*, 1925, page 3.

²⁸ Kroeber, A. L., *Handbook of the Indians of California*, 1925, page 593.

The oral tradition of the Chemehuevi suggests that they migrated from the north and engaged the Mojave group in a long war that drove the Mojave east to the Colorado River.²⁹ Archaeological evidence indicates that the war ended between 250 and 500 years ago.³⁰

The harsh desert environment typical of the Project area could support only the smallest groups comprised of nuclear families joined by kinship ties. These small hunter-gatherer groups moved in response to local food and water availability, typically seasonally or more frequently. The lack of resources of the area created a very diverse hunting economy where small game were important protein sources. Pronghorn sheep, mountain sheep, deer, rabbits, squirrels, desert chipmunks, and wood rats were important mammals in the local diet along with reptiles, such as desert tortoises, snakes, and lizards, and birds, eggs and insects. Agriculture was introduced to the Chemehuevi by their eastern neighbors and they cultivated crops of various types of maize and corn, squash, gourds, wheat, and potatoes along the Colorado River.³¹

The Chemehuevi utilized the paddle-and-anvil technique for their pottery, which included cooking pots, storage jars, spoons, scoops, and large vessels.³² They also utilized twining techniques for their basketry, which were used for transporting items, winnowing and parching, seed beating, boiling water, and storage. Other artifacts associated with the Chemehuevi included the mano and milling stone (metate), mortar and pestle, digging sticks, and the sinew-backed bow with arrows of cane or willow. In addition to locally consumed trade goods, the Chemehuevi acted as “middle-men” in the long distance trade networks from groups to the west and the Pacific Coast and the Central Valley to the groups in the Southwest and along the Colorado River.

Following the Civil War, the traditional Native subsistence base was threatened by the influx of settlers and accompanying livestock. With these resources unavailable, the Chemehuevi were employed on ranches, building railroads, and in the newly opened mines.

The Chemehuevi were divided into two moieties (kinship group) represented by two songs, the Mountain Sheep Song and the Deer Song, which were each associated with different hunting areas. They generally lived in bands of two or three families, each band having a leader. The Chemehuevi were occupying the oasis of Mara (Twentynine Palms) when permanent settlement of the area by Europeans and Americans began. Livestock depleted natural resources and Euro-American settlers began to claim large pieces of land. In 1890, 160 acres were set aside for a reservation for the Chemehuevi. In 1910, 640 acres adjacent to the existing Cabazon reservation in Coachella was given jointly to the Cahuilla and the Chemehuevi, and those who remained on

²⁹ Kroeber, A.L., *Handbook of the Indians of California*, 1925, page 3.

³⁰ King, C., and D.G. Casebier, *Background to Historic and Prehistoric Resources of the East Mojave Desert Region*, Report prepared by Archaeological Research Unit, University of California, Riverside, Submitted to the U.S. Department of the Interior, BLM, Riverside, California, 1976, pages 17-18.

³¹ Kelly, I.T., and C.S. Fowler, “Southern Paiute”, in *Handbook of North American Indians, Volume 11: Great Basin*, edited by Warren L. D’Azevedo, Smithsonian Institution, Washington, 1986, page 368-397.

³² Kelly, I.T., and C.S. Fowler, “Southern Paiute”, in *Handbook of North American Indians, Volume 11: Great Basin*, edited by Warren L. D’Azevedo, Smithsonian Institution, Washington, 1986, page 377.

the Twentynine Palms reservation were encouraged to move there. Some went, some stayed, and others chose to settle elsewhere in California.³³

Historic Setting

Several major trails crossed the Mojave before and at the time of Spanish contact, and continued to be used not only by the native peoples but by Euro-American explorers as well. The Yuma-Needles Trail ran from south of Yuma up the western side of the Colorado River to the Needles area. The Mojave Trail ran from Needles west across the desert to the coast. The Cocomaricopa Trail ran from Arizona through the Salton Sink and then northwest to meet the Mojave Trail near San Bernardino.³⁴

The first Europeans known to have visited the Mojave were Pedro Fages in 1772 and Juan Bautista de Anza and Father Francisco Garcés in 1774.³⁵ In 1775, Father Garcés separated from de Anza and crossed the Mojave along the ancient Mojave Trail from Needles west to the San Gabriel Mission.

The Spanish missions that dotted the California coast never spread inland to the Mojave, and the desert remained relatively unexplored and unsettled by Europeans for much of the next century. The Romero-Estudillo Expedition of 1823-24 was an attempt by the Spanish to establish a secure route between the California Coast and Tucson; however, despite two attempts, the expedition never managed to make it as far as the Colorado River.³⁶

The first recorded American visitors to the Mojave were the party of Jedediah Smith, who crossed the Mojave along the Mojave Trail in 1826. Ewing Young and Kit Carson followed his route in the 1820s and 1830s. Several American and Mexican military expeditions were conducted in the 1840s and 1850s. American involvement in the region was limited during the early 19th century, but certain figures and events made lasting impressions on the landscape. In the 1850s, Pauline Weaver, a cattleman, trapper, and guide, created a private thoroughfare through the Morongo Basin by which he herded cattle from the Cajon Pass to Arizona.³⁷

California became an American state in 1850. However, little settlement occurred near the Project area during the American period due to the lack of water and other resources. What settlement did occur was related to mining or the railroads.

³³ Bean, Lowell John, and Sylvia Brakke Vane, *The Native American Ethnography and Ethnohistory of Joshua Tree National Park: An Overview*, produced for the National Park Service, August 2002.

³⁴ U.S. Department of the Interior, National Park Service, *Historic Resource Study: A History of Land Use In Joshua Tree National Monument*, September 1983, page 11.

³⁵ U.S. Department of the Interior, National Park Service, *Historic Resource Study: A History of Land Use In Joshua Tree National Monument*, September 1983, page 4.

³⁶ U.S. Department of the Interior, National Park Service, *Historic Resource Study: A History of Land Use In Joshua Tree National Monument*, September 1983, page 6.

³⁷ U.S. Department of the Interior, National Park Service, *Historic Resource Study: A History of Land Use In Joshua Tree National Monument*, September 1983, page 18.

Railroads

In the 1850s, after California achieved statehood, numerous railroad surveys were conducted in the Mojave.³⁸ The California Southern Railroad Company, which was organized in 1880 and became a subsidiary of the Atchison, Topeka, & Santa Fe (ATSF) Railway in 1884, constructed a line from Cadiz, California to Matthie, Arizona in 1910. On July 1, 1910, the 83 mile ATSF Parker Cutoff, as this line was known, was completed.³⁹ In 1916, due to the need for a rail line in closer proximity to mining sites north of Blythe, ATSF Railway began constructing a railroad from Rice to Blythe. A spur track was laid from Rice to Ripley in 1920, with operations beginning the next year. The Cadiz to Matthie line was purchased by the ARZC in 2002.⁴⁰

The network of railroads throughout the desert created new travel corridors. Wagon trains and later automobile roads tended to parallel railroad lines in order to take advantage of the regularly spaced watering stations and railroad maintenance crew camps.⁴¹

Mining

In 1848, gold was discovered by James W. Marshall at Coloma, some 400 miles to the north on the American River. The gold rush began and immigrants flooded into California. Investors began seeking the construction of a transcontinental railroad to facilitate transportation to the gold-rich region. The discovery of the Comstock Lode in Nevada in 1859 shifted attention from gold to silver, and miners began to focus on the desert regions.⁴² Some of the early exploration and settlement near the survey area was related to mining prospects.

The 1880s were fairly prosperous for mining in the Mojave Desert, and operations at that time were dominated by gold mining. In the 20th century, mining operations were beginning to bring out borax, zinc, and silver and they began to rework old deposits in the 1910s. Productivity fell off in the 1920s due to increased inflation, but was revived during the Great Depression and accelerated in the early 1940s to meet war-time demands. By 1956, the declining gold prices caused most small gold operations to close.⁴³ The Old Woman Mountains, to the east and north of the Project area, were the site of the primary mining and prospecting efforts in the vicinity. Several mines and mining settlements were set up in the area, and in the early 20th century ATSF

³⁸ U.S. Department of the Interior, National Park Service, *Historic Resource Study: A History of Land Use In Joshua Tree National Monument*, September 1983, page 19.

³⁹ Myrick, David, F., *Railroads of Nevada and Eastern California: Volume Two-The Southern Roads*, Howell-North Books, Berkeley, California, 1963, page 792.

⁴⁰ Anonymous, Combined *Environmental and Historic Report, Arizona and California Railroad Company – Abandonment – in San Bernardino and Riverside Counties, CA (Between Rice and Ripley)*, Docket No. AB-1022 (Sub-No. IX), on file at the San Bernardino Archaeological Information Center, October 2008, page 13.

⁴¹ Warren, Elizabeth Von Till, Robert H. Crabtree, Claude N. Warren, Martha Knack, and Richard McCarty, *A Cultural Resources Overview of the Colorado Desert Planning Units*, BLM Cultural Resources Publication, Bureau of Land Management, California, 1981, page 90.

⁴² Vredenburgh, Larry M., *An Overview of Mining in the California Desert*, http://vredenburgh.org/mining_history/pages/mining_overview2005.htm, accessed December 2010.

⁴³ Vredenburgh, Larry M, Shumway, Gary L, and Russell D. Hartill, *Desert Fever: An Overview of Mining in the California Desert*, Canoga Park, Living West Press, 1981, pages 127-132.

Parker Cutoff serviced many of these locations, including Cadiz, Chubbuck, Milligan, Fishel, and Freda.⁴⁴ All of these settlements are within or adjacent to the Project area.

Mining and Railroad Settlements

During the early 20th century, a number of railroad siding camps and mining settlements sprung up along the railroad route. Those within the Project area include Siam, Cadiz, McCoy, Archer, Chubbuck, Kilbeck, Fishel, Milligan, Saltmarsh, and Sablon. These camps or small settlements, often located where railroad sidings occurred, primarily provided a place for people involved in local mining activities or the operation of the ATSF Parker Cutoff to live. In general, these settlements remained inhabited until about mid-20th century when they were abandoned. The abandonment was most likely related to the switch from steam-powered engines to the use of diesel fuel, because of which the regularly spaced water supply points at the sidings were no longer necessary.⁴⁵

Historic maps document the inception of these settlements along the railroad corridor in the early 20th century. The “Relief Map of Part of Mohave Desert Region, California (Showing Desert Watering Places),” surveyed by Thompson in 1917-1918, shows the completed ATSF Railroad, the Parker Cutoff (“Parker-Phoenix Branch”), and paralleling roads. The settlements or sidings of Siam and Cadiz are shown on the map in the wellfield portion of the Project area. The settlements or sidings of McCoy, Archer, Kilbeck, Fishel, Milligan, Ward, and Sablon are depicted in the pipeline portion of the Project area. The settlement of Arica is shown but is located just southeast of the pipeline portion of the Project area. The 1925 “Map of San Bernardino County, California Showing Roads, Railroads, Springs, and Mining Districts of the Desert Portion” by J. Kremmerer shows the ATSF Railroad, including the Parker Cutoff, parallel roads, and the same settlements and sidings as the earlier map. The CRA, ATSF Railroad (including the Parker Cutoff), and the settlements of Cadiz, Archer, Fishel, Milligan, Saltmarsh, Sablon, and Freda are shown on the 1943 U.S. Army 15' Milligan and 1944 U.S. Army 15' Rice quadrangles, as well as the 1956 USGS 15' quadrangles (Cadiz; Cadiz Lake; Iron Mountain; and Milligan). The 1954 USGS 15' Rice quadrangle map shows rail sidings at Archer, Fishel, Milligan, Sablon, and Saltmarsh.

Historical information was available for Siam, Cadiz, Archer, Chubbuck, Milligan, and Sablon and these six locations are discussed in more detail below. No information could be obtained for McCoy, Kilbeck, Fishel, or Saltmarsh and these locations are not covered below.

Siam

Very little is known about Siam, other than that it was a railroad siding established in 1897 on the ATSF main line between Old Danby and Cadiz. No settlement is known to have been established at Siam and it may never have been more than a watering stop. It is unknown when Siam was abandoned and no structural remains or foundations are extant at Siam.⁴⁶

⁴⁴ Vredenburgh, Larry M, Shumway, Gary L, and Russell D. Hartill, *Desert Fever: An Overview of Mining in the California Desert*, Canoga Park, Living West Press, 1981, pages 127-132.

⁴⁵ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 96.

⁴⁶ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 83.

Cadiz

Cadiz was first named by an engineer for the Atlantic and Pacific Railroad in 1883.⁴⁷ Originally, Cadiz was a siding with four section houses built by the Southern Pacific railroad.⁴⁸ Cadiz rose in prominence when the ATSF Parker Cutoff was connected to the main track at Cadiz on July 1, 1910. Prior to that time, water was imported from Newberry Spring. In August 1910, a well was drilled at Cadiz. Tamarisk trees, planted on either side of the tracks, served as a windbreak and helped control drifting sand.⁴⁹

The population of Cadiz was never large, but at one point included 50 residents.⁵⁰ Residents consisted of railroad workers and their families.

In the 1940s and 1950s, Frank McConnell served as the ATSF railroad telegrapher and depot agent at Cadiz. Trains passing through would have a three hour layover in Cadiz. No tourist facilities were available, so Mr. McConnell sold candy bars and bottled soda from an ice chest at the depot.⁵¹

The depot at Cadiz was an important stop for the Santa Fe railroad until the 1950s. Almost all trains stopped to refuel or take on water, and all freight trains were inspected at Cadiz. It was closed in 1967.⁵²

Archer

Archer was a small siding located about 10 miles southeast of Cadiz on the ATSF Parker Cutoff. The site served as a watering station for steam locomotives on the line and was probably first occupied when the water well was drilled in 1910.⁵³ When the railroad switched to diesel locomotives in the 1950s, the site was abandoned.⁵⁴ The community was comprised primarily of Mexican laborers and their families, but never included more than about 20 people at any given point in time.⁵⁵

Chubbuck

Chubbuck was established in the early to mid 1920s as a mining settlement, about one mile south of the Kilbeck siding, though it was initially used as a railroad siding as early as 1911.⁵⁶ However, Chubbuck was not a railroad settlement and was unique among settlements along the ATSF Parker Cutoff in that it primarily housed mine workers and their families.⁵⁷ Charles Inglis Chubbuck, manufacturer of products used in cement and masonry, purchased a 1600-acre mining claim from Marcus Pluth and Tom Schofield in 1922. The claim contained a white limestone

⁴⁷ Gudde, Erwin Gustav, *California Place Names*, University of California Press, Berkeley, CA, 1969, page 45.

⁴⁸ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 44.

⁴⁹ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 51.

⁵⁰ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 45.

⁵¹ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, pages 49-51.

⁵² de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 44.

⁵³ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 98.

⁵⁴ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 96.

⁵⁵ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, pages 96-97.

⁵⁶ Applied Earthworks, Inc., *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report: Cultural Resources*, 1999, page 43.

⁵⁷ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 109.

outcrop, perfect for cement manufacture. The claim was located about one-half mile west of the ATSF Parker Cutoff, facilitating shipment to market. Mr. Chubbuck built the primary crusher at the limestone quarry and kilns adjacent to the railroad tracks. The crushed ore was transported to the kilns via a narrow gauge railroad. Ore carts were pushed back and forth by hand.⁵⁸ Lime from Chubbuck was used in the construction of the CRA circa 1937 to 1938.⁵⁹

Over 40 buildings were located at Chubbuck, including a company store, school (1932), post office (1938), and residential structures. The company store reportedly sold great quantities of Eastside Beer, manufactured and distributed by the Los Angeles Brewing Company.⁶⁰ Occupants at Chubbuck were primarily Mexican laborers and their families. The mill ceased operation in 1951 and the railroad siding at Chubbuck was removed in 1975 to 1976 when the ATSF Parker Cutoff was re-laid.⁶¹

Milligan

Like the other sidings, Milligan was established in 1910 when the ATSF Parker Cutoff was constructed. A well was drilled in 1910, with water being pumped up to a tank located 16 feet above ground. Milligan included several section houses, a foreman's house, a bunkhouse for workers, and a cemetery. A line of tamarisk trees was planted adjacent to the tracks as a windbreak and for shade. The trees were surrounded by concrete and cobble water catchments. Milligan was abandoned around 1955.⁶²

Sablon

Sablon was established on the ATSF Parker Cutoff in 1909. At that time, the station was called Randolph. The name was changed to Sablon, which means 'gravel' in Spanish, in 1912.⁶³

Colorado River Aqueduct

The CRA was constructed in the 1930s by the Metropolitan Water District of Southern California in order to transport water from the Colorado River to the Los Angeles metropolitan area. The aqueduct stretches from Lake Havasu on the Colorado River to Lake Matthews, south of Riverside.⁶⁴ Construction of the aqueduct began in 1933 and the first delivery of water occurred in 1941. Approximately 3,500 men and women were employed constructing the CRA during the Depression era. The completed aqueduct crosses 242 miles of desert and delivers approximately one billion gallons of water a day. Related projects included roads and electrical power transmission lines. Most project-related work was conducted out of temporary camps;

⁵⁸ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, pages 111-115.

⁵⁹ Vredenburgh, Larry M, Shumway, Gary L, and Russell D. Hartill, *Desert Fever: An Overview of Mining in the California Desert*, Canoga Park, Living West Press, 1981.

⁶⁰ Vredenburgh, Larry M, Shumway, Gary L, and Russell D. Hartill, *Desert Fever: An Overview of Mining in the California Desert*, Canoga Park, Living West Press, 1981; Rustycans.com, *Can of the Month: Eastside Beer*, <http://www.rustycans.com/COM/month0305.html> accessed December 2010.

⁶¹ Vredenburgh, Larry M, Shumway, Gary L, and Russell D. Hartill, *Desert Fever: An Overview of Mining in the California Desert*, Canoga Park, Living West Press, 1981.

⁶² de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, pages 175-176.

⁶³ Gudde, Erwin Gustav, *California Place Names*, University of California Press, Berkeley, CA, 1969, page 275.

⁶⁴ Neves, J., and J. Goodman, *Site Record for CA-SBR-10521*, on file at SBAIC, San Bernardino County Museum, Redlands, 2000.

however, permanent structures, such as the Iron Mountain pumping station, supported a higher number of longer-lasting settlements. The CRA is still in use.

Desert Training Center – California-Arizona Maneuver Area (DTC-CAMA)

In 1942, General George S. Patton, Jr., and the U.S. Army created the Desert Training Center, later called the California-Arizona Maneuver Area (DTC-CAMA) (which encompassed over 30,000 square miles of California, Arizona, and Nevada) as a training ground for military personnel who would be fighting overseas. Originally intended as a training ground that would simulate the harsh conditions of the North African deserts, the training center was operational for two years. At the height of its two-year period of operation in July 1943, over 190,000 armed forces personnel were stationed within the DTC-CAMA.⁶⁵ Fourteen divisional camps, along with airfields, bivouacs, hospitals, and numerous other supporting facilities were constructed during the DTC-CAMA's two-year period of operation. Much of the land outside of the camps was used as maneuver areas for training exercises; evidence of these exercises, such as foxholes, tank tracks, debris scatters, and aircraft landing strips, can still be found. In April, 1944, the Desert Training Center was closed and the land was returned to private use. The area was again used for military training in the 1960s for "Operation Desert Strike."

Because of certain logistical considerations, such as the need for electricity, water, and transportation routes, the operation of the DTC-CAMA resulted in some improvements in infrastructure in the remote desert. The need for a route leading from Twentynine Palms to Parker Dam resulted in the creation of what is now Highway 62, although the road was not completely paved until 1959.⁶⁶

Camp Iron Mountain was located at a CRA pumping station and was the closest base camp to the Project area. The ATSF, including the ATSF Parker Cutoff, were instrumental in supplying goods and equipment for the training center.⁶⁷

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Indian Tribes or individuals. The Secretary of the Interior, acting as the trustee, holds many assets in trust. Examples of potential trust assets are lands, minerals, hunting and fishing rights, and water rights. While most ITAs are on reservations, they may also be found off reservations. The United States has a responsibility to protect and maintain rights reserved by or granted to Indian Tribes or Indian individuals by treaties, statutes, and executive orders. These are sometimes further interpreted through court decisions and regulations. As part of this trust responsibility, federal agencies must take all actions reasonably necessary to protect ITAs.

⁶⁵ Bischoff, Matthew C., *The Desert Training Center/ California-Arizona Maneuver Area, 1942-1944: Historical and Archaeological Contexts*, Tucson, Arizona, Statistical Research, Incorporated, Technical Series 75, 2000, page 30.

⁶⁶ Bischoff, Matthew C., *The Desert Training Center/ California-Arizona Maneuver Area, 1942-1944: Historical and Archaeological Contexts*, Tucson, Arizona, Statistical Research, Incorporated, Technical Series 75, 2000, page 22.

⁶⁷ Applied Earthworks, Inc., *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report: Cultural Resources*, 1999, page 55.

4.5.2 Research Methods and Results

Archaeological and Historic Resources Identification

Archival Research and Field Investigation

Archival Research

A Project-specific cultural resources literature and records search was conducted at the California Historical Resources Information System (CHRIS) San Bernardino Archaeological Information Center (SBAIC) on September 22, 2010. The records search study area included the wellfield and pipeline portions of the proposed Project plus a half-mile buffer. The records search provided a summary of previous cultural resources surveys and reports and known cultural resources in the Project area and half-mile buffer. Other sources reviewed include the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historical Resources (CRHR), the National Register of Historic Places (NRHP), the California State Historic Resources Inventory (HRI), and historic maps.

Previous Cultural Resources Investigations

The records search revealed that a total of 22 cultural resources investigations were previously conducted within the records search study area. Of these 22 previous investigations, 14 involved surveys covering approximately 10 to 20 percent of the wellfield portion of the Project area and less than 10 percent of the pipeline portion of the Project area. The remaining 8 investigations were identified by the SBAIC as pertaining to the Project area, but did not involve surveys of any portion of the Project area.

Previously Recorded Resources

The records search indicated that 50 cultural resources have been previously recorded within the records search study area (**Table 4.5-2**). The table includes a description of the resources and the known status (eligibility) of resources at that time. It documents the existing conditions prior to the Project surveys and evaluation. The 50 resources include 8 prehistoric archaeological sites, 26 historic-era archaeological sites, one archaeological site with both prehistoric and historic-era components, nine historic-era built architectural/engineering resources, and six isolated artifacts.

Of the 50 previously recorded cultural resources, 16 are located within the wellfield portion of the Project area (CA-SBR-3243, -3281H, -693H, -6694H, -9848, -9853H, -9855H, -11582H, -11583H, -11584H, -11586H, P-36-20149, -60315, -60319, -60922, and -64132).

Fifteen (15) previously recorded cultural resources are located within the pipeline portion of the Project area (CA-SBR-3233H, -3235H, -3282H, -3283H, -5606/H, -5819H, -9849H, -9850H, -9851H, -9853H, -9856H, -9858H, -10521H, -10646H, and -11583H). Three previously recorded cultural resources are located immediately adjacent to the pipeline portion of the Project area (CA-SBR-9852, -10525H, and -10645H).

Portions of resources CA-SBR-9853H and CA-SBR-11583H overlap both the wellfield and pipeline portions of the Project area.

**TABLE 4.5-2
 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 0.5 MILE OF THE PROJECT AREA**

| Primary Number (P-36-) | Permanent Trinomial (CA-SBR-) | Other Designation | Description | Date Recorded | Previously Evaluated for Significance? | Project Component |
|------------------------|-------------------------------|-------------------|--|---------------|--|-------------------|
| 3233 | **3233H | TU-219(11) | "Milligan" RR section camp remains. Historic materials recorded include twelve tamarisk and palo verde trees, planted and surrounded by cemented stone rings; the remains of a low rock wall; and broken fragments of concrete. The foundation of a railroad station and a section house were noted, as well as assorted glass and metal debris. The camp is believed to have been settled in approximately 1910. A concrete loading dock and a more recent stucco/concrete loading bin (c. 1960s) were noted on the north side of the tracks. | 9-20-78 | No | Pipeline |
| 3235 | **3235H | TU-222(14) | "Saltmarsh"- The remains of at least 13 structures were identified, along with "great quantities" of metal, glass, ceramic, brick, wood, and other debris. Structures identified included a probable railroad station or freight house, storage buildings, loading docks, water tower foundations, possible residences, and underground storage rooms. The settlement dates from at least the 1930s. | 9-21-78 | No | Pipeline |
| 3243 | **3243 | BC-6 | Lithic scatter- primarily chert and chalcedony cores. The artifact assemblage is described as numerous cores of chert and chalcedony, some expended, with one associated piece of debitage. These materials are sparsely scattered over a large area of deflated dunes, and show heavy patination. | 8-10-78 | No | Wellfield |
| 3254 | 3254 | BC-17 | Lithic scatter- small workshop area; chert debitage | 9-19-78 | No | Pipeline |
| 3280 | 3280H | BC-219(7) | "Cadiz" RR section camp- east portion including modern buildings and 1920s-era stucco row houses | 9-20-78 | No | Wellfield |
| 3281 | **3281H | BC-220(8) | "Cadiz" RR section camp- west portion includes several wood-framed buildings, a well and water tower, an electrical distribution station, and a spur of railroad track used for storage of "maintenance of way" cars. Debris was also present at the time of recordation, but the material type(s) are listed as "unknown." The camp of Cadiz was supposedly founded as early as 1883; however, site recorders noted | 9-20-78 | No | Wellfield |

| Primary Number (P-36-) | Permanent Trinomial (CA-SBR-) | Other Designation | Description | Date Recorded | Previously Evaluated for Significance? | Project Component |
|------------------------|-------------------------------|----------------------------|--|--|--|-------------------|
| | | | that none of the buildings or structures appeared to pre-date the 1920s. | | | |
| 3282 | **3282H | BC-221(9) | “Archer” RR section camp remains. A single building foundation was identified, along with a well/water tank, scattered debris, and a small cemetery with seven wooden crosses and one stone grave marker. The inscriptions on two of the grave markers were transcribed on the site record form; both are in Spanish and mark the graves of young children who died prior to 1925. | 9-20-78 | Yes - Eligible for NRHP | Pipeline |
| 3283 | **3283H | BC-222(10) | “Chubbuck” mill and settlement. The recorded resources include the ruins and structures of the settlement of Chubbuck; the industrial buildings and structures of the mill southeast of Chubbuck; two railroad spurs; the main line of the ATSF Railroad; and an unimproved road leading to the Desert Butte Mine. Nine activity loci were recorded, as well as at least 37 discrete trash dump areas. The district dates from the 1930s-1940s, and theoretically includes the site of the Desert Butte Mine; however, this locus of the district was not recorded. | 9-20-78; updated 4-22-99 and 2-27-2001 | Yes-Eligible for NRHP under Criteria A and D | Pipeline |
| 5472 | 5472H | Navajo #1 | Dugout depression with wooden timbers, fire-cracked rock in arroyo; described as remnant Navajo sweathouse | 11-27-85 | No | Wellfield |
| 5606 | **5606/H | - | Lithic (flaked- and ground-stone tools; debitage) and historic (metal can) scatter. Prehistoric artifacts included flaked-stone tools and debitage made from locally available chert, jasper, chalcedony, basalt, and quartz. Milling tools (manos, metates) were also recorded. Ration cans from historic military maneuvers were also found on the site, as well as one oil can. The site was revisited in 2001, and the recorders at that time only located a single chert flake. The site is crossed by the Inactive Line A, and is thought to have been largely destroyed in that area. | 3-16-77 thru 4-19-77; updated 3-5-01 | No | Pipeline |
| 5815 | 5815 | AAP 039-001/IO-AAP 039-002 | Rock ring with flaked- and ground-stone artifacts; not relocated during update | 11-21-85; updated 2-28-01 | No | Wellfield |
| 5816 | 5816 | AAP 043-001 | Lithic scatter with flaked-stone tools and debitage; groundstone tools & fragments | 10-30-85; updated 2-28-01 | No | Pipeline |
| 5817 | 5817H | AAP 043-002/IO-AAp 043-002 | Historic debris scatter; 100% collected in Inactive Line A ROQ; no cultural materials found during update | 11-20-85; updated 2-28-01 | No | Pipeline |

| Primary Number (P-36-) | Permanent Trinomial (CA-SBR-) | Other Designation | Description | Date Recorded | Previously Evaluated for Significance? | Project Component |
|------------------------|-------------------------------|----------------------------|--|---------------------------|---|-------------------|
| 5819 | **5819H | AAP 045-001/IO-AAP 045-003 | Historic debris scatter. Recorders noted glass, metal, and porcelain fragments near the ATSF Parker Cutoff Railroad tracks. All visible artifacts were collected at the time of recording. | 11-20-85 | No | Pipeline |
| 6693 | **6693H | - | ATSF RR- railroad line (Mojave to Needles branch) originally constructed in 1883 for the Atlantic & Pacific Railroad Company by Southern Pacific. The first track line was purchased by the ATSF Railroad, who has operated it since 1890. A second parallel track was added in 1923. This linear historic resource was recorded in 1990 and has been updated several times. | 5-30-90; numerous updates | Yes - Eligible for NRHP under Criterion A | Wellfield |
| 6694 | **6694H | HS-10 (ML-12) | Historic unpaved road and telephone pole line. It was recorded as the "Old Road to Cadiz," the original automobile route through the area dating from at least as early as 1914. The telephone poles along the line provided service to the eastern Mojave Desert until 1989. No wires remained on the poles at the time of recordation. | 5-30-90 | Yes - Not eligible for NRHP | Wellfield |
| 9848 | **9848 | AE-CAD-1 | Lithic scatter- small workshop area; agate chert debitage | 4-8-99 | Yes - Not significant | Wellfield |
| 9849 | **9849H | AE-CAD-2H | Historic debris scatter. Ceramic fragments, a variety of metal cans, and a few other assorted metal and glass items were found in close proximity to the ATSF Railroad tracks. | 4-14-99 | Yes - Not significant | Pipeline |
| 9850 | **9850H | AE-CAD-3H | Historic debris scatter. Glass fragments, metal cans and can lids, a bullet casing, kerosene lamp fragments, metal buttons, crockery fragments, burned faunal bone, and assorted other artifacts were recorded. | 4-14-99 | Yes - Not significant | Pipeline |
| 9851 | **9851H | AE-CAD-4H | Historic debris scatter. Artifacts include whiteware plate fragments, sun-colored amethyst and brown glass fragments, cans and can lids, wire, wire nails, and staples. | 4-15-99 | Yes - Not significant | Pipeline |
| 9852 | *9852 | AE-CAD-5 | Lithic scatter- debitage and tools of obsidian, chert, chalcedony | 4-27-99 | Yes - Not significant | Pipeline |

| Primary Number (P-36-) | Permanent Trinomial (CA-SBR-) | Other Designation | Description | Date Recorded | Previously Evaluated for Significance? | Project Component |
|------------------------|-------------------------------|-------------------|--|-------------------------|--|------------------------|
| 9853 | **9853H | AE-CAD-6H | ATSF RR – Parker Cutoff. This resource extends from the wellfield Project area along the same alignment as the pipeline Project area. The ATSF Parker Cutoff was constructed in 1910, although trestles along the alignment bear later dates indicating that modifications have occurred. The tracks were still in use when the line was recorded in 1999. | 5-7-99 | Yes- Eligible for NRHP under Criteria A and possibly C | Wellfield and Pipeline |
| 9855 | **9855H | AE-CAD-8H | Rectangular rock alignment outlining an area approximately 185 centimeters by 65 centimeters. It is believed to represent a historic grave; however, this has never been confirmed. No artifacts were found in association with the alignment. The rectangle lies parallel to the ATSF Railroad tracks, suggesting it may be associated with the railroad. | 5-12-99 | No | Wellfield |
| 9856 | **9856H | AE-CAD-11H | Historic debris scatter. Artifacts include household items (cans, ceramics, bottles) as well as iron machinery parts, tools, and hardware. A series of four narrow, short wooden posts may represent the remains of an animal pen or small corral. This site was subjected to archaeological testing and evaluation in 1999. | 4-13-99 | No | Pipeline |
| 9857 | 9857H | AE-CAD-12H | Two small mine prospects with wooden posts and tailings | 4-27-99; updated 3-1-01 | No | Pipeline |
| 9858 | **9858H | AE-CAD-13H | WWII Tank Corps desert training site-historic camp and debris scatter. One component represents the remains of an encampment or supply center associated with WWII-era military training exercises. This area was probably part of General George Patton's Desert Training Center (DTC). Linear rock features and alignments designating roadways and other use area were recorded, along with several discrete scatters of debris (food, beverage, and tobacco cans, concertina wire, glass fragments, and assorted hardware). The second component is sparse scatter of older debris and is likely a small railroad camp related to the ATSF Parker Cutoff railroad's construction and/or use. | 4-28 and 5-3, 1999 | Yes- eligible for NRHP under Criteria A, C and D | Pipeline |
| 10521 | **10521H | FS 51a, b, c, d | Colorado River Aqueduct. This canal was constructed in the 1930s by the Metropolitan Water District of Southern California. As recorded in 2000, the concrete-lined canal measures 50 feet wide at the top and is fenced on both sides. | 4-13-00 | Yes - Eligible for NRHP under Criteria A, B, and C | Pipeline |

| Primary Number (P-36-) | Permanent Trinomial (CA-SBR-) | Other Designation | Description | Date Recorded | Previously Evaluated for Significance? | Project Component |
|------------------------|-------------------------------|-------------------|--|--------------------------|--|-------------------|
| 10525 | *10525H | - | Historic road – State Route 62 | 9-15-00 | Yes - Not eligible for NRHP | Pipeline |
| 10644 | 10644H | DB-S-JD-7 | Historic debris scatter, possible WWII training camp | 2-28-01 | Yes – Not eligible for NRHP | Wellfield |
| 10645 | *10645H | DB-S-JD-8 | Historic debris scatter, possible WWII training camp | 3-1-01 | Yes – Not eligible for NRHP | Pipeline |
| 10646 | **10646H | DB-S-JD-9 | “Sablon,” RR siding and debris scatter. Site constituents included a wide scatter (over 300 m ²) and several concentrations of debris, as well as the railroad siding itself. Various cans, bottles and other glass fragments, railroad hardware, wire, glazed ceramic water pipe fragments, milled lumber, battery cores, and a single steel spoon were specifically noted. Artifact types suggested an occupation from 1910 into the 1960s. Portions of the site were located on both sides of the ATSF Railroad tracks. | 3-6-01 | No | Pipeline |
| 10647 | 10647H | DB-S-JD-10 | Historic can scatter | 3-6-01 | No | Pipeline |
| 10653 | 10653H | DB-S-SR-6 | Historic road segments | 2-27-01 | No | Wellfield |
| 10654 | 10654H | DB-S-SR-7 | Historic can scatter | 2-27-01 | No | Wellfield |
| 10655 | 10655H | DB-S-SR-8 | Historic can scatter | 3-1-01 | No | Pipeline |
| 10656 | 10656H | DB-S-SR-9 | Historic debris scatter (metal, glass, ceramics, buttons) | 3-1-01 | No | Pipeline |
| 10657 | 10657H | DB-S-SR-10 | Historic debris scatter (metal, glass, window screen) | 3-7-10 | No | Pipeline |
| 11582 | **11582H | Camp Cadiz | Military camp associated with the Joint Exercise Desert Strike training scenario conducted in 1964. Features include 22 rock alignments (including roads identified as Tent Rows 1-5), rock clusters, mounds, and pits, as well as a single remaining 7-foot-tall communications pole. Eight can scatters and one glass scatter were recorded in various locations around the camp, with the glass scatter containing fragments that pre-date the Desert Strike training exercise. Machine guns cartridges (blanks), wire, automobile fragments, various hardware and personal grooming implements, and modern intrusive camp hearths were also noted. | 1-22-04; updated 11-2-04 | Yes - Potentially eligible for NRHP | Wellfield |

| Primary Number (P-36-) | Permanent Trinomial (CA-SBR-) | Other Designation | Description | Date Recorded | Previously Evaluated for Significance? | Project Component |
|------------------------|-------------------------------|----------------------|--|---------------|--|------------------------|
| 11583 | **11583H | AAPL-Cadiz 2 | Cadiz-Parker Road. The recorded section of the formerly graded road extends between the two railroad siding camps of Cadiz and Rice. A road following approximately the same alignment is shown on the 1896 "Parris Miners Map of the Desert Region of Southern California;" however, this road could also be associated with construction of the ATSF Parker Cutoff, completed in 1910. | 1-22-04 | No | Wellfield and Pipeline |
| 11584 | **11584H | AAPL-Cadiz 3 | Cadiz-Cadiz Pass Road. The road connects the railroad siding camp of Cadiz with Cadiz Summit, which lies to the northeast on Route 66, across the Marble Mountains. | 1-22-04 | No | Wellfield |
| 11586 | **11586H | AAPL-Cadiz 5 | Unnamed dirt road. Extends in a general southwest-northeast direction from Amboy Road, along the southern shore of Bristol Lake, across the Cadiz Valley, and south of the Marble Mountains to intersect with Route 66 in the vicinity of Danby Road. | 1-22-04 | No | Wellfield |
| 19895 | 13232 | ASM-MDR-22-01 | Lithic scatter- small workshop area; rhyolite core and debitage | 1-3-09 | No | Wellfield |
| 19896 | 13233 | ASM-MDR-22-02 | Lithic scatter- small workshop area; rhyolite debitage | 1-3-09 | No | Wellfield |
| **20149 | - | AAPL-Cadiz Iso 1 | Historic isolate- half a mule shoe | 1-22-04 | Yes - Not significant | Wellfield |
| 21094 | 13618H | JB-47 | Phone line remnants and associated access road | 5-6-09 | No | Wellfield |
| **60315 | - | BC-7 | Prehistoric isolate- bifacial chopper | 8-10-78 | Yes - Not significant | Wellfield |
| **60319 | - | Isolated Artifact #4 | Prehistoric isolate- scraper | n.d. | Yes - Not significant | Wellfield |
| **60922 | - | SBCM #358 | Prehistoric isolate- scoop-style metate | 1-12-63 | Yes - Not significant | Wellfield |
| **64132 | - | AE-CAD-ISO-2 | Prehistoric isolate- pointed unifacial tool | 5-11-99 | Yes - Not significant | Wellfield |
| 64414 | - | DB-I-JD-4 | Prehistoric isolate- single waste flake | 2-28-01 | Yes - Not significant | Wellfield |

**Indicates cultural resource recorded within Project area

*Indicates cultural resource recorded adjacent to the Project area

SOURCE: San Bernardino Archaeological Information Center, California Historical Resources Information System, records search for the Cadiz Groundwater Project, September 28, 2010.

Native American Contact

A Sacred Lands File search with the Native American Heritage Commission (NAHC) was requested on November 8, 2010. Sacred Lands File search results prepared by the NAHC on November 12, 2010, indicated the presence of Native American cultural resources within one-half mile of the Project area in the Arica Mountains, and also noted that there were Native American resources in close proximity to the Project area in other locations.

Contact letters to the eighteen individuals, groups, and tribes indicated by the NAHC as having affiliation with the Project area were prepared and mailed on November 17, 2010. The letters described the Project and included a map indicating the location of the Project area. Recipients were requested to reply with any information they are able to share about Native American resources that might be affected by the Project. All correspondence is attached in Appendix G1. To date, two responses have been received expressing interest in the Project based on concerns for Native American resources in the region.

One response was received via email on December 15, 2010, from Bridget R. Nash-Chrabascz, Quechan Tribe Historic Preservation Officer, and was followed by a phone conversation with ESA archaeologist Monica Strauss. Ms. Nash-Chrabascz expressed the Quechan Cultural Committee's concern over the proposed Project's proximity to Old Woman Mountain. Ms. Nash-Chrabascz explained that the Quechan tribe is concerned that there may be prehistoric archaeological sites, pictographs, and petroglyphs in the vicinity of the Project. The tribe requested an archaeological survey be conducted and the opportunity to review the resulting report. Ms. Strauss explained that the pipeline portion of the Project area has been surveyed and that no prehistoric sites or isolated artifacts were observed, and that the pipeline would be installed within the ARZC ROW. Ms. Nash-Chrabascz expressed that she was more concerned about the wellfield portion of the Project area and the scale of the Project on the landscape.

A second response was received via email on January 13, 2011 from Joseph Benitez, tribal elder of the Chemehuevi Tribe, and followed by a phone conversation with ESA archaeologist Monica Strauss. Mr. Benitez expressed his concern about the impact to sacred sites, such as the Old [Woman] Mountain. He indicated that the general Project area was likely used prehistorically by the Chemehuevi to traverse to and from the Lake Havasu area.

Field Survey

Field surveys were conducted between October 18 and 26, 2010. The survey crew was led by ESA archaeologists Madeleine Bray, M.A. and Candace Ehringer, M.A.

The survey area for the proposed pipeline portion of the Project area included 43.5 miles of the 200-foot-wide ARZC ROW (100 feet on either side of the center line), from the proposed wellfield in the north to the CRA tie-in in the south; and an area from the ARZC ROW east to the Freda Siphon, including the CRA tie-in Option 1. (CRA tie-in Options 2a and 2b and the wellfield portion of the proposed Project area were not surveyed since the precise location of the wells, forebays, and access roads were not yet finalized.) Areas that were not developed or otherwise disturbed were subject to intensive pedestrian survey. Survey was conducted in

transects of no greater than 15 meters (50 feet). To conduct the survey, two surveyors walked on either side of the railroad tracks.

Any cultural resources encountered during the survey were documented and recorded on the appropriate Department of Parks and Recreation (DPR) 523 forms. An attempt was made to relocate all previously recorded archaeological sites within or immediately adjacent to the Project area. Relocated sites were updated on DPR forms where appropriate. Each newly recorded resource was given a temporary field designation, then documented, photographed, and recorded. Isolated historic artifacts and modern (post-1965) features were not recorded.

Ground cover within the proposed pipeline portion of the Project area consisted of disturbed creosote scrub. The Project area evidenced general surface disturbances of varying degree, particularly on the south and southwest side of the railroad, where the railroad access road, typically 20-25 feet wide, paralleled the railroad. Evidence of earth-moving activities near the railroad tracks, primarily on the north side, was frequently encountered. Aside from the obvious surface disturbances, depths of such disturbances, in general, could not be ascertained.

Identified Cultural Resources

A total of 43 cultural resources were recorded or updated during the field surveys of the proposed pipeline portion of the Project area, including 15 previously recorded resources and 28 newly recorded resources (Appendix G1, Table 4). Two of the 15 resources that were previously recorded within the proposed pipeline portion of the Project area (CA-SBR-5606/H and -5819H) could not be located and are presumed to have been destroyed within the Project area; therefore a total of 41 resources are currently known to exist within the proposed pipeline portion of the Project area. Thirty-eight of the resources consist of historic-era archaeological sites, and three are historic architectural/engineering resources. All resources were documented on DPR 523 forms, which will be filed at the SBAIC. No prehistoric resources or artifacts were observed during the survey and no isolated artifacts were recorded.

Significance Evaluation of Cultural Resources

A total of 43 cultural resources were recorded or updated during the survey of the pipeline portion of the Project area, including three historic architectural/engineering resources, 39 historic-era archaeological resources, and one multi-component archaeological resource. Two of the archaeological resources (CA-SBR-5606/H and -5819H) were not located within the Project area and are presumed to have been destroyed within the Project area; these two resources are not addressed further in this document. Of the 41 resources located within the pipeline portion of the Project area, ten appear to be eligible for listing in the NRHP and/or CRHR (**Table 4.5-3**) and should be considered significant resources under CEQA. The remaining 31 resources do not appear to be eligible for listing in the CRHR and are therefore not considered significant resources under CEQA (*CEQA Guidelines*, §15064.5). The significance determinations are described in more detail in Appendix G.

**TABLE 4.5-3
SIGNIFICANT CULTURAL RESOURCES**

| Primary Number (P-36-) | Field Designation | Description | Eligibility | Comments |
|-------------------------------|--------------------------|--|---|--|
| 3233 | - | "Milligan" RR settlement remnants and cemetery | Recommended eligible for CRHR under Criteria 1 and 4 | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff district |
| 3235 | - | "Saltmarsh" RR settlement remnants | Recommended eligible for CRHR under Criteria 1 and 4 | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff district |
| 3282 | - | "Archer" RR settlement remnants and cemetery | Recommended eligible for CRHR under Criteria 1 and 4 | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff district |
| 3283 | - | "Chubbuck" mill and settlement remnants | Previously recommended eligible for NRHP under Criteria A and D (therefore eligible for CRHR under Criteria 1 and 4) | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff district |
| 9853 | - | ATSF RR – Parker Cutoff | Previously recommended eligible for NRHP under Criteria A and C (therefore eligible for CRHR under Criteria 1 and 3) | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff district |
| 9858 | - | 1) WWII Tank Corps desert training site and 2) earlier railroad-related components | 1) Previously recommended eligible for NRHP under Criteria A, C and D (therefore eligible for CRHR under Criteria 1, 2, and 4) 2) Previously recommended eligible for NRHP under Criteria A and D (therefore eligible for CRHR under Criteria 1 and 4) | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff and/or DTC district |
| 10521 | - | Colorado River Aqueduct | Previously recommended eligible for NRHP under Criteria A, B, and C (therefore eligible for CRHR under Criteria 1, 2, and 3) | - |
| 10646 | - | "Sablon" RR settlement remnants | Recommended eligible for CRHR under Criteria 1 and 4 | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff and/or DTC district |
| 11583 | - | Cadiz-Parker Road | Recommended eligible for CRHR under Criterion 1 | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff district |
| - | ESA-C-4 | Extensive historic debris scatter | Recommended eligible for CRHR under Criterion 4 | As an individual resource or as a contributor to a potential ATSF RR-Parker Cutoff district |

SOURCE: ESA, 2011.

Pipeline Portion of the Project Area

Historic Architectural/Engineering Resources

Three of the 41 resources encountered during the survey of the pipeline portion of the Project area are categorized as historic-era architectural/engineering resources (CA-SBR-9853H, CA-SBR-10521H, and CA-SBR-11583H). All three of these resources are recommended eligible for listing in the CRHR and should be considered significant resources under CEQA.

CA-SBR-9853H (ATSF Railroad, Parker Cutoff): This resource extends from the wellfield portion of the Project area along the same alignment as the pipeline portion of the Project area. The ATSF Parker Cutoff was constructed in 1910, although trestles along the alignment bear later dates indicating that modifications have occurred. This resource was previously recorded by Applied Earthworks, Inc. in 1999, and consists of railroad tracks set on a raised grade on rock ballast. The resource was previously recommended eligible for listing in the NRHP under Criteria A and possibly C.⁶⁸

The railroad was observed during the 2010 ESA survey and found to be as previously described. Dates noted on the tracks themselves span from 1916 to the 1950s and the railroad is still in use. The resource appears to have changed little from the time of its original recording and appears to maintain integrity and its eligibility for listing in the NRHP; therefore it is considered eligible for listing in the CRHR under Criteria 1 and possibly 3. Resource CA-SBR-9853H should be considered a significant resource under CEQA.

CA-SBR-10521H (CRA): The CRA was constructed in the 1930s by the Metropolitan Water District of Southern California and is still in use. As recorded in 2000, the concrete-lined canal measures 50 feet wide at the top and is fenced on both sides. The CRA was previously recommended eligible for listing in the NRHP under Criteria A, B, and C⁶⁹ and is therefore eligible for listing in the CRHR. Resource CA-SBR-10521H should be considered a significant resource under CEQA.

CA-SBR-11583H (Cadiz-Parker Road): The recorded section of this dirt road extends between the historic railroad settlement sites of Cadiz and Rice, and generally follows the route of the ARZC railroad (Historic ATSF Parker Cutoff). The road may be associated with construction of the ATSF Parker Cutoff, completed in 1910. The roadway has not been formally evaluated for its eligibility to the NRHP or the CRHR, but appears eligible for its association with the ATSF Parker Cutoff (CRHR Criterion 1). There is no evidence available at the present time to suggest that the resource is eligible for its association with important persons (CRHR Criterion 2) or that the resource represents a distinctive type, style, or manufacture technology (CRHR Criterion 3). Given the nature of this resource, it does not have the potential to yield information important in history (CRHR Criterion 4). Since resource CA-SBR-11583H is recommended eligible for the CRHR under Criterion 1, it should be considered a significant resource under CEQA.

⁶⁸ Applied Earthworks, Inc., *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report: Cultural Resources*, 1999, page 55.

⁶⁹ Neves, J., and J. Goodman, *Site Record for CA-SBR-10521*, on file at SBAIC, San Bernardino County Museum, Redlands, 2000, page 3.

Archaeological Resources

Thirty-one of the 38 recorded historic-era archaeological resources are not recommended eligible for listing in the CRHR and do not otherwise meet CEQA's definitions for historical resources and unique archaeological resources (*CEQA Guidelines* §15064.5) (CA-SBR-9849H, -9850H, -9851H, -9856H, ESA-C-1, -C-2, -C-3, -C-5, -C-6, -C-7, -C-8, -C-9, -C-10, -C-11, -C-12, -C-13, -C-14, -C-15, -C-16, -C-17, -C-18, -C-19, -C-20, -C-21, -C-22, -C-23, -C-24, -C-25, -C-26, -C-27, and -C-28). These resources consist primarily of either surface scatters of historic trash, primarily containing non-diagnostic metal can and glass elements with no features, or are isolated non-diagnostic features. The underrepresentation of diagnostic materials from which to identify artifacts and date the resources limits their potential to yield information important in history (CRHR Criterion 4). While all resources can be broadly dated to the first half of the 20th century and are likely associated with human activity related to railroad construction and/or maintenance, none can be tied to specific historically-significant events or persons (CRHR Criteria 1 and 2). Likewise, the resources do not contain features or artifacts that represent a distinctive type, style, or manufacture technology (CRHR Criterion 3). These 31 resources are therefore not recommended eligible and have been exhausted of their limited data potential simply through the process of their recording on DPR 523 forms. No further work is recommended for these resources.

The remaining seven historic-era archaeological resources are recommended eligible for listing in the CRHR (CA-SBR-3223H, -3235H, -3282H, -3283H, -9858H, -10646H, and ESA-C-4). Five of these are associated with the historic settlements or railroad sidings of Milligan, Saltmarsh, Archer, Chubbuck, and Sablon respectively (-3233H, -3235H, -3282H, -3283H, and -10646H). The remaining two resources recommended eligible are CA-SBR-9858H, a WW-II military encampment or supply depot with an earlier railroad component, and ESA-C-4, a large historic artifact scatter. These resources are discussed in detail below.

Historic Settlements

CA-SBR-3233H (Milligan): This historic-era archaeological site represents the remnants of the early to mid-20th century settlement of Milligan, which appears on maps as early as 1917-1918. The site is over 600,000 square feet (14 acres) in size and contains numerous structural remains, historic trees, a cemetery, and rather dense concentrations of historic artifacts, many with diagnostic qualities. This resource was evaluated as part of this study and is recommended eligible for listing in the CRHR.

CA-SBR-3235H (Saltmarsh): This historic-era archaeological site represents the remnants of the early to mid-20th century settlement of Saltmarsh, which appears on maps as early as 1917-1918. The site is over 1.1 million square feet (26 acres) in size and contains numerous structural remains, a well, a loading platform, and concentrations of historic artifacts, many with diagnostic qualities. This resource was evaluated as part of this study and is recommended eligible for listing in the CRHR.

CA-SBR-3282H (Archer): This historic-era archaeological site represents the remnants of the early to mid-20th century settlement of Archer, which appears on maps as early as 1917-1918.

The site is over 2 million square feet (46 acres) in size and contains a well, structural remains, a cemetery, and concentrations of historic artifacts, many with diagnostic qualities. Archer served as a watering station for steam locomotives along the line and was probably first occupied when the water well was drilled in 1910.⁷⁰ When the railroad switched to diesel locomotives in the 1950s, the site was abandoned.⁷¹ The small community was comprised primarily of Mexican laborers and their families.⁷² Applied Earthworks, Inc. (1999: Table 1) recommended that site CA-SBR-3282H is eligible for listing in the NRHP; it is therefore also recommended eligible for listing in the CRHR.

CA-SBR-3283H (Chubbuck): This historic-era archaeological site represents the remnants of the early to mid-20th century mining settlement/railroad siding of Chubbuck. Chubbuck was established in the early to mid-1920s as a mining settlement/railroad siding, but is not depicted in available historic maps. The site is over 1.1 miles long and contains numerous structural remains, including the remains of a mill, and extensive concentrations of historic artifacts. Charles Inglis Chubbuck, manufacturer of products used in cement and masonry, purchased a 1600-acre mining claim from Marcus Pluth and Tom Schofield in 1922. The claim contained a white limestone outcrop, perfect for cement manufacture, and was located about one-half mile west of the ATSF Parker Cutoff, facilitating shipment to market. Mr. Chubbuck built the primary crusher at the limestone quarry and kilns adjacent to the railroad tracks. Over 40 buildings were located at Chubbuck, including a company store, school (1932), post office (1938), and residential structures. Occupants were primarily Mexican laborers and their families.⁷³ The mill ceased operation in 1951. Site CA-SBR-3283H was previously recommended eligible for listing in the NRHP by Applied Earthworks, Inc. (1999: 58) under Criteria A and D for its association with the history of the railroad and early mining in the area. Since the site has been recommended as eligible for the NRHP, it is also considered eligible for the CRHR.

CA-SBR-10646H (Sablon): This historic-era archaeological site represents the remnants of the early to mid-20th century settlement/railroad siding of Sablon, which appears on maps as early as 1917-1918. The site currently measures 820,395 square feet (18.8 acres) and contains several features, including dense artifact concentrations and structural features. Site CA-SBR-10646H was not evaluated for NRHP or CRHR eligibility at the time of its original recordation,⁷⁴ however, it was evaluated as part of this study and is recommended eligible for listing in the CRHR.

The five historic settlement sites (CA-SBR-3233H, -3235H, -3282H, -3283H, and -10646H) appear to be eligible for listing in the CRHR under Criteria 1 and 4. While the sites do appear to have been partially pothunted (as evidenced by shallow depressions), they appear to maintain a fair amount of integrity based on surface evidence observed during the course of the survey. Therefore, these five sites contain sufficient archaeological data to yield information significant

⁷⁰ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 98.

⁷¹ de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, page 96.

⁷² de Kehoe, Joe, *The Silence and the Sun*, Trails End Publishing Company, Bakersfield, CA, 2007, pages 96-97.

⁷³ Applied Earthworks, Inc., *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report: Cultural Resources*, 1999, page 43.

⁷⁴ Tierra Environmental Services, *Cultural Resources Survey Report for the All American Pipeline Replacement Project, Daggett to Blythe, San Bernardino and Riverside Counties, California*, 2001.

to the history of the area (CRHR Criterion 4). The settlements of Milligan, Saltmarsh, Archer, Chubbuck and Sablon are five of a number of settlements that began as small railroad siding or mining camps along the ATSF Parker Cutoff railroad. These settlements sprung up early in the 20th century primarily to support the railroad and local mining and continued to be used for movement of goods and materials through the area during WWII and the mid 20th century. For this reason, the sites are also recommended eligible for events (CRHR Criterion 1) for their association with themes relating to transportation, mining, and possibly military activity. There is no evidence available at the present time to suggest the sites are eligible for their association with important persons (CRHR Criterion 2) or that the sites or their constituents represent a distinctive type, style, or manufacture technology (CRHR Criterion 3). Furthermore, the sites appear to be inextricably tied to the railroad and consideration of them as contributing elements to an as yet undefined ATSF Parker Cutoff railroad district, related to the themes mentioned, may deserve consideration.

WW-II Military Site

CA-SBR-9858H: This site appears to represent the remnants of an encampment or supply depot associated with WWII-era military training exercises and contains linear rock features and alignments designating roadways and other use areas along with several discrete scatters of refuse. The site also contains an earlier component related to the use of the site during the ATSF Parker Cutoff railroad's construction and/or use. The WWII-era military component of the site was recommended eligible for listing in the NRHP by Applied Earthworks, Inc.⁷⁵ in 1999 under Criteria A, C and D. The earlier railroad component was recommended as eligible for listing in the NRHP under Criteria A and D for its association with the history of the railroad. Since the site has been recommended as eligible for the NRHP, it is also considered eligible for the CRHR and should be considered a significant resource under CEQA.

Historic Debris Scatter

ESA-C-4: This is a large (approximately 249,000 square foot) historic artifact scatter with three can concentrations, two glass concentrations, four concentrations of burnt bone, three rock cairns, and a general historic scatter of hundreds of cans and glass fragments, many of which contain diagnostic characteristics. The site likely dates to the early and possibly mid 20th century and may be associated with the early use of the railroad. The site does not contain structural remains, nor does it appear to coincide with any mapped historic settlement sites.

The size of the site and density of artifacts present suggests that this site contains sufficient archaeological data to yield information important to the local and regional history (CRHR Criterion 4). Based on surface evidence, it does not however appear to be associated with important events (CRHR Criterion 1) or persons (CRHR Criterion 2), nor does the site or any of the identified surface constituents appear to represent a distinctive type, style, or manufacture technology (CRHR Criterion 3).

⁷⁵ Applied Earthworks, Inc., *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report: Cultural Resources*, 1999, pages 57-58.

Wellfield Portion of the Project Area

Less than 10 percent of the wellfield portion of the Project area has been previously surveyed. Sixteen cultural resources were identified during the records search as being located within or immediately adjacent to the wellfield portion of the Project area (CA-SBR-3243, -3281H, -6693H, -6694H, -9848, -9853H, -9855H, -11582H, -11583H, -11584H, -11586H, P-36-20149, P-36-60315, P-36-60319, P-36-60922, and P-36-64132). Of these 16 resources, one (CA-SBR-6693H), the historic Atchison, Topeka, & Santa Fe Railroad, is known to have been evaluated and recommended eligible for listing in the NRHP by Applied Earthworks, Inc. (1999) and another (CA-SBR-9855H), possibly containing a grave, is believed to be eligible, although sufficient study to determine this was never conducted. No archaeological survey of the wellfield portion of the Project area was conducted as part of this study effort since the precise location of wells pads and access roads were not finalized. Therefore, the condition of the previously identified eligible resource (-6693H) and the potentially eligible resource (-9855H) have not been confirmed, nor has it been determined the number and types of any other cultural resources that might be present in the wellfield portion of the Project area.

Paleontological Resources Identification

Resource Assessment Criteria

This paleontological resources analysis utilizes the Potential Fossil Yield Classification System (PFYC). This system is widely utilized by professional paleontologists for the purpose of paleontological resource management:⁷⁶

Class 1 – Very Low. Geologic units that are not likely to contain recognizable fossil remains, such as igneous rock units.

Class 2 – Low. Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils, such as recent or very young (younger than 10,000 years) units.

Class 3 – Moderate or Unknown. Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.

Class 3a – Moderate Potential. Units are known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered.

Class 3b – Unknown Potential. Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or the area is known. This may indicate the unit or area is poorly studied, and field surveys may uncover significant finds.

⁷⁶ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, pages 8-12.

Class 4 – High. Geologic units containing a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability.

Class 4a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two acres.

Class 4b – These are areas underlain by geologic units with high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances.

Class 5 – Very High. Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation.

Class 5a – Unit is exposed with little or no soil or vegetative cover.

Class 5b – These are areas underlain by geologic units with very high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances.

Review of Previously Recorded Fossil Localities

A Project-specific review of previously recorded fossil localities at the Natural History Museum of Los Angeles County (LACM) and the San Bernardino County Museum (SBCM) was conducted.⁷⁷ The purpose of the record search was to determine whether any previously recorded fossil localities occur within the Project area, or have been found in the same geologic units that occur within the Project area. The paleontological archival research and field studies conducted as part of the prior paleontological analysis in 1999 were also reviewed.⁷⁸

No previously recorded fossil localities within the Project area exist at the LACM. However, three LACM fossil localities are located in the vicinity of the Project area.⁷⁹ Locality LACM 5977, found within Quaternary deposits located to the south-southwest of the Project area, produced a fossil specimen of the pocket mouse *Perognathus*. Localities LACM (CIT) 208 and LACM 3414, found in Quaternary deposits to the west-southwest of the Project area between the Eagle Mountains and the Coxcomb Mountains, yielded specimens of tortoise (*Gopherus*), horse (*Equus*), and camel (*Camelops* and *Tanupolama stevensi*).⁸⁰

⁷⁷ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 24.

⁷⁸ Metropolitan Water District of Southern California and Bureau of Land Management, *Cadiz Groundwater Storage and Dry Year Supply Program Final Environmental Impact Report and Final Environmental Impact Statement, Volume I*, September 2001.

⁷⁹ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 24.

⁸⁰ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 24.

The SBCM has four previously recorded fossil localities along the proposed pipeline alignment and in other localities in the general vicinity. Locality SBCM 141.2, located at Danby Dry Lake, produced fossil horse (*Equus* sp.), camel (*Camelops* sp.), jack rabbit (*Lepus* sp. Cf. *L. californicus*), kangaroo rat (*Dipodomys*), fox (*Vulpes*), and badger (*Taxidea taxus*). Localities SBCM 141.8 and SBCM 142.8 produced unspecified fossil types of Rancholabrean North American Land Mammal "Age" from Danby Dry Lake and Cadiz Dry Lake, respectively. Locality SBCM 142.2, located on Cadiz Dry Lake, produced plant remains (Tracheophyta) and kangaroo rat (*Dipodomys*). The SBCM also reports that the Danby and Cadiz areas have produced fossils of extinct horse (*Equus* sp.), large camel (cf. *Camelops* sp.), and pronghorn (*?Tetrameryx*), as well as mollusks, toads, tortoises (including the giant tortoise *Hesperotestudo*), lizards, snakes, birds, rabbits, and rodents.⁸¹

Geologic Map Review

Geologic maps with the highest resolution possible were examined. These include the geologic map of the Amboy 30' x 60' Quadrangle,⁸² and the geologic map of the Sheep Hole Mountains 30' x 60' Quadrangle.⁸³ The geologic map of the Needles 1 x 2 Degree Quadrangle⁸⁴ was used for portions of the Project area that are not covered by the 30' x 60' maps.

The geologic map search revealed that surficially, the Project occurs mostly on alluvium and lake deposits of Quaternary (Holocene and Pleistocene) age. Igneous and metamorphic bedrock units of Precambrian to Mesozoic age also occur.⁸⁵

The Project area contains 19 mapped geologic units (**Table 4.5-4**). In terms of geographic extent, most of the Project area includes surficial sedimentary deposits that are of both Pleistocene and Holocene age.

Four of the geologic units within the Project area (Jurassic Diorite and Quartz Diorite; Buckskin Formation; Kilbeck Gneiss; and granitic rocks) have very low paleontological sensitivity (PFYC Class 1) because they consist of igneous or metamorphic rocks that were formed at extremely high temperatures or high pressures, and do not typically contain recognizable fossil remains.⁸⁶ Six of the geologic units (Youngest alluvium; Younger alluvium; playa deposit; Quaternary alluvium; Quaternary lake deposits; and Dune sand) have low paleontological sensitivity (PFYC Class 2) because they consist of surficial sedimentary deposits that were formed during the

⁸¹ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 25.

⁸² Bedford, D.R., Miller, D.M., and Phelps, G.A., *Surficial geologic map data and physical properties for the Amboy 30 x 60 minute Quadrangle, California*, U.S. Geological Survey Open-File Report 2006-1165, 33 p., scale 1:100,000, <http://pubs.usgs.gov/of/2006/1165>, 2010.

⁸³ Howard, K.A., *Geologic Map of the Sheep Hole Mountains 30'x 60' quadrangle, San Bernardino and Riverside Counties, California*, U.S. Geological Survey Miscellaneous Field Investigations Map, MF-2344, scale 1:100,000, 2002.

⁸⁴ Bishop, C.C., *Geologic Map of California: Needles Sheet*, California Division of Mines and Geology, scale 1:250,000, 1963.

⁸⁵ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 12.

⁸⁶ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 16.

Holocene (less than 10,000 years ago), and as such, are too young to contain in-situ fossil remains. It should be noted that although PFYC Class 2 units have low paleontological sensitivity at the surface, they are often underlain at varying depths by older Pleistocene surficial deposits that may contain scientifically significant fossil remains, and these deposits and contained fossils can be adversely impacted by ground disturbing projects that penetrate through the overlying low sensitivity Holocene age deposits. Because of their low potential to produce scientifically significant fossil remains, neither the PFYC Class 1 nor the PFYC Class 2 geologic units are discussed further in this Section.

**TABLE 4.5-4
SURFICIAL MAPPED GEOLOGIC UNITS WITHIN THE PALEONTOLOGICAL RESOURCES STUDY AREA**

| Map Abbreviation | Geologic Unit | Age | PFYC Class (potential for fossils) |
|--|--|---------------------------------|------------------------------------|
| Bedford et al., 2010, Amboy 30' x 60' Quadrangle | | | |
| Qya | Young alluvial fan deposit | Holocene and latest Pleistocene | 4* (high) |
| Qyaf | Young alluvial fan composed of fine-grained deposits | Holocene and latest Pleistocene | 4* (high) |
| Qyv | Young valley-axis deposit | Holocene and latest Pleistocene | 4* (high) |
| Qia | Intermediate alluvial fan deposit | Late to middle Pleistocene | 4* (high) |
| Qha/ca | Abundant hillslope deposits and "carbonate rocks" | Holocene and Pleistocene | 3* (moderate) |
| Qha/mi | Abundant hillslope deposits and "metamorphic rocks" | Holocene and Pleistocene | 3* (moderate) |
| Howard, 2002, Sheep Hole Mountains 30' x 60' Quadrangle | | | |
| Qy | Youngest alluvium | Holocene | 2** (low) |
| Qya | Younger alluvium | Holocene | 2** (low) |
| Qps | Playa deposit, silt and clay | Holocene | 2** (low) |
| Qwo | Older windblown sand, stabilized (fossil) dunes | Holocene and Pleistocene | 3* (moderate) |
| Jd | Diorite and Quartz diorite | Jurassic | 1 (very low) |
| TrRb | Buckskin Formation, schist and gneiss | Triassic | 1 (very low) |
| Xk | Kilbeck Gneiss | Early Proterozoic | 1 (very low) |
| Bishop, 1963, Needles 1 x 2 Degree Quadrangle | | | |
| Qal | Quaternary alluvium | Recent/Holocene | 2 (low) |
| Ql | Quaternary lake deposits | Recent/Holocene | 2 (low) |
| Qs | Dune sand | Recent/Holocene | 2 (low) |
| pC | Undivided metamorphic rocks | Precambrian | 1 (very low) |
| pC-gr | Undivided granitic rocks | Precambrian | 1 |
| gr | Granitic rocks | Mesozoic | 1 |

*Holocene age deposits are too young to contain fossils, although Pleistocene deposits have high paleontological sensitivity. Highest PFYC ranking is applied to entire map unit for units mapped as containing both Holocene and Pleistocene age sediments.

**Holocene age deposits are considered to have low paleontological sensitivity, but may be underlain at depth by Pleistocene age deposits with moderate or high paleontological sensitivity.

SOURCE: Paleo Solutions, Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA, November 2010, page 16.

Three geologic units (Holocene and Pleistocene abundant hillslope deposits and carbonate rocks; abundant hillslope deposits and metamorphic rocks; and older windblown sand and stabilized dunes) are considered to have moderate paleontological sensitivity (PFYC Class 3) because they consist of Holocene and Pleistocene age sedimentary deposits (and other lithologies, see **Table 4.5-1**) that were deposited on hillslopes or consist of older stabilized sand dunes and thus have lower sensitivity than other sedimentary deposits of Pleistocene age, such as alluvium. Note that for geologic units that are mapped as being both Pleistocene and Holocene age, the PFYC Class for the higher sensitivity Pleistocene deposits is applied to the entire unit. Four geologic units (Holocene and Late Pleistocene Young alluvial fan deposits; Young alluvial fan composed of fine grained deposits; Young valley-axis deposit; and late to middle Pleistocene Intermediate alluvial fan deposits) have high paleontological sensitivity (PFYC Class 4) because they consist of Pleistocene age sedimentary deposits including alluvial deposits that regularly produce scientifically significant fossil remains in the general vicinity of the Project area and elsewhere in Southern California.

The sensitivity rankings for the mapped geologic units within the Project area apply only to surface geologic units, and units with higher (or lower) sensitivity may be encountered at a shallow depth beneath the surface. In terms of geographic extent, most of the Project area includes surficial sedimentary deposits that are of both Pleistocene and Holocene age. It is critical to note that although deposits of Holocene age that are too young to produce in-situ fossils, these deposits are known to be underlain at a shallow depth at many locations in the Mojave Desert by Pleistocene age deposits that do contain scientifically significant fossils and that document the paleoenvironments and paleoecology of this area during the Pleistocene “ice age.” Thus, in areas mapped as Holocene in age, Project excavations that are at or close to existing grade are unlikely to impact paleontological resources. However, deeper excavations may disturb older (Pleistocene), especially in alluvium and lake deposits, and less likely in hillslope, alluvial fan, and sand dune deposits. Specifically, older lake deposits underlie and encompass a larger geographic area than the current extent of Danby Dry Lake and Cadiz Dry Lake.

Field Survey

A paleontological field survey was conducted between October 18 and 26, 2010.⁸⁷ Survey was conducted for the 43.5-mile long linear pipeline portion of the Project area only, between the CRA on the south and the intersection of the wellfield and water conveyance pipeline portion of the Project areas on the north. Survey occurred within the 200-foot wide ARZC ROW, which centered on the ARZC railroad tracks. The wellfield portion of the Project area was not surveyed since the precise locations of the well pads and access roads were not yet finalized.

The goal of the field surveys was to determine the presence of paleontological resources within the disturbance limits of the Project area. The surveys consisted of walking transects along bedrock outcrops and visually examining bedrock outcrops for exposed fossil remains.

The pedestrian field survey did not result in the identification of any fossils.

⁸⁷ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 25.

4.5.3 Regulatory Framework

Numerous laws and regulations require federal, state, and local agencies to consider the effects a project may have on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the various agencies proposing the action, and prescribe the relationship among other involved agencies (e.g., State Historic Preservation Office and the Advisory Council on Historic Preservation). The National Historic Preservation Act (NHPA) of 1966, as amended; CEQA; and the CRHR, Public Resources Code (PRC) 5024, are the primary federal and State laws governing and affecting preservation of cultural resources of national, state, regional, and local significance.

Federal

Section 106 of the NHPA

Archaeological resources are protected through the NHPA of 1966, as amended (16 USC 470f), and its implementing regulation, Protection of Historic Properties (Code of Federal Regulations [CFR] 36 Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an “undertaking” (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the NRHP. Under the NHPA, a resource is considered significant if it meets the NRHP listing criteria at 36 CFR 60.4 (see below).

National Register of Historic Places

The NRHP was established by the NHPA of 1966 as “an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (36 CFR Section 60.2). The NRHP recognizes both historical-period and prehistoric archaeological properties that are significant at the national, state, and local levels. In the context of the Project, which does not involve any historical-period structures, the following NRHP criteria are given as the basis for evaluating archaeological resources.

To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria:⁸⁸

- A. Are associated with events that have made a significant contribution to the broad patterns of our history;

⁸⁸ U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, Washington, D.C., 1995.

- B. Are associated with the lives of persons significant in our past;
- C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least fifty years old to be eligible for NRHP listing.⁸⁹

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance”.⁹⁰ The NRHP recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

State

The State implements the NHPA through its statewide comprehensive cultural resources surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State’s jurisdictions.

California Register of Historical Resources

The CRHR is “an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC § 5024.1[a]). The criteria for eligibility for the CRHR are based upon NRHP criteria (PRC § 5024.1[b]). Certain resources are determined by the statute to be automatically included in the CRHR, including California properties formally determined eligible for, or listed in, the NRHP.

To be eligible for the CRHR, a prehistoric- or historical-period property must be significant at the local, State, and/or federal level under one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
2. Is associated with the lives of persons important in our past;

⁸⁹ U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, Washington, D.C., 1995.

⁹⁰ U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, Washington, D.C., 1995.

3. Embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the CRHR must meet one of the criteria of significance described above, retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource, and convey the reason for its significance. It is possible that an historic resource may not retain sufficient integrity to meet the criteria for listing in the NRHP, but it may still be eligible for listing in the CRHR.

Additionally, the CRHR consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The CRHR automatically includes the following:

- California properties listed on the NRHP and those formally Determined Eligible for the NRHP;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion in the CRHR.

Other resources that may be nominated to the CRHR include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the NRHP, the CRHR, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks or designated under any local ordinance, such as an historic preservation overlay zone.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of development projects in the State. CEQA requires lead agencies to determine if a proposed project would have a significant effect on archaeological resources. CEQA is codified at PRC Section 21000 et seq. As defined in Section 21083.2 of CEQA, a “unique” archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type;

- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

CEQA provides that a project may cause a significant environmental effect where the project could result in a substantial adverse change in the significance of a historical resource (Public Resources Code, Section 21084.1). *CEQA Guidelines* Section 15064.5 defines a “substantial adverse change” in the significance of a historical resource to mean physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be “materially impaired” (*CEQA Guidelines*, Section 15064.5[b][1]).

CEQA Guidelines, Section 15064.5(b)(2), defines “materially impaired” for purposes of the definition of “substantial adverse change” as follows:

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

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

In accordance with *CEQA Guidelines* Section 15064.5(b)(3), *generally a project that follows the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* is considered to have mitigated impacts to historic resources to a less-than-significant level.

Historic resources are usually 50 years old or older and must meet at least one of the criteria for listing in the CRHR (such as association with historical events, important people, or architectural significance), in addition to maintaining a sufficient level of physical integrity (*CEQA Guidelines* Section 15064.5[a][3]).

Local

San Bernardino County General Plan

The Conservation Element of the recently adopted San Bernardino County General Plan (2007a) identifies goals and policies regarding the cultural resources of the County. The General Plan policies strive to identify and protect important cultural resources in the County. The County General Plan stresses avoidance of cultural resources as the preferred mitigation method. For discussion of the applicability of the County General Plan and Development Code policies to the Project, please see Section 4.10.3 (*Consistency with Land Use Plans*) of the Land Use and Planning Chapter.

Paleontological Resources

Federal

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands or involves a federal agency license, permit, approval, or funding. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 et. seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands.

State

Paleontological resources are also afforded protection by CEQA. Appendix G (Part V) of the *CEQA Guidelines* provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will "...disrupt or adversely affect a paleontologic resource or site or unique geologic feature, except as part of a scientific study." Section 5097.5 of the Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

Professional Standards

The Society for Vertebrate Paleontology (SVP) has established standard guidelines for acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional paleontologists in the nation adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

4.5.4 Impact and Mitigation Analysis

Construction of the proposed Project may result in direct impacts to cultural resources through ground disturbing activities. Potential impact mechanisms can include both surface disturbance by vegetation removal and by the movement of large construction vehicles and equipment, and subsurface disturbance through excavation or grading. Indirect impacts to cultural resources could result during construction and/or operations from elevated noise or vibration levels or changes to the visual setting of resources. Indirect impacts may also result from increased traffic and public access to the area as a result of road improvements or other factors.

Significance Criteria

Based on the *CEQA Guidelines*, Appendix G, a project may be deemed to have a significant effect on the environment with respect to cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource pursuant to *CEQA Guidelines* Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to *CEQA Guidelines* Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

Indian Trust Assets

For purposes of this Draft EIR, a project is considered to have a significant impact on the environment in relation to Indian Trust Assets if it would:

- Directly involve the use of land or sites of religious or cultural importance to Native Americans; or
- Affect the use of reservation lands or sites of religious or cultural importance to Native Americans.

Methodology and Assumptions

Cultural Resources

Impacts to cultural resources are assessed based upon archival research and site surveys with the intent to locate any historic, archaeological, or paleontological resources or human remains within the Project area.⁹¹

⁹¹ Environmental Science Associates, *Phase 1 Cultural Resources Assessment for the Cadiz Groundwater Conservation and Storage Project, San Bernardino County (CA)*, January 2011.

Indian Trust Assets

No ITAs were identified in the Project Area when federal environmental review was completed on a previously proposed Cadiz Groundwater Storage and Dry-Year Supply Program⁹² in 2001.

Groundwater Conservation and Recovery Component

Historical Resources

Significance Threshold

Would the proposed Project cause a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5?

Impact Analysis

Construction

Construction of the wellfield and pipeline would disturb surface soils that may contain historic resources that are eligible for listing in the NRHP or CRHR. With respect to the pipeline, a total of 10 significant historical resources considered eligible for the CRHR and/or NRHP are located within the pipeline portion of the Project area surveyed for cultural resources as part of this study. Three of these resources (CA-SBR-9853H, CA-SBR-11583H, and CA-SBR-10521H) are historic/architectural/engineering resources and are not anticipated to be subject to Project-related impacts that would result in a substantial adverse change in the significance of these resources.

Resource CA-SBR-9853H, the ATSF Railroad, Parker Cutoff, is considered eligible for listing in the CRHR under Criteria 1 and possibly 3. However, the proposed pipeline would be constructed at least 50 feet from the railroad. In some areas the pipeline may need to cross under the railroad; however, this would be accomplished via jack and bore or directional drilling construction methods, which would not impact the resource's eligibility for listing in the CRHR. Therefore, no significant impacts to CA-SBR-9853H as a result of the Project are anticipated because construction methods would ensure that the resources would not be disturbed.

Resource CA-SBR-11583H, Cadiz-Parker Road, may be associated with the construction of the ATSF Parker Cutoff and the early settlement of the region, and thus is recommended eligible for listing in the CRHR. However, the road would be used only for transportation of materials during Project construction, which would not impact the resource's eligibility for listing in the CRHR. Therefore, no significant impacts to CA-SBR-11583H as a result of the Project are anticipated.

Resource CA-SBR-10521H, the CRA, was recommended eligible for the NRHP and CRHR. The Project would connect the proposed water conveyance pipeline to the CRA's sidewall; however, Project construction would only impact a very small section of the CRA. Considering the length of the resource in relation to the size of the area to be impacted by the Project, an overall change to the resource's character or construction style is not anticipated. The Project is not anticipated to

⁹² Metropolitan Water District of Southern California and Bureau of Land Management, *Cadiz Groundwater Storage and Dry-Year Supply Program and Final Environmental Impact Report and Final Environmental Impact Statement Volume I*, September 2001.

affect the resource's eligibility for listing in the NRHP or CRHR. Therefore, no significant impacts to CA-SBR-10521H as a result of the Project are anticipated.

The remaining seven of the significant historical resources considered eligible for the CRHR are archaeological sites located within the pipeline portion of the Project area (CA-SBR-3233H, CA-SBR-3235H, CA-SBR-3282H, CA-SBR-3283H, CA-SBR-9858H, CA-SBR-10646H, and ESA-C-4). These seven sites may be impacted by the Project. Avoidance is the preferred means of mitigating impacts to cultural resources. While mitigation through data recovery excavations would be a means to capture and preserve important data contained in the resources, excavation could lead to the ultimate destruction of the resources. Thus, an attempt should be made to avoid impacts to these resources before data recovery is considered as a viable means of mitigating impacts.

Sixteen cultural resources within the wellfield area are located within or immediately adjacent to this part of the Project. (CA-SBR-3243, -3281H, -6693H, -6694H, -9848, -9853H, -9855H, -11582H, -11583H, -11584H, -11586H, P-36-20149, P-36-60315, P-36-60319, P-36-60922, and P-36-64132). Of these 16 resources, only one (CA-SBR-6693H, the historic Atchison, Topeka, & Santa Fe Railroad) has been determined eligible for listing in the NRHP and another (CA-SBR-9855H), possibly containing a grave, was identified as being potentially eligible.⁹³

Potential impacts to significant historical resources can include both surface disturbance by vegetation removal and by the movement of large construction vehicles and equipment and subsurface disturbance through excavation or grading. Damage or destruction of significant historical resources would be a significant impact. Prior to installation of the wellfield, site-specific surveys would be conducted within all impact areas as required by Mitigation Measure **CUL-5**. Mitigation Measure **CUL-2** would require modification of the well pad and pipeline locations to avoid identified cultural resources where feasible. Since the exact location of the well pads is flexible within several hundred feet, it is anticipated that these two mitigation measures would effectively avoid impacts to cultural resources in the wellfield area. Implementation of Mitigation Measures **CUL-1 through CUL-6** would result in a less than significant impact for all Project-related construction and operational activities.

Operation

The Project would not introduce substantially more visitors to the region and therefore would not increase the risk of vandalism or damage to historical resources. Although no ground disturbance would occur, operation and maintenance of the Project, particularly the operation of maintenance vehicles, could impact historical resources in the Project area. However, Mitigation Measure **CUL-3**, which would require the preparation of a long-term management for significant historical resources, would mitigate impacts from Project operation to less than significant.

⁹³ Applied Earthworks, Inc., *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report: Cultural Resources*, 1999.

Mitigation Measures

CUL-1: A qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology,⁹⁴ shall be retained to carry out all mitigation measures related to archaeological resources.

CUL-2: The construction zone shall be narrowed or otherwise altered to avoid all significant historical resources where feasible. Significant or unevaluated cultural resources within 50 feet of the construction zone shall be marked with exclusion markers to ensure avoidance. In the case of resources CA-SBR-3282H and CA-SBR-3233H, a 50-foot buffer shall be established outside of recorded site boundaries as an added protective measure to protect historic cemeteries. Protective fencing shall not identify the protected areas as cultural resource areas in order to discourage unauthorized disturbance or collection of artifacts.

CUL-3: A long-term management plan shall be developed for those significant historical resources or portion(s) of resources that can be avoided during Project construction, in order to minimize future impacts during Project operation and maintenance.

CUL-4: If avoidance of significant historical resources is not feasible, prior to any Project-related ground disturbing activities, a detailed treatment plan shall be prepared and implemented by a qualified archaeologist. The treatment plan shall include a research design and a scope of work for data recovery of the portion(s) of the significant resource(s) to be impacted by the Project. Treatment for most resources shall consist of (but would not be not limited to) sample excavation, surface artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion of the significant resource to be impacted by the Project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, and curation of artifacts and data at an approved facility.

CUL-5: Prior to construction, a qualified archaeologist shall be retained to carry out a Phase 1 cultural resources survey in those portions of the Project area (including but not limited to: the wellfield, CRA tie-in Options 2a and 2b, and any access roads, staging areas, borrow areas, and any other proposed areas of potential ground disturbance) not previously surveyed within the past 5 years. The Phase 1 survey shall identify and evaluate the significance of any potentially eligible resources that may be directly or indirectly impacted by the proposed Project, and shall take Native American comments concerning viewshed impacts into consideration. The Phase 1 Survey effort shall be documented in a Phase 1 Cultural Resources Survey report. Resources determined eligible for listing shall be subject to Mitigation Measures **CUL-1 through CUL-4** and **CUL-6**. All significant cultural resources identified in the wellfield area during surveys shall be avoided.

CUL-6: Prior to construction, an archaeological monitor shall be retained to monitor all ground-disturbing activities, including brush clearance and grubbing, within 100 feet of all significant historical resources. The monitor shall work under the supervision of the qualified archaeologist. The duration and timing of monitoring shall be determined by the qualified archaeologist in consultation with the lead agency and based on the grading plans. In the event that cultural resources are unearthed during ground-disturbing,

⁹⁴ Department of the Interior, *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (As Amended and Annotated): Professional Qualification Standards*, http://www.nps.gov/history/local-law/arch_stnds_9.htm, accessed November 2010.

activities, the archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated and appropriate treatment determined.

Significance Conclusion

Less than significant with mitigation.

Archaeological Resources

Significance Threshold

Would the proposed Project cause a substantial adverse change in the significance of a unique archaeological resource pursuant to *CEQA Guidelines* Section 15064.5?

Impact Analysis

The proposed Project has the potential to impact previously unknown archaeological resources. A portion of the Project area (including the wellfield) has not yet been surveyed and would require survey and identification of cultural resources prior to issuance of a grading permit.

No archaeological survey of the wellfield portion of the Project area was conducted as part of this study effort since the exact locations for well pads and access roads has not been determined precisely. Prior to installation of the wellfield, site-specific surveys would be conducted within all impact areas as required by Mitigation Measure **CUL-5**. Mitigation Measure **CUL-2** would require modification of the well pad and pipeline locations to avoid identified cultural resources where feasible. Since the exact locations of the well pads are flexible within several hundred feet, it is anticipated that these two mitigation measures would effectively avoid impacts to cultural resources in the wellfield area. Implementation of Mitigation Measures **CUL-1 through CUL-6** would result in a less than significant impact for all Project-related construction and operational activities.

In addition, there exists the possibility of uncovering previously unknown buried archaeological resources during Project construction. The high number of recorded prehistoric and historic-era archaeological sites within and adjacent to the Project indicate a potential for archaeological resources discoveries during Project implementation. In the event that archaeological resources are discovered during Project construction, the following mitigation measures would be implemented.

Mitigation Measures

CUL-7: If archaeological resources are encountered, all activity in the vicinity of the find shall cease until it can be evaluated by a qualified archaeologist. If the qualified archaeologist determines that the resources may be significant, he or she will develop an appropriate treatment plan for the resources. Appropriate Native American representatives shall be consulted in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature.

In considering any suggested mitigation proposed by the archaeologist in order to mitigate impacts to archaeological resources, avoidance will be determined necessary and feasible in light of factors such as the nature of the find, Project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) will be instituted. Work may proceed on other parts of the Project site while mitigation for cultural resources is being carried out.

Implement Mitigation Measures **CUL-1 through CUL-6**.

Significance Conclusion

Less than significant with mitigation.

Paleontological Resources

Significance Threshold

Would the proposed Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Impact Analysis

The Project occurs mostly on alluvium and Holocene and Pleistocene lake deposits. Igneous and metamorphic bedrock units of Precambrian to Mesozoic age also occur.⁹⁵

Based on the geologic map review completed for this analysis, the Project area contains 19 mapped geologic units. Four of the geologic units within the Project area (Jurassic Diorite and Quartz Diorite; Buckskin Formation; Kilbeck Gneiss; and granitic rocks) have very low paleontological sensitivity (PFYC Class 1).⁹⁶ Six of the geologic units (Youngest alluvium; Younger alluvium; playa deposit; Quaternary alluvium; Quaternary lake deposits; and Dune sand) have low paleontological sensitivity (PFYC Class 2).

Three geologic units (Holocene and Pleistocene abundant hillslope deposits and carbonate rocks; abundant hillslope deposits and metamorphic rocks; and older windblown sand and stabilized dunes) are considered to have moderate paleontological sensitivity (PFYC Class 3). Four geologic units (Holocene and Late Pleistocene Young alluvial fan deposits; Young alluvial fan composed of fine grained deposits; Young valley-axis deposit; and late to middle Pleistocene Intermediate alluvial fan deposits) have high paleontological sensitivity (PFYC Class 4).

Although deposits of Holocene age are too young to produce in-situ fossils, these deposits are known to be underlain at a shallow depth at many locations in the Mojave Desert by Pleistocene age deposits that do contain scientifically significant fossils and that document the

⁹⁵ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 12.

⁹⁶ Paleo Solutions, *Paleontology Survey and Assessment for the Cadiz Groundwater Project, San Bernardino County, CA*, November 2010, page 16.

paleoenvironments and paleoecology of this area during the Pleistocene “ice age.” Older lake deposits underlie and encompass a larger geographic area than the current extent of Danby Dry Lake and Cadiz Dry Lake. Thus, in areas mapped as Holocene in age, Project excavations that are at or close to existing grade are unlikely to impact paleontological resources. However, deeper excavations may disturb older (Pleistocene) deposits, especially in the alluvium and lake deposits areas, less likely in hillslope, alluvial fan, and sand dune deposits.

There is a high likelihood that paleontological resources would be encountered in Project excavations in certain areas. Implementation of Mitigation Measure **CUL-8 through CUL-10** during Project construction would ensure potential impacts to paleontological resources are reduced to less than significant levels.

Mitigation Measures

CUL-8: Prior to construction, those portions of the Project area (including the wellfield, CRA tie-in Options 2a and 2b, access roads, staging areas, and borrow areas) not previously surveyed within the past 5 years, shall be surveyed by a qualified vertebrate paleontologist, defined as one holding an advanced degree in paleontology, biology, or a related discipline, and having at least five years of professional experience. If paleontological resources are encountered, they shall be documented or recovered, and curated, as appropriate, prior to the start of construction. The evaluation will be documented in a report to be submitted for review and approval by the lead agency prior to the start of construction. The report shall also be submitted to the San Bernardino County Museum.

CUL-9: Prior to the start of any earth moving activity, a qualified vertebrate paleontologist shall be retained. The paleontologist shall prepare a Paleontological Mitigation and Monitoring Plan (PMMP) that shall be based on prior paleontological evaluations, including the results of the paleontological survey as described in Mitigation Measure **CUL-8**, and shall address pre-construction salvage and reporting; pre-construction contractor sensitivity training; procedures for paleontological resources monitoring including the identification of specific paleontological monitoring locations as defined by areas where Pleistocene age sediments may be impacted during construction; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils; and the preparation of a final mitigation report.

CUL-10: All earth-moving activities within those formations identified as sensitive within the PMMP shall be monitored on a full-time basis, unless the paleontologist determines that sediments are previously disturbed or there is no reason to continue monitoring in a particular area due to other depositional factors which would make fossil preservation unlikely or deemed scientifically insignificant. In the event fossils are exposed during earth moving, construction activities shall be redirected to other work areas until the procedures outlined in the PMMP have been implemented or the paleontologist determines work can resume in the vicinity of the find.

When fossils are discovered, they and associated data shall be collected quickly and professionally. Fossil salvage procedures shall include the collection of bulk matrix samples if scientifically significant microfossils are believed to be present based on field evidence. All fossils collected during monitoring shall be transferred to a secure facility for

laboratory preparation and identification. Laboratory preparation shall include stabilization, matrix removal, and conservation of individual fossil specimens, as well as screenwashing and picking of bulk matrix samples. Fossils shall be prepared to the point of curation and identified by technical specialists, as needed, to the lowest possible taxonomic level. At the end of the Project, the paleontologist shall prepare a report that includes a description and inventory list of recovered fossil materials; a map showing the location of paleontological resources found in the field; determinations of sensitivity and significance; and a statement that Project impacts to paleontological resources have been mitigated. The results of the paleontological surveys, construction monitoring, and subsequent laboratory work shall be compiled in a final paleontological mitigation report authored by the qualified paleontologist for the Project. The final report shall include all Project data and a copy of the receipt of specimens from the paleontological repository.

Following preparation, the fossils and associated data and a copy of the final paleontological mitigation report shall be transferred to a public museum (paleontological repository) where they will be available for the benefit of current and future generations.

Significance Conclusion

Less than significant with mitigation.

Human Remains

Significance Threshold

Would the proposed Project disturb any human remains, including those interred outside of formal cemeteries?

Impact Analysis

Two historic-era cemeteries have been identified adjacent to the Project area. The cemetery at the historic railroad settlement of Archer (CA-SBR-3282H), which dates to the early 20th century, is located less than 10 feet outside of the Project area. The cemetery at the historic railroad settlement of Milligan (CA-SBR-3233H) is located less than 100 feet outside of the Project area. Neither of these cemeteries are located within the Project area and neither would be impacted. However, both cemeteries are located very close to the Project area. There remains a possibility that unmarked graves may exist near these cemeteries but outside of their marked boundaries.

In addition, a possible historic gravesite, documented as resource CA-SBR-9855H, was recorded in the wellfield portion of the Project area. The existence of historic burial sites within the Project area indicates that there is a potential for the discovery of human remains during Project implementation.

However, Mitigation Measure **CUL-2** would require avoidance of significant historical resources and establish a 50-foot buffer area around the cemeteries at CA-SBR-3282H and CA-SBR-3233H. Mitigation Measure **CUL-3** would establish a long-term management plan for these sites. In addition, Mitigation Measure **CUL-6** would require archaeological monitoring within 100 feet

of significant resources. The risk of inadvertently damaging human remains causing a significant impact to occur would be minimized by implementation of Mitigation Measure **CUL-11**, in conjunction with Mitigation Measures **CUL-2**, **CUL-3**, and **CUL-6**.

Mitigation Measures

CUL-11: If human remains are uncovered during Project construction, all work in the vicinity of the find shall be halted and the County Coroner will be contacted to evaluate the remains and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the *CEQA Guidelines*. If the County Coroner determines that the remains are Native American, the NAHC shall be contacted, in accordance with Health and Safety Code Section 7050.5, subdivision (c) and Public Resources Code 5097.98 (as amended by AB 2641). Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this Section (PRC 5097.98) with the most likely descendants taking into consideration their recommendations, and developing a treatment plan, taking into account the possibility of multiple human remains.

Implement Mitigation Measures **CUL-2**, **CUL-3**, and **CUL-6**.

Significance Conclusion

Less than significant with mitigation.

Indian Trust Assets

Significance Threshold

Would the proposed Project directly involve the use of land or sites of religious or cultural importance to Native Americans?

Would the proposed Project affect the use of reservation lands or sites of religious or cultural importance to Native Americans?

Impact Analysis

No Indian Trust Assets have been identified within the Project area. Therefore, there will be no impact on ITAs and no mitigation is required.

Mitigation Measures

None required.

Significance Conclusion

No impact.

Imported Water Storage Component

This component is analyzed on a programmatic basis.

Historical Resources

Significance Threshold

Would the proposed Project cause a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5?

Impact Analysis

As described above with the Groundwater Conservation and Recovery Component, a total of 41 archaeological and built historic resources were recorded during archaeological survey of the pipeline portion of the Project area. Ten of these are considered significant resources eligible for the CRHR and are located within the pipeline portion of the Project area surveyed for cultural resources as part of this study effort. Three of these resources (CA-SBR-9853H, CA-SBR-11583H, and CA-SBR-10521H) are historic/architectural/engineering resources and seven (CA-SBR-3233H, CA-SBR-3235H, CA-SBR-3282H, CA-SBR-3283H, CA-SBR-9858H, CA-SBR-10646H, and ESA-C-4) are archaeological sites located within the pipeline portion of the Project area.

Less than 10 percent of the wellfield portion of the Project area has been previously surveyed. Sixteen cultural resources (CA-SBR-3243, -3281H, -6693H, -6694H, -9848, -9853H, -9855H, -11582H, -11583H, -11584H, -11586H, P-36-20149, P-36-60315, P-36-60319, P-36-60922, and P-36-64132) are located within or immediately adjacent to this part of the Project. Of these 16 resources, one (CA-SBR-6693H, the historic Atchison, Topeka, & Santa Fe Railroad) has been determined eligible for listing in the NRHP and another, (CA-SBR-9855H) possibly containing a grave, was identified as being potentially eligible.⁹⁷

Project-related construction may present the possibility of impacts to these and other yet-undiscovered cultural resources. Cultural resources survey to identify and evaluate any cultural resources that may be subject to impacts should be conducted once the specific construction footprint of the Imported Water Storage Component has been further delineated.

Potential impact mechanisms can include both surface disturbance, by vegetation removal and by the movement of large construction vehicles and equipment, and subsurface disturbance through excavation or grading. Damage or destruction of known significant historical resources or unique archaeological resources would be a significant impact. Implementation of Mitigation Measures **CUL-1 through CUL-6** would ensure that most impacts are avoided and that the remaining impacts are appropriately analyzed and recorded to reduce impacts to a less than significant level.

Furthermore, along the existing natural gas pipeline alignment, a number of archaeological resources have been identified during a surveys in 2000-2002. Potential impacts could occur to

⁹⁷ Applied Earthworks, Inc., *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report: Cultural Resources*, 1999.

existing cultural resources and other undiscovered cultural resources during construction and operation. Because ten years have passed since the previous archaeological surveys of the existing natural gas pipeline corridor, new archaeological surveys would be required. However, implementation of Mitigation Measures **CUL-1 through CUL-6** would ensure that most impacts are avoided and that the remaining impacts are reduced to less than significant levels. Thus, impacts would be less than significant with mitigation measures.

Mitigation Measures

Implement Mitigation Measures **CUL-1 through CUL-6**.

Significance Conclusion

Less than significant with mitigation.

Archaeological Resources

Significance Threshold

Would the proposed Project cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5?

Impact Analysis

The Imported Water Storage Component of the proposed Project has the potential to impact previously unknown archaeological resource. A portion of the Project area (including the wellfield) has not yet been surveyed and would require Phase 1 Cultural Survey efforts prior to issuance of a grading permit. In addition, if new areas are incorporated into the Project area, they must also be surveyed for cultural resources prior to the issuance of a grading permit. The Phase 1 effort shall take into consideration previously recorded and new cultural resources as well as comments provided by the Native American community concerning view shed impacts; it shall also formally evaluate any cultural resources that would be directly or indirectly impacted by the Project. Implementation of Mitigation Measures **CUL-1 through CUL-6** would reduce impacts to archaeological resources to a less than significant level.

In addition, there exists the possibility of uncovering previously unknown buried archaeological resources during Project construction. The high number of recorded prehistoric and historic-era archaeological sites within and adjacent to the Project indicate a moderate archaeological sensitivity in the Project area. In the event that archaeological resources are discovered during Project construction, implementation of Mitigation Measure **CUL-7** would reduce impacts to a less than significant level.

As previously discussed, a number of archaeological resources have been identified along the existing natural gas pipeline corridor during archaeological surveys in 2000-2002. Because ten years have passed since the previous archaeological surveys of the existing natural gas pipeline corridor, new archaeological surveys would be required. Potential significant impacts could occur

to existing archeological resources and other undiscovered archeological resources during construction and operation. However, implementation of Mitigation Measures **CUL-1 through CUL-7** would ensure that most impacts are avoided and that the remaining impacts are reduced to less than significant levels. Thus, impacts to archeological resources would be less than significant with mitigation.

Mitigation Measures

Implement Mitigation Measures **CUL-1 through CUL-7**.

Significance Conclusion

Less than significant with mitigation.

Paleontological Resources

Significance Threshold

Would the proposed Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Impact Analysis

As discussed above with the Groundwater Conservation and Recovery Component, it is possible that significant fossils may be uncovered within the Project area. The Project occurs mostly on Quaternary alluvium and lake deposits (Holocene and Pleistocene age). Igneous and metamorphic bedrock units of Precambrian to Mesozoic age also occur.⁹⁸ Based on the geologic map review completed for this analysis, the Project area contains 19 mapped geologic units, of which seven are assigned a moderate to high paleontological sensitivity.

Fossils and their associated contextual data are nonrenewable scientific resources; the loss of these resources resulting from a project, for example due to construction-related excavation and ground disturbance, would be a significant adverse impact. Earthmoving operations can result in the destruction of fossils and rock units within the construction disturbance limits.

Implementation of Mitigation Measure **CUL-8 through CUL-10** during Project construction would ensure potential impacts to paleontological resources are reduced to less than significant levels.

The existing natural gas pipeline alignment is an existing pipeline and is in an area currently disturbed. Potential significant impacts could occur to existing paleontological resources and other undiscovered paleontological resources during construction and operation. However, implementation of Mitigation Measures **CUL-8 through CUL-10** would ensure potential impacts to paleontological resources are reduced to less than significant levels. Thus, impacts would be less than significant with mitigation measures.

⁹⁸ *Applied Earthworks, Inc., Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report: Cultural Resources*, 1999, page 12.

Mitigation Measures

Implement Mitigation Measures **CUL-8 through CUL-10.**

Significance Conclusion

Less than significant with mitigation.

Human Remains

Significance Threshold

Would the proposed Project disturb any human remains, including those interred outside of formal cemeteries?

Impact Analysis

As discussed above with the Groundwater Conservation and Recovery Component, it is possible that previously undocumented human remains could be uncovered within the Project area. In the event that human remains are discovered during Project construction activities, the human remains could be inadvertently damaged, which could be a significant impact. However, the risk of this impact occurring would be minimized by implementation of Mitigation Measure **CUL-11.**

The existing natural gas pipeline alignment area is currently disturbed. However, potential significant impacts could occur to previously undocumented human remains. However, the risk of this impact occurring would be minimized by implementation of Mitigation Measure **CUL-11.** Thus, impacts to human remains would be less than significant with mitigation measures.

Mitigation Measures

Implement Mitigation Measure **CUL-11.**

Significance Conclusion

Less than significant with mitigation.

Indian Trust Assets

Significance Threshold

Would the proposed Project directly involve the use of land or sites of religious or cultural importance to Native Americans?

Would the proposed Project affect the use of reservation lands or sites of religious or cultural importance to Native Americans?

Impact Analysis

No Indian Trust Assets have been identified within the Project area. Therefore, there will be no impact on ITAs and no mitigation is required.

Mitigation Measures

None required.

Significance Conclusion

No impact.

Mitigation Measure Summary Table

Table 4.5-5 presents the impacts and mitigation summary for Cultural Resources.

**TABLE 4.5-5
 IMPACTS AND MITIGATION SUMMARY**

| Proposed Project Impact | Mitigation Measure | Significance Conclusion |
|--|--|---------------------------------------|
| Groundwater Conservation and Recovery Component | | |
| Historical Resources | CUL-1 through CUL-6 | Less than significant with mitigation |
| Archaeological Resources | CUL-1 through CUL-7 | Less than significant with mitigation |
| Paleontological Resources | CUL-8 through CUL-10 | Less than significant with mitigation |
| Human Remains | CUL-2, CUL-3, CUL-6, and CUL-11 | Less than significant with mitigation |
| Indian Trust Assets | None required | No impact |
| Imported Water Storage Component | | |
| Historical Resources | CUL-1 through CUL-6 | Less than significant with mitigation |
| Archaeological Resources | CUL-1 through CUL-7 | Less than significant with mitigation |
| Paleontological Resources | CUL-8 through CUL-10 | Less than significant with mitigation |
| Human Remains | CUL-11 | Less than significant with mitigation |
| Indian Trust Assets | None required | No impact |