

Table A – Alternatives Matrix

Component	Alternative 1 Locally Preferred	Alternative 2 Relocation of Future Mining Operations	Alternative 3 Limited Mining Operations	Alternative 4 No Project/Existing Conditions
Mining Operations	Cemex 3 MTPY from Alabama Street Quarry (150 feet), West Quarry (120 feet), and East Quarry North (120 feet). Robertson 3 MTPY from Plunge Creek Quarry (no pit), Silt Pond Quarry (150 feet), and East Quarry South (120 feet).	Cemex 4 MTPY from New Orange Street Quarry (150 feet), Redlands Aggregate North (150 feet), Johnson Pit North (150 feet). Redlands Aggregate Pit South (80 feet), Johnson Pit South (80 feet) Alabama Street East, and West (80 feet). Robertson 3.5 MTPY from Cone Camp Quarry, (150 feet) Old Webster Pit (80 feet) and East and West Basin Plunge Creek.	Cemex 2.5 MTPY from Alabama Street Quarry, West Quarry, and East Quarry North. Robertson 2 MTPY from Plunge Creek (no pit) Quarry, Silt Pond Quarry (150 feet), and East Quarry South (120 feet).	Cemex 7 MTPY from Alabama Street Northwest, Northeast, and Southeast, Johnson Pit North and South, Redlands Aggregate North and South, Orange Street Plant. Robertson 2 MTPY from Old Webster Pit.
Water Conservation	811 acres – Canal on south side of borrow pit to be reconstructed.	554 acres requires construction of new basins and canals south of borrow pit.	811 acres – Canal on south side of borrow pit to be reconstructed.	811 acres – no canal constructed.
Habitat Conservation	1,383-acre Habitat Conservation Plan. 540-acre Woollystar Preservation Area.	118-acre Habitat Reserve. 567-acre Woollystar Preservation Area. 942 acres open space.	1,383-acre Habitat Conservation Plan. 540-acre Woollystar Preservation Area.	567-acre Woollystar Preservation Area. 2,474 acres open space.
Flood Control	379 acres	387 acres	379 acres	379 acres
Land Transfer	BLM and SBVWCD exchange parcels. Amendment to Resource Management Plan noting new AOE parcels.	No land transfer; BLM amends Resource Management Plan to permit mining on BLM-managed AOE land.	Same as Alternative 1.	No Land Transfer. No Amendment to Resource Management Plan.

Table A – Alternatives Matrix

Component	Alternative 1 Locally Preferred	Alternative 2 Relocation of Future Mining Operations	Alternative 3 Limited Mining Operations	Alternative 4 No Project/Existing Conditions
Roadways	Widening of Alabama Street, Orange Avenue. Realignment of Greenspot Road and new bridge.	No roadway or bridge improvements; new access road to SR-30 constructed.	Same as Alternative 1.	No roadway or bridge improvements.
Trails/Future Recreation	Three trails on existing interior roadways; bicycle lanes on Orange Street and Greenspot Road. Recreational use of quarries at closure.	Modified trail locations; no bicycle lanes. Recreational use proposed for one quarry at closure.	Same as Alternative 1.	No trail improvements; no bicycle lanes, no recreational use of quarries at closure.
Utilities/Water Supply	Retained in place except north-south Edison easement which would be relocated.	Retained in place except water well in cone camp area would be relocated.	Same as Alternative 1.	No Change.

The Wash Planning Area is located within the Santa Ana River upper wash area in southwestern San Bernardino County (previously referenced Figure 1). The project area is located one mile downstream of the Seven Oaks Dam within the alluvial fan of the upper Santa Ana River. The project site encompasses approximately 4,330 acres and begins at the mouth of the Santa Ana Canyon at Greenspot Road on the east, and extends westward for approximately six miles to Alabama Street. Greenspot Road generally forms the northern boundary of the project site and the southern banks of the Santa Ana River generally comprise the southern boundary. The Wash Planning Area occupies portions of sections 1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, and 16 of Township 1 South, Range 3 West; and portions of sections 17 and 18 in Township 1 South, Range 2 West, San Bernardino Base and Meridian, as shown on the *Redlands* (1996) and *Yucaipa* (1996), *California 7.5-minute topographic quadrangle*. See previously referenced Figures 1 through 4 for project location and proposed alternative development maps.

NATURAL SETTING

The project area is located within the Santa Ana River Wash. It lies within the San Bernardino Basin, a broad interior California valley situated south of the Mojave Desert, east of the San Gabriel Valley, and north of the Perris Plain. The site is located at the southernmost perimeter of the Transverse Range Province, near the north perimeter of the Peninsular Range Province. The area has been altered from its natural character by water conveyance/management systems, agriculture, and residential development. The project region is characterized by a moderate climate, with dry hot summers and

cooler winters. Precipitation usually occurs in the form of winter rain, with occasional warm monsoonal showers in late summer.

Hydrology

The project region is characterized by a semi-arid climate with dry, hot summers and moderate winters. Rainfall ranges from 5-15 inches annually (Jaeger and Smith 1971). Most precipitation occurs in the form of winter rain, with occasional warm monsoonal showers in the late summer. Water sources within the project area include the Santa Ana River Wash, several drainage ditches and percolation ponds associated with historic and modern mining.

Biology

The Wash Planning Area project, at an elevation of approximately 1,180 to 1,830 feet above mean sea level (AMSL), falls into the lower portion of the Upper Sonoran life zone of California (Jaeger and Smith 1971) which ranges from 500 to 4,500 feet AMSL. The area is considered a cismontane valley and consists of a mostly chaparral plant community through most of the project area with juniper communities located near the washes. Some of the biotic character of this area has been altered from its natural setting by agriculture, mining and flood control. Observed plant species include juniper trees, buckwheat, sage scrub, white sage, wildflowers, seasonal grasses, foxtails, agave plants, and some cactus species. Native animals of the region include coyotes, foxes, cottontail, jackrabbits, skunks, rodents, reptiles, crows, scrub jays, mockingbirds, doves, owls, ducks, mudhens, quail, and roadrunners.

Geology

The project site is located within the Bunker Hill-San Timoteo Basin portion of the San Bernardino Valley at the northern edge of the Peninsular Ranges Geomorphic Province. This geomorphic province is typified by northwest to southeast trending mountain ridges, valleys and faults parallel and subparallel to the San Andreas Fault. The surficial geologic material of the Peninsular Ranges Geomorphic Province generally consists of igneous and metamorphic rocks.

The Bunker Hill-San Timoteo Basin is a subsiding series of horsts (high ground flanked by faults) and grabens (low ground flanked by faults) bounded on the northeast by the San Andreas Fault and on the southeast by the San Jacinto Fault. Coalesced alluvial fans derived from the San Bernardino Mountains (to the north) and, to a lesser extent, from the San Timoteo Badlands (to the south) are filling the basin as it subsides. These alluvial deposits have formed the alluvial plain known as the Santa Ana River Wash. The Santa Ana River Wash includes various coalescing stream channels associated with drainages emanating from the San Bernardino Mountains. Individual channels within the project area include the Santa Ana River, Mill Creek, City Creek, and Plunge Creek. The geologic units present within the project area include alluvium associated with modern washes or older washes. Because of the irregularity surface of the basin floor, the depth of alluvial sediments varies. Artificial fill, associated with earthen berms, roadway fill, and stockpiles of unprocessed material at mining sites, is located throughout the project site.

CULTURAL SETTING

Prehistory

Of the many chronological sequences proposed for southern California, two primary regional syntheses are commonly used in the archaeological literature. The first, advanced by Wallace in 1955, defines four cultural horizons, each with characteristic local variations: Early Man Horizon, Milling Stone, Intermediate, and Late Prehistoric. Employing a more ecological approach, Warren (1986) defined five periods in Southern California prehistory: Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Protohistoric. Warren viewed cultural continuity and change in terms of various significant environmental shifts, defining the cultural ecological approach for archaeological research of the California deserts and coast. Many changes in settlement patterns and subsistence focus are viewed as cultural adaptations to a changing environment, beginning with the gradual environmental warming in the late Pleistocene, the desiccation of the desert lakes during the early Holocene, the short return to pluvial conditions during the middle Holocene, and the general warming and drying trend, with periodic reversals, that continues to this day.

Early Holocene Occupations. In the California desert, the Lake Mojave Period (7,000 to 5,000 B.C.), associated with now-dry lakes, is the earliest human occupation represented. The material culture of the Lake Mojave Period is dominated by stylized dart points of the Lake Mojave and Silver Lake series, well-made bifacial knives and other cutting tools, large domed or keeled scrapers, and other characteristic artifact types (Wallace 1962). Ground stone tools are rare or absent at most sites.

Middle Holocene Occupations. Milling Stone traditions enjoyed a long history along the coast during the early Holocene. In the desert, the Pinto Period (5,000 to 2,000 B.C.) succeeded the Lake Mojave Period, and appears to have been a time of climatic stress, with resultant changes in environment and staple resources which affected cultural adaptations. As lakes and rivers dried up, plant and animal resources changed. Warren (1984) postulated the populations adjusted to hostile arid conditions by moving to oases in the deserts or to the edges of the desert. This dry period was followed by a moister period in which people returned to the deserts and more plant resources were utilized (Wallace 1962, Warren 1984). Milling equipment became more prevalent, but, similar to the preceding Lake Mojave Period, dart points, especially Pinto series points, still dominated the material culture. This wet period was followed by another dry spell which again resulted in decreased desert populations and subsequently led into the Little Pluvial at about 2000 B.C. (Warren 1984).

Late Holocene Occupations. In the southern California coastal region, the Late Prehistoric Period began around A.D. 500 or 600, and is marked by the introduction of small projectile points suitable for use with the bow and arrow (Wallace 1955). It continued until the time of European contact, conventionally placed at A.D. 1769 with establishment of the *Mission San Diego de Alcala* in San Diego, the first of 21 missions established by the Spanish in California. In the desert region, cultural periods assigned to this time frame include the Saratoga Springs Period (A.D. 500 to 1,200) and the Protohistoric Period (A.D. 1,200 to historic times, which is as late as 1850 in some locales). The use of the bow and arrow for hunting, as noted by the production of small projectile points and the appearance of arrow shaft straighteners, is characteristic of both these periods (Warren 1984). Pottery

use is first noted in the desert regions during these later periods, moving west into southern California desert from western Arizona.

Ethnography

The project area is situated within the traditional boundary region of two Native American groups: the Serrano and the Cahuilla. The nearest Serrano village was in Yucaipa. The Western or Pass Cahuilla were traditionally found occupying the region to the south of the project area (Bean and Smith 1978; Bean 1978).

Serrano. The Serrano spoke the "Serran" language, which is a linguistic group within the Takic language family (Bean and Smith 1978). The Serrano occupied topographic regions that varied from about 1,500 feet elevation in the desert to over 11,000 feet in the mountains (Bean and Smith 1978).

Most settlements were in the foothills or in the forest transition zone; however, some were on the desert floor near permanent water sources. The availability of water on a year-round basis was the determining factor in the nature, duration, and distribution of Serrano settlements (Benedict 1924).

The Serrano were primarily hunters and gatherers and did some fishing (Bean and Smith 1978). Foods included mountain sheep; deer; rabbits; acorns; seeds of various grasses; piñon nuts; bulbs and tubers; shoots and roots; berries and mesquite; and barrel cacti and Joshua trees. Commonly used hunting implements were bows and arrows, curved throwing sticks, traps, snares, and deadfalls. Food preparation implements included earth ovens; watertight baskets; heated stones; shallow trays; metates; wooden and stone manos; flint knives; stone and bone scrapers; pottery trays and bowls; baskets; and horn and bone spoons and stirrers.

Family homes were circular, domed structures constructed of willow frames and covered with tule thatching. The family house had a central fire pit. Many outdoor activities took place under a ramada, a shelter constructed of four poles supporting a roof of tule thatching. Other village buildings included a ceremonial house, granaries, and sweathouses. Sweathouses were always placed adjacent to water. These were large, circular, semi-subterranean, earth-covered structures supported by willow pole frames and thatching (Bean and Smith 1978). The Serrano made baskets; rabbit skin blankets; awls; arrow straighteners; sinew-backed bows; arrows; fire drills; stone pipes; rattles made from turtle shell, tortoise shell and deer hooves; wood rasps; bone whistles; bull-roarers; flutes; feathered costumes; mats; bags; storage pouches; cordage, and nets (Bean and Smith 1978).

Cahuilla. The territory of the Cahuilla ranges from the area near the Salton Sea up into the San Bernardino Mountains and San Gorgonio Pass (Bean 1978; James 1960; Kroeber 1925; Kroeber and Hooper 1978). The Cahuilla are generally divided into three groups: Desert Cahuilla, Mountain Cahuilla, and Western (or Pass) Cahuilla (Kroeber 1925). The term Western Cahuilla is preferred over Pass Cahuilla because this group is not confined to the San Gorgonio Pass area (James 1960). The distinctions are believed to be primarily geographic, although linguistic and cultural differences may have existed to varying degrees (Strong 1972). Cahuilla territory lies within the geographic center of Southern California and the Cocopa-Maricopa Trail, a major prehistoric trade route, ran through it (Bean 1978). Like other Native American groups in southern California, the Cahuilla were

semi-nomadic peoples leaving their villages and utilizing temporary campsites to exploit seasonably available plant and animal resources (James 1960). Cahuilla subsistence was based primarily on acorns, honey mesquite, screw beans, piñon nuts, and cactus fruit, supplemented by a variety of wild fruits and berries, tubers, roots, and greens (Kroeber 1925; Barrows 1900). A list of Cahuilla plant foods is provided by Barrows (1900), who undertook fieldwork prior to 1900. Hunting deer, rabbit, antelope, bighorn sheep, reptiles, small rodents, quail, doves, ducks, and reptiles by means of bows, throwing sticks, traps, and communal drives is documented (James 1960). Artifacts common to the Cahuilla include coiled pottery (often incised and painted), baskets, manos, metates, mortars, pestles, steatite arrow shaft straighteners, mesquite or willow bows and arrows, wooden throwing sticks, charm stones, bull-roarers, and small bifacially worked stone points (Kroeber 1925). Marine shells, including *Olivella* sp. beads, were used for money and are often associated with cremations.

History

The Spanish/Mission Period. The Spanish/Mission period, 1769-1821, is characterized by the exploration of Southern California and the establishment of the San Diego Presidio, Missions San Diego, San Luis Rey, and San Gabriel, and the subsequent decline of Native American populations. European livestock, agricultural goods, architecture, and construction techniques were introduced, and Spanish influence continued after 1821, due to the mission system.

San Bernardino County proved to be too far inland to include any missions or *asistencias* within its limits until 1819, when neophytes from the San Gabriel Mission and the Serrano inhabitants of the nearby Guachama village were utilized to establish the *Asistencia de San Bernardino* on the western edge of present-day Redlands (Harley 1988) south of the study area.

The Mexican/Rancho Period. In 1821, Mexico was established with the overthrow of Spanish rule. Due to the lack of funding, the missions began to decline. By 1833, the Mexican government passed the Secularization Act, and the missions, reorganized as parish churches, soon lost their vast land holdings and released their neophytes. The former mission land holdings were redistributed as land grants by various California governors.

The Mexican/Rancho period, 1821-1848, begins with Mexican independence from Spain and continued until the end of the Mexican American War (Cleland 1962). The Secularization Act resulted in the transfer, through land grants, of large mission tracts to politically prominent individuals. At that time, cattle ranching was a more substantial business than agricultural activities, and trade in hides and tallow increased during the early portion of this period. Until the Gold Rush of 1849, livestock and horticulture dominated the economics of California (Ingersoll 1904, Beattie 1925, and Beattie and Beattie 1951). Following the end of hostilities between Pio Pico, the last Mexican governor of California, and the United States in January of 1847, the United States officially obtained California from Mexico through the Treaty of Guadalupe Hidalgo on February 2, 1848 (Cleland 1962).

In 1842, the Lugo family was granted the Rancho San Bernardino, a holding of 37,700 acres encompassing the entire San Bernardino Valley. Jose Maria Lugo reportedly constructed his first dwelling (an adobe) at nearby Jumuba (Haenszel 1984).

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

San Bernardino County was created in 1853. Few Mexican ranchos remained intact due to legal costs and the lack of written documents proving title claims. As a result, many of the rancho holdings became available for settlement by immigrants. In the mid-1800s, much of the early settlement within the Colton - Redlands - Beaumont region took place, influenced in part by the Mormons' establishment of the community of San Bernardino in 1851. In 1857, Anson Van Leuven set out three orange trees in Old San Bernardino (on Mission Road in present-day Loma Linda); by 1882 a railcar-load of oranges and lemons grown in the East Valley was shipped to Denver (City of San Bernardino 2002).

The Southern Pacific Railroad completed its line from Los Angeles through the San Geronimo Pass in 1876, and had reached Colton the previous year (Gudde 1969). The major railroads (Santa Fe, Union Pacific, and the Southern Pacific) made San Bernardino the hub of their Southern California operations. Competition between them resulted in reduced fares, which brought thousands to California during the great land boom of the 1880s. When the Santa Fe Railway completed a transcontinental link in the mid-1880s, the prosperous valley was inundated by more settlers from the East. The population more than doubled within ten years to reach 12,779 in 1910 (City of San Bernardino 2002).

The Redlands Loop of the Kite Route was the roughly hour glass-shaped route between Los Angeles and Mentone which became known as the "Kite-Route" was constructed in during the 1880s by subsidiaries of the Atchison, Topeka and Santa Fe Railroad (AT&SF). The eastern portion of this route became known as the Redlands Loop. The portion of the Redlands Loop between Highland and Mentone (which once traversed the project area) was completed by an AT&SF subsidiary, the San Bernardino and Eastern Railway Company. Between the early 1890s and World War I, the AT&SF not only benefited from the booming freight business of the Kite-Route, but also successfully developed the route into a tourist attraction to promote its passenger service and land sales (Moore 1973). With the introducing of the automobile and improved roads in the early decades of the 20th century, the Kite Route entered a period of decline. After World War I, the "kite-lining" tourist trips were discontinued (Duke 1991), AT&SF service on the route was reduced and passenger trains stopped running on the Redlands Loop after a disastrous flood in 1938 (Hinckley 1985). By the mid 1950s, the loss of passenger and freight business to road transport led to the disruption of the line with the abandonment of a portion of the Redlands Loop to highway construction (Sun 1956). This was followed by a gradual abandonment of the remainder of the Loop culminating in 1986 when Redlands became the east end of the line (Sun 1986).

After the Mormons left the San Bernardino Valley in the late 1850s, a number of ranches were established along what would become Barton Road by prominent individuals such as Ben Barton and Anson Van Leuven. By the end of the decade, the area around the mouth of the Santa Ana Canyon was acquired by the Crafts family and would later become known as Crafton. A community which subsequently sprang up area between Crafton and the Old San Bernardino Mission district became known as Lugonia (after the Lugo family, original owners of Rancho San Bernardino). By the early 1880s, two Lugonia entrepreneurs, E.G. Judson and F.E. Brown, formed the Redlands Water Company and began buying up land and constructing reservoirs and canals to supply water to their acquisitions. Judson and Brown platted the town of Redlands (named for the color of the soil) in 1887 (Gudde 1969). The town was incorporated on November 26, 1888, the fourth city to incorporate in the County of San Bernardino. By 1890, downtown Redlands had "40 substantial brick buildings, none less than 2 stories high, all occupied by the various branches of trade and manufacturing" (Anon. 1890). Redlands prospered during the regional citrus boom, but from its founding it also developed as a residential community of "gentlemen ranchers" with winter homes for prosperous industrialists from the East Coast and the Midwest.

The area which would become Highland was settled by early pioneers Louis and Henry Cram, Fredrick Van Leuven and others who constructed irrigation ditches for agriculture beginning in the late 1850s. Although the community was not formally established until after the Redlands Loop was completed through the area in 1891, it had been named by W.T. Noyes and W.H. Randall when the local school district was established in 1883 (Richards 1966), and a Congregational Church had been organized by the following year. A weekly newspaper was founded in 1897, the East Highland Citrus Association was established by 1906, and Highland enjoyed the prosperity of the regional citrus boom which continued into the 1970s (Reynolds 2003). The community was incorporated in 1987.

Agriculture and the control of water are central themes in the settlement, development, and growth of the City of San Bernardino and San Bernardino County. The Mill Creek Zanja (ditch) was the earliest European water conveyance system in the County and region. It was constructed approximately 1.5 miles to the south of the project area in 1819 by Serrano Indians from the nearby *Guachama* village under the direction of Pedro Alvarez to serve the *assistencia*.

Irrigation systems continued to play a critical role in the settlement of San Bernardino in the American Period by facilitating the spread of agriculture. No fewer than seven historical ditches were constructed in the project region from the 1850s through the 1880s, including three traversing the project area and two bounding the project area to the east (San Bernardino Archaeological Information Center 2003).

The first indication of mining activity within the project area occurs as early as 1901. In that year, the California Stone and Gravel Company bought the northern half of Section 11 (Township 1 South, Range 3 West) in two transactions. The northeast quarter was purchased from the Southern Pacific Railroad, who had received all of Section 11 in an earlier land grant. The northwest quarter was purchased from Carl Raiss, who had obtained the property from the railroad in the early 1890s. California Stone and Gravel eventually relinquished all but the southern half of the northwest quarter of section 11, which appears on the *Redlands* USGS topographic quadrangle (1988) as a small gravel pit. Quarrying activities have since expanded considerably, and are apparent on current aerial photos of the project area (Figures 2 through 4) (Macko 1994:16).

METHODS

Records Search

Prior to fieldwork, a records search was conducted at the San Bernardino County Museum Archaeological Information Center (AIC), located in Redlands, California (Appendix A). This included a review of all recorded historic and prehistoric archaeological sites, as well as a review of known cultural resource surveys and excavation reports generated from projects located within one mile of the project area. In addition, a review was conducted of the National Register of Historic Places, and documents and inventories from the California Office of Historic Preservation including the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and the Inventory of Historic Structures.

Field Survey

A field check was conducted to relocate known archaeological resources occurring within potential impact areas in any of land use Alternatives 1-4. This was conducted on December 16 and 17, 2004, by LSA archaeologists David Brunzell and Dan Ewers. The sites were relocated using the existing site form location descriptions and map plots, as well as navigating known Universal Transverse Mercator (UTM) locations with a Global Positioning System (GPS) Garmin field unit. The locations were apprehended using data obtained from the San Bernardino County Museum AIC. Upon relocating the sites, the resources were assessed by description, and if necessary, updates were made to amend the existing site forms, and record any missing historical data.

RESULTS

Records Search

The record search showed that 41 archaeological and historical studies have been conducted within the project area. Twenty-seven of the studies have resulted in the identification of cultural resources, as indicated in Table B. Of the studies consulted, two were extremely useful in our field check and site revisits. *Cultural Resources Survey, Upper Santa Ana River, California* by R. Paul Hampson for Greenwood and Associates was written in 1987. During this study, Greenwood and Associates archaeologists recorded and conducted CEQA significance evaluations for all but one of the sites within the current impact area revisited by LSA. These were mostly historic refuse scatters near roads probably associated with Cone Camp (CA-SBR-6006H). Although Greenwood and Associates adequately addressed each of the sites, the age of their study, and implementation of new methods (specifically the use of hand held GPS units) made current updates necessary. *Cultural Resource and Paleontological Surveys of the Proposed Sunwest Materials Project Site, San Bernardino County, California* was prepared by Michael E. Macko of Macko Archaeological Consulting (1994). The report was completed in support of an Environmental Impact Report (EIR) for the Lilburn Corporation. Macko's coverage of archaeological sites within potential impact areas (CA-SBR-6068H, 6079H, 6080H, 6089H, 6092H, and 6847H) is considered adequate for the current study.

Table B – Cultural Resource Studies Conducted within Wash Planning Area

Doc. #	Date/Title (+/- Indicates Presence/Absence of Cultural Resources)	Author
1060155	1973 Big Morongo Regional Park Archaeological Survey (+)	Smith, Gerald A.
1060219	1974 Environmental Impact Evaluation: Archaeology of “East Highlands Ranch” East Highlands, California (-)	Schlanger, Sarah H.
1060360	1976 Archaeological-Historical Resources Assessment of a 27-Acre Citrus Grove in Greenspot (-)	Harris, Ruth D.
1060574	1977 Cultural Resources Survey: Route 30 Between Interstate Route 10 and Arden Avenue (+)	Hammond, Stephen R. and Lois M. Webb
1060667	1978 Cultural Resources Assessment for Tentative Tract 10501, East Highland Area (+)	San Bernardino County Museum Association
1060715	1978 Cultural Resources Assessment of East Highland Ranch Property (-)	Hearn, Joseph E.
1060911	1980 Cultural Resources Assessment: Greenspot Road at the Santa Ana River, East Highlands Area (-)	Simpson, Ruth D.
1061014	1980 Santa Ana River and Santiago Creek: A Cultural Resources Survey (+)	D’Altroy, Terence D. and Gary Stickel
1061105	1981 Archaeological Survey Report: Route 30 Near the City of Redlands (-)	Hammond, Stephen R.
1061124	1981 Cultural Resources Assessment of the East Highlands Ranch, San Bernardino County (+)	Lerch, Michael K.
1061125	1986 Cultural Resources Assessment of Tentative Tracts 13467, 13468, and 13469, East Highlands Ranch Phase 3, San Bernardino County (+)	Lerch, Michael K.
1061409	1983 Cultural Resources Assessment of the Proposed East Valley Water District Wastewater Treatment Plant, San Bernardino (-)	Lerch, Michael K.
1061410	1983 East Highlands Ranch Photo Essay (-)	Costales, Richard
1061566	1986 Santa Ana River Upstream Alternatives, Cultural Resources Survey (+)	Brock, James
1061747	1987 History and Evaluation: the Santa Ana Canyon Road (+)	Hatheway, Roger G.
1061754	1987 Historical and Architectural Evaluation, Seven Oaks Dam Bridges (+)	Hatheway, Roger G.
1061755	1987 Archaeological Resources of the Seven Oaks Dam Project, Upper Santa Ana River Locality (+)	Arnold, Jeanne E.
1061783	1988 Seven Oaks Dam Project: Water Systems (+)	Hornbeck, David and Howard Botts
1061786	1988 Work Camps in the Santa Ana River Canyon (+)	Foster, John M.
1061808	1988 Cultural Resources Survey, Upper Santa Ana River, California (+)	Hampson, R. Paul
1061824	1988 Old Webster Quarry EIR: Historic Resources (+)	Hatheway, Roger
1061878	1989 Cultural Resource Survey for a Proposed Storm Drain Channel, East Highlands (-)	Hampson, R. Paul
1061879	1989 A Cultural Resources Investigation for the Proposed Redlands Well and Alternative Pipelines, Redlands (-)	McKenna, Jeanette

Table B – Cultural Resource Studies Conducted within Wash Planning Area

Doc. #	Date/Title (+/- Indicates Presence/Absence of Cultural Resources)	Author
1062029	1989 Initial Cultural Resource Assessment: A Cultural Resource Assessment of a 20 Acre Tract of Land Designated P.N. 2-9013-000 (-)	DeMunck, Victor
1062062	1990 Archival Research for Cultural Resources; Old Webster Quarry, Seir, San Bernardino County (+)	Foster, John M.
1062260	1991 Documentary Research and Field Reconnaissance Relating to Cultural Resources at Norton Air Force Base (+)	Carmichael, David
1062418	1991 Cultural Resources Assessment; Church Street Well, Redlands (-)	Hallaran, Kevin
1062465	1991 A Determination of Eligibility/Significance Report and an Archaeological Survey for a Residence and Orange Grove, Redlands (+)	Hatheway, Roger and Ann Q. Duffield
1062466	1991 Cultural Resources Assessment of Tentative Tract 15304, Redlands (+)	Lerch, Michael
1062587	1991 Final Report: Inventory and Evaluation of World War II Structures at Norton Air Force Base in San Bernardino County (+)	Schmuecker, Brian L.
1062652	1992 Results of an Archaeological Monitoring Program for the Greenspot Road Pipeline Along Greenspot Road, East Highlands (+)	McKenna, Jeanette A.
1062679	1992 Archaeological Investigations at the Abbey Way Well Site Property for the East Valley Water District, San Bernardino (-)	McKenna, Jeanette A.
1062685	1992 Archaeological Testing and Mitigation of Adverse Impacts at CA-SBR-7166H (+)	McKenna, Jeanette A.
1062773	1993 Cultural Resources Inventory and Evaluation of the Santa Ana River Hydroelectric Project, FERC Project No. 1933 (+)	DeBarros, Philip and Carmen A. Webber
1062828	1993 Cultural Resource Survey Report for the Concordia Homes Project, City of Highland (+)	Kyle, Carolyn
1062853	1991 Cultural Resource Investigation: Inland Feeder Project, MWD of Southern California (+)	Foster, John M.
1062868	1993 Cultural Resource Assessment of the San Geronio Pass Water Agency Water Importation Project (+)	Scientific Resource Surveys, Inc.
1063037	1995 Cultural Resources Assessment for 278.4 Acres Within East Highlands Ranch (+)	McClean, Deborah
1063140	1995 Archaeological and Historical Property Survey for the Reconstruction and Widening of All-Weather Crossing at Orange Street and the Santa Ana River, Caltrans (+)	Love, Bruce
1063141	1995 Alabama Street All-Weather Crossing (-)	Love, Bruce
1063478	1985 David Graes—Special Use Permit (-)	Sweetman, Eric B.

Eighty-one cultural resources were identified within the Wash Planning Area project boundaries during the record search. Of these, 18 occur within project impact areas. The remaining 63 were assessed for contextual information and are summarized in Table C. Excluding CA-SBR-6580 and SBCM-5422 (both prehistoric) the resources were all historic. These included debris dumps associated with the depression era and subsequent occupations of Civilian Conservation Corps (CCC) Cone Camp, agricultural homesteads and various irrigation features, three bridges, and one railroad

alignment. Several pending site numbers represent various historic isolated artifacts and one prehistoric isolate.

Table C – Cultural Resources within Wash Planning Area

Site #	Historic/Prehistoric	Description
CA-SBR-031/P-36-004220	Historic	1850s Homestead
CA-SBR-5508	Historic	Diversion Culvert, Square Concrete Tank, Debris Concentrations
CA-SBR-5509-H	Historic	Poured Concrete Footings, Concrete Slab, Trash Scatter
CA-SBR-5526-H**	Historic	Historic Orchard and Associated Features
CA-SBR-5972-H	Historic	3 Poured Concrete Control Boxes (SBVMWD)
CA-SBR-5973-H	Historic	Broken Cobble Mortar Foundation, Trash Scatter
CA-SBR-5974-H	Historic	Historic Debris
CA-SBR-5986-H	Historic	Cobble-Lined Canal Junction with Control Gates
CA-SBR-5987-H	Historic	Historic Trash Scatter
CA-SBR-5990-H	Historic	Glass and Metal
CA-SBR-5991-H	Historic	High-Pressure Hose, Wire Nails
CA-SBR-5992-H	Historic	Residential Materials
CA-SBR-6060-H**	Historic	Historic Debris
CA-SBR-6061-H**	Historic	Historic Debris
CA-SBR-6062-H**	Historic	Historic Debris
CA-SBR-6063-H	Historic	Historic Debris
CA-SBR-6064-H	Historic	Historic Debris
CA-SBR-6065-H	Historic	Historic Debris
CA-SBR-6006-H	Historic	Civilian Conservation Core Cone Camp
CA-SBR-6066-H	Historic	Historic Debris
CA-SBR-6067-H	Historic	Historic Debris
CA-SBR-6068-H*	Historic	Historic Debris
CA-SBR-6069-H	Historic	Gate System For Canal
CA-SBR-6070-H**	Historic	Historic Debris
CA-SBR-6071-H	Historic	Rock Faced Earthen Platform
CA-SBR-6072-H	Historic	Historic Debris
CA-SBR-6074-H	Historic	Historic Debris
CA-SBR-6075-H**	Historic	Historic Debris
CA-SBR-6076-H**	Historic	Historic Debris
CA-SBR-6078-H	Historic	Farmstead
CA-SBR-6079-H*	Historic	Historic Debris
CA-SBR-6080-H*	Historic	Historic Debris
CA-SBR-6081-H	Historic	Historic Debris

Table C – Cultural Resources within Wash Planning Area

Site #	Historic/Prehistoric	Description
CA-SBR-6082-H	Historic	Historic Debris
CA-SBR-6083-H	Historic	Historic Debris
CA-SBR-6084-H	Historic	Historic Debris
CA-SBR-6087-H**	Historic	Historic Debris
CA-SBR-6088-H	Historic	Historic Debris
CA-SBR-6089-H*	Historic	Historic Debris
CA-SBR-6090-H	Historic	Historic Debris
CA-SBR-6091-H	Historic	Multi-Component
CA-SBR-6092-H*	Historic	Historic Trash Scatter
CA-SBR-6093-H	Historic	Stone Ring
CA-SBR-6094-H	Historic	Historic Debris
CA-SBR-6095-H	Historic	Historic Debris
CA-SBR-6544-H	Historic	Portion of Northfork Canal
CA-SBR-6580	Prehistoric	Midden, Hearths and Cairn
CA-SBR-6847-H	Historic	Old Railroad Route
CA-SBR-6848-H*	Historic	Glass Fragments
CA-SBR-6851-H	Historic	Possible Work Camp Trash Deposits
CA-SBR-6852-H	Historic	Historic Water Management Structures
CA-SBR-6853-H	Historic	Clear Glass, Cone Top Beer Cans.
CA-SBR-7052-H	Historic	Houses, Barn, Orange Grove
CA-SBR-7165-H	Historic	Bridge
CA-SBR-7166-H	Historic	Multi-Component Historic
CA-SBR-7215-H	Historic	Road, Orchard, Irrigation
CA-SBR-7433-H	Historic	Weir, Flow Gate, Remnant Ditch.
CA-SBR-7434-H	Historic	Historic Debris
CA-SBR-8094-H	Historic	Historic Wagon Road Remnant
CA-SBR-8915-H	Historic	Modified Trees
CA-SBR-10182-H	Historic	Historic Debris
CA-SBR-10183-H	Historic	Historic Debris
CA-SBR-10184-H	Historic	Historic Debris
CA-SBR-10681-H	Historic	Building Foundations (Cone Camp #2, See Also SBR-6006)
P1063-33-H	Historic	Greenspot Bridge
P1063-49-H	Historic	South Fork Ditch
P1063-7-H	Historic	Orange Company Offices (Burned Down)
P1064-22-H	Historic	Old Orange Avenue Bridge
P1064-39-H	Historic	Historic Debris

Table C – Cultural Resources within Wash Planning Area

Site #	Historic/Prehistoric	Description
P1064-40-H	Historic	Francis Cuttle Weir Dam
P36-016987	Historic	Greenspot Road Bridge (#54c-368)
P36-017536	Historic	Bridge #54-341
P36-017537	Historic	Bridge Steel Beam #54-342
P36-060,194	Historic Isolate	License Plate, Small Plate and Small Bowl with Decal
P36-060,195	Historic Isolate	Clear SCA Bottle Fragment
P-36-060196	Historic Isolate	Clear SCA Glass Fragments
PSBR-21-H	Historic	Irrigation System
PSBR-22-H	Historic	Redlands Canal
PSBR-23-H	Historic	Santa Ana Canyon Irrigation Project
PSBR-28-H	Historic	South Fork of the Santa Ana Ditch
SBCM-5422	Prehistoric Isolate	White Chert Flake

*Sites addressed by Macko's 1994 study for the Lilburn EIR (within potential impact zone and not field checked by LSA).

**Sites potentially impacted by proposed land use activities.

National Register Properties

Site numbers CA-SBR-5526H and P36-016987 have been evaluated for listing on the National Register of Historic Places (National Register).

P36-016987, the Greenspot Bridge, was determined eligible for listing in the National Register and is also eligible for listing in the California Register of Historical Resources (California Register). It was determined eligible in 1985. It is inside the Wash Planning Area, but will not be affected by project activities.

SBR-5526H, a historic orchard complex, occupies a parcel near the project's impact zone of proposed Land Use Alternative 2, and may warrant further investigation pending a field check of the site's exact location with respect to the project boundary. Examination of the California Office of Historic Preservation Archaeological Determination of Eligibility listing of evaluated sites shows that the property was determined not eligible for listing in the National Register in 1988. Subsequent documentation (Romanski 1995 and Lilburn 1997b) shows that it has been determined to be eligible for inclusion.

Field Survey

Cultural resources within proposed and existing Wash Planning Area impact areas have been disturbed by years of mining, agricultural, and flood control activities. Construction of various access roads, drainages, percolation ponds, earth and stone check dams, drainage terraces, and large mine cuts have resulted in severe alterations to the landscape. Currently much of the western portion of the

project area is being used for quarry and mining activities. The eastern portion is used primarily as a flood control and water diversion area, helping maintain the Santa Ana River Wash's current course.

Surface visibility fluctuated considerably within the site areas visited because of various impacts. In the western half of the property, mining activities have afforded high visibility within impact areas (greater than 95%), but have also destroyed or displaced cultural resources. The western portions unaffected by mining activities were covered with dense vegetation, and exhibited approximately 10 to 15 percent visibility. The eastern areas, most of which are altered for flood control, exhibit between 30 and 50 percent visibility in and around percolation ponds, berms, and boulder alignments, and 100 percent where grading, haul roads, and other clearing activities continue. These activities have also adversely impacted cultural resources (see site descriptions below). Many of the impacts described here are readily discernable on aerial photos shown in previously referenced Figures 2 through 4.

Site Updates for Impact Areas. During the records search, a total of 81 cultural resources was identified within the Wash Planning Area boundaries. Eighteen occur within one of the land use alternatives. Nine were addressed during the 1997 EIRs (Lilburn 1997a and b), and are summarized below. Ten were revisited and updated by LSA archaeologists; one site (CA-SBR-10184H) was visited during both studies. Those that were field checked were updated using Department of Park and Recreation (DPR-523) site forms, provided in Appendix B.

CA-SBR-6006H (Cone Camp). Terence N. D'Altroy first recorded the site in May 1980. He described it as more than 20 structures built between 1945 and 1953, "which apparently served as a migrant labor facility." He noted that it had been burned recently and was scheduled to be submerged upon construction of the Mentone Dam and Flooding Basin (which apparently never occurred).

R. Paul Hampson, Roderick S. Brown, and Margaret A. Doyle of Greenwood and Associates produced a more thorough recording in June 1987. They recorded the materials, location, and size of each of the 38 features associated with Cone Camp. Between 1931 and 1938 the Civilian Conservation Corps (CCC) used the camp as a worker base. Between 1942 and 1964 its buildings were leased to house local orchard workers under the Federal "Bracero Program." At its peak, the camp housed more than 1,000 workers. The buildings were used for storage until 1977, when the wood frames were burned for fire department training exercises.

LSA archaeologists David Brunzell and Dan Ewers revisited the site December 17, 2004. Most of the described structures were revisited using the 1987 descriptions. Our field map copy was not readable in places and, although the major building foundations were easily discernible, we were unable to find some lone wall, subsurface deposits, and concrete slab features. Overall, the site integrity remains good, and artificial impacts are minimal. Some natural deterioration was evident. These are described below, using the structure numbers from the 1987 site form.

Structure #10, a concrete slab measuring 34 × 6 meters, has steps that are now completely hidden by buckwheat. Structure #30, a large irregular concrete slab measuring 20 × 17 meters

has a retaining wall that has partially collapsed (compared to the 1987 photo). Structure #33, a building concrete/cobble foundation with two sets of steps, and a cleared path, has a fallen tree that has damaged its southern wall. The site was field-checked using a Garmin GPS, and is mapped accurately. Furthermore, its buildings appear on the USGS 7.5-minute *Redlands* topographic quadrangle.

CA-SBR-6064H. This site was originally recorded in October 1987 by R.S. Brown and D. Adams of Greenwood and Associates. They recorded two historic loci of domestic debris. LSA Associates archaeologists David Brunzell and Dan Ewers revisited the site area December 16, 2004 and found it completely destroyed by flood control construction activities.

CA-SBR-6070H. This site was originally recorded by R.P. Hampson, M.A. Doyle, and R.S. Brown of Greenwood and associates in October 1987. They called it a single episode disposal site for kitchen debris, probably associated with CA-SBR-6006H. Artifacts included whiteware fragments, pottery fragments, hole in cap cans, and one crimp can. LSA archaeologists David Brunzell and Dan Ewers revisited the site area December 17, 2004, and were unable to relocate the resource. It is assumed removed or buried; it sits in a high energy percolation basin constantly inundated with water and new silts.

CA-SBR-6074H. The site was originally recorded by J. Wishner, R. Brown, and P. Easter of Greenwood and Associates in October 1987. They recorded two loci of historic domestic debris. LSA archaeologists David Brunzell and Dan Ewers revisited the site area December 16, 2004 using a GPS unit and triangulating our location as plotted on the 1987 site record. We found the site totally destroyed by current mining activity.

CA-SBR-6075H. This site was originally recorded by M.A. Doyle, D. Adams, J. Schmidt, S. Wakefield, and R.S. Brown of Greenwood and Associates in October, 1987. They note five loci of material consisting of kitchen materials, metal scrap, and red bricks. LSA Archaeologists David Brunzell and Dan Ewers revisited the site on December 17, 2004. There was no notable change in site location or materials.

CA-SBR-6076H. This site was originally recorded by S. Wakefield, J. Wishner, D. Adams, M.A. Doyle, R.S. Brown, R.P. Hampson, and J. Schmidt for Greenwood and Associates in October 1987. They identified three concentrations of historic domestic debris. LSA archaeologists David Brunzell and Dan Ewers revisited the site December 17, 2004. They found the existing loci to be described accurately, although their UTM's were not correct. They also added a fourth locus and updated the site sketch and location maps.

Locus 4 was centered at UTM's (NAD 27) 483514mE/3773205mN (also the new site datum). Although it is approximately 130 meters from the nearest locus (#1), a sparse scatter of historic debris connected it to the site. The artifact density was approximately 10 per square

meter, and spanned four square meters total. Artifacts present included 5+ white ceramics sherds, at least three from a broken china bowl with pink decal flower design; broken bottle glass including a pint size aqua bottle base embossed "8 [in base]/ Fellows Syrup of Phosphates [on side]"; one shard of amethyst bottle glass base embossed "1508 06"; modern pane glass; white ceramic jar base embossed "Cudahy Packing Co."; and five crushed rusted cans (not diagnostic).

CA-SBR-6078H. The site was originally recorded by G. Romani, J. Schmidt, S. Wakefield, P. Easter, and J. Whishner of Greenwood and Associates in October 1987. They recorded a stone building foundation (24 × 28 feet) made of mortared granite cobbles. A concentration of 1930s-1940s trash was recorded north of the foundation on the other side of a small dirt road. We revisited the site area using a GPS unit and triangulating our location as plotted on the 1987 site record. We found the site totally destroyed by current mining activity.

CA-SBR-6087H. This site was originally recorded in October 1987 by J. Sorenson, K. Vanderveen, M. Imwalle, and G. Toren for Greenwood and Associates. They note the presence of "three refuse dumps" made up of historic glass, cans, and ceramics. These concentrations were plotted as Locus A, B, and C. They record locus A as "meat tins, solder seal cans, a 'Log Cabin' syrup can, blue glass, and orange 'fiesta' type ware." Locus B contained "Large hole and [sic] cap cans; cone top beer cans; earthenware; whiteware; flow blue; clear, ...amethyst glass; barrel hoops; ceramic doll head; and transfer ware." One maker mark was dated between 1863-ca. 1900. Locus C consisted almost entirely of hole in cap cans. A final feature was a "pet grave" plotted on their sketch map. LSA archaeologists David Brunzell and Dan Ewers revisited the site December 16, 2004. Their findings mostly agreed with the artifact assemblage and features previously recorded. Currently the site is surrounded on all sides by mining activity, and is partially preserved because of a narrow right of way retained within a transmission corridor owned and operated by Southern California Edison (SCE). According to the 1987 site sketch map, Locus A, which we were unable to locate, is in an area of current heavy disturbance. Uneven ground and tire tracks within this area indicate that Locus A has been removed or buried. Locus B and C remain in tact, as plotted, and modern trash and debris are mixed in with historic material. The pet grave is formed by a circular rock alignment. Its state of preservation as well as the presence of plastic flowers, indicate that it is recent. It is not clear why the 1987 record calls it a "pet grave." The 1987 record also references a house across the street from the site. Both the house and street are now gone. We noted the presence of a concrete pillar/foundation complete with steel bolts and buckles. This may have supported an older transmission tower.

CA-SBR-6088H. This site was originally recorded in October 1987 by J. Sorensen, M. Imwalle, G Toren, and K. Vander Veen of Greenwood and Associates. They describe a farmstead with many building foundations, walls, rock alignments, fence lines, a trash disposal area, and exotic plants. LSA Archaeologists David Brunzell and Dan Ewers revisited the site area December 16, 2004, and found that the site had been totally destroyed from mining activity. The area of the former farmstead is now a huge pit, dug by quarrying activities. The site is destroyed and no cultural resources remain.

CA-SBR-10184H. The site was originally recorded by D. McDougall and D. Bircheff in November 1999. They recorded two small historic trash scatters, containing cans, bottle glass, and ceramics. LSA archaeologists David Brunzell and Dan Ewers revisited the area December 16, 2004 and were unable to relocate the site. Relocation attempts were made using both a GPS unit and triangulating known points from the site location map. The site was originally located within the Area of District Impact of the Metropolitan Water District's Inland Feeder Pipeline Project. It was likely a casualty of these activities. The site was not relocated and is assumed to be completely destroyed.

SIGNIFICANCE EVALUATIONS AND RECOMMENDATIONS

Cultural resources of the State of California are recognized as nonrenewable resources that require management to assure their benefit to present and future Californians. In the protection and management of the cultural environment, CEQA guidelines provide definitions and standards for cultural resource management. The term "historical resource" is defined as follows:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in the California Register.
2. A resource included in a local register of historical resources or identified as significant in an historical resource survey ... shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the following criteria for listing on the California Register:
 - A. It is associated with events that have made a significant contribution to the broad patterns of California history and cultural heritage;
 - B. It is associated with the lives of persons important to our past;
 - C. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual or possess high artistic values; or
 - D. It has yielded, or may be likely to yield, information important in prehistory or history.
4. The fact that a resource is not listed in, or determined to be eligible for listing in the California Register, not included in a local register of historical resource ... or identified in an historical resources survey ... does not preclude a lead agency from determining that the resource may be an historical resource [Title 14 CCR Section 15064.5(1)].

LSA archaeologists visited ten cultural resource locations within the Wash Planning Area potential impact areas. Nine were addressed during Lilburn's 1997 EIRs, whose recommendations are summarized below. One site was addressed by both groups. Of the 18 total resources potentially within impact areas, 13 within the impact zone of at least one of the four land use alternatives retain data potential; five have been destroyed by mining or grading activities; and one was not relocated probably due to burial by flooding. Subsurface testing and archival research could yield further significant data on any of the remaining resources, under CEQA. The 13 cultural resources within the impact area are considered eligible for the California Register due to their potential significance. Mitigation measures are recommended that, when implemented, will reduce impacts to the resources to a level that is less than significant.

National Register Properties

Site numbers CA-SBR-5526H, and P36-016987 have been evaluated for listing in the National Register.

P36-016987, the Greenspot Bridge, was determined eligible for listing in the National Register and is also eligible for listing in the California Register. It was determined eligible in 1985. It is inside the Wash Planning Area, but will not be affected by project activities. No further consideration is necessary.

SBR-5526H, a historic orchard complex, occupies a parcel near the project's impact zone of proposed Land Use Alternative 2 and may warrant further investigation pending a field check of the site's exact location with respect to the project boundary. Examination of the California Office of Historic Preservation Archaeological Determination of Eligibility listing of evaluated sites shows that the property was determined not eligible for listing on the National Register in 1988. Subsequent documentation (Romanski 1995 and Lilburn 1997b) shows that it has been determined to be eligible for inclusion. See also recommendations for impacts to Proposed Alternative 2, below.

Impact Areas

Cultural resources for the current study are addressed according to their association with Land Use Alternatives 1-4. The potential impacts to the cultural resources depend upon which alternative is implemented. Resources discussed in the Lilburn EIR (1997a and b) and those destroyed by previous activities are not listed here. The resources are plotted within each Land Use Alternative map in Appendix C.

Under CEQA, preservation in place is the preferred manner of treatment for archaeological/historical resources. A significant portion of the Wash Planning Area will be preserved, along with its 67 cultural resources occurring outside potential impact areas. Following is a consideration of each resource field checked by LSA during the current study for qualification in the California Register, as well as recommended mitigation measures. These are organized within their respective Land Use Alternatives.

Alternatives 1 and 3

Table D shows the potential impacts to cultural resources associated with Alternatives 1 and 3.

Table D – Potential Impacts to Cultural Resources in Proposed Land Uses 1 and 3

Site #	Type	Mitigation Recommendations
CA-SBR-6074H	Historic Debris	None (Site Destroyed)
CA-SBR-6075H*	Historic Debris	Subsurface Testing/ Archival Research/Data Recovery (if required)
CA-SBR-6076H*	Historic Debris	Subsurface Testing/ Archival Research/Data Recovery (if required)
CA-SBR-6078H	Stone Foundation/ Historic Debris	None (Site Destroyed)
CA-SBR-6087H*	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-6088H	Farmstead	None (Site Destroyed)

*Pending a formal evaluation; sites currently considered "historical resources" under CEQA, due to potential significance

CA-SBR-6087H. The site is a dense concentration of historic debris. Two of the original three loci remain. The site is near mining operations, within the Historic SCE power corridor. The remaining artifacts exceed the minimum age requirement of fifty years, and the density of the remaining surface artifacts indicate that site integrity is good. If the resource can not be avoided during project activities, further study is necessary to mitigate data potential. Recommendations include a Phase II archaeological test program that would help elucidate site boundary and depth, and reveal whether the missing locus is removed or buried; and archival research which could yield specific data regarding the origin and age of this resource and place it in a historical context. If the resource is determined eligible for the California Register additional Archaeological Data Recovery excavations would be necessary.

CA-SBR-6074H. The site has been completely destroyed by mining activities. No data potential remains. Therefore, no additional consideration is warranted.

CA-SBR-6075H. This site is a large historic debris scatter. The loci, as described by previous investigations (Hampson 1988, p. 90) remain in tact, as does the integrity. The alluvial nature of the sediments indicates a potential for subsurface resources. These factors indicate that the resource is potentially eligible for the California Register. To mitigate impacts, subsurface testing and archival research is recommended. This will help determine the depth and distribution of the resource. If the age and assemblage indicate an association with nearby Cone Camp (CA-SBR-6006H), the site would be considered significant for listing in the California Register. If the resource is determined eligible for the California Register, additional Archaeological Data Recovery excavations would be necessary.

CA-SBR-6076H. Since the previous recording of the site, an additional locus has been identified. The four historic debris concentrations occur in and around intermittent drainages, and the discovery of

new material during the last site visit underscores potential for the site to yield further data. These factors indicate that the resource is potentially eligible for the California Register. To mitigate impacts, subsurface testing and archival research is recommended. This will help determine the depth and distribution of the resource. If the age and assemblage indicate an association with nearby Cone Camp (CA-SBR-6006H), the site would be considered significant for listing in the California Register. If the resource is determined eligible for the California Register, additional Archaeological Data Recovery excavations would be necessary.

CA-SBR-6078H. The site has been completely destroyed by mining activities. No data potential remains. Therefore, no additional consideration is warranted.

CA-SBR-6088H. The site has been completely destroyed by mining activities. No data potential remains. Therefore, no additional consideration is warranted.

Conclusion. The large number of archaeological sites identified by this study indicates a high sensitivity for buried cultural resources. The fact that the Wash Planning Area has been subject to alluvial activity indicates that there is a potential for buried archaeological deposits. In addition, ground visibility was intermittently obstructed by vegetation, limiting our ability to see surface archaeological sites. Therefore, LSA recommends that a qualified archaeological monitor be present during initial ground-disturbing activities in the Wash Planning Area. The monitor shall be empowered to temporarily halt or redirect construction work in the vicinity of the find until the find can be evaluated by the project archaeologist. In the event of a new find, salvage excavation and reporting will be required.

Alternative 2

The following mitigation measures were pulled from two EIRs that were conducted in 1997. These EIRs addressed two separate portions of Alternative 2. The first, *Sunwest Materials, Santa Ana Wash development Agreement; Orange Street Quarry CUP and Reclamation Plan; and Alabama Street Reclamation Plan, Draft Environmental Impact Report* (Lilburn 1997a), addressed the proposed Orange Street Quarry of the Wash Planning Area. The second, *Robertson's Ready Mix, Santa Ana Wash Development Agreement and Annexation to the City of Highland, Draft Environmental Impact Report* (Lilburn 1997b), addressed the proposed Cone Camp Quarry of the Wash Planning Area. Table E shows potential impacts to cultural resources associated with Alternative 2.

Table E – Potential Impacts to Cultural Resources in Proposed Land Use 2

Site #	Type	Mitigation Recommendations
CA-SBR-5526H*	Orchard/ Building Foundations	Delineate Boundaries to Assess Whether Site is Within Project Area/ Subsurface Testing, Archival Research, Data Recovery National Register Evaluation
CA-SBR-6006H*	Cone Camp	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-6060H*	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)

Table E – Potential Impacts to Cultural Resources in Proposed Land Use 2

Site #	Type	Mitigation Recommendations
CA-SBR-6061H*	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-6062H*	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-6064H	Historic Debris	None (Site Destroyed)
CA-SBR-6068H**	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-6070H*	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-6079H*	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-6080H**	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-6847H*	Historic Debris	Subsurface Testing/ Archival Research/ Data Recovery (if required)
CA-SBR-10184H*	Historic Debris	None (Site Destroyed)

*Pending a formal evaluation; sites currently considered "historical resources" under CEQA, due to potential significance

**Sites potentially impacted by proposed land use activities.

Orange Street Quarry Recommendations from EIR Recommendations (Lilburn 1997a). *Prior to disturbance, the five historic refuse disposal sites [site numbers CA-SBR-6068H, 6080H, 6079H, 6847H, 10184H] located within the project area shall be subjected to Phase II investigation [testing and research] to determine their value for recovery. The need for recovery will be determined based on the potential usefulness of the data to confirm particular historic associations and information for regional research issues. Should any of the sites be determined to be historically significant due to a connection with an individual or event of significance, Sunwest shall provide funding to appropriately document the site prior to its destruction. Such documentation may include field research, photographic reconnaissance and mapping to satisfactorily record the significant historical features and attributes of the site.*

Within one year after project approval, a qualified archaeologist shall conduct field inspections of the quarries to determine if significant deposits in the exposed subsurface sidewalls of the excavation areas exist or if there is the potential for an occurrence of archaeological resources at depth in the project area.

If, in the opinion of a qualified archaeologist, a moderate to high potential for the occurrence of resources on a specific site is determined to exist, a resource mitigation plan shall be developed prior to the mining of that site. With implementation of mitigation measures, potential impacts to cultural resources will be less than significant (Lilburn 1997a).

Cone Camp Quarry Recommendations from EIR Recommendations (Lilburn 1997b). *Prior to operations and if the 35 acres within the project area that have not been subject to a ground reconnaissance have not been disturbed by the ACOE mining operations, the area shall be examined by a qualified archaeologist to determine the absence or presence of cultural resources. Sites, if encountered, shall be recorded and if need be, subject to a Phase II investigation to determine if they would contribute significant information regarding prehistoric/historic use of the area. If the 35-acre area has been disturbed by the ACOE as part of the Seven Oaks Dam project, the ground reconnaissance and Phase II investigation will not be necessary.*

Prior to operations, the exact location of the historic agricultural complex (CA-SBR-5526H) shall be field checked to verify that no portion of the site lies within the project area, and that the site is located an adequate distance outside the area to ensure that it will not be disturbed by quarrying activities.

Should the Cone Camp project area not be excavated by the ACOE for the Seven Oaks Dam and prior to operations, the three historic refuse disposal sites located within the project area (SBR-6060H, SBR-6061H, and SBR-6062H) shall be subjected to testing (Phase II investigation) to determine their value for recovery. Testing shall include surface collection, mapping, and limited test excavation (1m × 1m units) to determine the presence or absence of subsurface components, the nature of the deposits, size and boundaries, and to ascertain what research issues, if any, the site's information could address. The need for recovery will be determined based on the potential usefulness of the data to confirm particular historic associations and information for regional research issues.

Within one year after the project startup, a qualified archaeologist shall conduct field inspections of the Cone Camp Quarry area to determine if significant deposits in the exposed subsurface sidewalls of the current excavation areas exists or if there is the potential for an occurrence of archaeological resources at depth in the study area. If there is little or no potential for such resources to occur on these parcels, no further mitigation shall be required.

If, in the opinion of a qualified archaeologist, a moderate to high potential for the occurrence of resources on a specific site is determined to exist, a resource mitigation plan shall be developed prior to mining that site (Lilburn 1997b).

Conclusion. The recommendations offered by Lilburn's 1997 EIRs appear to be adequate for the treatment of these cultural resources with the following additions:

SBR-5526H. Examination of the California Office of Historic Preservation Archaeological Determination of Eligibility listing of evaluated sites shows that the property was determined not eligible for listing on the National Register in 1988. Subsequent documentation (Romanski 1995 and Lilburn 1997b) shows that it has been determined to be eligible for inclusion in the National Register. These recommendations of site boundary delineation are appropriate; however, additional consideration may be necessary. If the site occurs within the impact zone of Land Use Alternative 2, a formal evaluation of the site's California Register eligibility status must accompany any archival work or subsurface testing.

CA-SBR-6064H. This site was plotted within the proposed Cone Camp Quarry project area, but was not addressed by either of the 1997 Lilburn EIRs. LSA archaeologists revisited the area and found it apparently destroyed by flood control excavation and landscaping activities. No artifacts remain, and the data potential has been exhausted. Therefore, no additional consideration is warranted.

CA-SBR-6070H. This site was plotted within the proposed Cone Camp Quarry project area, but was not addressed by either of the 1997 Lilburn EIRs. Although attempts by LSA archaeologists to relocate the resource were unsuccessful, it occurs in a high energy percolation basin, underscoring potential for burial. It is impossible to make a significance recommendation without a systematic subsurface testing program to make definitive statements about the existence or removal of the site. In order to mitigate potential impacts to this site, a subsurface excavation should be conducted. This excavation should focus on determining the presence or absence of the site. If present, the site should be evaluated for the California Register. If the site is determined eligible for the California Register, data recovery will be required. If the site has been removed or is found not to be significant, no further consideration will be required.

CA-SBR-10184H. The site area was revisited by LSA archaeologists en route to another impact area. They were unable to relocate the site. The site was located within the Area of District Impact of the Metropolitan Water District's Inland Feeder Pipeline Project. It was assumed destroyed by these activities. No further consideration of the resource is warranted.

The large number of archaeological sites identified by this study indicates a high sensitivity for buried cultural resources. The fact that the Wash Planning Area has been subject to alluvial activity indicates that there is a potential for buried archaeological deposits. In addition, ground visibility was intermittently obstructed by vegetation, limiting our ability to see surface archaeological sites. Therefore, LSA recommends that a qualified archaeological monitor be present during initial ground-disturbing activities in the Wash Planning Area. The monitor shall be empowered to temporarily halt or redirect construction work in the vicinity of the find until the find can be evaluated by the project archaeologist. In the event of a new find, salvage excavation and reporting will be required.

SUMMARY

Through the implementation of these mitigation measures, all impacts to these resources would be mitigated to a level that is considered less than significant. If, after the mitigation measures are implemented, the resources are not considered eligible for the California Register, no additional consideration is warranted. If any of the resources are determined to be eligible for the California Register, an Archaeological Data Recovery program will need to be implemented.

From a cultural resource perspective, Alternative 4, the "no project/existing conditions" option will not impact cultural resources. If that land use is adopted, no mitigation recommendations or management considerations further than this document are warranted. Alternatives 1 and 3 represent the next least destructive implementation of the any of the proposed actions. Only three cultural resources (all historic debris scatters) remain within the boundaries of Alternatives 1 and 3 as potential impact zones and could probably be avoided or mitigated with a minimum effort and cost. Alternative 2 will impact more and larger cultural resources that are likely to contain more significant data. Among others, this includes the CCC Cone Camp site, which appears eligible for the California Register. If Alternative 2 is implemented, there is a greater likelihood that further phases of cultural resource management will be necessary.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

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