Section 3.4
Cultural Resources

This section discusses the cultural resources (a collective term used for archaeological, historical, and paleontological resources) for the Phase II project area, including the results of project-specific background research conducted in 2005 and a cultural resources field inventory of the Phase II project area in 2007. This section also discusses the potential to find cultural resources during construction activities.

Methods

The methods used to identify potential cultural resources in the study area included prefield research and field surveys. Each of these elements is described below.

Prefield Research

A qualified archaeologist conducted a cultural resources investigation for the project. The investigation included a records search for previously recorded cultural resources and previously conducted cultural resources investigations, contact with community representatives who may have knowledge of cultural resources, and a field investigation.

The records search was conducted at the Northwest Information Center of the California Historical Resources Information System, housed at Sonoma State University, Rohnert Park, California. The records search was conducted for the project area and a 0.5-mile radius of the project area. No cultural resources were reported within the project area.

The NAHC was contacted to obtain information about cultural resources in the project area or referrals to representatives who may have such information. Four contacts were identified by the NAHC, all of whom were contacted. To date, none of the contacts have responded to requests for information.

Field Surveys

Jones & Stokes archaeologists conducted an archaeological survey of the Phase II project area on May 27, 2005, and December 15, 2006. The field inspection consisted of walking zigzagging transects through the project area, examining the ground surface and disturbed areas where subsurface soils were visible.

The field survey resulted in the identification of the remains of a historic period ranch or homestead complex located northwest of the Phase II area. This historic period complex included a standing windmill, a large concrete foundation, and wooden structural remains. Although the date of these remains was not determined, they are shown on a 1908 map; therefore, the remains were built on or before that year. The Phase II project would not impact, either directly or indirectly, these remains. The locations of the well pads are far enough southeast of the historic period remains and constitute full avoidance.

No cultural resources, either previously recorded or newly identified, were located in the Phase II project area.

Environmental Setting

The Montezuma Hills cover an area of approximately 100 square miles—an isolated and unique formation just north of the confluence of the Sacramento and San Joaquin Rivers. Gently rolling ridges between 10 and 200 feet above sea level dominate the landscape. These hills are surrounded by the Coast Ranges to the west, the fragmented islands and dendritic sloughs and channels of the Delta to the south and east and the Central Valley to the north.

Geologically, the Montezuma hills are unique. The regional substrate consists of Quaternary nonmarine sediments formed by inland swamps or possibly alluvial deposition (Bailey 1966). These Quaternary age deposits (1.6 million years BP [before present] to present) were folded, faulted, and raised by movement in the San Andreas Fault system (Dickinson 1981, USFS 1998). These hills were subsequently shaped by fluvial erosion (USFS 1998). Today, the geomorphology is largely undisturbed and conforms to prehistoric conditions. The hills are arid, with only seasonal and ephemeral drainages crossing the landscape (USFS 1998).

Historically, the dominant native vegetation in the hills consisted of *Nasella pulchra*, or purple needlegrass (Heady 1977). This perennial grass is the distinctive and characteristic species for the Central Valley prairie. Plant succession cycles in the prairie tended toward perennial bunchgrasses such as *Nasella pulchra* on all well-drained upland sites (Heady 1977). The arid Montezuma hills thus contained a quintessential California prairie plant community. Today, wheat cultivation (*Triticum* sp.) replaces the native flora. The present dearth of native trees in the region suggests that taxa of economic importance to aboriginal populations, such as *Quercus* sp., were absent during

prehistoric times as well—but this absence may be due to agriculture rather than natural distribution.

Native fauna in the region included pronghorn antelope (*Antilocarpa americana*), deer (*Odocoileus hemionus*), jackrabbits (*Lepus californicus*), Beechey ground squirrels (*Spermophilus beecheyi*), kangaroo rats (*Dipodomys heermanni*), pocket gophers (*Thomomys bottae*) and possibly tule elk (*Cervus elophus nannodes*). The development of subspecies and strains unique to the Central Valley among these fauna suggest a long association between the floristic and faunal communities (Heady 1977).

The Holocene environment of the region was characterized by a general warming trend that subsumed episodes of relatively cool climates. Most paleoclimatic reconstructions for the Central Valley are based on Ernst Antevs' (1948, 1953, 1955) three-part global climatic sequence. The sequence spans the Holocene, consisting of the moderately cool/moist Anathermal (ca. 10,000–7500 BP), the warm and dry Altithermal (ca. 7500–4000 BP), and the Medithermal (ca. 4000 BP to present). Tree ring growth chronologies from central eastern California, glacial chronologies, and pollen cores generally corroborate Antev's sequence—with the caveat that California's Holocene environment exhibited regional variation (Adam 1967; Birkeland et al. 1976; Birman 1964; Curry 1969, 1970; Moratto et al. 1990; ®ercelj and Adam 1975 Pollen diagrams from the Lake Tahoe and Yosemite areas indicate a vegetation shift that suggests a general increase in temperature from 9000 to 2900 BP, although six relatively cool/moist periods—each lasting 400–1,500 years—punctuated the general warm/dry trend (Moratto et al. 1990:150–151). Today, the Montezuma Hills enjoy a typically Californian temperate climate. Modern average temperatures vacillate between 58° and 62° Fahrenheit annually. Most precipitation occurs as rain—16–20 inches a year (USFS 1998).

Prehistoric Setting

The proposed Phase II project area is located within the boundaries of the Delta subregion of the Central Valley archaeological region, as defined by Michael Moratto (1984). Little is known of human occupation of the Delta region before 4500 BP. As a result of rapid alluvial and colluvial deposition in the valley over the past 10,000 years, ancient cultural deposits have been deeply buried in many areas. The earliest evidence of widespread occupation of the lower Delta region is evident at archaeological deposits assigned to the Windmiller Pattern (Early Horizon), dated between 4500 and 2500 BP. The Windmiller Pattern has been associated by some archaeologists with the arrival of Utian peoples from outside California (see *Ethnographic Context*), who were adapted to riparian and wetland environments (Moratto 1984).

Windmiller subsistence-settlement patterns are poorly understood because of the paucity of known archaeological sites ascribed to this archaeological pattern. Available data indicate that Windmiller Pattern sites typically are located on low rises or knolls in the floodplains of creeks or rivers. Such locations would have

provided protection from seasonal floods but were proximal to riparian, marsh, and grassland biotic communities. Most known Windmiller Pattern sites contain cemeteries, which implies some degree of sedentism. Windmiller people typically buried the deceased in a ventrally extended position with abundant grave goods, and oriented the head to the west. Subsistence needs were met through hunting and fishing, as evidenced by large projectile points (spear or dart tips), baked clay net sinkers, bone fish hooks and spears, and the character of faunal remains at Windmiller Pattern sites. Windmiller Pattern ground stone tools, such as mortars and milling slabs, indicate that Windmiller Pattern people collected plant foods (seeds, nuts, and perhaps roots). Other artifacts characteristic of the Windmiller Pattern include charmstones, quartz crystals, bone awls and needles, and shell beads and ornaments manufactured from abalone (*Haliotis* sp.) and olive snails (*Olivella* sp.) (Beardsley 1948, Heizer 1949, Heizer and Fenenga 1939, Lillard et al. 1939, Ragir 1972, Schulz 1970).

The succeeding Berkeley Pattern (Middle Horizon) dates from 2500 to 1500 BP, overlapping in time at least some Windmiller Pattern manifestations. Archaeologists have identified more Berkeley Pattern sites than Windmiller Pattern sites, and sites representing the former pattern are also more widespread. Berkeley Pattern sites are characterized by deep midden deposits, suggesting larger residential group size, greater frequency of site reuse, and/or a greater degree of sedentism.

Ethnographic Setting

The proposed Phase II project area is located in a portion of the Delta that was most likely used by several Native American groups in recent prehistory and the historic period. Anthropologists and Native Americans have drawn conflicting pictures of Native American use of the Montezuma Hills—some include the region in Southeastern Patwin territory (Bennyhoff 1977:164; Johnson 1978: Figure 1; Kroeber 1925: Plate 1), Plains Miwok (Levy 1978: Figure 1; Theodoratus et al. 1980: Map 2), and Bay Miwok (Bennyhoff 1977:164; Levy 1978: Figure 1; Theodoratus et al. 1980: Map 2). Given that the Bay Miwok village *Ompin* was located approximately 2 miles south of the present project area (Levy 1978), it is likely that Bay Miwok used the Montezuma Hills most intensively up to the historic period, although Plains Miwok, Southern Patwin, and possibly Northern Yokuts and Ohlone/Costanoan groups made periodic visits to the Montezuma Hills as well (Theodoratus et al. 1980). The following discussion is a summary description of Bay Miwok culture.

The southern portion of the project area was occupied by the *Ompin* tribelet of the Bay Miwok. Bay Miwok territory encompassed the southeastern portion of the Montezuma Hills near Rio Vista and extended west to encircle the town of Walnut Creek. The southern part of Bay Miwok land included Mount Diablo and extended east as far as Plains Miwok territory in the vicinity of Sherman Island (Levy 1978: Figure 1).

The Bay Miwok distributed themselves into tribelet groups that consisted of a village or groups of villages that shared linguistic or kinship affinities. Theodoratus et al. (1980:78) estimated the average population of Bay Miwok tribelets at 300 persons. The Montezuma Hills were not occupied permanently by the *Ompin* or their closest neighbors, the Southern Patwin and Plains Miwok (Bennyhoff 1977:146). Settlements were located near permanent watercourses, near intermittent streams (in drier areas), and on high ground when near the Delta (Theodoratus et al. 1980). The Bay Miwok probably followed a seasonal pattern to acquire necessary food and other materials. The *Ompin* tribelet in particular would have visited the Montezuma Hills in spring and summer to hunt pronghorn antelope, jackrabbit, and possibly tule elk (Theodoratus et al. 1980); seed-bearing grasses and sedges may have been available during this interval as well. Resources available in the Delta and the surrounding marshlands included deer, pronghorn antelope, tule elk, rodents, waterfowl, freshwater mussels and clams, fish, and various insects (Levy 1978).

The Bay Miwok constructed several types of structures. Conical thatch structures covered with tule mats were commonly used as residences both along the Delta and in uplands such as the Montezuma Hills. The Bay Miwok constructed semi-subterranean earth-covered lodges that served as winter homes. Other structures included acorn granaries, menstrual huts, sweathouses, and assembly houses. Assembly houses comprised two types: a semi-subterranean earth lodge and a circular brush enclosure. The Bay Miwok made the former structure a ritual and social focal point. The brush enclosure, on the other hand, provided space for ceremonies (Levy 1978).

Miwok technology included bone, stone, antler, wood and textile tools. Hunting was accomplished with the use of the bow and arrow, in addition to traps and snares. Basketry items included seed beaters; cradles; sifters; rackets used in ball games; and baskets for storage, winnowing, parching, and carrying burdens. Other textiles included mats and cordage. Tule balsas were constructed for navigation on rivers and in the Delta (Levy 1978).

The Eastern Miwok first came into contact with Europeans in the second half of the 18th century, when Spanish explorers entered the area. The Bay groups were the first of the Eastern Miwok to undergo conversion by Spanish missionaries. The first baptisms took place in 1794 and the last in 1827. A majority of the Bay and Plains converts were taken to Mission San Francisco and the Mission San Jose. It appears that many Bay and Plains Miwok tribelets disappeared through the combined effects of population removal to the missions and epidemics. Accounts exist of Miwok individuals who resisted missionization and fled to their villages. As a consequence, the Spanish formed military expeditions to recapture the fugitives. Initially, the Miwok remained hidden within Delta lands, but they eventually learned to emulate Spanish warfare tactics. As a result, several tribelets initiated counter attacks in the form of raids on missions and ranchos, thereby invoking significant cultural changes (Heizer 1941).

With the arrival of trappers, gold miners, and settlers to California, the Miwok suffered exposure to new varieties of introduced diseases they had previously not

experienced. Although this early contact with settlers resulted in a destructive impact on the Miwok population, relationships with settlers varied. While some hostilities occurred between the Sierra Miwok and miners, some of the Plains Miwok became involved in agricultural operations on the large land grants that were coming into existence then. After the United States annexed California, some of the Miwok were displaced to Central Valley locations, yet many remained on the rancherías established in the Sierra Nevada foothills. During the final decades of the 19th century and early years of the 20th century, the Miwok living on the foothill rancherías adapted to a new lifestyle. Subsistence through hunting and gathering was now augmented by seasonal wage labor on ranches and farms. As the reliance upon a cash income increased, traditional subsistence practices suffered. Several persons of Miwok descent still survive and maintain strong communities and action-oriented organizations (Levy 1978).

Historic Setting

Exploration

The Delta was visited frequently by Spanish explorers. Pedro Fages scouted the shores of San Francisco Bay in search of a suitable mission site and by 1772 had traveled as far inland as the San Joaquin River (Kyle 1990, Thompson 1958). Colonel Juan Bautista de Anza explored the same territory in 1776. The Spanish began explorations of the Sacramento River as well, beginning with Francisco Eliza's expedition up that river. Between 1806 and 1817, mission site reconnaissance expeditions were conducted by a number of explorers, including Gabriel Moraga (1806, 1808), Father Ramon Abella (1811), Jose Antonio Sanchez (1811), and Father Narciso Duran (1817) (Beck and Haase 1974).

Early Euro-American Settlement

Euro-American encroachment into Montezuma Hills began in 1844, when John Bidwell (1819–1900) petitioned the Mexican government for a land grant in southeastern Solano County (Kyle 1990). Manuel Micheltorena, the 13th governor of Mexican Alta California, made the grant to Bidwell that same year for the 17,726-acre *Rancho Los Ulpinos*. The grant was located on the west bank of the Sacramento River and extended east into the eastern portion of the proposed project area (Beck and Haase; Kyle 1990; Gregory 1912; Hunt 1926). Bidwell built an adobe house in the vicinity of present-day Rio Vista, and attempted to cultivate the land. Bidwell's efforts at agriculture, as well as those of subsequent settlers on the ranch, were unsuccessful; although one settler went on to establish the town that became Rio Vista (Hunt 1926).

The second thrust of Euro-American settlement occurred in 1846, with the establishment of the Hastings Adobe, approximately 0.5 mile southwest of the project area. The adobe is named for Lansford W. Hastings, a lawyer who arrived in California from Oregon in 1843. Active in early American settlement

of the Montezuma Hills region, he traveled extensively in an attempt to draw new settlers. Hastings returned to the East Coast in 1844 and published a book titled *The Emigrant's Guide*. Upon his return to California, Hastings was chosen as an agent for the Mormon Church to locate a suitable location for a colony in Mexican California. He chose a site at the head of Suisun Bay, and in 1846 laid out plans for a town at this location. Hastings constructed an adobe for himself, which he named Montezuma House. The American occupation of California in 1846 dashed Hastings' hope for a land grant from the Mexican government. The annexation of California as a territory of the United States also prompted Mormons to lose interest in the Montezuma Hills area as a colony site, because they had suffered previous mistreatment from non-Mormons elsewhere in the country. Three years later, Hastings abandoned the adobe (Hunt 1926, Kyle 1990, Theodoratus et al. 1980).

The adobe was reoccupied in 1853 by Lindsay Powell Marshall, Sr. and his sons John and Charles Knox. Marshall, a native of Booneville, Missouri, was a land speculator and cattle rancher who had acquired land in Benicia in 1852. Marshall and his sons took possession of the Hastings Adobe as squatters, although they purchased the property from Hastings in 1854 (Gregory 1912, Kyle 1990, Theodoratus et al. 1980). The Marshall's raised livestock on the ranch and expanded their landholdings by systematically acquiring additional acreage. Through a combination of cash entry patents, a homestead patent, and patents of swamp and overflow land, the Marshall family added more than 1,000 acres to their holdings by 1873. From 1866 to 1873, the Marshall's shifted the emphasis of their agricultural enterprise from cattle ranching to small-scale farming and dairying. Winter wheat was a prominent product of the Marshall ranch. Portions of the Marshall ranch were sold to John Kierce and Edward Jenkins by 1880, and Samuel Stratton acquired the adobe in the 1890s. Stratton continued to farm the property, dairying and cultivating grain, until 1964 (Theodoratus et al. 1980).

Agriculture

Further development of agriculture in the Montezuma Hills area was stimulated by Delta reclamation efforts from the 1850s to the early 20th century. Following the precedent of a similar act in Arkansas (Arkansas Swamp Land Act), the California State Legislature passed an act to provide for the sale of overflow and swamp land in 1855, the proceeds of which sales were to facilitate land reclamation. Under this act, up to 320 acres of land per person could be sold at $1 per acre. Swamp and overflow land could be bought on credit, although the purchaser was obligated to reclaim half the land purchased within 5 years. The attempts of individual landowners to build levees and reclaim swamp and overflow land in the 1850s proved futile in most cases. Individual shoestring levees were not sufficient to hold waters at bay; a network of levees and drains was required, necessitating a large amount of capital investment beyond the scope of most individual landholders.

In 1861, the state legislature created the State Board of Reclamation Commissioners and authorized it to form reclamation districts (McGowan 1961).

In an attempt to enclose large areas within natural levees, 32 districts were formed. After the board was dissolved in 1866, control of swamp and overflowed land fell to the counties (Thompson 1958). Acreage limitations were removed and incentive programs were instituted. When a landowner certified that $2 per acre had been spent on reclamation, the purchase price of the land was refunded to the deed holder. Speculators took advantage of this offer and a period of opportunistic and, often irrational, levee building followed (McGowan 1961, Thompson 1958).

Among the agriculturists to take advantage of the availability of land was Emery Upham. Upham began acquiring land and established a large livestock and ranching operation just north of Collinsville in 1865. By 1870, Upham owned 6,500 acres of the Montezuma Hills and adjacent slough areas. Upham increased his acreage through 1880, by which time his holdings comprised 8,100 acres, including the town of Collinsville. Upham grew wheat and raised swine, sheep, and dairy and beef cattle. Upon his death in 1897, Upham's land was divided and sold to private landowners, who continued to farm and ranch on the land (William Self Associates 1993).

Transportation

Transportation to and from the Montezuma Hills was limited to two means until approximately 1913. Smaller Delta towns such as Collinsville relied on river ferries to connect them to rail transportation and other river towns. L. W. Hastings established a ferry near Collinsville in the late 1880s. The ferry connected Collinsville with the opposite shore of the Delta (Hunt 1926). To reach inland destinations such as Fairfield, residents of the Montezuma Hills region were dependent on a network of roads. Through 1870s, road development was limited in this area, comprising a few tracks and unimproved roads (GLO 1862, Henning 1872). The present system of roads from Montezuma Hills to Fairfield, Rio Vista, and Dixon was established between 1872 and 1890 (Henning 1872, Eager 1890).

The 1870s saw the expansion of railroads throughout California. Several different routes connected the major towns of the Delta area, such as Benicia, Vallejo, Fairfield, and Pittsburg to the rest of California. The Oakland, Antioch, & Eastern Railway Co. (established March 28, 1911), a predecessor to the Sacramento Northern Railway, extended its Oakland-to-Sacramento line through the Montezuma Hills between 1913 and 1914. The Oakland, Antioch, & Eastern line connected Montezuma Hills and the surrounding area to Pittsburg, Oakland, Fairfield, Vacaville, and Sacramento, enabling rapid transport of agricultural products to a wide market (C. F. Weber & Co. 1914; Robertson 1998).

Paleontological Setting

The Montezuma and Kirby Hills are underlain by sediments and sedimentary rock from the Cenozoic Era (Tertiary and Quaternary periods). The Montezuma formation (clayey sands of fluvial origin) and the Tehama formation (sandstones, siltstones, and volcaniclastics) historically have not been a source of fossils. The Markley formation, however, has produced carbonized plant remains and microscopic foraminifera and diatoms (Jones & Stokes 2005). Nonetheless, the Markley formation is considered to have a low sensitivity or potential for the presence of significant paleontological resources because it is known to contain only "common and/or widespread invertebrate fossils of which the taxonomy, phylogeny, and ecology of the species contained in the rock are well understood" (Jones & Stokes 2005).

Regulatory Setting

State Legislation

The cultural resources investigation was conducted in compliance with CEQA, regarding the requirements for identification and treatment of historic and prehistoric cultural resources.

As the designated lead agency under CEQA for approval of this action, the CPUC is responsible for complying with CEQA's requirements regarding the identification and treatment of historic and prehistoric cultural resources. The State CEQA Guidelines (Pub. Res. Code Section 5097) also specify the procedure to be followed in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American burials falls within the jurisdiction of the NAHC.

CEQA requires public agencies that finance or approve public or private projects to assess the effects of the project on cultural resources (i.e., buildings, sites, structures, or objects that may have historical, architectural, archaeological, cultural, or scientific importance). CEQA states that, if a project would result in significant effects on important cultural resources, alternative plans or mitigation measures must be considered; however, only important cultural resources need to be addressed. Therefore, before mitigation measures can be developed, the importance of cultural resources must be determined.

Impact Analysis

Significance Criteria

The State CEQA Guidelines define a significant historical resource as "a resource listed or eligible for listing on the California Register of Historical Resources" (Pub. Res. Code Section 5024.1). A historical resource may be eligible for inclusion in the California Register of Historical Resources (CRHR) if it:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in the state's past;
- 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
- Has yielded, or may be likely to yield, information important in prehistory or history.

Further, CEQA emphasizes that evaluations take into consideration the historic integrity of a resource, combining its location, design, setting, materials, workmanship, feeling, and association.

Properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP) are considered eligible for listing in the CRHR and thus are significant historical resources for the purpose of CEQA (Pub. Res. Code Section 5024.1[d][1]).

Impacts

IMPACT 3.4-1: POTENTIAL DISTURBANCE TO PREVIOUSLY UNIDENTIFIED CULTURAL RESOURCES DURING PROJECT CONSTRUCTION

Although no known cultural resources were identified during the research or fieldwork completed to date, there is some potential that buried cultural resources could be inadvertently unearthed during ground-disturbing activities associated with project construction. This potential impact is considered significant. Implementation of APM C-1 will reduce this impact to a less-than-significant level.

IMPACT 3.4-2: INADVERTENT DISCOVERY OF NATIVE AMERICAN HUMAN REMAINS

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC (see APM C-2 in Chapter 2).

No human remains are known to be located in the project corridor. However, there is always the possibility that unmarked burials may be unearthed during construction. This impact is considered potentially significant. Implementation of APM C-2 will reduce this impact to a less-than-significant level.

IMPACT 3.4-3: POTENTIAL EFFECTS ON HISTORICAL RESOURCES

The Phase II project area does not contain any known cultural resources. Therefore, construction activities would not result in direct or indirect effects on any historical resource (such as the Old Shiloh Church along Shiloh Road). The proposed project would not cause a substantial adverse change in the significance of a historic resource; thus, there would be no impact. No mitigation is required.

IMPACT 3.4-4: POTENTIAL EFFECTS ON A UNIQUE PALEONTOLOGICAL RESOURCE OR SITE OR UNIQUE GEOLOGIC FEATURE

As described previously, one of the three geologic formations at the Phase II project area (Markley formation) is known to yield fossils. However, these fossils are common and widespread invertebrate fossils, and the taxonomy, phylogeny, and ecology of the species contained in the rock are well understood. Thus, the occurrence of this formation at the project site is not considered a

unique paleontological site, and the impact of disturbing this formation is considered less than significant. No mitigation is required.

Applicant-Proposed Measures and Mitigation Measures

LGS will implement cultural resources APMs (described in Chapter 2, *Project Description*) as part of the proposed project to avoid and minimize potentially significant impacts related on buried or unidentified cultural resources. Therefore, no additional mitigation is required.