

4.13 CULTURAL RESOURCES

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4.13 CULTURAL RESOURCES

This section discusses the Seasonal Storage Project (SSP) impacts on cultural and paleontological resources. Cultural resources are districts, sites, buildings, structures, and objects that are significant for their archaeological, historical, architectural, or traditional cultural values. Paleontological resources are the fossilized remains of biological organisms.

IMPACTS EVALUATED IN OTHER SECTIONS

All items pertinent to cultural resources and paleontology are included in this section.

SETTING

This section presents an overview of the cultural and paleontological settings of the SSP area.

Cultural Setting

Prehistory

The Paleo-Archaic-Emergent cultural sequence developed by Fredrickson (1974 1994) is commonly used to interpret the prehistoric occupation of Central California. Fredrickson's sequence identifies the general social, economic, and environmental adaptations of Native California populations during a given time in prehistory. The sequence is broken into three broad periods: the Paleoindian Period (10,000-6000 B.C.); the three-staged Archaic Period, consisting of the Lower Archaic (6000-3000 B.C.), Middle Archaic (3000-500 B.C.), and Upper Archaic (500 B.C.-A.D. 1000); and the Emergent Period (A.D. 1000-1800).

The Paleoindian Period began with the first entry of people into California. It was long thought that these people roamed widely, probably subsisting mainly on big game and minimally processed plant foods, with few or no trade networks. Current research, however, is indicating more sedentism, plant processing, and trading than previously believed. In central California, Paleoindian sites have been identified near lacustrine and estuarine environments. These early populations, therefore, appear to have utilized those areas that contained plentiful, relatively easily obtainable resources. During the Lower Archaic, milling stones appear in abundance and hunting is less important than plant foods. Artifacts are made predominately from local materials, suggesting that few, if any, extensive trade networks were established at this time. The subsistence base begins to expand and diversify during the Middle Archaic with a developing acorn economy, as evidenced by the mortar and pestle, and the growing importance of hunting. Status and wealth distinctions are evidenced in the Upper Archaic archaeological record. Regional exchange networks became well established at this time with goods and ideas exchanged, such as Kuksu ceremonial practices involving spirit impersonations. Social complexity increased during the Emergent Period, and territorial boundaries were well established by this time. Regularized inter-group exchanges involved more and varied goods, people, and

ideas, and bow and arrow technology was introduced. Later in the Emergent Period, a monetary system based on the exchange of clamshell disk beads was established. Native population reached its zenith during this time, as evidenced by high site densities and large village sites in the archaeological record.

Numerous archaeological excavations have occurred in Sonoma County, providing a wealth of data for establishing local chronologies and for understanding the prehistoric lifeways of the County's earliest inhabitants. Although some localities in the County are better understood than others, and gaps in our knowledge exist, archaeologists have established chronological sequences for localities in north-central and south-central Sonoma County. Archaeological excavations at sites in south-central Sonoma County indicate Native American occupation spanning from the Paleoindian period to Euro-American contact in the Santa Rosa locality (Jones and Hayes 1993). Tentative evidence exists for Native American use of the Laguna de Santa Rosa northwest of Rohnert Park during the Paleoindian period (pre-8000 B.P), as indicated by crescent shaped flaked stone tools (eccentric crescents) and obsidian hydration dates from this period. During the Lower Archaic, populations in the Santa Rosa area expanded to seed-rich grasslands in interior valleys. Artifact assemblages dating from the Lower Archaic Spring Lake phase (6000 B.C.-2500 B.C.) are meager, but wide-stemmed projectile points and the milling slab and handstone provide evidence of both hunting with the atlatl and gathering and processing of seeds. The Black Hill phase (2500 B.C.-A.D. 1000), which overlaps the Middle and Upper Archaic periods, has an artifact assemblage that includes large side-notched projectile points, concave-based projectile points, and continued use of the milling slab and handstone. During this time, population growth is indicated by the increased number of sites dating from these periods and increased exploitation of oak woodland habitat. Laguna phase (A.D. 500-1200) sites include shouldered lanceolate projectile points and the mortar and pestle, indicating intensive exploitation of the acorn which would continue until Euro-American contact. Two phases - the Rincon phase (A.D. 1000-1500) and the Gables phase (A.D. 1500-1800) - have been documented during the Emergent period. During this period, major semi-permanent settlements are located in oak woodland habitat, where acorns were readily exploited in order to meet the caloric requirements of an increasing population density (Jones and Hayes 1993:212). Artifacts associated with the Rincon and Gables phases include small corner-notched projectile points, hopper mortars, and clam shell disc beads.

Ethnography

At the time of Euro-American contact the SSP alternative sites were within the territories of the Southern Pomo (McLendon and Oswalt 1978:278). Southern Pomo territory extended from about five miles south of Santa Rosa northward for about 40 miles. The Southern Pomo held a stretch of coastline extending from Gualala to just north of Stewarts Point, and their easternmost extent included the Big Sulphur Creek drainage west of Cobb Mountain.

The Southern Pomo are one of seven distinct Pomoan groups, each of which spoke a different, mutually unintelligible language (McLendon and Oswalt 1978; Shipley

1978). The Southern Pomo settlements were organized according to tribelets, or “village communities” (Kroeber 1925:228-229 1932:258), which were generally situated near the Russian River and its numerous tributaries. A tribelet consisted of a principal village, where the chief resided, with outlying secondary settlements. Tribelets ranging in population from 100 to 2,000 persons claimed communal lands in which members could hunt, fish, or gather plant food without limitations of private ownership (Kroeber 1925:228).

Fish and game were obtained through individual and communal efforts, which ranged from small-scale snare trapping and the bow and arrow, to more complex undertakings such as constructing fish weirs and dams or brush fences to guide deer during hunting drives. The game provided not only food, but also hides and furs used for clothing, bedding, and utilitarian objects. Bones and antlers were made into a variety of tools, as well as ornamental and ceremonial items such as whistles and ear spoons.

The Southern Pomo economy focused on the acorn, a major staple of the California culture area Indians. At some point, probably more than 2,000 years ago, native Californians “discovered or acquired a technology enabling them to concentrate on the magnificent acorn crops” (Baumhoff 1963:190). The Pomo used acorns from seven different species of oaks. Other plant resources stored or eaten fresh included buckeyes, berries, 15 kinds of grass seed, roots, bulbs, and greens. Seaweed and kelp were considered delicacies (Bean and Theodoratus 1978:290).

The Pomo are renowned for their utilitarian, ceremonial, gift, and trade baskets. They manufactured baskets using the bark, roots, leaves, or branches of grasses and trees, using such elements as feathers and shells for decoration (Benson 1986:12-36). Plant fibers were also used for making nets and cordage.

Trade was vital to the Pomo, who traded with each other and with neighboring groups (Davis 1961). Such exchanges provided resources that were not available locally and augmented local resources when they were in low supply, such as at times of acorn-crop failure.

By the late eighteenth century, intensive Hispanic exploration of the Bay Area radically transformed Southern Pomo culture. European settlers moved into northern California and established the mission system that exposed the Southern Pomo to diseases to which they had no immunity. Mission San Francisco de Asís was founded in 1776 and Mission San Rafael was founded in 1817. The Missions drew native people from the entire Bay area. Studies of mission records indicate that Southern Pomo from the Santa Rosa area were moved to Mission San Rafael between 1821 and 1826 (Milliken 1995:236). Following the secularization of the missions in 1834, many Pomos lived on rancherias and worked for white land owners in the burgeoning agricultural industry (Bean and Theodoratus 1978:299).

History

Central and Northern Sonoma County

The Russians first explored Bodega Bay and vicinity in 1809. From 1812, for three decades, the Russians ran Fort Ross and a network of settlements, farm, and outposts stretching over 55 miles of coastline (Lightfoot, Wake, and Schiff 1991).

Containing the growth of Fort Ross was the primary impetus for the northern expansion of the Spanish mission system and the Mexican settlement of the North Bay. Father Jose Altamira founded Mission San Francisco Solano in 1823 at the site of present-day Sonoma to establish a Mexican presence on the northern frontier.

The missions were secularized in 1834 with the intention of returning half the lands of California back to the native peoples, with the remainder to be distributed to clerical authorities. However, secularization ultimately resulted in large land grants being distributed to private owners.

In 1833, Mariano Guadalupe Vallejo was sent to establish a military presence at Sonoma. Vallejo personally received the more than 66,000-acre Rancho Petaluma land grant, the largest grant in the North Bay and one of the largest in the entire state. Twenty-five additional grants were made in the Sonoma County area during Mexican rule, including Rancho Llano de Santa Rosa, which encompasses the alternative sites. The Mexican thrust against Russian encroachment resulted, by the mid-1840s, in the granting of virtually all arable land in the North Bay. Meanwhile scores of foreigners, most from the United States and Great Britain, began arriving to settle on the Santa Rosa Plain in the early 1840s.

Until the time of statehood, three primary land uses prevailed in the North Bay: the hide and tallow trade on the Mexican ranchos; timber production on the grants of the redwood region; and the small subsistence farms of the scattered foreign squatters and landless Californios. After the 1849 gold rush, Sonoma County became appealing to settlers for its commercial agricultural potential. The area held expansive arable land near San Francisco. It was also close to shipping routes to the Sierra Mines, which continued to have a seemingly limitless demand for food.

With the tremendous increase in population in the County, services began to appear. Way-stations for individual travelers, and later for formal stage routes, were built. Towns grew rapidly. In 1853, Santa Rosa consisted of only a few shacks. The following year, Santa Rosa was chosen by the County's population as the county seat as a result of a series of political maneuvers by a group of developers and local boosters. The county seat became a regional population center.

By 1860, nearly all of the present-day population centers were on the map. Geyserville was first used as a stage stop en route to the Geysers resort in 1851. Sebastopol was founded in 1855, Healdsburg in 1857. Cloverdale, established as a

trading post in 1854, grew quickly after it became a railroad terminus in 1859 (Hansen and Miller 1962:48).

Cattle were the mainstay of the California rancho hide and tallow trade. A series of factors in the 1860s led to a shift to sheep. First raised for mutton, sheep were later kept for wool, sparked by the need to clothe Civil War troops. A wool-growing boom occurred, with Sonoma County becoming one of the country's leading wool producers.

Specialty agriculture grew during the last decades of the nineteenth century. A large commercial population of processors, packers, and distributors grew up around the fruit, grain, poultry, and dairy industries. Crops grown within the County included potatoes, grains, wine grapes, hops, apples, plums, and prunes. Hops were especially well-suited to the alluvial plains and terraces along the Russian River, the Laguna de Santa Rosa, and on the Santa Rosa Plain. The success of hops coincided with a drop in wheat prices, and most grain farmers with the right soils and climate switched to the new crop. By 1890, hops were the leading field crop in the County, and the Santa Rosa area became known as the nation's hop capital (LeBaron et al. 1985).

Dairying has been an important activity in the Santa Rosa Plain. While there were numerous small dairies operating early in the County's history, it was the establishment of the San Francisco & North Pacific Railroad in 1870 that vitalized the industry. Before the railroad, fluid milk could not be shipped for any distance, and most dairies sold milk to a local clientele, taking their cheese and butter for sale in town. With the 1888 introduction of refrigerator cars, Sonoma ranchers began supplying milk to San Francisco.

By the beginning of the twentieth century, the towns near the alternative sites had developed a range of industries, with hundreds of services and administrative and professional offices. New residential developments provided homes for those employed in the North Bay's new industries.

Paleontological Setting

Paleontological resources include fossil specimens, fossil sites, and fossil-bearing rock units. Fossils can be important for their potential to provide scientific information regarding past life forms, paleoecology, stratigraphy, and geological formation processes.

Per guidance provided by the Society of Vertebrate Paleontology, invertebrate or botanical fossils in and of themselves are not considered to be significant nonrenewable paleontological resources, unless such fossils are present in, and intermixed with, a given vertebrate assemblage. Certain plant and invertebrate fossils or assemblages may also be defined as significant. A significant fossiliferous deposit is a rock unit or formation that contains significant nonrenewable paleontological resources comprising one or more identifiable vertebrate fossils, large or small, and any associated invertebrate and plant fossils, traces, and other data that provide information about fossilization, taxonomy,

evolutionary classification, ecology, and stratigraphy (Conformable Impact Mitigation Guidelines Committee 1995:26).

Vertebrate fossils are generally considered to be significant because their occurrence is relatively rare. Invertebrate and plant fossils and microfossils tend to occur in much greater abundance than vertebrate fossils.

The Kelly Farm (KF), Brown Farm (BF), and Alpha Farm (AF) alternative sites are underlain by primarily Pleistocene alluvium. The project alternative locations are in proximity to the Wilson Grove Formation. Both the Pleistocene alluvium and Wilson Grove Formation are sensitive for significant paleontological resources. There is also a small amount of Holocene aged alluvium present in the alternative sites, but this alluvium is not sensitive for significant paleontological resources. The geologic units present in the project area, in chronological order from youngest to oldest are: Quaternary alluvial deposits, Pleistocene alluvial deposits, and the Wilson Grove Formation, the Great Valley Sequence, and the Franciscan Complex (Blake et al. 2002). Each unit is described below.

Quaternary alluvial deposits

These Quaternary aged (present to 10,000 years old) alluvial deposits are brown or tan, dense, and contain gravelly sand that grades upwards into clay. This unit also contains flood plain deposits, and locally contains lenses of coarser material. This unit is too young to contain significant paleontological resources. These deposits are present at the alternative sites (Blake et al. 2002).

Pleistocene alluvial deposits

These Pleistocene aged (10,000 to 1.5 million years old) alluvial deposits are composed of siltstone, sandstone, and conglomerate. These deposits probably formed from alluvial fan systems from the hills and ridges to the west of the alternative sites. Much of it is probably reworked from the Glen Ellen Formation (Blake et al. 2002). Late Pleistocene deposits are highly sensitive for significant paleontological resources, and include fauna representative of the Rancholabrean land mammal age (10,000 to 500,000 years ago) (Bell et al. 2004). These can include, but are not limited to, mammoths, mastodons, saber toothed cats, ground sloths, bears, horses, camels, bison, reptiles, birds, and amphibians (Bell et al. 2004; Savage 1951; Stirton 1951). These deposits are present at the alternative sites, and may underlie the Holocene-aged alluvial fan deposits present in these locations (Blake et al. 2002).

Wilson Grove Formation

The Wilson Grove Formation of the late Miocene to late Pliocene (1.5 to 11.2 million years old) contains structureless to poorly bedded, firm sandstone with thin pebble lenses and some resistant pebble outcrops. The Wilson Grove Formation also comprises marine sediments, including conglomerate and tuff. The lower part of this formation is inter-bedded with late Miocene and early Pliocene basalt flow rock (Blake et al. 2002). The marine segments are known to contain such fossils as clams,

snails, brachiopods, sand dollars, sea urchins, crabs, polychaete tubes, and various plant types (Naidu 1999; Powell and Allen 2001). Recently, a new species of gastropod (*Nucella megastoma*) from the Wilson Grove Formation was identified (Vermeij and Powell 2004), and fossil whales (Allen, Barnes, and Holland 1999) have been discovered in this formation as well. This formation is exposed to the west of the sites, and may underlie the Pleistocene alluvial deposits present the all of the sites (Blake et al. 2002).

Regional Setting

Project-Specific Setting

This section describes the cultural and paleontological resources setting for each alternative site. The results of the archival, background, and field study provide the technical basis for this section.

Cultural Resources

KF

KF1 and KF2 are located on a low terrace approximately 1/4 mile east of the Laguna de Santa Rosa. A small intermittent drainage feeding into the Laguna separates KF1 and KF2. The soils at KF consist of Wright loam, 0-2% and 0-9% slopes, and Clear Lake clay, 0-2% slopes. These soils have been historically used for vineyards, hay, field, and row crops. The fields cover slight rises sloping to intermittent drainages. The area is currently dense grassland in cultivation for hay, with several occasional oak groves in the fields and riparian habitat along the drainages.

KF1

No cultural resources have been recorded at KF1. One cultural resource (P-49-000973/CA-SON-1039, a prehistoric archaeological site) is recorded within 1/4 mile of KF1. Three cultural resources surveys of portions of KF1 have been conducted previously (NWIC file number S-2334; Praetzellis and Praetzellis 1976; and King, King, and Goerke 1973). A review of the 1954 USGS *Sebastopol, Calif.* 15-minute topographic quadrangle identified three dwellings and an outbuilding located in the south-central portion of KF1, at the end of an unimproved driveway leading north-northwest from Highway 12.

The indirect impacts archival review did not identify any recorded architectural resources within 1/2 mile of KF1.

On May 24, 2007, archaeologists conducted a pedestrian field survey of the KF1 site. The survey employed zig-zag transects spaced approximately 15-30 meters apart. Visibility was poor to medium in KF1 due to grasses. Where grass cover was dense enough to obscure ground visibility, hoes or trowels were used approximately every 10 to 15 meters to scrape the ground surface free of vegetation for a view of the underlying ground surface. The location of the buildings depicted on the 1954

historical map was intensively inspected for archaeological materials. Although sporadic fragments of concrete and sewer pipe were identified in KF1 during the field survey, intensive surface inspection did not indicate a high potential for additional deposits or features. Based on the type, nature, and density of materials, as well as the history of ground disturbance in the area, the archaeological materials do not appear to possess sufficient integrity to qualify as eligible for the California Register. Therefore, they are not considered cultural resources for the purposes of this analysis.

KF2

No cultural resources have been recorded at KF2. Two cultural resources (P-49-000973/CA-SON-1039, a prehistoric archaeological site; and P-49-002794, a historical ranch) are recorded within 1/4 mile of KF2. Two cultural resources surveys of portions of KF2 have been conducted previously (Praetzellis and Praetzellis 1976; and Origer 1977). A review of the 1954 USGS *Sebastopol, Calif.* 15-minute topographic quadrangle identified a dwelling located in the western portion of KF2, at the end of an unimproved driveway leading south-southeast from Occidental Road.

The indirect impacts archival review identified two recorded architectural resources in the vicinity of KF2. These resources are P-49-002794, a historical barn (mentioned above) approximately 1/4 mile from KF2; and the Miller Ranch, a historical ranch complex approximately 1/2 mile from KF2 at 5750 Occidental Road.

On May 24, 2007, archaeologists conducted a pedestrian field survey of KF2. The survey employed zig-zag transects spaced approximately 15-30 meters apart. Visibility was good in KF2 because of recent mowing. Where grass cover was still dense enough to obscure ground visibility, hoes or trowels were used approximately every 10 to 15 meters to scrape the ground surface free of vegetation for a view of the underlying ground surface. The location of the house depicted on the 1954 historical map was intensively inspected for archaeological materials, but none was identified. Small fragments of freshwater oyster were identified through almost all of KF2, but none of the fragments formed discrete concentrations. The fragments did not appear to be part of a cultural deposit; rather, the likely source of the shell fragments was historical dredging of the unnamed tributary to the Laguna that runs roughly east to west through KF1. No cultural resources were identified in KF2 during the field survey.

BF

BF1 and BF2 are located on the Santa Rosa Plain, on a slight rise between two drainages that flow to the Laguna. The drainages lie approximately 500 feet to the north and 500 feet to the south of BF1 and BF2. The soils at the BF site consist of Wright loam, 0-2% and 0-9% slopes, and Clear Lake clay, 0-2% slopes. These soils have been historically used for vineyards, hay, field, and row crops. There is a large rise in the western portion of BF site that consists of fill soil from the Geysers pipeline construction. This fill area is surrounded by oak trees that delineate the

natural soils. The area is currently dense grassland in cultivation for hay, with occasional oaks spread throughout the fields.

BF1

No cultural resources have been recorded at BF1 or within 1/4 mile of BF1. Two cultural resources surveys of portions of BF1 have been conducted previously (NWIC file number S-22987; and Origer and Fredrickson 1977).

The indirect impacts archival review did not identify any recorded architectural resources within 1/2 mile of BF1.

On May 23 and 24, 2007, archaeologists conducted a pedestrian field survey of BF1. The survey employed zig-zag transects spaced approximately 15-30 meters apart. Visibility was poor to medium at BF1 due to grass. Where grass cover was dense enough to obscure ground visibility, hoes or trowels were used approximately every 10 to 15 meters to scrape the ground surface free of vegetation for a view of the underlying ground surface. No cultural resources were identified at BF1 during the field survey.

BF2

One cultural resource (P-49-002790, an isolated obsidian flake) is recorded in the western portion of BF2. No additional cultural resources are recorded within 1/4 mile of BF2. Three cultural resources surveys of portions of BF2 have been conducted previously: King, King, and Goerke 1973; Origer and Fredrickson 1977; and Praetzellis and Praetzellis 1976.

The indirect impacts archival review did not identify any recorded architectural resources within 1/2 mile of BF2.

On May 23 and 24, 2007, archaeologists conducted a pedestrian field survey of BF2. The survey employed zig-zag transects spaced approximately 15-30 meters apart. Visibility was poor to medium in BF2 due to grass. Where grass cover was dense enough to obscure ground visibility, hoes or trowels were used approximately every 10 to 15 meters to scrape the ground surface free of vegetation for a view of the underlying ground surface. The location of P-49-002790 was intensively inspected, but the isolated obsidian flake was not relocated. No cultural resources were identified in BF2 during the field survey.

AF

The AF site is located on a relatively flat portion of the Santa Rosa Plain. Roseland Creek, a tributary of the Laguna, is adjacent to the south of the AF site, and forms part of the site's southern boundary. The soils at the AF site consist of Wright loam, 0-2% and 0-9% slopes; Clear Lake clay, 0-2% slopes; and Cortina very gavel sandy loam and loam, 0-2% slopes. These soils have been historically used for vineyards, hay, field and row crops, and irrigated pasture. Two man-made reservoirs are in the

southern portion of the AF site surrounded by dense grasses in cultivation for hay and as pasture for sheep. Oak trees are concentrated in the eastern half of the AF site, north and east of the existing reservoirs.

No cultural resources have been recorded at the AF site. One cultural resource (P-49-002714/CA-SON-2298H, a domestic refuse scatter) is recorded within 1/4 mile of the AF site. Four cultural resources surveys of portions of the AF site have been previously conducted: NWIC file number S-9433; Psota 2004; Bryne 2004; and Origer and Fredrickson 1977).

The indirect impacts archival review did not identify any recorded architectural resources within 1/2 mile of the AF site.

On May 23, 2007, archaeologists conducted a pedestrian field survey of the AF site. The survey employed zig-zag transects spaced approximately 15-30 meters apart. Visibility in the southern portion was poor to medium due to grass; in the northern portion visibility was poor due to extremely dense vegetation. Where grass was a manageable height (i.e., two feet or less), hoes or trowels were used approximately every 10 to 15 meters to scrape the ground surface free of vegetation for a view of the underlying ground surface. However, almost the entire northern portion of the AF site was obscured by vegetation. No cultural resources were identified at the AF site during the field survey.

Paleontological Resources

Each of the sites is primarily underlain by Pleistocene aged (10,000 to 1.5 million years old) alluvium, with a small amount of Holocene aged (present to 10,000 years old) alluvium. The Holocene alluvium is too young to contain significant paleontological resources. Late Pleistocene deposits are highly sensitive for significant paleontological resources. A database search indicates that four fossil localities are located in proximity to the sites. Two localities are located near Trenton, approximately six miles northwest of the KF sites. These fossil localities contained such fossils as Pliocene whales, dolphins, seals, sea lions, fish, and eagle rays. The third fossil locality, approximately six miles east of the AF site, contains a Pleistocene giant ground sloth. The fourth fossil locality, for which no descriptive details are available, is approximately nine miles northeast of the KF sites. Based on its geological characteristics, those portions of the pond sites that are underlain by Pleistocene-aged alluvium have a high sensitivity for significant paleontological resources.

Regulatory Framework

National Historic Preservation Act (NHPA)

The National Register of Historic Places, established by the National Historic Preservation Act of 1966 (NHPA), as amended, recognizes historical properties that

are significant at local, state, and national levels. According to the NHPA, significance is determined by four criteria as follows.

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

1. That are associated with events that have made a significant contribution to the broad patterns of our history; or
2. That are associated with the lives of persons significant in our past; or
3. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
4. That have yielded, or may be likely to yield, information important in prehistory or history.

Since the process for listing a site on the National Register can be lengthy, federal agencies and the California State Office of Historic Preservation can determine a site as eligible for listing on the National Register, which has the same effect as regards the treatment of the property. Unless a resource is of exceptional importance or value, sites younger than 50 years are not considered eligible for the National Register. However, it is recommended that sites 45 years old or older be considered during the evaluation process to allow for potential delays between evaluation and construction periods. For the purposes of this Project, all cultural resources identified within the area of potential effects are considered to be potentially eligible for inclusion on the National Register of Historic Places. Once a preferred alternative is chosen, the cultural resources affected by that alternative would be formally evaluated for inclusion on the National Register. This approach has been approved by the State Historic Preservation Officer (SHPO). "Unknown archaeological resources," referred to in the Evaluation Criteria below, means previously undiscovered and/or buried archaeological resources.

California Environmental Quality Act (CEQA)

CEQA defines a "historical resource" as a resource that is eligible for listing on the California Register of Historical Resources (California Register), listed in a local register of historical resources (as defined at California Public Resources Code §5020.1(k)), identified as significant in a historical resource survey meeting the requirements of §5024.1(g) of the Public Resources Code, or determined to be a historical resource by a project's lead agency (§15064.5(a)). A historical resource consists of:

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. Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources (§15064.5(a)(3)).

California Register of Historical Resources

A cultural resource is evaluated under four criteria to determine its historical significance. These criteria require that the resource be significant at the local, state, or national level under one or more of the following:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
2. It is associated with the lives of persons important to local, California, or national history; or
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time pass after a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resource". Fifty years is used as a general estimate of the time needed to develop the perspective to understand the resource's significance (Title 14, California Code of Regulations §4852 (d)(2)).

The California Register also requires that a resource possess integrity, which is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 1999:2). To retain integrity, a resource should have its original location, design, setting, materials, workmanship, feeling, and association. Which of these factors are most important depends on the particular criteria under which the resource is considered eligible for listing (California Office of Historic Preservation 1999).

Resources that are significant, meet the age guidelines, and possess integrity will generally be considered eligible for listing on the California Register.

California Health and Safety Code

California Health and Safety Code §7050.5 regulates the treatment of human remains. The Code states that: "Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a

dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in §5097.99 of the Public Resources Code".

In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to his or her authority. If the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the State Native American Heritage Commission.

California Public Resources Code

Public Resources Code §5097.9 regulates the State's treatment of Native American religion, establishes the State Native American Heritage Commission, and indicates how Native American human remains shall be handled.

Native American Graves Protection and Repatriation Act (NAGPRA)

According to the Native American Graves Protection and Repatriation Act (NAGPRA), the ownership or control of Native American human remains and associated funerary objects excavated or discovered on federal or tribal lands after November 16, 1990, belongs to the lineal descendants of the Native American buried or, if lineal descendants cannot be found, ownership belongs to the tribe which has "...the closest affiliation with such remains or objects and which, upon notice, states a claim for such remains or objects" (25 United States Code 3002 §3 (a)). When such remains are discovered on federal or tribal property, NAGPRA mandates consultation with both the agency that manages the property and the tribe that is associated with the remains.

Paleontological Resources

The significance of paleontological resources is evaluated using State and federal guidelines. The CEQA Guidelines indicate that a project could have a significant effect on the environment if project activities disrupt or adversely affect a paleontological site (CEQA Guidelines, Appendix G).

Public Resources Code §5097.5 prohibits the excavation or removal of any "vertebrate paleontological site, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands." Public lands are defined as lands owned by or under the jurisdiction of the State or any city, county, district, authority, or public corporation. Any unauthorized disturbance or removal of archaeological, historic, or paleontological materials or sites located on public lands is considered a misdemeanor.

The Archaeological and Historic Data Preservation Act of 1974, as amended, provides for the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data when such data may be destroyed or irreparably lost due to a federal, federally-licensed, or federally-funded project.

Sedimentary rock units with a high potential for containing significant nonrenewable paleontological resources are those within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. Significant paleontological resources are fossils or assemblages of fossils that are unique, unusual, rare, uncommon, diagnostically or stratigraphically important, and those which add to an existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally (Reynolds 1988).

GOALS, OBJECTIVES, AND POLICIES

Table 4.13-1 identifies goals, objectives, and policies that provide guidance for development in relation to cultural resources in the SSP area. The table also indicates which evaluation criteria are responsive to each set of policies. There are no goals, objectives, and policies related to paleontological resources.

TABLE 4.13-1
Goals, Objectives, and Policies – Cultural Resources

Adopted Plan Document	Document Section	Document Numeric Reference	Policy	Relevant Evaluation Criteria¹
Santa Rosa General Plan	Historic Preservation Element	Goal HP-A Objective HP-A-1 Objective HP-A-2 Objective HP-A-3	Identify and conserve Native American archaeological resources.	1,3,4
		Goal HP-B Objective HP-B-1 Objective HP-B-2 Objective HP-B-8	Preserve Santa Rosa's historic, architectural and cultural heritage using the widest possible array of public and private mechanisms.	1,2,3,4

Source: Santa Rosa 2002

Note: 1. Evaluation criteria are identified in Table 4.13-2.

EVALUATION CRITERIA WITH SIGNIFICANCE THRESHOLDS

Table 4.13-2 summarizes both the evaluation criteria and significance thresholds used to address potential impacts to cultural and paleontological resources.

TABLE 4.13-2

Evaluation Criteria with Significance Thresholds – Cultural Resources

Evaluation Criteria	As Measured by	Significance Thresholds	Sources of Criteria
1. Will the SSP cause a substantial adverse change in the significance of a historical or unique archeological resource as defined in Title 14, California Code of Regulations §15064.5 or Public Resources Code §21083.2(g)?	Physical demolition, destruction, relocation, or material alteration of a historical or archaeological resource	Greater than 0 historical or archaeological resources	CEQA Guidelines Appendix G, Checklist Item V (a) and Item V (b). Title 14, California Code of Regulations §15064.5 Public Resources Code §21084.1 Public Resources Code §21083.2(g)
2. Will the SSP have an adverse effect on any historic property that is included in, or eligible for inclusion in, the National Register of Historic Places?	The direct or indirect alteration of any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association	Greater than 0 historic properties	National Historic Preservation Act of 1966, as amended, Section 106
3. Will the SSP disturb any human remains, including those interred outside of formal cemeteries?	Disturbance of any human remains	Greater than 0 human remains	CEQA Guidelines Appendix G, Checklist Item V (d). Title 14, California Code of Regulations §15064.5(d) Health and Safety Code §7050.5 Public Resources Code §5097.9

TABLE 4.13-2
Evaluation Criteria with Significance Thresholds – Cultural Resources

Evaluation Criteria	As Measured by	Significance Thresholds	Sources of Criteria
4. Will the SSP disturb any Native American human remains, associated grave goods, or items of cultural patrimony?	Disturbance of any Native American human remains, associated grave goods, or items of cultural patrimony	Greater than 0 human remains, associated grave goods, or items of cultural patrimony	Health and Safety Code §7050.5 Public Resources Code §5097.9 NAGPRA if on federal or tribal lands
5. Will the SSP directly or indirectly destroy a unique paleontological resource or site?	Ground-disturbing activity within geologic units with the potential to contain important fossils	Greater than 0 occurrences	CEQA Guidelines Appendix G, Checklist Item V (c). Public Resources Code §5097.5 Archeological and Historic Data Preservation Act of 1974

METHODOLOGY

This section describes the methods used to assess potential impacts to cultural and paleontological resources.

Cultural Resources

The methodology for the cultural resources analysis included archival research and literature review, consultation with interested parties, and field survey. Each task is briefly described below.

Archival Research and Literature Review

A records search for the five alternative sites was conducted on May 21, 2007 (file no. 06-1835) at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California. The NWIC is the official state repository for cultural resource records and studies for a 16-county area, including Sonoma County.

The purpose of archival research was to identify any recorded cultural resources within the alternative sites, including prehistoric and historical archaeological sites, historical architectural resources, and historic rural landscapes. The archival search boundary was expanded to a 1/2-mile radius for built environment resources that may be subject to indirect visual impacts. Areas of traditional or cultural importance were identified through consultation with potentially interested parties (described below).

A literature review was conducted for the five SSP alternative sites. The following local, state, and federal cultural resource inventories were reviewed: *Directory of Properties in the Historic Property Data File for Sonoma County* (California Office of Historic Preservation September 19, 2006); *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976); *Five Views: An Ethnic Sites Survey for California* (1988); *California Historical Landmarks* (California Office of Historic Preservation 1996); *Points of Historical Interest* (California Office of Historic Preservation 1992); and *Historic Civil Engineering Landmarks of San Francisco and Northern California* (American Society of Civil Engineers 1977). In addition to the inventories listed above, historical maps, including General Land Office plats, Rancho plats, and USGS topographic maps were reviewed.

Consultation with Interested Parties

The California Native American Heritage Commission (NAHC), the Sonoma County Historical Society, and the Sonoma County Museum were contacted by letter in June 2007 for any comments that they might have concerning cultural resources that might be affected by the SSP. The NAHC responded by fax on June 25, 2007, and stated that a search of the sacred lands file did not indicate the presence of Native American cultural resources in any of the five alternative sites (Pilas-Treadway 2007). No written responses were received from the historical organizations.

On June 13, 2007, follow-up telephone calls were made to the historical organizations. Mr. Tony Hoskins, President of the Sonoma County Historical Society, stated that he had no concerns about the Project, but would forward the contact letter to other Society board members for consideration. No response from the other Society board members has been received to date. On June 13, 2007, Mr. Eric Stanley, Exhibitions Manager and Historic Collections Curator at the Sonoma County Museum, responded and stated that he had no concerns about the Project.

Field Surveys

In May and June 2007, archaeologists conducted field surveys of the SSP alternative sites, including storage pond construction and expansion areas, pump stations, pipelines, and electrical distribution lines. The purpose of the field survey was to: (1) identify previously unrecorded cultural resources at the SSP alternative sites; and (2) characterize the general cultural resource sensitivity of each location based on a review of natural and cultural characteristics.

Pedestrian field survey is an effective method for identifying surface indicators of archaeological deposits, but the success of field survey is dependent on ground visibility. Ground visibility varied throughout the alternative sites due to grass cover. The following alternative sites had medium-to-poor visibility: KF1; and BF1 and BF2. For these sites, the lack of visibility was ameliorated through the use of hoes to clear patches of ground in regular intervals to view the underlying soil surfaces. In only one area, the northern portion of the AF site, was vegetation too dense to

effectively clear vegetation manually, and the lack of visibility in this portion is considered a limitation of the field survey.

Paleontological Resources

The methodology for the paleontological resources analysis included a fossil locality search and a literature review. The fossil locality search was done to identify recorded fossil localities in or near the alternative sites. The literature review was undertaken to characterize the paleontological sensitivity of the geological formations that underlie the alternative sites. Research was conducted at LSA's in-house paleontology and geology library, as well as by proxy at the University of California Museum of Paleontology.

IMPACTS AND RECOMMENDED MITIGATION MEASURES

Sources of Impacts

Impacts to cultural and paleontological resources may occur during SSP construction or construction-related activities. Such impacts may include, but are not limited to:

- Damage to or destruction of archaeological and paleontological resources as a result of ground disturbance;
- Increased access to cultural and paleontological resources by construction personnel, who may collect or move artifacts or fossils;
- Changes to watercourse flows that result in erosion, which affects cultural and paleontological resources;
- Alteration of the setting of cultural resources by introducing major new landscape elements, including, but not limited to, storage pond berms, pump stations, and electrical distribution lines; and
- Intrusion of visible or audible elements, which alter the use of traditional cultural properties.

Additional impacts may occur during operation and maintenance of the SSP facilities such as damage to or destruction of archaeological and paleontological resources as a result of ground disturbance.

TABLE 4.13-3
Cultural Resources Impacts

Evaluation Criteria	Significance Threshold	Impact	Type of Impact ¹	Level of Significance ²
13.1. Will the SSP cause a substantial adverse change in the significance of a historical or unique archaeological resource as defined in Title 14, California Code of Regulations, §15064.5 or Public Resources Code §21083.2(g)?	Greater than 0 historical or archaeological resources	Greater than 0 historical or archaeological resources	C, O&M/P	⊙
13.2. Will the SSP have an adverse effect on any historic property which is included in, or eligible for inclusion in, the National Register of Historic Places?	Greater than 0 historic properties	Greater than 0 historic properties	C, O&M/P	⊙
13.3. Will SSP disturb any human remains, including those interred outside of formal cemeteries?	Greater than 0 human remains	Greater than 0 human remains	C, O&M/P	●
13.4. Will the SSP disturb any Native American human remains, associated grave goods, or items of cultural patrimony?	Greater than 0 human remains, associated grave goods, or items of cultural patrimony	Greater than 0 human remains	C, O&M/P	●
13.5. Will the SSP directly or indirectly destroy a unique paleontological resource or site?	Greater than 0 occurrences of unique paleontological resources	Greater than 0 occurrences of unique paleontological resources	C, O&M/P	⊙

- Notes:
- | | |
|--|---|
| <p>1. Type of Impact:
C: Construction
O&M: Operation and Maintenance

P: Permanent</p> | <p>2. Level of Significance:
● Significant impact before and after mitigation
⊙ Significant impact before mitigation; less than significant impact after mitigation
○ Less than significant impact; no mitigation proposed
== No impact</p> |
|--|---|

Impact: **13.1 and 13.2. Will the SSP cause a substantial adverse change in the significance of a historical or unique archaeological resource as defined in Title 14, California Code of Regulations, §15064.5 or Public Resources Code §21083.2(g) or have an adverse effect on any historic property which is included in, or eligible for inclusion in, the National Register of Historic Places?**

Analysis: *Storage component - Significant: KF1, KF2, BF1, BF2, and AF*

Archival and background research was conducted to identify cultural resources known to exist at the Storage component portion of each site. A pedestrian archaeological survey of each site was also done.

No cultural resources were identified in the Storage component portion of the KF1 and KF2 sites. The 1954 USGS *Sebastopol, Calif.* 15-minute topographic quadrangle depicts several buildings in the south-central area of the KF1 pond location. Concrete fragments and sewer pipe fragments were identified at this location during field survey. A building is shown in the western portion of the KF2 pond site, but no archaeological materials at this location were identified during the field survey. Therefore, there is the potential for subsurface deposits associated with these buildings, as well as for other unrecorded, buried archaeological deposits that could not be identified through pedestrian survey.

No cultural resources were identified in the Storage component portion of the BF1 site.

One cultural resource, an isolated obsidian flake, was identified in the Storage component portion of the BF2 site through archival study. Archaeologists re-inspected the location of the isolate during the field survey, but no evidence of the flake or any other archaeological materials was found. However, given the previous identification of archaeological materials, as well as the general sensitivity of the area for prehistoric archaeological deposits, the location of the isolated obsidian flake is considered sensitive for archaeological deposits.

No cultural resources were identified in the Storage component portion of the AF site.

In addition to the specific areas of sensitivity mentioned above, all five of the project alternative sites may potentially contain unrecorded, buried prehistoric archaeological deposits. This assessment is supported by: (1) the presence of nearby recorded archaeological sites in environmental settings that are comparable to those of the project alternative sites; and (2) previous studies that identify the general vicinity of the project facility locations as sensitive for buried deposits.¹

If such deposits associated with the buildings on KF1 and KF2 or deposits associated with the isolated obsidian flake on BF2, or other unrecorded, buried archaeological deposits exist and qualify under CEQA as historical resources or unique archaeological resources or qualify as eligible for listing

¹ Jordan (1990:10) conducted an archaeological sensitivity study in portions of the eastern Laguna de Santa Rosa and found a very high possibility of prehistoric cultural resources on the terraces adjacent to the Laguna de Santa Rosa and its tributaries. Another study, conducted for the Santa Rosa Subregional Long-Term Wastewater Project EIR/EIS, concluded that central Sonoma County is highly likely to contain buried archaeological deposits due to alluvial deposition (Meyer 1995:9).

in the National Register of Historic Places, then their disturbance during construction activities may result in a significant impact to cultural resources.

Construction activities have the potential to result in direct impacts to unrecorded archaeological deposits, especially any that may be associated with the buildings shown on the historical map. Such impacts would be significant if the affected deposits qualify as historical or unique archaeological resources under Title 14, California Code of Regulations, §15064.5 or qualify as eligible for listing in the National Register of Historic Places.

At KF1, BF1, BF2, and AF archival study did not identify any recorded historical architectural resources within 1/2 mile of this facility location. Therefore, the Project is not anticipated to result in significant indirect impacts to recorded architectural resources at those sites.

The construction of project facilities has the potential to alter the setting of historical architectural resources in the vicinity of KF2. However, given the distance of the nearest architectural resource from KF2, as well as the increasing numbers of large-scale, agriculture-related processing facilities and reservoirs in the eastern Laguna, changes in the visual character of the setting of KF2 would not result in significant impacts. Project construction would also introduce structural facilities to an area that, by virtue of its rural qualities and interrelated elements, may constitute a rural historic landscape. However, the construction and operation of SSP facilities would be consistent with the theme of recycled water storage and management in the Laguna, an association that is already visually distinguishable in the project area due to existing storage ponds. The presence of these large ponds has altered the historical qualities of a potential rural historic landscape, and SSP facilities would clearly be associated with this existing use. Therefore, although SSP would result in new additions to the visual landscape, the changes would not compromise the qualities that convey the significance of a potential landscape, and impacts are considered less than significant.

Pump Station component - Significant: KF1, KF2, BF1, BF2 and AF

Archival and background research was conducted to identify cultural resources known to exist at the Pump Station component portion of each site. A pedestrian archaeological survey of each site was also done.

No cultural resources were identified in the Pump Station component portion of the KF1, KF2, BF1, and AF sites.

No cultural resources were identified in the Pump Station component portion of the BF2 site. However, given the previous identification of an isolated obsidian flake in other portions of the BF2 site (described above), as well as the general sensitivity of the area for prehistoric archaeological deposits, the Pump Station component portion of the BF2 site may contain archaeological deposits.

In addition, there is the possibility that unrecorded, buried archaeological deposits that could not be identified through pedestrian survey are present. If such deposits exist and qualify under CEQA as historical resources or unique archaeological resources, then their disturbance during construction activities may result in a significant impact to cultural resources.

Construction activities have the potential to result in direct impacts to unrecorded archaeological deposits. Such impacts would be significant if the affected deposits qualify as historical or unique archaeological resources under Title 14, California Code of Regulations, §15064.5 or qualify as eligible for listing in the National Register of Historic Places.

At each of the sites, no indirect impacts are anticipated from the Pump Station component for the reasons stated in the Storage component subsection above.

Mitigation: **3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources**

After

Mitigation: *Storage component – Less than Significant: KF1, KF2, BF1, BF2, and AF*
Pump Station component – Less than Significant: KF1, KF2, BF1, BF2, and AF

For the Storage component at KF1, KF2, and BF2, implementation of the mitigation measure identified above would consist of: (1) evaluating the significance of archaeological deposits identified during cultural resources construction monitoring and encountered during project construction; (2) avoiding impacts to significant deposits, if feasible; and (3) mitigating unavoidable impacts to significant deposits in accordance with the recommendations of a professional archaeologist. Mitigation would offset the loss of the qualities that justify a deposit's significance, or would minimize future disturbance of the deposit.

The area in the vicinity of the buildings depicted on the 1954 USGS *Sebastopol, Calif.* 15-minute topographic quadrangle is sensitive for unknown, buried historical archaeological deposits. For this reason, cultural resources construction monitoring shall be conducted within a 50-foot radius of the historical materials identified during the field survey.

For the Pump Station component at KF1, KF2, and BF2, and for both the Storage and Pump Station components at BF1 and AF, implementation of the mitigation measures would be the same except that cultural resources construction monitoring would not be required.

The implementation of this mitigation measure would reduce impacts to cultural resources to a less-than-significant level.

In Section 4.14 of this Program EIR, Mitigation Measure 3.3.18 for visual resources and land use impacts is introduced which could have adverse effects to cultural resources. Implementation of Mitigation Measure 3.3.18 to reduce land use and visual resources impacts from the inboard pump stations at the KF1, KF2 and BF1 sites could include constructing the pump station outboard

at grade instead of inboard on the pond embankment. Construction of an approximately 45 ft by 47 ft outboard pump station at any of these three sites would result in ground disturbance of an additional 0.5 acre of land at each site. Implementation of Mitigation Measure 3.3.17, including cultural resources monitoring during pump station construction at the KF1 and KF2 sites, would reduce impacts from outboard pump station construction to less than significant.

Impact: 13.3 and 13.4. Will SSP disturb any human remains, including those interred outside of formal cemeteries, or associated grave goods, or items of cultural patrimony?

Analysis: Storage component - Significant: KF1, KF2, BF1, BF2 and AF

Archival and background research were conducted to identify human remains, associated grave goods, and/or items of cultural patrimony known to exist at the Storage component portion of each site. A pedestrian archaeological survey of each site was also done.

No human remains, associated grave goods, and/or items of cultural patrimony were identified in the Storage component portion of KF1 or KF2 sites. The 1954 USGS *Sebastopol, Calif.* 15-minute topographic quadrangle depicts several buildings in the south-central area of the pond site of the KF1 site and the western area of the KF2 site. The potential for subsurface deposits associated with the buildings exists, as well as other unrecorded, buried archaeological deposits that could not be identified through pedestrian survey; such deposits may contain human remains, associated grave goods, and/or items of cultural patrimony, either associated with the former building locations or as-yet unidentified prehistoric archaeological deposits. If deposits bearing such remains and materials exist, then their disturbance during construction activities may result in a significant impact.

No human remains, associated grave goods, and/or items of cultural patrimony were identified in the Storage component portion of the BF1 site.

No human remains, associated grave goods, and/or items of cultural patrimony were identified in the Storage component portion of BF2. One cultural resource, an isolated obsidian flake, was identified in the Storage component portion of the BF2 site through archival study. Archaeologists re-inspected the location of the isolate, but no evidence of the flake or any other archaeological materials was found. However, given the previous identification of archaeological materials, as well as the general sensitivity of the area for prehistoric archaeological deposits, the location of the isolated obsidian flake is considered sensitive for archaeological deposits; such deposits may contain human remains, associated grave goods, and/or items of cultural patrimony. If deposits bearing such remains and materials exist, then their disturbance during construction activities may result in a significant impact.

No human remains, associated grave goods, and/or items of cultural patrimony were identified in the Storage component portion of the AF site.

Because of the increased potential associated with the buildings on KF1 and KF2 or with the isolated obsidian flake on BF2, and because of the general sensitivity of the sites, unrecorded, buried archaeological deposits that could not be identified through pedestrian survey may be present; such deposits may contain human remains, associated grave goods, and/or items of cultural patrimony, either associated with the former building locations or as-yet unidentified prehistoric archaeological deposits. If deposits bearing such remains and materials exist, then their disturbance during construction activities may result in a significant impact.

Construction activities have the potential to result in disturbance of human remains, associated grave goods, and/or items of cultural patrimony. Such impacts would be significant.

Pump Station component - Significant: KF1, KF2, BF1, BF2, and AF

Archival and background research were conducted to identify human remains, associated grave goods, and/or items of cultural patrimony known to exist at the Pump Station component portion of the each site. A pedestrian archaeological survey of each site was also done.

No human remains, associated grave goods, and/or items of cultural patrimony were identified in the Pump Station component portion of the KF1, KF2, BF1, or AF sites.

No human remains, associated grave goods, and/or items of cultural patrimony were identified in the Pump Station component portion of the BF2 site. However, given the previous identification of an isolated obsidian flake in other portions of the BF2 site (described above), as well as the general sensitivity of the area for prehistoric archaeological deposits, the Pump Station component portion of the BF2 site may contain archaeological deposits; such deposits may contain human remains, associated grave goods, and/or items of cultural patrimony.

In addition, there is the possibility that unrecorded, buried archaeological deposits that could not be identified through pedestrian survey are present at any of the sites; such deposits may contain human remains, associated grave goods, and/or items of cultural patrimony. If deposits bearing such human remains or materials exist, then their disturbance during construction activities may result in a significant impact.

Construction activities have the potential to result in disturbance of human remains, associated grave goods, and/or items of cultural patrimony. Such impacts would be significant.

Mitigation: **3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources**

After

Mitigation: *Storage component – Significant: KF1, KF2, BF1, BF2, and AF*

Pump Station component – Significant: KF1, KF2, BF1, BF2, and AF

For the Storage component at KF1, KF2, and BF2, implementation of the mitigation measure identified above would consist of: (1) temporarily halting construction in the vicinity of potential human remains in the event that such remains are encountered during construction monitoring or during project construction; (2) complying with the requirements of California Health and Safety Code Section 7050.5 governing the treatment of human remains; and (3) conducting archaeological analysis of the remains and their context in coordination with the recommendations of the Most Likely Descendent. Mitigation would meet the requirements of state law and offset the loss of scientifically valuable information.

Cultural resources construction monitoring would be required in the vicinity of the building locations as part of the mitigation measure for potential impacts to archaeological deposits. This monitoring would concurrently identify and avoid potential impacts to human remains, associated grave goods, and/or items of cultural patrimony.

For the Pump Station component at KF1, KF2, and BF2, and for both the Storage and Pump Station components at BF1 and AF, implementation of the mitigation measures would be the same except that cultural resources construction monitoring would not be required.

The implementation of this mitigation measure would minimize impacts to human remains, associated grave goods, and/or items of cultural patrimony. However, this measure cannot ensure that such impacts would be reduced to a less-than-significant level. The nature of the remains and the values and beliefs of the descendant community may be such that no amount of scientific study or respectful treatment would reduce the impact to a less-than-significant level.

In Section 4.14 of this Program EIR, Mitigation Measure 3.3.18 for visual resources and land use impacts is introduced which could have adverse effects to cultural resources. Implementation of Mitigation 3.3.18 to reduce land use and visual resources impacts from the inboard pump stations at the KF1, KF2 and BF1 sites could include constructing the pump station outboard at grade instead of inboard on the pond embankment. Construction of an approximately 45 ft by 47 ft outboard pump station at any of these three sites would result in ground disturbance of an additional 0.5 acre of land at each site. Implementation of Mitigation Measure 3.3.17, including cultural resources monitoring during pump station construction at the KF1 and KF2 sites, would minimize impacts from outboard pump station construction but would not reduce them to less than significant.

Impact: **13.5. Will the SSP directly or indirectly destroy a unique paleontological resource or site?**

Analysis: *Storage component - Significant: KF1, KF2, BF1, BF2 and AF*

No paleontological resources were identified at the KF1 site through archival study. The KF1 site is underlain, in part, by Pleistocene-aged alluvium, which has yielded fauna of the Rancholabrean land mammal age in other locations. For this reason, the KF1 site has a high sensitivity for unique paleontological resources or sites.

Construction activities have the potential to result in direct impacts to unique paleontological resources or sites. Such impacts would be significant.

Pump Station component – Significant: KF1, KF2, BF1, BF2 and AF

No paleontological resources were identified at the KF1 site through archival study. The KF1 site is underlain, in part, by Pleistocene-aged alluvium, which has yielded fauna of the Rancholabrean land mammal age in other locations. For this reason, the KF1 site has a high sensitivity for unique paleontological resources or sites.

Construction activities have the potential to result in direct impacts to unique paleontological resources or sites. Such impacts would be significant.

Mitigation: **3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources**

After

Mitigation: *Storage component – Less than Significant: KF1, KF2, BF1, BF2, and AF*
Pump Station component – Less than Significant: KF1, KF2, BF1, BF2, and AF

Implementation of the mitigation measure identified above would consist of: (1) temporarily halting construction in the vicinity of fossils encountered during construction; (2) contacting a qualified paleontologist to evaluate the significance of the finds; and (3) conducting paleontological analysis, documentation, and recovery of significant finds. Mitigation would offset the loss of scientifically valuable information.

The implementation of this mitigation measure would reduce impacts to unique paleontological resources or sites to a less-than-significant level.

No Project Alternative

Impact: 13.1 through 13.5. Will the No Project Alternative impact cultural resources based on evaluation criteria 1 - 5?

Analysis: *No Impact*

Under this alternative, No Project construction would occur. Therefore, no impacts to unique paleontological resources or sites would occur.

Mitigation: No mitigation is needed.

CUMULATIVE IMPACTS

The implementation of the SSP could involve temporary and permanent impacts to cultural and paleontological resources. However, the mitigation measures recommended to avoid or minimize such impacts have been developed to achieve the desired future condition for such resources. The mitigation measures would feasibly avoid, minimize, or compensate for impacts to cultural resources, and would, in some cases, reduce potentially significant impacts to a less-than-significant level.

General Plans of local jurisdictions include mitigation measures to ensure protection of historic and cultural resources and the EIRs on those plans have concluded that cultural resources impacts are less than significant. Those same policies would apply to individual development projects. However, it is possible that there may be some loss of recorded and unrecorded resources associated with cumulative projects.

Impact: 13.1C and 13.2C. Will the SSP plus cumulative projects cause a substantial adverse change in the significance of a historical or unique archaeological resource or have an adverse effect on any historic property that is included in, or eligible for inclusion in, the National Register of Historic Places?

Analysis: *Less than Significant*

Prehistoric and historical cultural resources are known to exist in the region that contains the project facility locations. Historic rural landscapes may also be present in the vicinity of the alternative sites. Significant impacts to recorded and unrecorded resources could result from ground disturbance. Although there are cumulative projects that would increase the impacts identified in the Cultural Resources section, SSP impacts on recorded and unrecorded cultural resources would be avoided or mitigated by implementing actions outlined in Mitigation Measure 3.3.17. Therefore, the SSP would not contribute to any substantial adverse changes or effects on cultural resources.

Mitigation: No mitigation is needed.

Impact: 13.3C and 13.4C. Will the SSP plus cumulative projects disturb any human remains or any associated grave goods or items of cultural patrimony?

Analysis: *Significant*

There is potential for unrecorded, buried archaeological deposits to be present at the SSP sites. Such deposits could contain human remains, associated grave goods, and/or items of cultural patrimony. If deposits bearing such remains and materials exist, then their disturbance during construction activities may result in a significant impact.

The implementation of Mitigation Measure 3.3.17 would minimize impacts to human remains, associated grave goods, and/or items of cultural patrimony.

However, this measure cannot ensure that such impacts would be reduced to a less-than-significant level. The nature of the remains and the values and beliefs of the descendant community may be such that no amount of scientific study or respectful treatment would reduce the impact to a less-than-significant level. Cumulative projects may impact other archaeological deposits at other locations throughout Sonoma County. Any impacts resulting from the SSP could contribute to potential cumulative impacts.

Mitigation: No additional feasible mitigation has been identified.

After

Mitigation: *Significant*

All feasible mitigation efforts that have been identified have been made applicable to the direct Project impacts, and no further mitigation is available for cumulative impacts. Impacts, therefore, are significant and unavoidable.

Impact: 13.5C. Will the SSP plus cumulative projects impact paleontological resources?

Analysis: *Less than Significant*

The potential for vertebrate fossils exists throughout much of the project facility locations. However, impacts to unique paleontological resources and sites have been listed as significant, and are fully mitigated. Even if vertebrate fossils were uncovered by cumulative projects, no further mitigation would be required of the SSP.

Mitigation: No mitigation is needed.

SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

TABLE 4.13-4

Summary of Significant Impacts and Mitigation Measures – Cultural Resources

Impact	Level of Significance	Mitigation Measure
KF1		
13.1 and 13.2 The Storage component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1 and 13.2 The Pump Station component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3 and 13.4 The Storage component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3 and 13.4 The Pump Station component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Storage component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Pump Station component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1C and 13.2C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3C and 13.4C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5C. The SSP plus cumulative projects could impact paleontological resources.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
KF2		
13.1 and 13.2 The Storage component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1 and 13.2 The Pump Station component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3 and 13.4 The Storage component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources

TABLE 4.13-4
Summary of Significant Impacts and Mitigation Measures – Cultural Resources

Impact	Level of Significance	Mitigation Measure
13.3 and 13.4 The Pump Station component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The storage component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Pump Station component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1C and 13.2C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3C and 13.4C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5C. The SSP plus cumulative projects could impact paleontological resources.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
BF1		
13.1 and 13.2 The Storage component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1 and 13.2 The Pump Station component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3 and 13.4 The Storage component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3 and 13.4 The Pump Station component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Storage component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Pump Station component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1C and 13.2C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3C and 13.4C. The SSP plus	●	3.3.17 Identification, Evaluation, and

TABLE 4.13-4
Summary of Significant Impacts and Mitigation Measures – Cultural Resources

Impact	Level of Significance	Mitigation Measure
cumulative projects could impact cultural resources based on evaluation criteria 3 and 4.		Avoidance of Cultural Resources
13.5C. The SSP plus cumulative projects could impact paleontological resources.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
BF2		
13.1 and 13.2 The Storage component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1 and 13.2 The Pump Station component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3 and 13.4 The Storage component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3 and 13.4 The Pump Station component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Storage component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Pump Station component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1C and 13.2C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3C and 13.4C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5C. The SSP plus cumulative projects could impact paleontological resources.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
AF		
13.1 and 13.2 The Storage component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1 and 13.2 The Pump Station component may impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources

TABLE 4.13-4
Summary of Significant Impacts and Mitigation Measures – Cultural Resources

Impact	Level of Significance	Mitigation Measure
13.3 and 13.4 The Storage component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3 and 13.4 The Pump Station component may impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Storage component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5 The Pump Station component may impact paleontological resources based on evaluation criteria 5.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.1C and 13.2C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 1 and 2.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.3C and 13.4C. The SSP plus cumulative projects could impact cultural resources based on evaluation criteria 3 and 4.	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources
13.5C. The SSP plus cumulative projects could impact paleontological resources.	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural Resources

Notes: Level of Significance:

- : Significant impact before and after mitigation
- ⊙: Significant impact before mitigation; less than significant impact after mitigation
- == No impact

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