

VERNAL POOL MITIGATION AND MONITORING PLAN

FOR THE

FIDDYMENT 44 PROJECT

AT THE

YANKEE SLOUGH PRESERVE

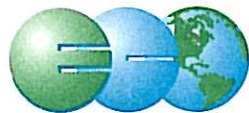
(PLACER COUNTY, CALIFORNIA)

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Prepared for:

Conservation Resources



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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Attachment B – Department of the Army Permit (200400213)
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Attachment D – Wetland Delineation Verification
Attachment E – Cultural Resource Identification & Effects

1.0 SUMMARY

This Off-site Vernal Pool Mitigation and Monitoring Plan has been prepared for the Fiddymment 44 project. This plan was prepared to:

- fulfill the requirement of the Biological Opinion issued for the Fiddymment 44 Project by the U.S. Fish and Wildlife Service (Service) (Service File #1-1-05-F-0037) (Attachment A); and
- comply with the U.S. Army Corps of Engineers (Corps) Individual Permit (Regulatory Branch Number 200400213) for the Fiddymment 44 project, requiring mitigation at the Yankee Slough Preserve (Attachment B).

The Fiddymment 44 project is located in the City of Roseville, Placer County, California. The project will require filling and grading of approximately 1.582 acres of jurisdictional Waters of the U.S. The project proponent proposes to mitigate for impacts to wetlands by preserving a portion of the project site, by purchasing mitigation credits from an agency-approved off-site entity, and by creating/restoring wetlands at the Yankee Slough Preserve (YSP). This off-Site Vernal Pool Mitigation and Monitoring Plan has been prepared to detail the mitigation for 1.036 acres of Waters of the U.S./fairy shrimp habitat impact. The 1.036 acres of Waters of the U.S./fairy shrimp habitat includes naturally occurring wetlands (0.842), seasonal wetland swales (0.142), and drainage ditch (0.052). The off-site mitigation for this habitat will consist of the creation/restoration of approximately 1.347 acres (1.036 x 1.3 (to account for temporal loss)) of vernal pool habitat, which will take place at the Yankee Slough Preserve (YSP) located in Placer County, California. The 1.347 acres of creation/restoration will take place over approximately 22 acres, resulting in a final pool density of 6%. The restoration at YSP will be achieved by using the latest technology and design techniques along with a program of on-going monitoring and adaptive management. The following plan describes the methods by which this project will be accomplished and defines how the success of the creation/restoration will be monitored and judged.

2.0 RESPONSIBLE PARTIES

2.1 Applicant

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3.0 PROJECT REQUIRING MITIGATION

3.1 Location of Project

The proposed Fiddymment 44 project is located in the northern portion of the City of Roseville, in western Placer County, California, and occupies approximately 44-acres. It is west of State Highway 65, north of Blue Oaks Boulevard, east of a shared access road, and south of Pleasant Grove creek. The property is bounded on the north side by an un-named tributary of Pleasant Grove Creek. The site was originally part of the North Roseville Specific Plan area, but the plan has since been altered and no longer includes the Fiddymment 44 site. The other structures in the area are used for industrial purposes; the site lies adjacent to Hewlett-Packard, the Roseville Technology Park, and another industrial park (Figure 1 – *Project and Mitigation Sites and Vicinity Map*). The site corresponds to Section 16, Township 11 N, Range 6 E, of the "Roseville, California 7.5 minute quadrangle (U.S. Department of the Interior, Geological Survey 1992).

3.2 Brief Summary of Overall Project

The 44-acre proposed project area is planned to accommodate 148 one- and two-story single-family residential units, each on lots approximately 45' wide and 110' deep. In the northeast portion of the property, the project proposes that part of the existing stock-pond be preserved and enhanced to provide habitat and recreational area. The stock pond was drained in the summer of 2003 and has since been reverting to upland grasses. The stock pond was built by the Fiddymment family in 1952 and was sustained through the pumping of well water. The un-named tributary of Pleasant Grove Creek (perennial), occupying 0.181 acres along the northern perimeter of the property is proposed for preservation.

The project will require filling and grading of approximately 1.582 acres of jurisdictional Waters of the U.S. The project proponent proposes to mitigate for impacts to wetlands by preserving a portion of the project site, by purchasing mitigation credits from an agency-approved off-site entity, and by creating/restoring wetlands at the YSP.

3.3 Jurisdictional Areas Affected by Project

The following table outlines the direct and indirect impacts anticipated as part of the Fiddymment 44 project. For a description of each of these wetland types occurring on the site, please refer to Section 3.3.3 (Figure 2 – *Project Site Wetland Delineation*).

Table 1. Estimated Impacts and Proposed Mitigation Acreage

Waters of the U.S	Acreage	Impact	Mitigation
<u>Wetlands</u>			
Seasonal Wetland			
-Naturally Occurring Wetlands	0.842	0.842	1.684
			0.842
- Stock Pond Wetlands	0.218	0.218	0.218
Seasonal Swale			0.300
	0.364	0.157	0.157
Drainage Ditch	<u>0.052</u>	<u>0.052</u>	<u>0.052</u>
Subtotal	1.476	1.269	3.253
<u>Other Waters</u>			
Ephemeral Drainage	0.045	0	0
Perennial Drainage	0.181	0	0
Ephemeral Pond	<u>0.313</u>	<u>0.313</u>	<u>0.313</u>
Subtotal	0.539	0	0
Total Waters	2.015	1.582	3.566

This off-Site Vernal Pool Mitigation and Monitoring Plan has been prepared to detail the mitigation for impacts to 1.036 acres of Waters of the U.S./fairy shrimp habitat. The 1.036 acres of fairy shrimp habitat includes naturally occurring wetlands (0.842), seasonal wetland swales 4-12 (0.142), and drainage ditch (0.052). A total of 1.347 acres (1.036 x 1.3 (to account for temporal loss)) of vernal pool habitat will be created/restored at the YSP.

3.3.1 Hydrology and Topography

Due to the rolling topography of the Fiddyment 44 site, overland flows of rainwater accumulate within the seasonal wetland and seasonal wetland swale features. During the wet season, water levels increase and eventually spill into the on-site perennial drainage and other larger drainages off-site. The perennial drainage leads to Pleasant Grove Creek, which flows westward into the Natomas East Main Drainage Canal. The Canal, in turn, flows into the Sacramento River.

3.3.2 Geology and Soils

The site is comprised of flat to gently rolling terrain, and is situated at an elevation of approximately 115 feet above mean sea level. According to the *Soil Survey of Placer County Western Part, California* (U.S. Department of Agriculture, Soil conservation Service 1980), three soil units have been mapped for the Project site. These type are: (104) Alamo-Fiddyment complex, 0-5% slopes, (141) Cometa-Fiddyment complex, 1-5% slopes, and (162) Kilaga loam (Figure 3 – *Project Site NRCS Soil Types*). Based on the "Geologic Map of the Sacramento Quadrangle,

California" (Wagner et al 1981), the project site is primarily made up of Riverbank formation (Figure 4 – *Regional Geology Map*).

3.3.3 Vegetation and Wildlife Use

The following outlines vegetation and/or wildlife use of the jurisdictional areas on-site.

3.3.3.1 Seasonal Wetland/Seasonal Wetland Swale

A variety of plants and wildlife can be found within seasonal wetlands and drainage swale communities. The "drier" seasonal wetlands/drainage swales may be dominated by low-growing grasses and annual herbs including Italian ryegrass (*Lolium multiflorum*), Mediterranean barley (*Hordeum marinum*), and hyssop loosestrife (*Lythrum hyssopifolium*). The "wetter" seasonal wetlands/drainage swales are potentially dominated by species such as baltic rush (*Juncus balticus*), annual rabbit-foot grass (*Polypogon monspeliensis*), Bermuda grass (*Cynodon dactylon*), and creeping spikerush (*Eleocharis macrostachya*). When inundated, seasonal wetlands and drainage swales provide habitat for aquatic invertebrates and amphibians. For most of the remainder of the year, wildlife usage is similar to that of typical Central Valley non-native annual grassland habitat.

There are seasonal wetland swales located in the southern section of the Fiddymont 44 project site that accumulate runoff and sheet flow from the field and pass it north to the drainage ditch encircling the on-site stock pond. The vegetative community that occurs in these seasonal wetland swales consists primarily of non-native wetland generalist plants as well as native annual species. These include Carter's buttercup (*Ranunculus bonariensis*), ryegrass (*Lolium multiflorum*), and Mediterranean barley (*Hordeum marinum*).

Naturally occurring seasonal wetlands are present on the southern section of the project site. They consist of ephemerally wet areas where runoff has accumulated within low-lying areas. Many of these wetlands support a combination of vernal pool species and more generalized wetland species. Hydrophytic vegetation observed inhabiting the seasonal wetlands include coyote-thistle (*Eryngium vaseyi*), Sacramento mesamint (*Pogogyne zizyphoroides*), spikerush (*Eleocharis sp.*), Mediterranean barley (*Hordeum marinum*), and ryegrass (*Lolium multiflorum*).

Stock Pond Seasonal Wetlands are also present at the project site. Seasonal wetland areas contained within the abandoned stock pond were holding water when the wetland delineation was completed. According to weekly photo documentation, the ponding areas mapped within the stock pond remain naturally inundated for sufficient duration to be considered jurisdictional wetlands. The vegetation community of seasonal wetlands in the stock pond

area consists of curly dock (*Rumex crispus*), smartweed (*Polygonum* spp.), and spikerush (*Eleocharis macrostachya*).

3.3.3.2 Drainages/Pond

Intermittent drainages are characterized by a defined bed and bank with a distinct high-water level. They convey flows during storm events but standing water generally does not persist except in areas where deeper pools form. These types of drainages are largely unvegetated due to the scouring effects of fast flowing water, but hydrophytic vegetation may be prevalent at the upper edges of the drainage. Creeks also have a defined bed and bank with a distinct high-water level, but may have water flowing in them year round (perennially) or intermittently.

At the project site, a short section of an ephemeral drainage branches off from the perennial drainage on the northern section of the site, under the dense oak canopy. It serves as an overflow drainage to the creek, carrying water only when the creek is at high flow. An unnamed tributary to Pleasant Grove Creek runs east to west along the northern border of the project site. It has a wetted width of about 8 feet, and high gradient banks that are eroded and sloughing in places. Scattered clumps of cattail, rush (*Juncus* spp.) and various emergent forbs and grasses inhabit sections of the drainage. Riparian vegetation along the creek is patchy, with several locations exposed.

According to aerial interpretation and site inspection, an ephemeral pond/stock pond is present in a low-lying area where rainwater naturally accumulates and surface flow from more elevated locations within the excavated pond area. Historically, the pond was maintained by pumping water from an underground aquifer. In 2004, the active pumping was terminated and the pond was allowed to drain. Species associated with the pond perimeter and shallow-water areas include Fremont cottonwood (*Populus fremontii*), willow (*Salix* spp.), tule (*Scirpus acutus*), and smartweed (*Polygonum* spp.).

3.3.4 Federally Threatened and Endangered Species

The following section details the special status species that have the potential to occur at the site.

3.3.4.1 Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp is an invertebrate listed as threatened. This species is protected under the federal Endangered Species Act (ESA) as administered by the U.S. Fish and Wildlife Service. The applicant chose to assume presence of this species. Surveys have not been conducted, therefore we do not know if the habitat is occupied.

4.0 MITIGATION DESIGN

4.1 Basis for Design

The creation/restoration taking place at the YSP is a component of the mitigation required by the Service for impacts to vernal pool fairy shrimp habitat as well as mitigation for impacts to Waters of the U.S. under the Clean Water Act, Section 404, Individual Permit, issued by the Corps. Based on the need to fulfill the mitigation under both of these federal permits, the Yankee Slough Preserve was selected for its vernal pool creation/restoration potential, its appropriate soils characteristics, the presence of vernal pool fairy shrimp at the site, its proximity to the project site, and its proximity to other regional conservation areas (the potential for these conservation areas to result in larger contiguous preserved areas).

4.1.1 Site Feasibility

Review of the historic conditions at YSP through aerial photographic interpretation (photo date: 1937; black and white) revealed that the hydrologic regime of the site was that of a grassland, vernal pool and swale community (Figure 5 – *Mitigation Site Historic Aerial, 1937*). Extensive dry agriculture land management, including periodic disking in portions of the site, and leveling in others, has resulted in the degradation of the microtopographic features in the landscape that are indicative of vernal pool/swale communities. The dragging effect created by annual disking and planting has, over time, brought soil from adjacent upland areas into wetland and non-wetland basins. Many of these historically degraded features are evident in portions of the landscape today.

4.1.2 Creation/Restoration Area Selection

In order to determine creation/restoration area at Yankee Slough, several steps were taken. During the past year, biologists visually assessed the hydrologic and vegetative characteristics of existing degraded site microtopography. Transects across the site were walked and areas appropriate for vernal pool creation/restoration were identified using a sub-meter accurate GPS unit. This data was combined with the 1-foot contour topography flown for the site. A review of the historic photograph depicting the Fiddymont 44 mitigation area did not provide meaningful data due to its resolution and quality.

In order to select the size of the created/restored pools, a comparison was made between the wetlands at the impact site (Fiddymont 44), and those vernal pools that will be created/restored. The goal was to ensure that pools being created/restored are similar in size and number to those being impacted. The following table shows the comparison in pool size and number.

Table 2. Impact Site and Mitigation Site Wetland Size

Size (acre)	Vernal Pool/Seasonal Wetland Impacted (Fiddymment-44 Site)	Vernal Pool Creation/Restoration (Yankee Slough)
0.000-0.050	17	7
0.051-0.100	2	5
0.101-0.200	3	7
0.210-0.300	0	0
0.310-0.400	0	0
0.410-0.500	0	0
0.510-1.000	0	0
1.010-1.100	0	0
Total Number of Wetlands	22	19

Therefore, the results of the field survey, topographic data, and Table 2 above were used to create the Vernal Pool Mitigation Plan (Attachment C). Existing wetlands identified in the wetland delineation will not be modified.

4.2 Characteristics of Design Reference Site

None of the wetlands on the impact site that have vernal pool characteristics will be preserved. Therefore, the reference site is YSP. There are a number of vernal pools that due to their location or other factors were less disturbed than the remaining portions of the site. These pools exhibit a range of vernal pool characteristics including the presence of vernal pool fairy shrimp in a subset of their number. Thirty of these pools will be used as reference pools for the mitigation (see Section 4.5).

4.3 Characteristics of Proposed Mitigation Site

The following sections outline the various characteristics of the YSP.

4.3.1 Location and Size of Mitigation Area

The YSP, named after the perennial watercourse that bisects the project, and is located east of State Highway 65, at Nader Road. The site corresponds to a portion of Sections 19 and 30 of Township 13 north, Range 6 east, of the Lincoln, California 7.5-quadrangle (U. S. Department of the Interior, Geological Survey, revised 1981) (see Figure 1). The location of YSP is within 15 miles of the northern border of the City of Roseville. The vernal pool creation/restoration area is approximately 22 acres of land that was previously dry-farmed, located in the southeastern portion of the YSP (See Figure 6 – *Fiddymment 44 Vernal Pool Creation/Restoration Area*). A total of 1.347 acres of vernal pools will be created/restored in this area.

4.3.2 Ownership Status

The property owner is Conservation Resources, LLC.

4.3.3 Jurisdictional Areas

A wetland delineation for the entire Yankee Slough property was conducted during November and December 2000 during which time the entire project site was walked and potentially jurisdictional waters of the U. S. were mapped (Figure 7 – *Mitigation Site Wetland Delineation*). The wetland delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Aerial photography (black and white, 1"=200" dated 15 May 1997) was used to assist with ground-truthing. The Corps verified this delineation on May 18, 2001 (Attachment D).

A total of 42.03 acres of potentially jurisdictional waters of the U.S. were mapped for the YSP. This acreage is comprised of seasonal wetland (29.59 acre), vernal pool (1.72 acres), drainage swale (3.56 acres), intermittent drainage (0.60 acre), intermittent creek (6.09 acres), and a stock pond (0.47 acre).

4.3.4 Hydrology and Topography

Most of the YSP receives its water from precipitation and overland flow following storm events, most of which occur during the period of November through April. Yankee Slough bisects the property and flows from the northeast corner of the site, trending southwest. According to the "Lincoln, California" 7.5-minute quadrangle, Yankee Slough and its unnamed tributaries have been mapped as waterways with seasonal flows. Based on field surveys and consultation with the previous owners, it appears that the flow in Yankee Slough is perennial. Other surface water drains from east to west through small drainage swales and intermittent drainages. There is one stock pond in the southern portion of the site.

4.3.5 Geology and Soils

The YSP's topography consists of gently rolling hills with portions leveled for crop production. The mean elevation is approximately 150 feet above mean sea level. Based on the "Geologic Map of the Sacramento Quadrangle, California" (Wagner et al 1981), the YSP is primarily made up of Turlock Lake formation (Figure 4 – *Regional Geology Map*).

According to the Natural Resource Conservation Service, the YSP contains four soil unit types. The soil unit supporting Yankee Slough is mapped as (193) Xerofluvents, occasionally flooded. The western edge of the subject property, outside of the Xerofluvents, the soil unit is mapped as (181) San Joaquin sandy loam, 1 to 5 % slopes. The majority of the property to both the north and south of Yankee Slough is mapped as (176) Redding and Corning gravelly loams, 2 to 9% slopes. The

northern section of the property also supports small amounts of (195) Xerofluvents, hardpan substratum (Figure 8 – *Mitigation Site NRCS Soil Types*).

4.3.6 Vegetation

The dominant upland habitat at the YSP is annual grassland. The annual grassland community is dominated by non-native plant species such as soft brome (*Bromus hordeaceus*), ryegrass (*Lolium multiflorum*), filaree (*Erodium botrys*), and medusahead grass (*Taeniatherum caput-medusae*). Intermixed within the grassland habitat are naturally-occurring seasonally inundated wetland drainages and basins. The existing vernal pools are isolated basins within the grassland habitat that are dominated by native annual plants which have become adapted to the unique hydrologic regime. These species include slender popcorn flower (*Plagiobothrys stipitatus*), Fremont's goldfields (*Lasthenia fremontii*), and downingia (*Downingia* sp.). Vernal pools on-site range from well-defined basins with distinct boundaries to those with less distinct boundaries that have been altered over time due to past farming activities.

The seasonal wetlands are also isolated within the grassland habitats. Seasonal wetlands differ from vernal pools in that seasonal wetlands are usually comprised of non-native wetland generalist species, such as perennial ryegrass (*Lolium perenne*) and Mediterranean barley (*Hordeum marinum*). On-site drainage swales have similar plant species composition to seasonal wetlands but differ in their hydrologic function. Swales carry seasonal run-off into larger drainages and then to Yankee Slough. The only trees at the YSP are associated with Yankee Slough. There is scattered willow scrub along the slough.

4.3.7 Wildlife Habitat and Use

The YSP supports a variety of wetland and upland habitats, which support plant and animal species typical of annual grasslands in western Placer County. General habitat surveys of the site have identified existing habitats suitable for supporting populations of listed vernal pool crustaceans, burrowing owl, and Swainson's hawk, the only determinate level survey for the site has been for federally-listed wetland plants. The survey was conducted on April 17, 2001 and no listed wetland plant species were found on the site. An assessment-level wet-season survey for a subset of the vernal pools at the site located several pools that support vernal pool fairy shrimp.

4.3.8 Historical, Present and Proposed Uses of Mitigation Area

Presently, the YSP is grazed. Within the last five years, the majority of the property was used for agricultural purposes. The remaining sections of the property were used for grazing. Historically, the entire area was farmed (See Figure 5). The proposed uses of the mitigation include habitat creation/restoration and cattle grazing.

4.3.9 Present and Proposed Uses of Adjacent Areas

Other than Highway 65, which runs along the majority of the western edge of the YSP, the areas immediately surrounding the site are cattle grazing pasture to the south, north and east, rural residential housing to the north, and a private hunt club to the west. There is also an aggregate mining operation taking place to the southeast of the project, but not immediately adjacent. There are several conservation areas in the vicinity (See Figure 9 - *Regional Conservation Areas*). There are no land use changes of which we are currently aware.

4.4 Habitats to be Created/Restored

Approximately 1.347 acres of vernal pool habitat will be created/restored at the site to provide mitigation for the Fiddymont 44 project. In addition, upland depressions (swales) will be created where needed/feasible in order to hydrologically connect the vernal pools (see Section 5.1.1).

4.4.1 Compensation Ratios

There will be 1.347 (1.036 x 1.3 (to account for temporal loss)) acres of vernal pool created/restored at the YSP for the Fiddymont 44 Project.

4.4.2 Long-term Goals

The long-term goal of the project is to restore the site's existing degraded grassland to the previously present vernal pool landscape. Implementation of this project is intended to benefit western Placer County by increasing the local abundance of endemic plant species associated with local vernal pool ecosystems and by contributing to the recovery and survival of the vernal pool invertebrates, listed under the federal Endangered Species Act.

4.4.3 Hydrology and Topography

The created/restored vernal pools have been designed to have hydrology typical of vernal pools in the Central Valley. The depth of the pools will range between 8 and 24 inches and the side slopes for the vernal pools will be no steeper than 7:1. Direct precipitation and overland flows resulting from precipitation will make up the source of water for the created/restored vernal pools.

4.4.4 Vegetation

Given that the created/restored pools have been designed to have hydrology typical of vernal pools in the Central Valley, the target plant species for the habitat is the typical suite of plants typically associated with this habitat type. The pools are expected to be dominated by species such as slender popcorn-flower (*Plagiobothrys stipitatus*), annual hairgrass (*Deschampsia danthonoides*), Downingia (*Downingia* species), and Vasey's coyote-thistle (*Eryngium vaseyi*).

4.4.5 Wildlife Habitat

Wildlife species which have been observed within the annual grassland habitat include western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), western kingbird (*Tyrannus verticalis*), black-tailed jackrabbit (*Lepus californicus*), western yellow-bellied racer (*Coluber constrictor*), gopher snake (*Pituophis catenifer*), and western fence lizard (*Sceloporus occidentalis*). The annual grassland also provides foraging habitat for raptors including northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), and American kestrel (*Falco sparverius*). As a result of the creation/restoration, there will be an increase in wetland habitat. This in turn, will result in an increase in wintering waterfowl and in migrant shorebird usage. The creation/restoration also has a goal of resulting in an increase in vernal pool fairy shrimp occurrences at the site.

4.5 Success Criteria and Monitoring

The purpose of success monitoring is to determine if the overall goal of vernal pool creation/restoration is being accomplished and to develop and implement corrective measures, if necessary. The following outlines the monitoring methodology to be implemented at the YSP, the criteria by which successful creation/restoration will be judged, and the duration of the monitoring period. The monitoring of the Fiddymont 44 created/restored vernal pools will occur simultaneously with the monitoring for other projects mitigating at the YSP. See Figure 10 - *Reference Pool Locations* for pools that will be used for reference data collection.

4.5.1 Success Criteria – Hydrology and Vegetation

The success of the creation/restoration efforts will be evaluated on the basis of the following criteria:

Table 3. Vernal Pool Success Criteria

Hydrology	Vegetation
1) The maximum depth of the constructed vernal pools will not be greater than 24 inches;	1) The aerial coverage of vegetation for 90% of the constructed vernal pools must be equal to or greater than 85%, and the aerial coverage of vegetation for the remaining 10% of the constructed vernal pools must be 50-84%;
2) 95% the vernal pool acreage must be saturated or inundated for a period sufficient to support appropriate vernal pool plant species.	2) At least 10 species shall be present;
	3) The percentage of the relative cover attributable to native vernal pool species shall be as follows: 80% of the pools shall attain greater than 70% relative native cover and the remaining 20% shall attain greater than 45% relative native cover.*
	4) All dominant species (those with a Braun-Blanquet cover scale of 3 or greater) will be "vernal pool indicators", "vernal pool associates", or vernal pool generalists that occur in the on-site reference pools.**

*ECORP Consulting, Inc. 2004. Preliminary Assessment of the Effects of Habitat and Landscape Variables on Vernal Pool Ecosystems. Final Technical Report prepared for Placer County, with assistance from Northfork Associates, April 12, 2004. 113pgs.

**"Vernal pool indicators" and "vernal pool associates" as defined in the California Department of Fish and Game's list: *Catalog of Plant Species Known to be Associated with Vernal Pools* (CDFG 1997) or as species present in other "reference pools." "Reference wetlands" will, at a minimum, consist of preserved pools within the YSP. If access is available, it is at the discretion of the biologist conducting the monitoring to include other natural vernal pools that occur on similar soil types in the immediate vicinity.

4.5.2 Success Criteria - Vernal Pool Occupancy

As this creation/restoration is intended to contribute to the recovery and future survival of listed vernal pool invertebrates, a success criteria for occupancy of the created/restored vernal pools by listed vernal pool invertebrates has been set: five percent of the total number of created/restored vernal pools will support listed vernal pool invertebrates over the ten year monitoring period. A pool must only be occupied once during the ten-year monitoring period to be considered occupied.

The calculation for this percentage will be as follows:

$$\% \text{ Occupancy} = \frac{\text{total \# of unique restored vernal pools supporting listed vernal pool invertebrates as of the current monitoring year}}{\text{total \# restored vernal pools}}$$

This percentage was based on a review of wet season survey data available to ECORP Consulting, Inc. for other large-scale vernal pool creation/restoration projects as well as wet season survey data from naturally existing pools. Several smaller creation/restoration projects were also reviewed. The different creation/restoration projects employed different types/methods of inoculum collection. Based on the success of those projects and their method of inoculum collection, a five percent occupancy rate is the mitigation goal. However, given the low quality of the Fiddymont 44 wetlands, ECORP feels it is unlikely that vernal pool fairy shrimp actually occur in these wetlands. Therefore, it is likely that supplemental vacuuming of inoculum from pools will need to occur as outlined in Section 8.2.

4.5.3 Monitoring Methods

The following outlines the methods for monitoring the created/restored vernal pools. Please reference Tables 4 and 5 for a monitoring schedule and number of pools to be monitored each year.

4.5.3.1 Hydrology

The purpose of hydrologic monitoring is to determine if the created/restored vernal pools are inundated for periods sufficient to support appropriate biota. In order to monitor the hydrology of the created/restored vernal pools, the maximum pool depth will be measured twice (during wet season surveys for vernal pool branchiopods) during period of maximum inundation, usually during December through February.

In addition, aerial photographs of the YSP site will be taken twice annually. Once during the peak period of inundation, typically during January or February and then again when the vernal pool plants are flowering, typically between April and June. Such aerial photographs give an excellent overview of the project and its micro-watershed. Aerial photographs can help identify areas that warrant additional attention during subsequent field visits. In particular, aerial photographs will be used to help identify: 1) areas that do not pond water, 2) areas that are ponding late in the season, and 3) off-site activities that may be affecting hydrologic function within the YSP. In addition, these photos can be used to estimate actual pool area for the constructed wetlands.

4.5.3.2 Vernal Pool Branchiopods

Created/restored and reference vernal pools will be sampled twice during each monitoring year, once during the early rainy season and once during the later part of the rainy season. Both created/restored vernal pools, and reference pools, will be sampled to provide data regarding the presence of vernal pool branchiopods. Surveys will be conducted in compliance with USFWS guidelines regarding sampling for potentially occurring threatened or endangered branchiopods (e.g., fairy shrimp and tadpole shrimp), although the two-week sampling protocol will not be followed. The vernal pools will be sampled by

pulling a "D-frame" aquatic dip-net (20 x 24 mesh/inch) through them. Three dip-net passes, each approximately 3 meters in length, will be made through each sampled pool. Sampled areas will include the deepest portion of the pool, the pool edge, and an area located between the pool center and pool edge. During each pass, the face of the dip-net will be undulated up and down, intermittently touching the pool bottom, in order to sample various strata within the water column of the wetland. Special-status vernal pool branchiopod crustaceans will be identified to generic/species level (when possible) in the field and released unharmed. Adult specimens may periodically be retained as voucher specimens. The percent occupancy will be calculated as described in 4.5.2.

4.5.3.3 Vegetation

Field surveys of monitored created/restored vernal pools and reference pools will be conducted each spring during peak flowering periods. Timing of floristic surveys will be adjusted according to yearly rainfall and site-specific conditions. Data collected from each monitored pool will include an estimate of percent aerial vegetative cover, a detailed species list, and an estimate of the absolute cover of each species. A cumulative vascular plant species list will then be generated for each wetland. Data collected from each monitored wetland will include an estimate of percent aerial vegetative cover, a cumulative species list, and an estimate of the relative cover of each species using the modified Braun-Blanquet cover estimate scale (0=<1%, 1=1-5%, 2=6-25%, 3=26-50%, 4=51-75%, and 5=76-100%). A cumulative plant species list will then be generated for each wetland.

4.5.3.4 Photo Documentation

As described under hydrology, aerial photos of the site will be taken twice annually. In addition, a minimum of 5 permanent photo points have been established at the site (Figure 11 – *Photo Point Locations*). Photos will be taken from these points to document both pre- and post-creation/restoration conditions. These points have been selected because they will be easy to locate both before and after creation/restoration activities. They are intended to provide a photographic history of both preserved and created/restored areas within the YSP. During the first year following creation/restoration, additional photo points may be established, if desired.

4.5.3.5 General Preserve Monitoring

During the detailed monitoring of the created/restored vernal pools, biologists will monitor non-native (pest) plant populations, grazing regime, and thatch accumulation. These topics will be covered in the annual monitoring report.

4.5.4 Monitoring Schedule

Monitoring will be conducted for ten years. The monitoring period will begin with the first rainy season following the creation/restoration activities. See Tables 4 and 5, for an outline of the monitoring schedule by monitoring year. Monitoring will be extended beyond the ten-year period only for those vernal pools that are not meeting success criteria.

Table 4. Fiddlyment 44 - Yankee Slough Vernal Pool Restoration Monitoring Schedule - Years 1-5

<u>RESTORED AND REFERENCE VERNAL POOLS</u>	<u>Hydrology</u>	<u>Invertebrates</u>	<u>Vegetation</u>	<u>Photo Documentation</u>	<u>General Preserve Monitoring</u>
First Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	None	Yes	Yes
Second Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	None	Yes	Yes
Third Year	Yes - 20*% of the Restored Pools and all of the Created/reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - All Created/restored Pools informally monitored by an experienced biologist/botanist. Pools that appear to be functioning poorly will be considered for remediation. Remediation, if implemented, will occur during Summer of the third year.	Yes	Yes - Meet with grazing contractor
Fourth Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 50% of the Created/restored Pools will be floristically monitored. All of the Reference Pools will be floristically monitored.	Yes	Yes - Meet with grazing contractor
Fifth Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - The second 50% of the Created/restored Pools will be floristically monitored. All of the Reference Pools will be floristically monitored.	Yes	Yes - Meet with grazing contractor

* The 20% of Restored Pools that are monitored for hydrology and listed vernal pool invertebrates will be the same in each individual year, however in the first through fifth years a different 20% will be chosen, such that in the fifth year all pools will have been monitored once.

Table 5. Fiddlyment 44 - Yankee Slough Vernal Pool Restoration Monitoring Schedule - Years 6-10

<u>RESTORED AND REFERENCE VERNAL POOLS</u>	<u>Hydrology</u>	<u>Invertebrates</u>	<u>Vegetation</u>	<u>Photo Documentation</u>	<u>General Preserve Monitoring</u>
Sixth Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	None	Yes	Yes - Meet with grazing contractor
Seventh Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	None	Yes	Yes - Meet with grazing contractor
Eighth Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - All Created/restored Pools that do not meet the hydrology and vegetation success criteria in the fifth year will be monitored. All Reference Pools will be monitored.	Yes	Yes - Meet with grazing contractor
Ninth Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - All Created/restored Pools that do not meet the hydrology and vegetation success criteria in the eighth year will be monitored. All Reference Pools will be monitored.	Yes	Yes - Meet with grazing contractor
Tenth Year	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - 20*% of the Created/restored Pools and all of the Reference Pools	Yes - All Created/restored Pools and Reference Pools will be monitored.	Yes	Yes - Meet with grazing contractor

* Monitoring for hydrology and listed vernal pool invertebrates will occur again, just as it occurred in years 1-5. For example, the same 20% that were monitored in the first year will be monitored in the sixth year and the same 20% that were monitored in the second year will be monitored in the seventh year, and so on. Thus, at the end of the tenth year each pool will have been monitored twice.

5.0 IMPLEMENTATION PLAN

5.1 Site Preparation

5.1.1 Grading Implementation

In general, vernal pools shall be restored to a variety of depths, ranging from 8 to 24 inches of water, and each pool shall have an undulating bottom to maximize microtopographic diversity. This will be accomplished through the use of necessary heavy equipment. In addition, during grading, upland depressions (swales) will be created between pools where needed/feasible to maintain hydrologic connectivity between pools. It is not expected that this will be required in too many locations because the creation/restoration is occurring in a landscape where existing depressions and upland topography is present. A 250-foot buffer has been implemented along the southern border of the Fiddymment 44 mitigation area extending to the border of the YSP. No buffer is proposed on the eastern border of the Fiddymment 44 mitigation area, as the site borders future open space area.

5.1.2 Soil Treatment and Disposal

The applicant chose to assume the presence of vernal pool fairy shrimp at the impact site (Fiddymment 44). From a biological standpoint, the impacted pools at the Fiddymment 44 site possess low functions and values. These pools represent poor examples of vernal pool habitat and are highly unlikely to contain fairy shrimp. Nevertheless, inoculum (seed bearing soil) will be collected from a subset of highest functioning pools at the impact site (Fiddymment 44 project site). The top 2 inches of seed bearing soil will be collected, transported to the YSP, and stockpiled. This inoculum will be distributed in the newly created/restored vernal pools.

5.1.3 Pest Plant Removal

No pest plant removal is expected to be needed prior to the creation/restoration effort. Please see Section 6.3 for post creation/restoration pest plant maintenance.

5.1.4 Cultural Resources

No cultural resources are known to exist at the creation/restoration site (Attachment E). It is recommended that should any previously unidentified prehistoric or historic archaeological resource be encountered during the course of project activities, all work in that area shall halt, and a qualified professional archaeologist shall be notified immediately so that the resource value may be assessed as soon as possible. Under such circumstances, a reasonable effort should be made to avoid, minimize or mitigate adverse effects to such properties.

All project personnel should be informed about the potential archaeological resources and procedures to follow if a discovery is made. The following is a brief

list of prehistoric and historic resources that could be discovered during project activities. Prehistoric resources that may be identified include, but are not limited to, concentrations of stone tools and flakes made from obsidian, chert, basalt, and other materials; milling remains such as bedrock mortars, portable mortars, pestles or manos, or dark stained soil from the remains of organic material from food processing. Historic resources that may be identified, but are not limited to, include house foundations, wells, privy's, machine or hand soldered cans, and colored bottle glass fragments. All of the resources both prehistoric and historic are considered significant until determined otherwise.

5.1.5 Construction Monitor

A biological monitor will be present, as needed, for construction activities, inoculum collection, and re-seeding of disturbed areas.

5.1.6 Implementation Schedule

Implementation will begin and will be completed in September 2005.

6.0 MAINTENANCE DURING MONITORING PERIOD

6.1 Maintenance Activities

In addition to the specific success monitoring schedule and activities outlined in this plan, general maintenance monitoring will occur annually during the habitat monitoring. The goal of these inspections will be to ensure the site is maintained in good condition. Inspections will be performed by qualified personnel who will assess potential maintenance issues such as altered hydrology, fencing integrity, invasion of exotic species, organic thatch accumulation, grazing impacts, erosion problems, and/or trash accumulation.

After the monitoring period has ended, the site will be maintained and monitored according to the *Operations and Management Plan for the Yankee Slough Preserve*, which has been prepared by ECORP Consulting, Inc. under separate cover.

6.2 Grazing

The property may be grazed starting in the third fall (i.e., two years) after creation/restoration has taken place, to provide for both fire control, weed abatement, and thatch management. This should be postponed if the vegetation in the created/restored vernal pools has not reached a moderate cover value, as grazing will reduce cover through trampling and feeding. Grazing will be managed for the benefit of native flora. Approximately, 30 cow-calf pairs are currently run on the overall property and extra feed is left at the end of the winter grazing season. Preliminary research presented by Barry (1996) at the "Conference of the Ecology, Conservation and Management of Vernal Pool Ecosystems" indicates the removal of livestock from vernal pool landscapes results in both the invasion of exotic annual species and the reduction in species diversity within and around vernal pools. The same grazing program is expected to be implemented after the creation/restoration takes place. Grazing within the YSP will begin roughly after November 1 and will continue until around May 1 of the following year. The monitoring biologists, in conjunction with the grazing contractor, may use discretion in determining when the appropriate time for removal of the herd is desirable. In general, removal time should coincide with the upland grasses turning brown and the reduction in the water available to the herd, since this is when the animals are most likely to directly effect the vernal pools. The appropriate removal time will vary annually according to site specific rainfall and weather conditions. The animals can be returned to the pasture later in the summer to graze on the remaining dry matter, since they will not be likely to concentrate in the pools once they dry out.

6.3 Pest Plant Species Control

A component of the post-creation/restoration maintenance and monitoring effort will be to assess the revegetation of the disturbed upland areas, with particular attention given to minimizing the spread of yellow star-thistle (*Centaurea solstitialis*). Currently, yellow star-thistle is present in small patches at the site, however, disturbed soil provides the ideal substrate for the species to spread. If the grading operation results in small

populations of star-thistle that can realistically be removed by hand, then hand removal will be used. Although use of herbicides is not desirable, if larger populations become established, the herbicides *Roundup* (or generic) and *Transline* (or generic) will be utilized to control the growth of star-thistle until hand removal is again practical. Each herbicide will not be used more than three years in a row. If other herbicides are proposed for use, Corps and Service approval will be obtained. Grazing will also be used after vegetation becomes established in the created/restored areas to minimize the invasion of star-thistle.

6.4 Maintenance Schedule

The general maintenance monitoring will occur annually during the habitat monitoring. Maintenance actions such as fence repairs, trash removal, erosion control measures, or changes in grazing practices will be addressed promptly by Conservation Resources.

6.5 Party Responsible for Maintenance During the Monitoring Period

Mr. Chris Vrame
President
Conservation Resources
3600 American River Drive., Suite 105
Sacramento, CA 95864
Phone: (916) 974-3355
Fax: (916) 974-3390

7.0 MONITORING REPORTS

7.1 As-Built Conditions

If any significant deviations from the approved mitigation plan occur during the creation/restoration implementation, an as-built report will be submitted to the Service and the Corps within 6 weeks of creation/restoration completion. This as-built will consist of a set of the wetland construction plans with the changes clearly marked in red ink. In addition, a "habitat as-built" will be submitted with the first year's monitoring report utilizing either GPS technology or aerial photography to indicate the created/restored acreage of vernal pools and the hydrologic functionality of the created/restored habitat.

7.2 Annual Reports

Monitoring reports will be prepared and submitted for each of the 10 monitoring years by December 31st of each monitoring year. The report will refer to the Corps regulatory branch number for the Fiddymont 44 project, which is 200400213 and the Service file number which is 1-1-05-F-0037. The reports will be sent to the attention of Chief, Sacramento Valley Office, Regulatory Branch, at the Corps and Branch Chief, Endangered Species Branch, Sacramento Field Office, at the Service. Monitoring reports shall include:

1. A map showing the YSP including wetland locations, location of various monitoring activities, and photo points;
2. Hydrology, vegetation, and photographic monitoring results as described above;
3. An assessment of the monitoring results against the established success criteria and a calculation of the percent occupancy of listed vernal pool invertebrates;
4. A description of the overall site condition and any management actions taken during that year; and
5. Any recommended management actions to be done within the YSP (if necessary, a contingency plan (as described below) will be prepared).

8.0 POTENTIAL CONTINGENCY MEASURES

8.1 Initiating Procedures

If monitoring indicates that a subset of the created/restored vernal pools are not moving toward meeting their hydrology or floristic success criteria, Conservation Resources shall prepare an analysis of the cause or causes of failure, and if deemed necessary by the Corps and the Service, propose remedial action for approval. If monitoring shows that the project is not progressing toward the five percent occupancy of created/restored vernal pools by listed vernal pool invertebrates, Conservation Resources will meet with the Service to determine if it is appropriate to implement the remediation options listed under 8.2. Conservation Resources monitoring obligations continue until the Corps and the Service give final project confirmation.

8.2 Remediation and Contingency Plan

In the event that a subset of the created/restored wetlands do not function and do not appear that they will meet established success criteria for hydrology or floristics, a remediation plan will be developed. The plan will identify those measures (e.g., re-grading or reseeding, etc.) appropriate to remediate the situation. If such remediation measures are implemented during the first five years of the ten-year monitoring period, no extension of the initial monitoring period will occur. If such remediation measures are implemented in years six through ten, then monitoring of the remediated pools will be extended, but only for the remediated areas until they meet their success criteria or some other action is taken to replace the non-functioning habitat.

In the event that remediation is needed to reach the five percent listed vernal pool invertebrate occupancy success criteria, the following methods have been approved by the Service. Prior to implementation of remediation efforts that involve the use of preserved vernal pools at the Yankee Slough site as donor pools for inoculum, the Service must be notified. Notification will be made thirty days prior to the initiation of work and will be sent to the Branch Chief of the Endangered Species Branch, Sacramento field office.

There are two sets of vernal pools that may act as donor pools if additional inoculum is needed to meet the five percent occupancy success criteria: created/restored vernal pools at the Yankee Slough site found during monitoring to support listed species, and preserved vernal pools at the Yankee Slough site found to support listed species.

Collection of inoculum in these pools will be achieved through mechanically/mowing vacuuming no more than seventy-five percent (75%) of each selected pool. The inoculum will only be collected in summer or fall when the pool and the surrounding uplands are completely dry. The inoculum will then be stored in a dry place until the first rains of fall. When the ground is damp, the inoculum will be spread evenly along the bottom of the pools selected to receive inoculum. Fall and winter rains will keep the inoculum damp until the pools become inundated so that the wind will not blow it away.

8.3 Contingency Funding Mechanism

A letter of credit will be provided by Conservation Resources as a contingency security measure.

9.0 COMPLETION OF MITIGATION RESPONSIBILITIES

9.1 Notification

Conservation Resources will notify the Corps and the Service when submitting the final monitoring report that it is their understanding that the final success criteria have been met.

9.2 Agency Confirmation

Following receipt of the report, the Service and the Corps may require a site visit to confirm the completion of the mitigation monitoring. At the end of the ten-year monitoring period for the created/restored vernal pools, monitoring will cease if the project is found by the Service and the Corps to be in substantial compliance with established success criteria and occupancy percentage for listed vernal pool invertebrates. Once the initial success monitoring period is complete, all of the provisions of the *Operations and Management Plan for the Yankee Slough Preserve* will be implemented for long-term management of the site.

10.0 REFERENCES

- Barry, S. 1996. Managing the Sacramento Valley Vernal Pool Landscape to Sustain the Native Flora. Pp. 236-240. In Ecology, conservation, and management of vernal pool ecosystems – proceedings from a 1996 conference. C.W. Witham, E.T. Baulder, D. Belk, W.R. Ferren Jr., and R. Ornduff (editors). California Native Plant Society, Sacramento, CA.
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- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U. S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi. 100 pp. + app.
- U. S. Department of the Interior, Geological Survey. 1992. *Roseville, California* Quadrangle, Placer County. 7.5 Minute Series Topographic. U. S. Geological Survey. Denver, Colorado.
- U. S. Department of the Interior, Geological Survey. 1992. Lincoln, California 7.5-minute Quadrangle. Geological Survey. Denver, Colorado.
- United States Fish and Wildlife Service. 28 February 2003 (date accessed). http://sacramento.fws.gov/es/animal_spp_acct/vp_fairy.htm.
- Wagner *et. al.* 1981. Geologic Map of California. Sacramento Sheet. Department of Conservation. Map.

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- Figure 1 – Project and Mitigation Sites and Vicinity Map
- Figure 2 – Project Site Wetland Delineation
- Figure 3 – Regional Geology Map
- Figure 4 – Project Site NRCS Soil Types
- Figure 5 – Mitigation Site Historic Aerial - 1937
- Figure 6 – Fiddymont 44 Vernal Pool Creation/Restoration Area
- Figure 7 – Mitigation Site Wetland Delineation
- Figure 8 – Mitigation Site NRCS Soil Types
- Figure 9 – Regional Conservation Areas
- Figure 10 – Reference Pool Locations
- Figure 11 – Photo Point Locations

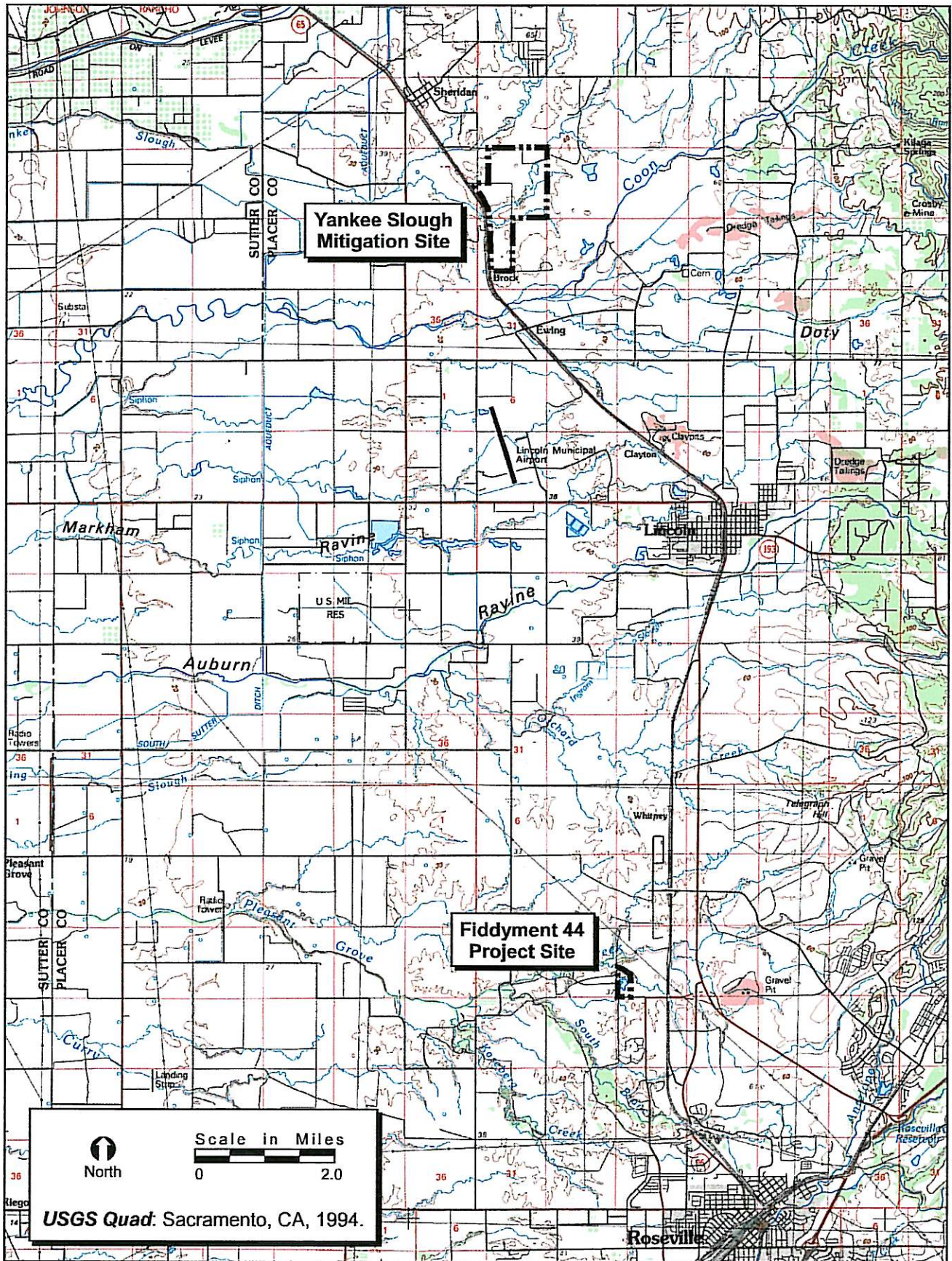


FIGURE 1. Project and Mitigation Sites and Vicinity Map

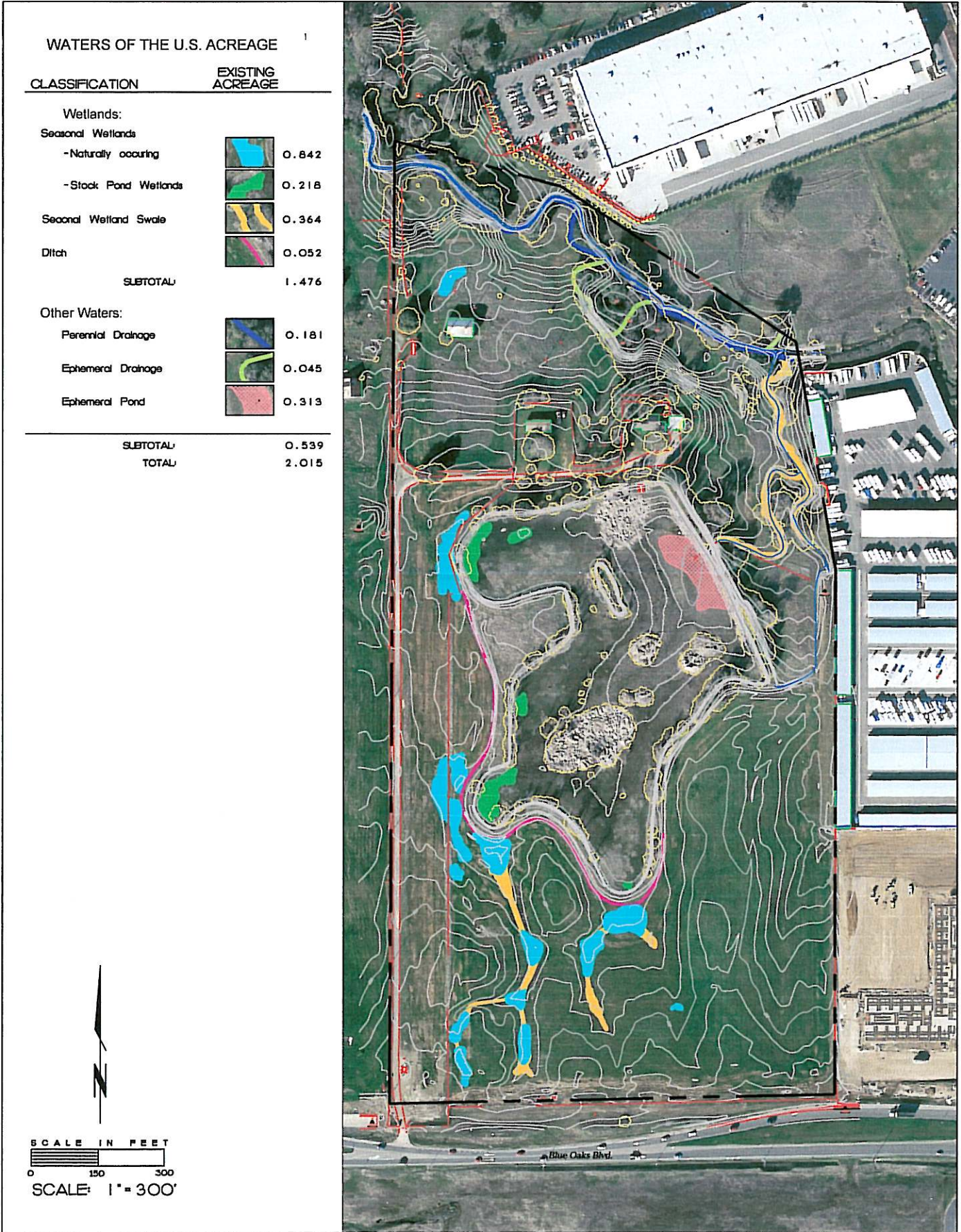


FIGURE 2. Project Site Wetland Delineation

FILENAME: -DWGS\2003-101\fid44-wd2.dwg 07/01/04

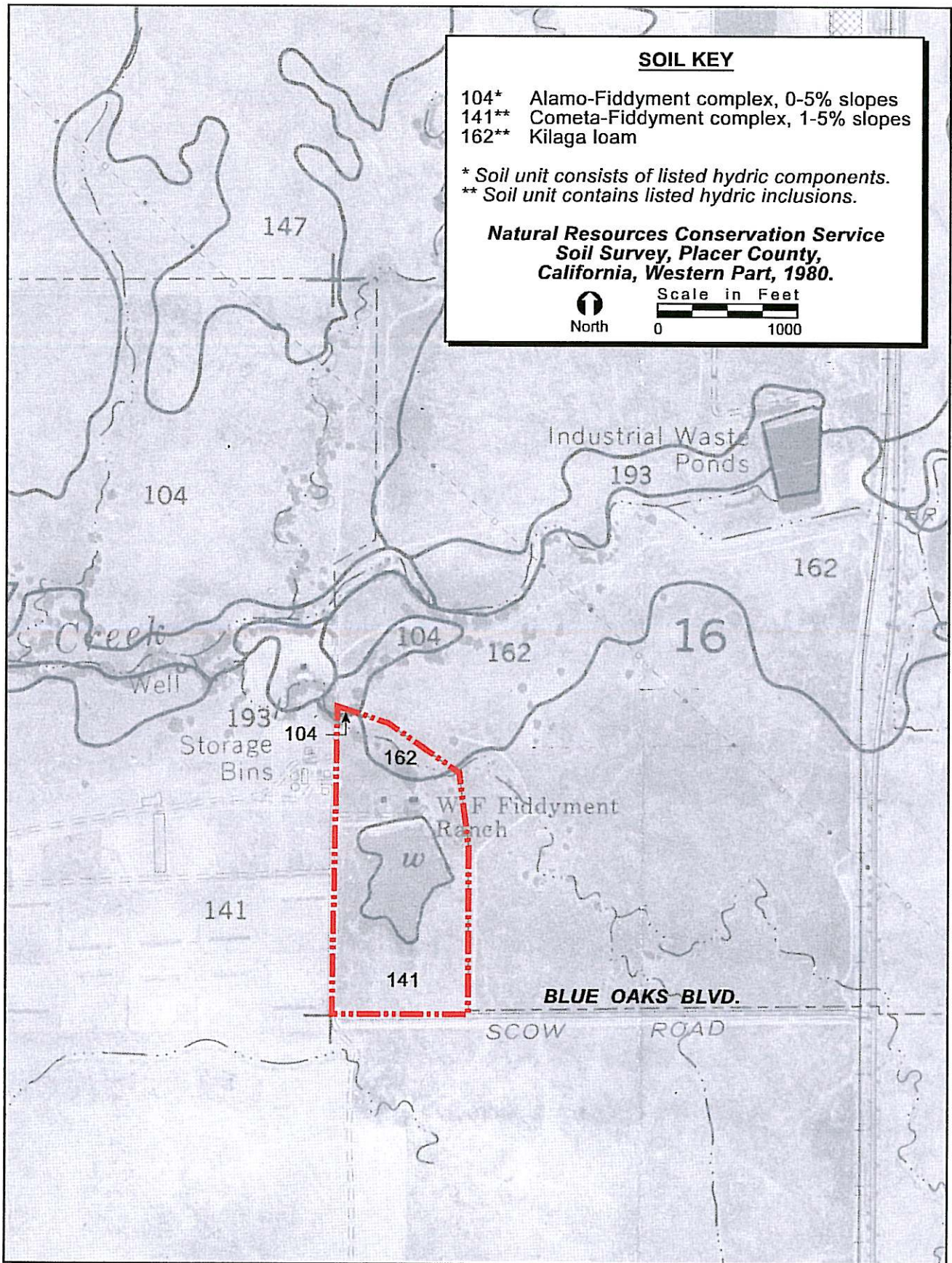


FIGURE 3. Project Site NRCS Soil Types

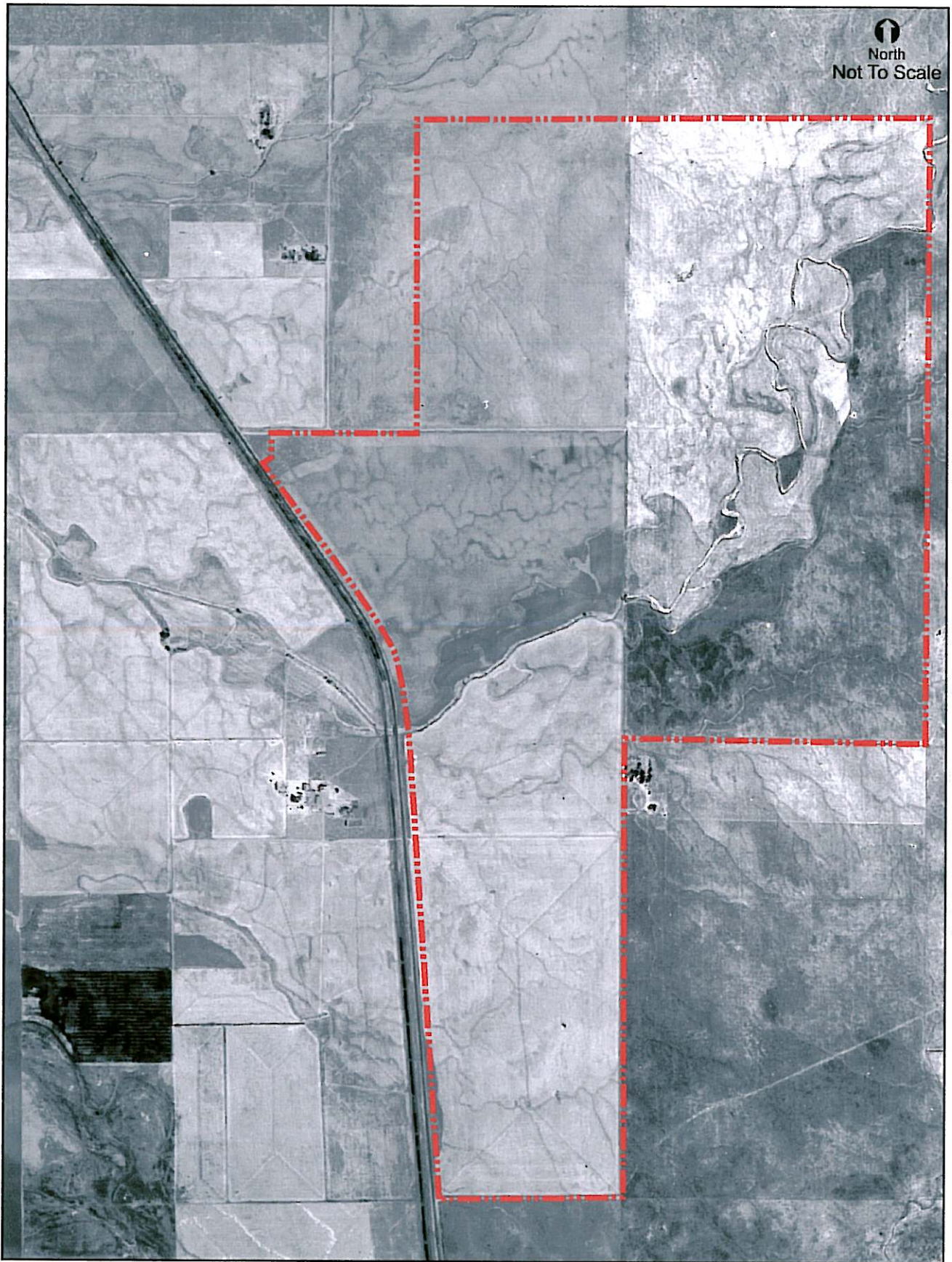
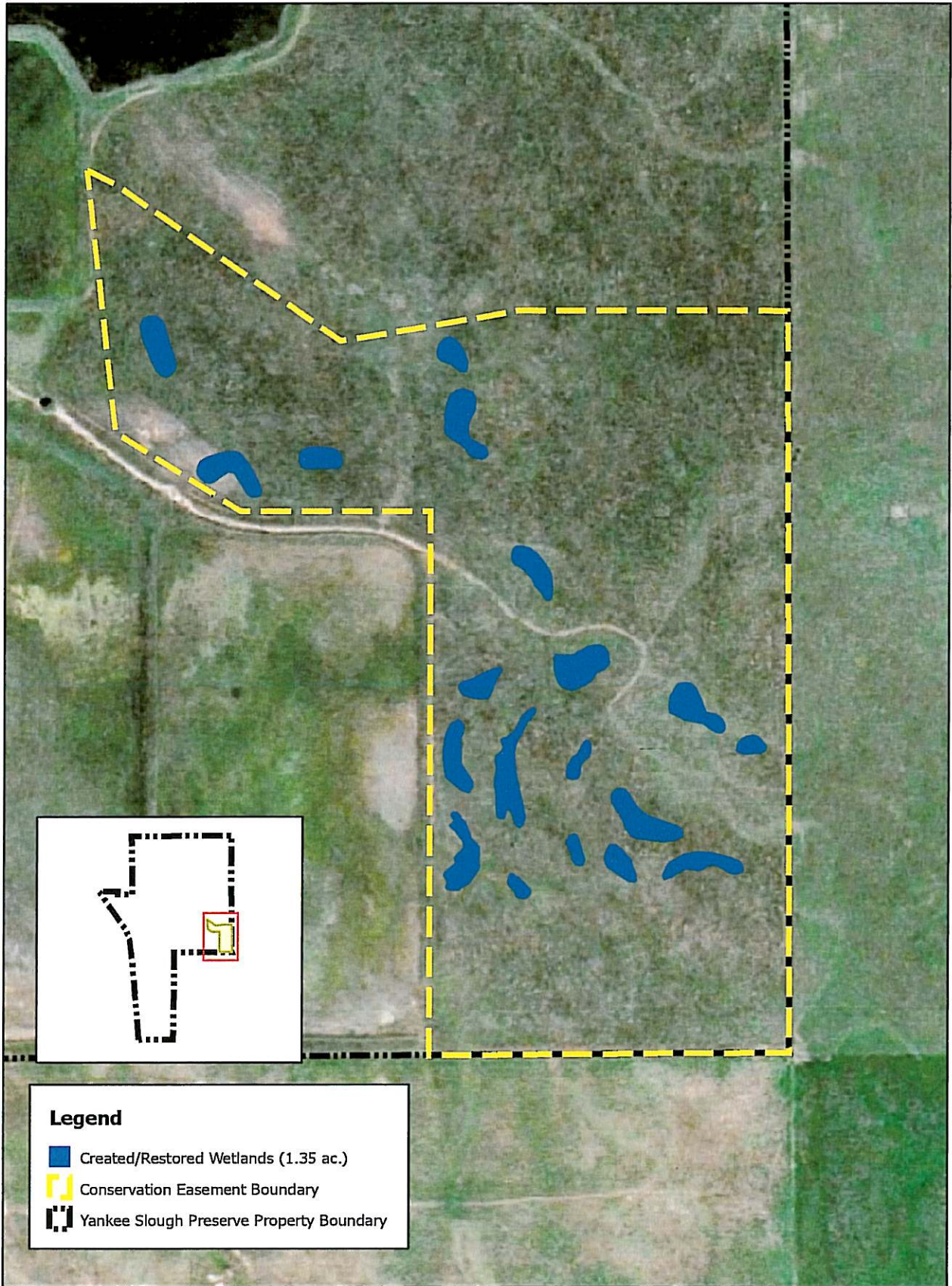


FIGURE 5. Mitigation Site Historic Aerial - 1937

2004-045 Fiddyment 44 Meritage



File Location: J:\GIS_Maps\2004-045_Fiddymment_44_Meritage\Vernal_Pool_Restoration_Area.mxd
 Date: August 30, 2005

1 inch equals 200 feet



FIGURE 6. Fiddymment 44 Vernal Pool Creation/Restoration Area

2004-045 Fiddymment-44

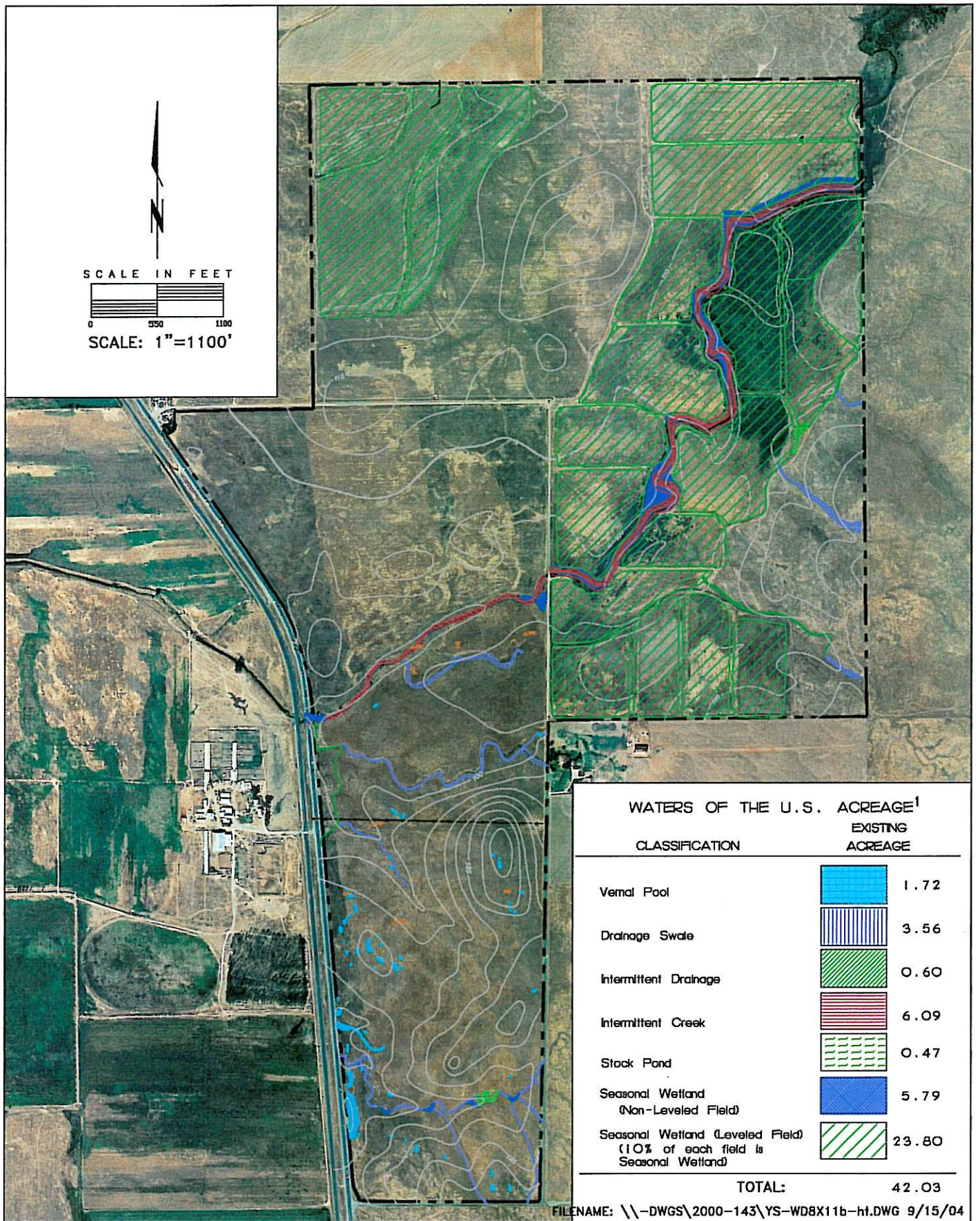


FIGURE 7. Mitigation Site Wetland Delineation

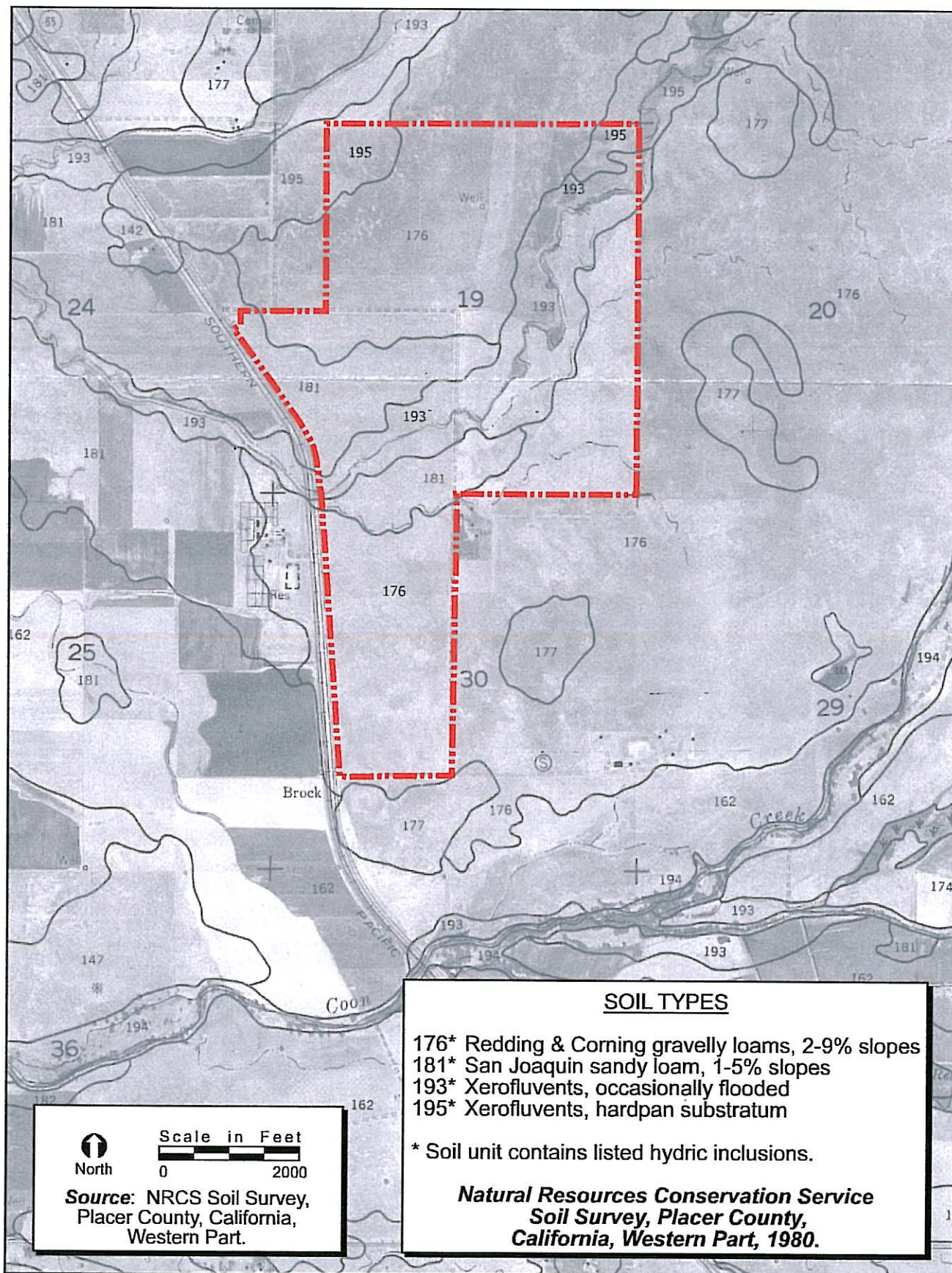


FIGURE 8. Mitigation Site NRCS Soil Types

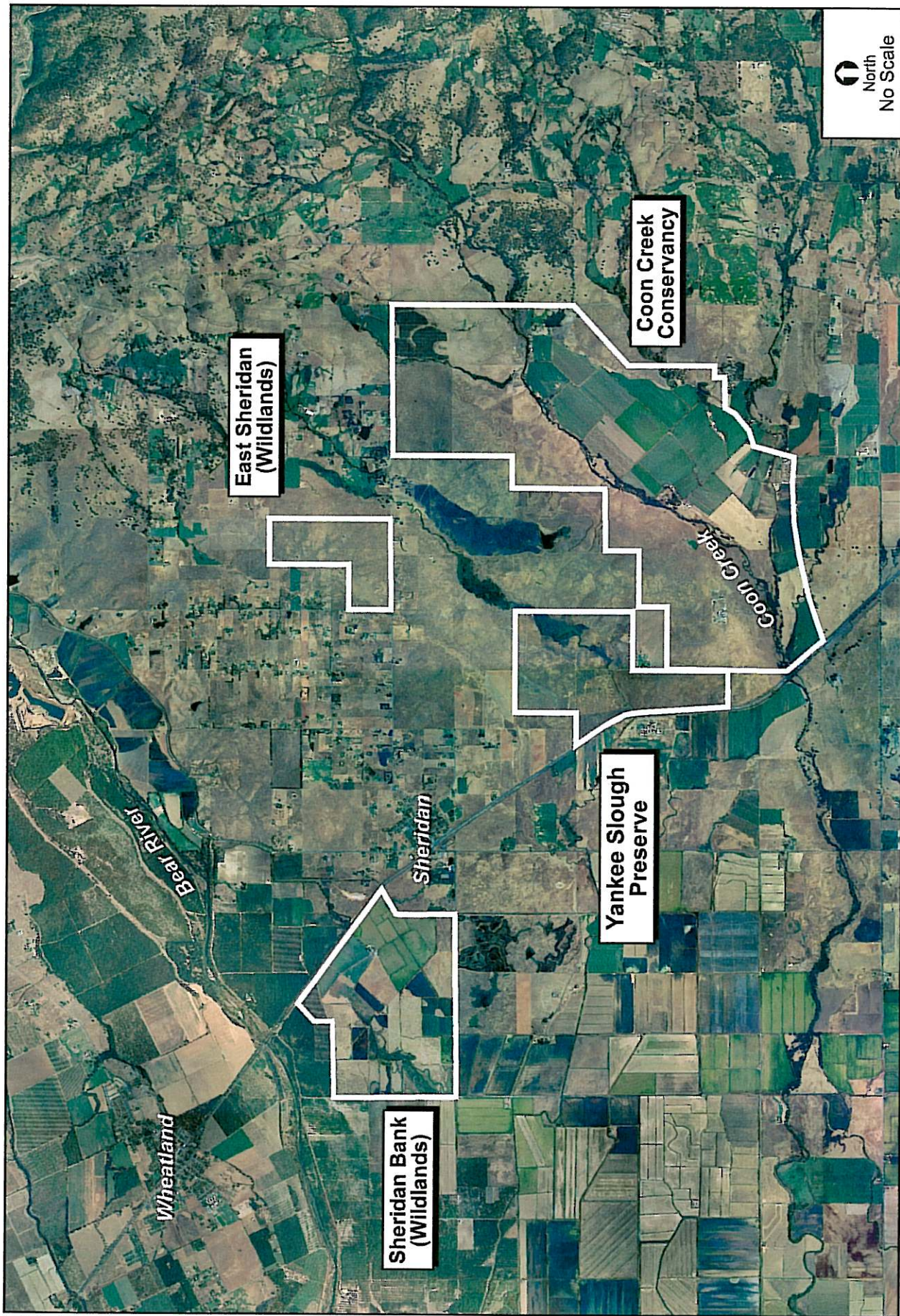


FIGURE 9. Regional Conservation Areas

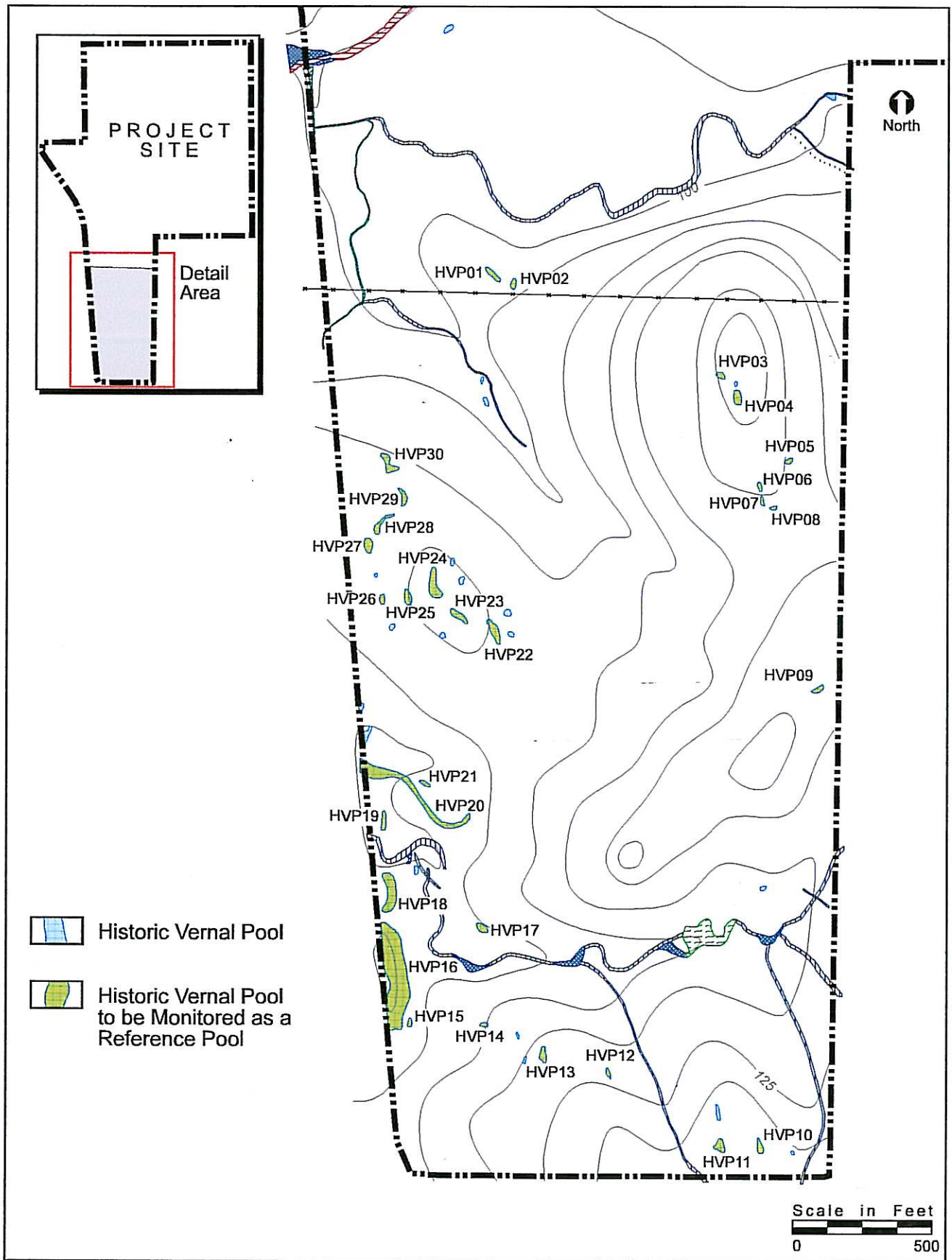


FIGURE 10. Reference Pool Locations

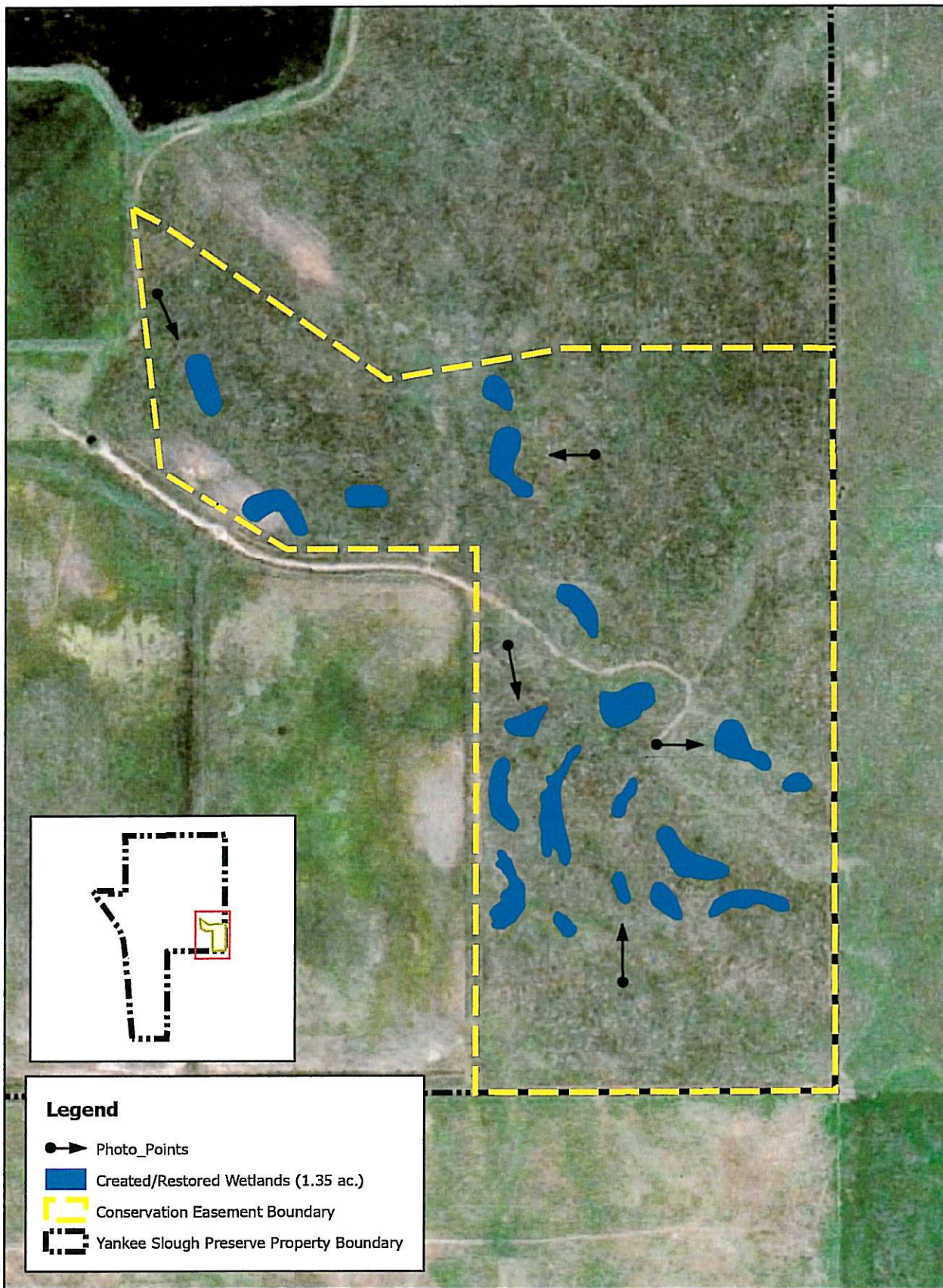


FIGURE 11. Photo Point Locations

LIST OF ATTACHMENTS

Attachment A – Biological Opinion (1-1-05-F-0037)

Attachment B – Department of the Army Permit (200400213)

Attachment C – Vernal Pool Restoration Plan Set

Attachment D – Wetland Delineation Verification

Attachment E – Cultural Resources Identification & Evaluation

ATTACHMENT A

Biological Opinion (1-1-05-F-0037)



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:
1-1-05-F-0037

JAN 21 2005

Mr. Thomas J. Cavanaugh
Chief, Sacramento Valley Office
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Subject: Review of the Fiddymment 44 Project (Corps # 200400213), Placer County, California, for Inclusion with the Vernal Pool Crustaceans Programmatic Consultation (Service file number 1-1-96-F-0001)

Dear Mr. Cavanaugh:

This letter responds to your December 7, 2004, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Fiddymment Project (proposed project). Although your U.S. Army Corps of Engineers (Corps) request did not include a request to append this project to the Service's *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, California* (Programmatic Consultation), the Service has decided that this proposed project can be appended to the Programmatic Consultation. The Service has reviewed the biological information submitted by your office describing the effects of the proposed project on the endangered vernal pool tadpole shrimp (*Lepidurus packardii*) and the threatened vernal pool fairy shrimp (*Branchinecta lynchi*). This response is in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

The findings and recommendations in this formal consultation are based on: (1) the July 7, 2004, *Section 404 Individual Permit Application for Fiddymment 44 (Placer County, California), Regulatory Branch #200400213*, prepared by ECORP Consulting, Inc.; (2) your July 7, 2004, letter requesting formal consultation on the proposed project; (3) a January 14, 2005, site visit conducted by Ken Fuller, Kelly Fitzgerald, and Rick Kuyper of the Service and Pete Balfour and Craig Hiatt of ECORP Consulting, Inc.; (4) the January 17, 2005, electronic mail correspondence from Pete Balfour of ECORP Consulting, Inc., to Rick Kuyper of the Service regarding a revised acreage amount of potential vernal pool habitat; and (5) information in the Service files.

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IN AMERICA 

The proposed 44-acre project site is located in the northern portion of the City of Roseville, in western Placer County, west of State Highway 65, north of Blue Oaks Boulevard, east of a shared access road, and south of Pleasant Grove Creek. The proposed project site was originally part of the North Roseville Specific Plan area, but the plan has since been altered and no longer includes the Fiddymont 44 site. The proposed project involves the development of 148 single-family residential areas. There is approximately 1.036 acres of habitat for the federally-listed vernal pool crustaceans that would be directly affected through grading, installation of utilities, paving, and construction of residential structures and associated infrastructure. There are no indirect effects to federally-listed vernal pool crustacean habitat associated with the proposed project.

The Service has determined that it is appropriate to append the proposed project to the Programmatic Consultation. This letter is an agreement by the Service to append the Proposed Project to the Programmatic Consultation and represents the Service's biological opinion on the effects of the proposed action. Conservation measures for projects appended to the Programmatic Consultation involve the use of creation and preservation banks in combination with on-site conservation options where such options are appropriate.

The Service reevaluates the effectiveness of the Programmatic Consultation at least every six (6) months to ensure that continued implementation will not result in unacceptable effects to the listed species.

The conservation measures identified in the Programmatic Consultation includes the following.

1. **Preservation component.** For every acre of habitat directly or indirectly affected, at least two vernal pool credits will be dedicated within a Service-approved ecosystem preservation bank, or, based on Service evaluation of site-specific conservation values, three acres of vernal pool habitat may be preserved on the project site or another non-bank site as approved by the Service.
2. **Creation component.** For every acre of habitat directly affected, at least one vernal pool creation credit will be dedicated within a Service-approved habitat creation bank, or, based on Service evaluation of site-specific conservation values, two acres of vernal pool habitat will be created and monitored on the project site or another non-bank site as approved by the Service.

The proposed project will result in direct effects to 1.036 acres of habitat for the two federally-listed vernal pool crustaceans. The applicant has identified and agreed to purchase conservation credits at a Service-approved conservation bank or Service-approved fund. The applicant has agreed to purchase vernal pool preservation and creation credits prior to any site disturbance at a Service-approved conservation bank or fund account serving the proposed project site. Credits for both preservation and creation will be purchased prior to the fill of any vernal pool areas. The agreed upon conservation responsibilities of the applicant are as follows.

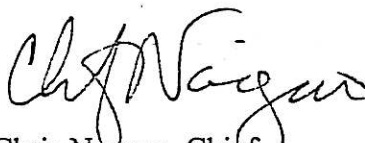
Mr. Thomas J. Cavanaugh

1. Prior to the start of construction, the applicant will purchase at least 2.072 vernal pool preservation credits to be dedicated within a Service-approved ecosystem vernal pool preservation bank or Service-approved fund account serving the proposed project area (1.036 acre X 2 = 2.072 acre).
2. Prior to the start of construction, the applicant will purchase at least 1.036 vernal pool creation credits within a Service-approved vernal pool creation bank or Service-approved fund account serving the proposed project area.

This concludes the Service's review of the proposed Fiddymet 44 Project outlined in your request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been maintained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding the proposed Fiddymet 44 Project, please contact Rick Kuyper or the Acting Sacramento Valley Branch Chief at (916) 414-6645.

Sincerely,



Chris Nagano, Chief
Endangered Species Division

cc:

- Kent Smith, California Department of Fish and Game, Rancho Cordova, California
- David Lange, Meritage Homes of California, Inc., Roseville, California
- Shannon Brown, ECORP Consulting, Inc. Roseville, California

ATTACHMENT B

Department of the Army Permit (200400213)

DEPARTMENT OF THE ARMY PERMIT

Permittee: Dave Lang
Meritage Homes of California
1544 Eureka Blvd., Suite 150
Roseville, California 95661

Permit Number: 200400213

Issuing Office: U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 "J" Street
Sacramento, California 95814-2922

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below. A notice of appeal options is enclosed.

Project Description:

To discharge fill material into 1.582 acres of waters of the United States, including wetlands to develop 37.8 acres of residential (148 residential units and a park) and 5.9 acres of open space preserve. The un-named tributary of Pleasant Grove Creek, a perennial creek occupying 0.181 acres along the northern perimeter of the property, is designated for preservation.

All work is to be completed in accordance with the attached plan(s).

Project Location:

The subject property is located within portions of Section 16, Township 11 N, Range 6 E, of the "Roseville, California 7.5 minute quadrangle (U.S. Department of the Interior, Geological Survey 1992). The subject property is located along and adjacent to the floodplain of an un-named tributary of Pleasant Grove Creek, in northern Roseville. The southern border of the parcel is defined by Blue Oaks Boulevard. The Roseville Technology Park and the Foothills Business Park abut the western and eastern/northern boundaries of the site, respectively.

The Fiddymont 44 site includes Assessor's Parcel Numbers (APN) 017-250-048 and 017-205-047 comprising approximately 44 acres.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on April 30, 2005. If you find that you need

more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. To insure compliance, the document, entitled "Section 404 Individual Permit Application - Fiddyment 44 (Placer County, California)" dated July 7, 2004, is incorporated by reference as a condition of this authorization except as modified by the following special conditions:
2. You shall develop a final comprehensive mitigation and monitoring plan, which must be approved by the Army Corps of Engineers prior to initiation of construction activities. The plan shall include mitigation location and design drawings, vegetation plans, including target species to be planted, and final success criteria, presented in the format of the Sacramento District's Habitat Mitigation and Monitoring Proposal Guidelines, dated December 30, 2004. The purpose of this requirement is to insure replacement of functions and values of the aquatic environment that would be lost through project implementation.
3. To mitigate for the loss of 0.546 acres of waters of the United States and indirect effects to 0.058 acres of waters of the United States, you shall purchase 0.575 credits of seasonal wetlands at a Corps approved wetland mitigation bank. The selected mitigation bank shall include the area of the permitted project within its service area. Evidence of this purchase shall be provided to this office prior to proceeding with any activity otherwise authorized by this permit. A list of approved mitigation banks has been included for your reference.
4. To mitigate for the loss of 1.036 acres of waters of the United States, you shall construct 1.347 acres of vernal pool within the off-site preserve as proposed in the above document.
5. You shall construct the compensatory mitigation prescribed by this plan concurrently with, or in advance of, the start of construction of the authorized/permitted activity.

6. In no case shall initiation of the construction of compensatory mitigation be delayed beyond September 1, 2005. Construction of compensatory mitigation shall be completed no later than September 1, 2006.
7. To insure that mitigation is completed as required, you shall notify the District Engineer of the start date and the completion date of the mitigation construction, in writing and no later than ten (10) calendar days after each date.
8. To provide a permanent record of the completed mitigation work, you shall provide two complete sets of as-builts of the completed work within the off-site mitigation, preservation, and avoidance areas to the Corps of Engineers. The as-builts shall indicate changes made from the original plans in indelible red ink. These as-builts shall be provided to this office no later than 60 days after the completion of construction of the mitigation area wetlands.
9. You shall establish and maintain a 5.9-acre preserve containing 0.433 acres of avoided, and preserved waters of the United States, as depicted on the exhibit entitled Fiddyment 44 Preserve/Impact Map, revised April 28, 2005, in perpetuity. The purpose of this preserve is to insure that functions and values of the aquatic environment are protected.
10. To minimize external disturbance to preserved waters of the United States, you shall establish a buffer, consisting of native upland vegetation along the entire perimeter of all created, preserved, and avoided waters of the United States, including wetlands within the proposed preserve, as depicted in the Fiddyment 44 Preserve/Impact Map, revised April 28, 2005.
11. To insure that the preserve is properly managed, you shall develop a specific and detailed preserve management plan for the on-site and off-site mitigation, preservation, and avoidance areas. This plan shall be submitted to and specifically approved, in writing, by the Corps of Engineers prior to engaging in any work authorized by this permit. This plan shall describe in detail any activities that are proposed within the preserve area(s) and the long term funding and maintenance of each of the preserve areas.
12. To protect the integrity of the preserve and avoid unanticipated future impacts, no roads, utility lines, trails, benches, equipment or fuel storage, grading, firebreaks, mowing, grazing, planting, discing, pesticide use, burning, or other structures or activities shall be constructed or occur within the on-site and off-site mitigation, preservation, and avoidance areas without specific, advance written approval from the Corps of Engineers.
13. To prevent unauthorized access and disturbance, you shall, prior to September 1, 2006, install fencing and appropriate signage around the entire perimeter of the preserve. All fencing surrounding mitigation, preservation, avoidance, and buffer areas shall allow unrestricted visibility of these areas to discourage vandalism or disposing of trash or other debris in these areas. Examples of this type of fencing include chain link and wrought iron.
14. To assure success of the preserved areas, you shall monitor on-site preservation and avoidance areas occurring for five years or until the success criteria described in the final approved management and monitoring plan are met, whichever is greater. This period shall commence upon completion of the authorized fill activity, but not later than one year after the initiation of fill activity. The primary focus of this monitoring shall be to assure that the preserve is successfully established and maintained as wetland and wildlife habitat and not adversely affected by surrounding development.
15. You shall submit monitoring reports to this office, for each year of the five-year monitoring period, by October 1 of each year.
16. This Corps permit does not authorize you to take an endangered species, in particular the vernal pool fairy

shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., and Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion (Number 1-1-05-F-0037, dated January 21, 2005), contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. The permittee must comply with all conditions of this Biological Opinion, including those ascribed to the Corps.

17. Prior to initiating any activity authorized by this permit, you shall, to insure long-term viability of mitigation, preservation, and avoidance areas:

- a. Establish a fully-funded endowment to provide for maintenance and monitoring of on-site and off-site mitigation, preservation, and avoidance areas.
- b. Designate an appropriate conservation-oriented third part entity to function as preserve manager and to hold the required conservation easements.
- c. Record permanent conservation easements and deed restrictions maintaining all mitigation, preservation, and avoidance areas as wetland preserve and wildlife habitat in perpetuity. Copies of the proposed deed restriction and conservation easement language shall be provided to the Corps of Engineers for approval prior to recordation.
- d. Provide copies of the recorded documents to the Corps of Engineers no later than 30 days prior to the start of construction of any of the activities authorized by this permit.

18. You must allow representatives from the Corps of Engineers to inspect the authorized activity and any mitigation, preservation, or avoidance areas at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

19. To assure success of the preserved and created waters of the United States, you shall monitor off-site compensatory mitigation, avoidance, and preservation areas for five years or until the success criteria described in the approved mitigation plan are met, whichever is greater. This period shall commence upon completion of the construction of the mitigation wetlands. Additionally, continued success of the mitigation wetlands, without human intervention, must be demonstrated for three consecutive years, once the success criteria have been met. The mitigation plan will not be deemed successful until this criterion has been met.

20. You shall submit monitoring reports to this office for each year of the five-year monitoring period, and for each additional year, if remediation is required, by October 1 of each year. You shall submit an additional monitoring report at the end of the three-year period demonstrating continued success of the mitigation program without human intervention.

21. To document pre and post-project construction conditions, you shall submit pre-construction photos of the project site prior to project implementation and post-construction photos of the project site within 30 days after

project completion.

22. All terms and conditions of the April 26, 2005, Section 401 Water Quality Certification are expressly incorporated as conditions of this permit.

23. You shall have a biologist, who is familiar with aquatic resources and the conditions listed in this permit, monitor all construction activities within 250 feet of the preserve boundary. The monitor shall ensure no unauthorized activities occur within the preserve boundary during project implementation.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

() Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(✓) Section 404 of the Clean Water Act (33 U.S.C. 1344).

() Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. **Reliance on Applicant's Data.** The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. **Reevaluation of Permit Decision.** This office may reevaluate its decision on this permit at any time the circumstances warrant.

Circumstances that could require a reevaluation include, but are not limited to, the following:

- a. You fail to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).
- c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. **Extensions.** General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

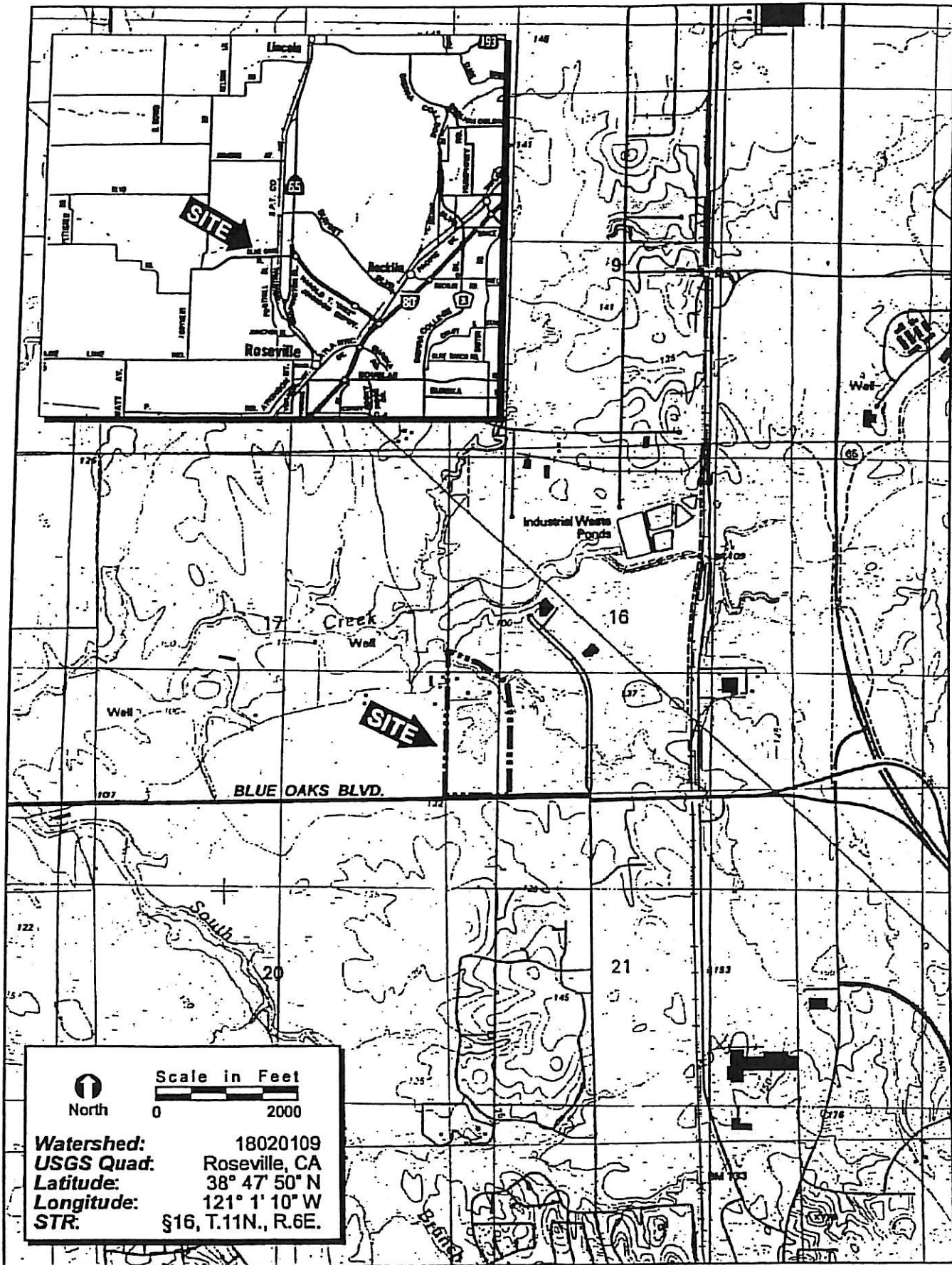
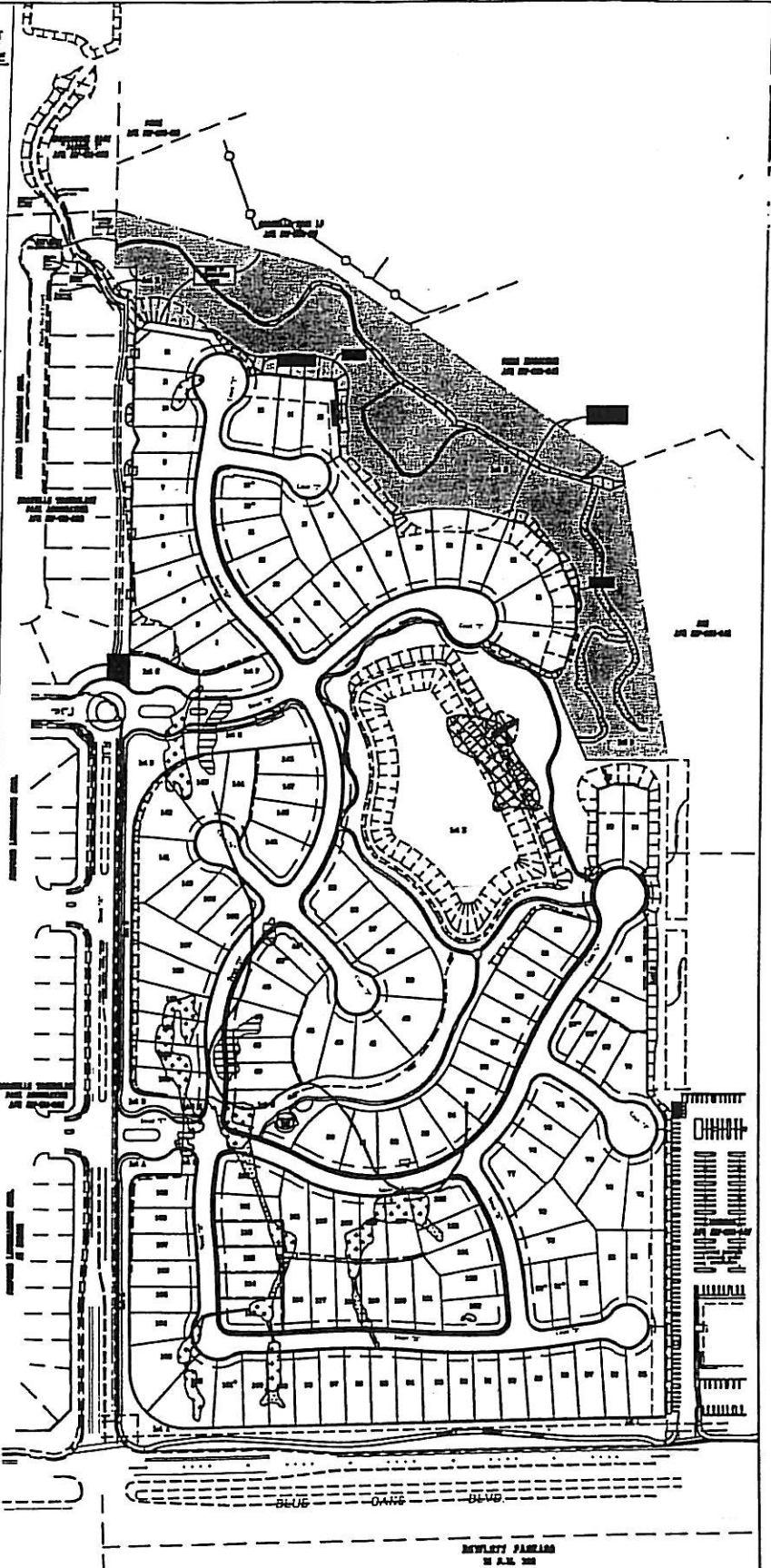


FIGURE 1. Project Site and Vicinity Map

WATERS OF THE U.S. ACREAGE

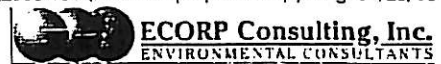
CLASSIFICATION	EXISTING ACREAGE	PRESERVE ACREAGE	IMPACT ACREAGE	INDIRECT IMPACT ACREAGE
Wetlands:				
Second Wetlands				
- Naturally occurring	0.842	N/A	--	0.842
- Shrub Pond Wetlands	0.218	N/A	--	0.218
Second Wetland Beds	0.364	0.207	0.157	0.089
Ditch	0.062	N/A	--	0.062
Other Waters:				
Perennial Drainage	0.181	0.181	N/A	--
Intermittent Drainage	0.048	0.048	N/A	0.019
Intermittent Pond	0.513	N/A	--	0.513
TOTAL	2.018	0.436	1.582	0.088



Preserve/Impact Plan

FILENAME: -DWGS\2003-101\fidd44-imp5-photocopy.dwg 04/28/05

2003-101 Fiddlyment 44



ATTACHMENT C

Vernal Pool Restoration Plan Set

WL
1120

**YANKEE SLOUGH PRESERVE
VERNAL POOL RESTORATION**

ATTACHMENT D

Wetland Delineation Verification



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

April 7, 2004

Regulatory Branch (200400213)

Steve Thurtle
S.T. Consultants
2220 Douglas Boulevard, Suite 290
Roseville, California 95661

Dear Mr. Thurtle:

We are responding to your consultant's request for an approved jurisdictional determination for the Fiddymment 44 site. This approximately 44-acre site is located on or near Pleasant Grove Creek in Section 16, Township 11 North, Range 6 East, MDB&M, Latitude 38° 47' 49.9", Longitude 121° 1' 10.0", Placer County, California.

Based on available information, we concur with the estimate of waters of the United States, as depicted on the "Wetland Delineation for Fiddymment 44, Placer County, California", dated March 16, 2004. Approximately 2.015 acres of waters of the United States, including wetlands, are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act since they are tributary to Pleasant Grove Creek, which flows into the Natomas East Main Drainage Canal, and then into the Sacramento River, a navigable water of the United States.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. A *Notification of Administrative Appeal Options and Process and Request for Appeal* form is enclosed. If you wish to appeal this approved jurisdictional determination, please follow the procedures on the form. You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

Please refer to identification number 200400213 in any correspondence concerning this project. If you have any questions, please contact Tom Cavanaugh at our Sacramento Valley Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email *Thomas.J.Cavanaugh@usace.army.mil*, or telephone 916-557-5261. You may also use the Regulatory Permits link on our website: *www.spk.usace.army.mil*.

Sincerely,

ORIGINAL SIGNED

Thomas J. Cavanaugh
Chief, Sacramento Valley Office

Enclosure(s)

Copy furnished without enclosure(s):

- ✓ Shannon Brown, ECORP Consulting, Inc, 2260 Douglas Boulevard, Roseville, California 95661
- George Day, Storm Water and Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114

ATTACHMENT E

Cultural Resources Identification & Evaluation

Cultural Resources Inventory & Evaluation
Yankee Slough Mitigation
Placer County, California
Project 2003-170

Prepared by:
ECORP Consulting
2260 Douglas Blvd., Suite 160
Roseville, CA 95661
916-782-9100

Prepared for:
Ms. Wendy Hall
Conservation Resources, LLC
3600 American River Drive, #225
Sacramento, CA 95864

Keywords: Cultural Resource Inventory,
Section 106, no historic properties,
USGS Lincoln, CA 7.5 minute quadrangle,
T13N, R6E, Approximately 230-acres

August 2005



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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Yankee Slough Mitigation**

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1.0 MANAGEMENT SUMMARY

The subject of this report is an inventory of cultural resources located within the *Yankee Slough Mitigation* project area. The *Yankee Slough Mitigation* project area is located approximately 4.5 miles north of the City of Lincoln, in rural Placer County, California. The subject property is bounded on the west by the Nader Road, and east by the north south section line between sections 19 and 20. The project area continues north to the creek crossing and angles down to Nader Road, the southern boundary is the east west section line between sections 19 and 30. The approximately 230-acre parcel is comprised of undeveloped pasture and rice fields (Figure 1. *Project Site and Vicinity Map*).

ECORP Consulting, Inc. (ECORP) prepared this inventory to fulfill federal regulations within the environmental regulatory compliance process. This report was prepared for Conservation Resources, LLC of Sacramento, CA, to assist in compliance with Section 106 of the National Historic Preservation Act.

A literature and records search was completed using files from the *California Historical Resources Information System* (North Central Information Center, California State University-Sacramento). No archaeological sites, cultural resource areas, or historic properties have been previously recorded within the *Yankee Slough Mitigation* project area, nor have any such resources been identified adjacent to the project area.

ECORP employee Mike Taggart and Kyle Johnson accomplished an archaeological reconnaissance survey of the entire project area between March 15, 2004 and May 24, 2005. One prehistoric isolate was recorded. However, isolates are considered not significant, and are ineligible for inclusion on the National Register of Historic Places (NHRP), thus requiring no protective measures.

Given the absence of eligible cultural resources, the implementation of this project will not affect historic (National Register-eligible) properties. Should any previously unidentified archaeological remains (prehistoric or historic) be encountered during the course of project activities, all work in that area shall halt, and a qualified professional archaeologist shall be notified immediately so that the resource may be evaluated as soon as possible.

2.0 INTRODUCTION

The approximately 230-acre Yankee Slough Mitigation project is located approximately 4.5 miles north of the City of Lincoln, in rural Placer County, California. The proposed undertaking involves the mitigation and creation of vernal pools throughout the project area. The creation of vernal pools will cause disturbance to the top 3 feet of soil to make shallow excavations to seasonally impound water. Implementation of this project is intended to benefit western Placer County by increasing the local abundance of endemic plant species associated with vernal pool ecosystems and by contributing to the recovery of the vernal pool fairy shrimp (*Branchinecta lynchi*), listed under the federal Endangered Species Act.

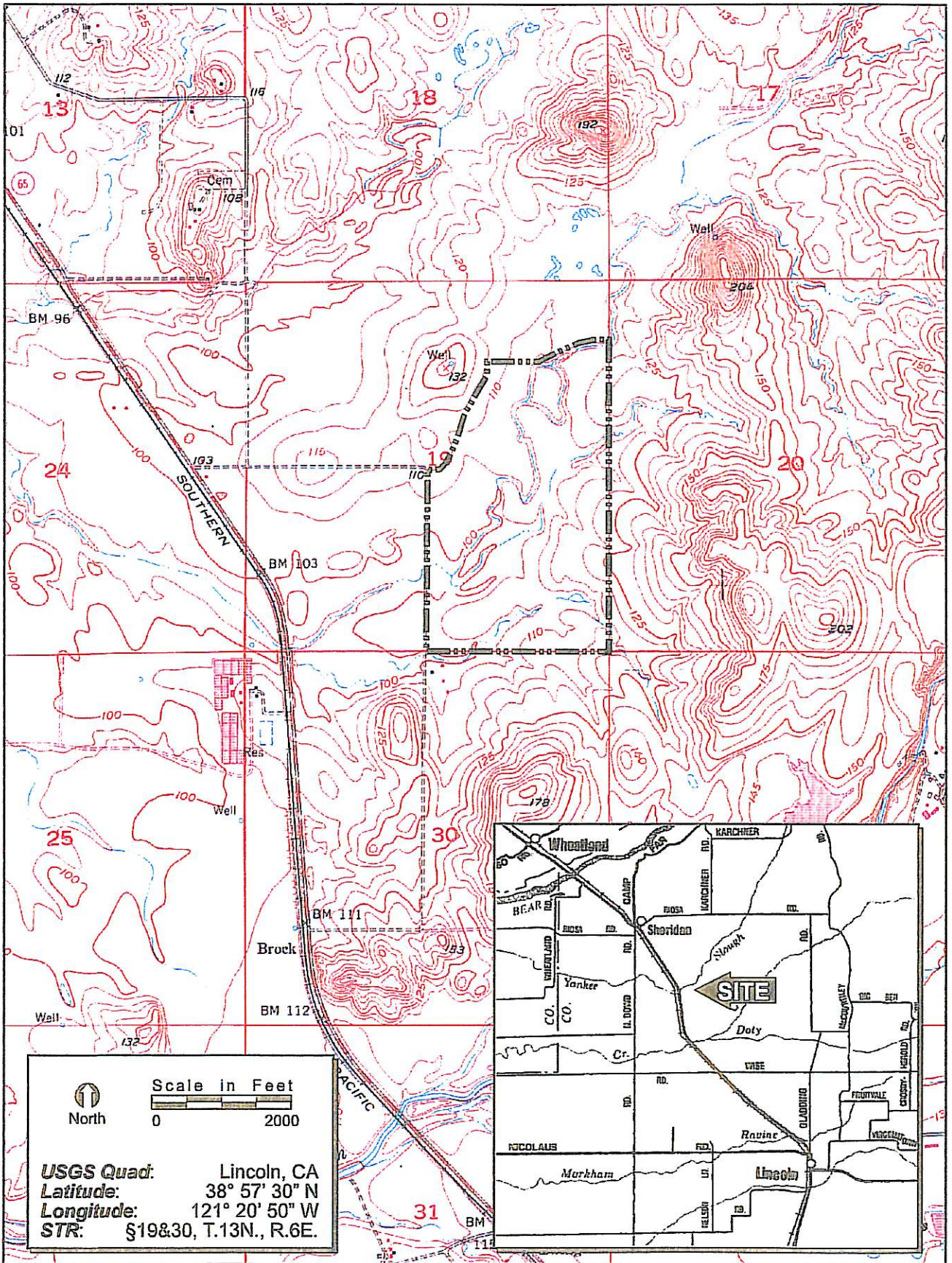


FIGURE 1. Project Site and Vicinity Map

2003-170 Yankee Slough Restoration

Several methods will be used to restore the vernal pools at the site to reestablish the historic hydrologic regime. The methods to be implemented will include, but will not be limited to a) excavating in wetland areas which currently have minimal pooling capabilities, b) excavating in the upland areas where historic vernal pools were located, and c) excavating to reestablish swale connections between pools. In all cases, the appropriate method or methods shall be used to recreate the original vernal pool ecosystem, and preserve some of the existing vernal pools on-site. A fifty to two-hundred foot wide buffer zone will be in place around the perimeter of the entire project area. No work will be permitted within the buffer zone.

2.1 Project Location

The *Yankee Slough Mitigation* project area is located approximately 4.5 miles north of the City of Lincoln, in rural Placer County, California. The subject property is bounded on the west by the Nader Road, and east by the north south section line between sections 19 and 20. The project area continues north to the creek crossing and angles down to Nader Road, the southern boundary is the east west section line between section 19. The approximately 230-acre parcel is comprised of undeveloped pasture and rice fields. The surrounding area is comprised of undeveloped rice fields, pastureland, and rural residences. The legal description of the project is: Township 13 North, and Range 6 East, sections 19 of the Lincoln, California 7.5-minute USGS quadrangle (see Figure 1).

2.2 Regulatory Framework

This project will require the issuance of a federal permit by the Army Corps of Engineers (Corps) under the federal Clean Water Act. Therefore, the project is considered a federal undertaking and requires compliance with Section 106 of the National Historic Preservation Act. The Section 106 process has five general steps: 1) Identification and evaluation of historic properties; 2) Assessment of the effects of the project activities on properties that are eligible for the National Register; 3) Consultation with Corps and the State Historic Preservation Office (SHPO) about adverse effects on the properties, followed by the development of a memorandum of agreement (MOA) that addresses the treatment of historic properties; 4) Submission of the MOA to the Advisory Council on Historic Preservation; and 5) Proceeding with the project according to the conditions of the MOA.

The regulations regarding Section 106 compliance state that the tasks needed to complete the process may be delegated to others. However, the federal agency (in this case the Corps) is ultimately responsible for ensuring that the process is completed according to the statute.

3.0 SETTING

3.1 Natural Setting

The Yankee Slough Mitigation property is currently comprised of a mix of open pasture, cattle grazing pasture, upland agricultural fields, and leveed rice fields. Yankee Slough bisects the subject property, trending from northeast to southwest. Several of the leveed rice fields at the

northeastern portion of the property are actively managed to attract waterfowl. Surrounding land-use includes cattle grazing pasture, rural residential housing, and a private hunt club.

According to the "Lincoln, California" 7.5-minute quadrangle, Yankee Slough and its unnamed tributaries have been mapped as waterways with seasonal flows. Based on field surveys and consultation with the previous owners, it appears that flow is perennial. Other surface water drains from east to west through small drainage swales and intermittent drainages.

The site's topography consists of gently rolling hills with portions leveled for rice production. The mean elevation is approximately 100 to 120 feet above mean sea level. Based on the "Geologic Map of the Sacramento Quadrangle, California" (Wagner et al 1987), the project site is primarily made up of Pleistocene era Riverbank formation. The site also has inclusions of the slightly older Laguna Formation.

According to the Natural Resource Conservation Service, the site contains four soil unit types. The soil unit supporting Yankee Slough is mapped as (193) Xerofluvents, occasionally flooded. The western edge of the subject property, outside of the Xerofluvents, the soil unit is mapped as (181) San Joaquin sandy loam, 1 to 5 % slopes. The majority of the property to both the north and south of Yankee Slough is mapped as (176) Redding and Corning gravelly loams, 2 to 9% slopes. The northern section of the property also supports small amounts of (195) Xerofluvents, hardpan substratum.

The dominant upland habitat within the Yankee Slough Mitigation area is annual grassland (Kie 1988). The annual grassland community is dominated by non-native plant species such as soft brome (*Bromus hordeaceus*), ryegrass (*Lolium multiflorum*), filaree (*Erodium botrys*), and medusahead grass (*Taeniatherum caput-medusae*). Intermixed within the grassland matrix are naturally occurring seasonally inundated wetland drainages and basins as described above. The only trees at the site are associated with Yankee Slough. There is scattered willow scrub along the slough. Along the northeast stretch of Yankee Slough, this spotty willow scrub changes to more mature cottonwood riparian habitat.

Prior to its conversion to agricultural production by European settlers, the Great Valley supported a diversity of habitats made up of vast grasslands, valley oak savannahs, riparian woodlands, and marshes (Baumhoff 1978). Before the arrival of Europeans, native grasses most likely consisted of climax stands of perennial bunchgrasses such as purple needlegrass (*Stipa pulchra*), and others including triple-awned grasses (*Aristida sp.*), blue grasses (*Poa sp.*), and rye grasses (*Elymus sp.*) (Kie 1988; Shoenherr 1992).

Fauna in the Yankee Slough Mitigation project area likely includes black-tailed jackrabbit, (*Lepus californicus*), rabbit (*Sylvilagus, sp.*), gray squirrel (*Sciurus griseus*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*). Avifauna includes red-tailed hawks (*Buteo jamaicensis*), prairie falcons (*Falco mexicanus*), burrowing owls (*Speotyto cunicularia*), California quail (*Callipepla californica*), mourning doves (*Zenaidura macroura*), and California (*Aphelocoma coerulescens*) jays. Rattlesnakes (*Crotalus viridus*) and various frogs (*Rana, sp.*), toads (*Bufo, sp.*), and lizards (*Sceloperus, sp., e.g.*) are also present (Shoenherr 1992).

3.2 Cultural Setting

3.2.1 Prehistoric Context

Pre-Archaic Period (10,000-8,500 B.C.) The earliest occupants of California were generally believed to be reliant for their subsistence on the hunting of big game – the Pleistocene megafauna such as mammoths and giant sloths, a strategy that kept them constantly on the move. Although tools for grinding are occasionally found on these early sites, the gathering of plant material appears to have been only a small part of their subsistence strategy. Evidence for this wide-ranging, highly nomadic occupation has been found all over the West, from sites at what are today deserts, but were then inland lakes with resource-rich marshlands, to the vast expanses of the Great Plains, to the high elevations of the Rocky Mountains. Few sites from this period have been found in California, suggesting a small, widely dispersed population. A dearth of sites at higher elevations is probably due to the climate. The final Ice Age of the Pleistocene was just ending, glaciers still existed in the Sierra Nevada, and conditions in general were much cooler and wetter than today, making the mountains an inhospitable habitat for humans. Most of the sites dating to this period have been found in the vicinity or on the ancient shorelines of the large, pluvial lakes that were common during this time (Chartkoff and Chartkoff 1984).

Early to Middle Archaic Period (8,500-4,000 B.C.) With the end of the Pleistocene, the climate began a warming and drying trend that lasted for several thousand years. The great inland lakes that had covered large areas of the Great Basin began to dry up, and the megafauna – the mainstay of Pre-Archaic Period subsistence – suffered mass extinction. People adapted to these changes by shifting their foraging emphasis away from hunting and increasing their use of plant resources, as evidenced by a marked increase in the presence of plant processing tools on archaeological sites dated to this time period. More manos and metates suggest that people had begun to rely on food based on the grinding of hard seeds and grains. This, combined with a greater reliance on local tool stone sources, too, suggests that groups also largely abandoned the wide-ranging nomadism of the Pre-Archaic and began to concentrate their foraging efforts on smaller territories using a seasonal round, scheduled to coincide with the appearance of various resources as they became available. Though the lakes were shrinking, use of their many resources became an integral part of Early to Middle Archaic subsistence strategies. It is during this time period, too, that people began a more intensive use of the coastal regions, with their rich marine resources.

Late Archaic Period (4,000-2,000 B.C.) A major change in subsistence came in the Late Archaic Period with the discovery of a method to remove the tannins from acorns, allowing this nearly ubiquitous nut to become a staple food for the indigenous people of California. In addition to providing a rich and essentially inexhaustible source of nutrition, it allowed people to gather and store large surpluses of food to carry them through lean seasons. Concomitant with this was an increase in-group size and population densities. Sedentarism increased, and sophisticated cultures developed comparable to those found in farming areas in other parts of North America. It has been suggested that agriculture never took root in the Pacific west because the richness of the natural environment provided all that the people needed to survive and a good deal more (Chartkoff and Chartkoff 1984). Trade also increased during this period, bringing in goods – and, presumably, ideas – from afar. One item, or idea, was probably the atlatl, or spear-

thrower. Hunting of a diverse range of large and small game, fishing, and gathering of wild plant resources besides acorns remained important elements of overall subsistence strategies.

Early and Middle Pacific Periods (2,000 B.C.-A.D. 500) By 2,000 B.C., acorn meal had become the most important food for California Indians, much as corn was for people elsewhere. An increase in the number of archaeological sites dating to this period suggests an increase in population that was probably the result of this reliable and widely available food resource. People moved into environmental zones that had previously been used only marginally, such as the middle and high Sierras. In addition, societies began to become more complex, socially and politically.

Late Pacific Period (A.D. 500-1400) With the introduction of the bow and arrow, prehistoric weapons technology in California took a quantum leap forward at about this time. Lighter, more accurate, and with a significantly longer range, the bow and arrow changed hunting and warfare forever. Another major shift in technology at this time is the movement away from portable manos and metates and the increased use of bedrock mortars and milling stations (Moratto 1984). The increasing complexity of societies witnessed at the end of the Middle Pacific Period continues to be seen in archaeological sites throughout this period, as does the widening of trade networks, development of food storage and redistribution system, the increasing intricacy of ceremonial and funerary patterns, and more marked territoriality. In addition, elevated levels of fishing equipment and fish and shellfish remains indicate use of riverine resources. This may have been an adaptation to a warm, dry interval that set in about A.D. 1500 and would have affected hydrologic and vegetation patterns (Davy 2001).

Final Pacific Period (A.D. 1400-1769) Sedentarism intensified during this period, with people becoming ever more reliant on staples to support them. Societies, along with economies and political systems continued to become more complex. During this period, visits from Europeans began, culminating with the establishment of permanent settlements in A.D. 1789.

3.2.1.1 Regional Prehistory

The earliest evidence of the prehistoric inhabitants of the region surrounding the Yankee Slough Mitigation project area comes from a single, deeply buried site in the bank of Arcade Creek, north of Sacramento, containing grinding tools and large, stemmed projectile points. The points and grinding implements suggest an occupation date of some time between 6000 and 3000 B.C. (Wallace 1978). However, it was not until after about 3500 B.C., in the Late Archaic Period, that people began to move into the San Joaquin and Sacramento valleys in any significant numbers (Chartkoff and Chartkoff 1984). This earliest permanent settlement of the Delta region of the Sacramento River is called the Windmill Tradition, and is known primarily from burial sites containing relatively elaborate grave goods, in or near the floodplain (Chartkoff and Chartkoff 1984; Ragir 1972; Wallace 1978). The Windmill Tradition reflects the amplification of cultural trends begun in the Middle Archaic, as seen in the proliferation of finished artifacts such as projectile points, shell beads and pendants, and highly polished charmstones. Stone mortars and pestles, milling stones, bone tools such as fishhooks, awls, and pins are also present. It is probable that these people subsisted on deer and other game, salmon, and hard seeds. They also were apparently the first Californians to discover the process for leaching the tannins out of acorns, thus making them edible by humans (Chartkoff and Chartkoff 1984).

Based on linguistic evidence, it has been suggested that the Windmill culture was ancestral to several historic tribes in the Central Valley, including the Penutian speaking Nisenan (Chartkoff and Chartkoff 1984; Elsasser 1978). The Windmill Tradition lasted until about 1000 B.C. (Chartkoff and Chartkoff 1984).

Around 1000 B.C., subsistence strategies in the Delta region became noticeably more "focal," with a clear increase in the reliance on acorns and salmon (Chartkoff and Chartkoff 1984; Elsasser 1978). Culturally, this has been dubbed the Cosumnes Tradition (1700 B.C. to A.D. 500), and appears to be an outgrowth of the Windmill Tradition (Ragir 1972). These people continued to occupy knolls or similar high spots above the floodplain of the Sacramento River and the terraces of tributaries such as the Cosumnes and American rivers, flowing out of the foothills of the Sierra Nevada's to the east. Populations increased, and villages became more numerous than before, with more milling tools, and specialized equipment for hunting and fishing. Trade appears to have increased, with burials containing larger amounts of seashell and obsidian. Burial styles, too, became more varied, with the addition of flexed interments along with the extended ones of the Windmill period. Projectile points found embedded in the bones of excavated skeletons suggest that warfare was on the rise, possibly as a result of increased competition over available resources and trade (Beardsley 1954; Lillard et al 1939; Ragir 1972).

The next, and final, discrete prehistoric culture is the Hotchkiss Tradition (A.D. 500 to 1769) that persisted until the arrival of European settlers in central California (Beardsley 1954; Ragir 1972). During this period, use of acorns and salmon reached its peak, with hunting of deer. Diet was supplemented with the addition of waterfowl, hard seeds, and other resources. Large sedentary villages along the lower Sacramento and San Joaquin rivers, and their tributaries and delta were common. The size and density of these settlements suggests a further increase in population from Cosumnes times. Trade goods were plentiful, and burials exhibit a marked stratification of society with wide differences in the amount and variety of grave goods. Cremation of the dead appears, along with the flexed inhumations of the previous period (Chartkoff and Chartkoff 1984; Ragir 1972). While ornamental or ritual artifacts, such as large, fragile projectile points and trimmed bird bone increase during this period, milling tools are rare or absent. Shell beads continue in large numbers, and there are numerous utilitarian artifacts of bones such as awls, needles, and barbed harpoon points. Polished charmsotnes are rarer, but ground stone pipes become more abundant. In addition, fired and unfired clay objects begin to appear (Chartkoff and Chartkoff 1984).

3.2.2 Ethnography

Ethnographically, the project area is in the territory occupied by the Penutian speaking Nisenan. The territory extended from above the junction of the Feather and Sacramento rivers on the north, to a few miles south of the American River in the south. The Sacramento River bounded the territory on the west, and in the east, it extended to somewhere near Lake Tahoe. As a language, Nisenan (meaning "from among us" or "of our side") has three main dialects – Northern Hill, Southern Hill, and Valley Nisenan, with three or four subdialects (Beals 1933; Kroeber 1976; Placer County 1992; Shipley 1978). The Valley Nisenan lived primarily in large villages with populations of several hundred each, along the Sacramento River. Between there and the foothills, the grassy plains were largely unsettled, used mainly as a foraging ground by both valley and hill groups (Placer County 1992). Individual and extended families "owned"

hunting and gathering grounds, and trespassing was discouraged (Kroeber 1976; Wilson and Towne 1978). Residence was generally patrilocal, but couples actually had a choice in the matter (Wilson and Towne 1978).

Politically, the Nisenan were divided into "tribelets," made up a primary village and a series of outlying hamlets, presided over by a more-or-less hereditary chief (Kroeber 1976; Wilson and Towne 1978). Villages typically included family dwellings, acorn granaries, a sweathouse, and a dance house, owned by the chief. The chief had no authority on his or her own (females could become chief, if no competent male relative could be found). Authority came from the support of the shaman and the villagers, but with this the word of the chief become virtually the law.

Subsistence activities centered on gathering acorns (tan bark oak and black oak were preferred), seeds, and other plant resources, the hunting of animals such as deer and rabbits, and fishing. Large predators such as mountain lions and wildcats were hunted for their skins, as well as their meat, and bears were hunted ceremonially. Although acorns were the staple of the Nisenan diet, they also harvested roots like wild onion and "Indian potato," which was eaten raw, steamed, baked, or dried and processed into flour cakes to be stored for winter use (Wilson and Towne 1978). Wild garlic was used as soap/shampoo, and wild carrots were used medicinally (Littlejohn 1928). Seeds from grasses were parched, steamed dried, or ground and made into a mush. Berries, too, were collected, as were other native fruits and nuts. Game was prepared by roasting, baking, or drying. In addition, salt was obtained from a spring near Rocklin (Wilson and Towne 1978).

Hunting of deer often took the form of communal drives, involving several villages, with killing done by the best marksmen from each village. Snares, deadfalls, and decoys were used, too. Fish were caught by a variety of methods including use of hooks, harpoons, nets, weirs, traps, poisoning, and the hands (Wilson and Towne 1978).

Trade was important with goods traveling from the coast and valleys up into the Sierra Nevada, and vice versa. Items like shell beads, salmon, salt, and digger pine nuts went up, and things such as bows and arrows, deerskins, and sugar pine nuts came down. In addition, obsidian was traded in from the north (Wilson and Towne 1978).

The Spanish moved into the Central Valley around 1769, and by 1776, the Miwok territory bordering the Nisenan on the south had been explored by José Canizares. In 1808, Gabriel Moraga crossed Nisenan territory, and in 1813, a major battle was fought between the Miwok and the Spaniards near the mouth of the Cosumnes River. Though the Nisenan appear to have escaped being removed to missions by the Spanish, they were not spared the ravages of European-spread disease. In 1833, an epidemic – probably malaria – raged through the Sacramento Valley, killing an estimated 75% of the native population. When John Sutter erected his fort at the future site of Sacramento, he had no problem getting the few Nisenan survivors to settle nearby. The discovery of gold in 1848, near the Nisenan village of Colluma (also Coloma), drew thousands of miners into the area, and led to widespread killing and the virtual destruction of traditional Nisenan culture. By the Great Depression, no Nisenan remained who could remember the days before the arrival of the Whites (Wilson and Towne 1978).

3.2.3 History

Although the Spanish had made forays into the Central Valley since about 1769, it was not until 1808 that Capitán Gabriel Moraga explored, and named, the Sacramento area (Lawson 2001). Other than fighting with the Indians, as in 1813 when Luis A. Arguello fought a major battle with the Miwok near the mouth of the American River, the Spanish took little interest in the area (Wilson and Towne 1978). In 1827, American trapper Jedidiah Smith traveled up the Sacramento River and into the San Joaquin Valley to meet other trappers of his company he had left encamped there, but no permanent settlements were established (Peak & Associates 1997).

Then, in August of 1839, a European immigrant, John A. Sutter, arrived at the confluence of the American and Sacramento rivers, armed with expectations of a land grant from the Mexican government, and dreams of an agricultural empire. He and his party erected a fort. Originally called New Helvetia, it later came to be known as Sutter's Fort. In 1841, Sutter received his land grant - some 97 square miles - and proceeded to set up fisheries, a flourmill, and a lumber mill. The fort attracted other businesses, and after gold was discovered in a flume at Sutter's lumber mill near the Nisenan village of Culloma, a store established on the Sacramento River waterfront by Samuel Brannan soon became the heart of the new settlement of Sacramento. Sutter's son John, Jr. laid out the town itself, in 1849. By 1850, the population of Sacramento had grown to about 9000 (History 2001; Lawson 2001).

During the Gold Rush, numerous claims were worked along the Bear and American Rivers. The Yankee Slough Mitigation project area, however, was not particularly impacted by the Gold Rush, since most streams in the area did not run through any gold-bearing geologic deposits. An exception to this is the Auburn Ravine, which is located a short distance southeast of the project area. The area around what is today Lincoln and Wheatland played more of a supporting role for the mining activities taking place in the nearby foothills. Agriculture - ranching and farming - was historically the primary activity in the area.

The town of Lincoln was settled in 1851 and officially incorporated in 1890 (City of Lincoln 2003). The town is named for Charles Lincoln Wilson. Wilson is credited with bringing the California Central Railroad to the community, which served as a primary catalyst for the area's economic growth. The Railroad arrived in Lincoln on October 31, 1861, with service to Sacramento costing \$3.00. Soon businesses established themselves in town, the first being Logan Saloon (Logan 1990).

Coal was mined about eight miles to the north in Lincoln, from 1873 to its abrupt end in 1883. The manufacture of terra cotta ware, ironstone sewer pipe, vases, urns, chimney pots, and other items took place in Lincoln following the discovery of a large deposit of kaolin clay (Logan 1990). Today, the area is fast becoming a true suburb of Sacramento, with all that this implies.

The population and economic vitality of Lincoln declined somewhat following the closing of the railroad terminus in 1866. The town managed to retain its position as a center for shipping for agricultural goods and other commercial products. Chief among commercial goods shipped by rail out of the area were terra cotta clay products produced by the Gladding-McBean Company.

Agricultural pursuits in the Lincoln area during its early years focused on grain and livestock production. The first crop of wheat were produced in Placer county came from the farms of Joseph Walkup and Samuel B. Wyman who farmed land east of Lincoln. Fruit orchards and vineyards rounded out the local products, with rice production gaining popularity after 1900 (Lardner & Brock 1924).

The 1856 GLO Plat map indicates that Thomas Brewer claimed the northern portion of the project area, in the western half of Section 19, in 1866. Brewer and L.D. Hedges claimed the eastern half of Section 19 in 1866. The GLO map also shows a portion of the Nemshas Rancho, granted to Teodore Sicard in 1844, located east of Section 19. At the time of the grant in 1844, the property was located in Yuba County, before its subsequent subdivision.

4.0 METHODS

4.1 Archival Research

A records search for the Yankee Slough Mitigation (USGS Lincoln 7.5 minute quadrangles, T13N, R6E sections 19) was undertaken at the North Central Information Center (California State University, Sacramento).

In addition to the official records and maps for archaeological sites and surveys in Placer County, the following historic references were also reviewed: *The National Register of Historic Places- Listed properties* (National Park Service 2004); *California Historical Landmarks* (Office of Historic Preservation 2004); *California Points of Historical Interest* (1992 and updates); *Gold Districts of California* (1979); *California Gold Camps* (Gustav 1975); *California Place Names* (Gudde 1969); *Survey of Surveys (Historic and Architectural Resources)* (1989); *Directory of Properties in the Historical Resources Inventory* (1999); *Caltrans Local Bridge Survey* (1989); *Caltrans State Bridge Survey* (1987); and *Historic Spots in California* (Hoover et al 1990).

4.2 Field Survey

A systematic archaeological survey was designed to identify historic and prehistoric sites, artifacts, and features within the area of potential effects. Survey transects were spaced up to 30 meters apart over the entire project area. The survey was conducted to the standards set by the Secretary of the Interior (National Park Service 1990; 1983).

5.0 RESULTS

5.1 Archival Research Results

The 1856 GLO Plat map indicates that Thomas Brewer claimed the northern portion of the project area, in western half of Section 19, in 1866. Brewer and L.D. Hedges claimed the eastern half of Section 19 in 1866. The GLO map also shows a portion of the Nemshas Rancho, granted to Teodore Sicard in 1844, located east of Section 19. At the time of the grant in 1844, the property was located in Yuba County, before its subsequent subdivision. The records

search did not reveal the presence of any historic or prehistoric sites within the project area (Appendix A – Literature Search Results).

No prior archaeological surveys have been conducted within the Yankee Slough Mitigation project area. However, three surveys have been conducted within 1.5 miles of the project area: *Finding of Effect for the Proposed Route 65 Modification Study near Lincoln, Placer County, California* (California DOT 1994); *An Archaeological Survey For The Proposed Lincoln Bypass (Alternates C & D) of State Route 65 in Placer County, California* (Berg & McGuire 1990); *Cultural Resource Inventory and Evaluation of the Yankee Slough Restoration area in Placer County*, (ECORP 2005). The surveys did not identify any significant cultural resources in the vicinity of the current project area.

5.2 Field Survey Results

ECORP employees Mike Taggart and Kyle Johnson (Appendix B – Resumes) between March 15, 2004 and May 24, 2004 carried out the inventory for cultural resources within the project area. (Figure 2. *Area of Potential Effect and Coverage Map*). The systematic archaeological survey used transects spacing of 30 meters on the entire approximately 230-acre project area. The survey was designed to identify historic and prehistoric resources within the project area. The survey was conducted to the standards set by the Secretary of the Interior (National Parks Service 990; 1983).

A large portion of the project area has been used as grazing ground for cattle and has been extensively plowed. The northeastern portion of the APE that has been used for rice cultivation has been extensively leveled, plowed, and is surrounded by levees. Grass grows on most of the project area, covering approximately 80% of the project area. Nevertheless, with bare patches of land, rodent back dirt piles, and regular surface scrapes distributed over the entire project area (generally measuring 15 x 50 cm), it was possible to gain an appreciation of the potential for the project area to yield potentially significant cultural resources. Particular attention was given to areas adjacent to Yankee Slough and areas of existing vernal pools. The field survey resulted in the identification of one isolated resource – a prehistoric flake (Appendix C - CONFIDENTIAL Isolate Record).

5.3 Native American Consultation Results

We have consulted with the Native American Heritage Commission (NAHC) concerning potential areas of Native American concern regarding the Yankee Slough Mitigation project area. We mailed letters to extend necessary consideration to any Native American comments on the proposed undertaking. We made follow-up contact with each of individuals on the contact list. We did receive a letter from the United Auburn Indian Community expressing that a survey be conducted. They have also requested that if resources are recorded within or within a mile radius of the project they would like a copy of the cultural resources report. All information sent and received is included in the record of consultation (within Appendix A).

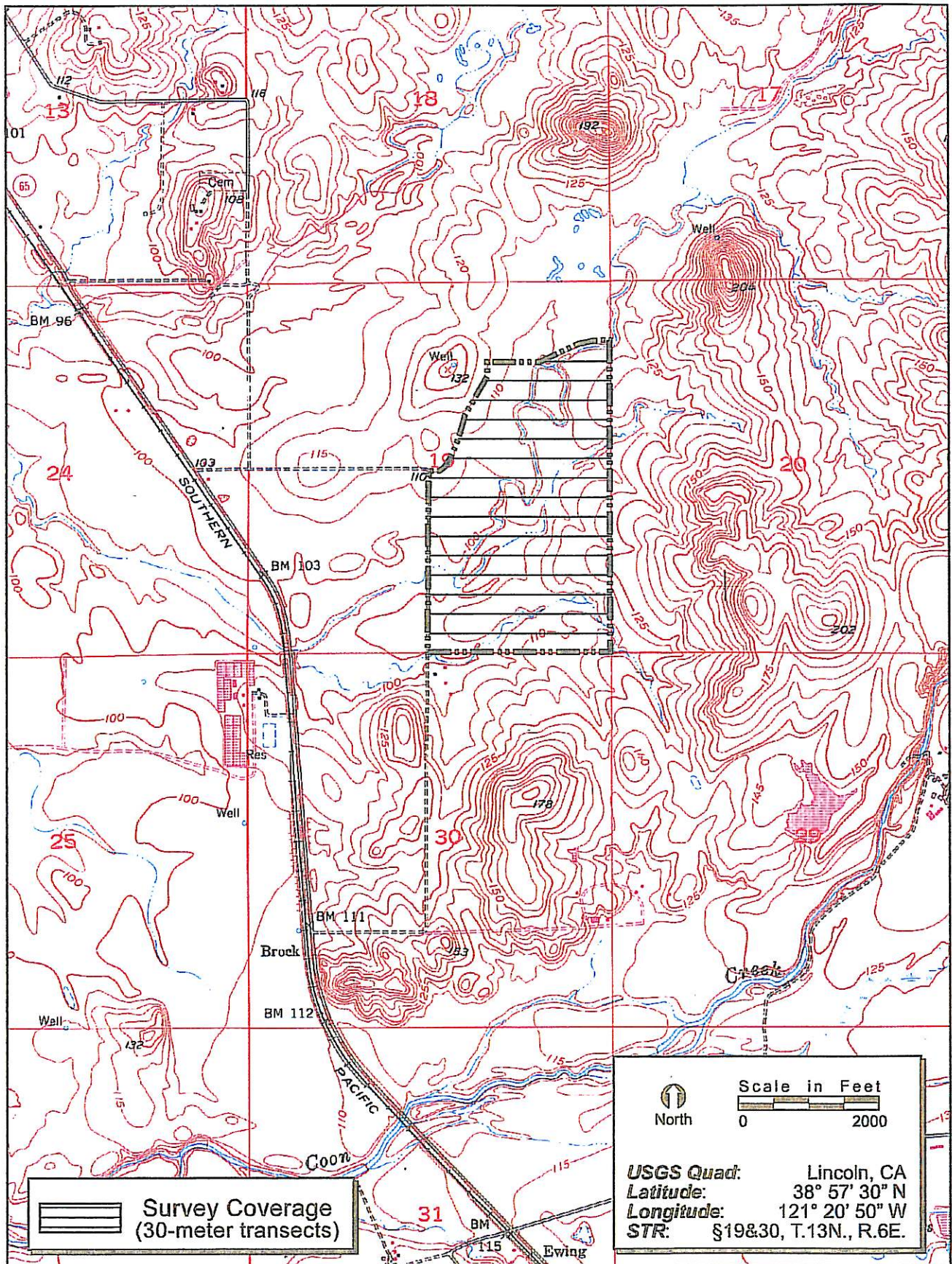


FIGURE 2. Area of Potential Effect and Coverage Map

6.0 CONSIDERATIONS AND RECOMMENDATIONS

6.1 Recommendations

The fact that no potentially significant cultural resources were identified during field survey in areas subject to project activities does not preclude the possibility of a buried habitation or special activity site within the project area. This is particularly true in the portion of the project area that lies in close proximity to Yankee Slough. In the Sacramento Valley, prehistoric sites are often located along the riparian corridor near rivers, creeks, marshes, and sloughs. Therefore, it is recommended that should any previously unidentified prehistoric or historic archaeological site be encountered during the course of project activities, all work in that area shall halt, and a qualified professional archaeologist shall be notified immediately so that the site may be evaluated as soon as possible.

6.2 Human Remains

State law and NAGPRA protect Native American burials, skeletal remains and grave goods. If human remains are encountered, work should halt in that vicinity and the Placer County coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If the remains are of Native American origin, the coroner will notify the Native American Heritage Commission within 24 hours.

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1978 Post-Pleistocene Archaeology, 9000 to 2000 B.C., in R. F. Heizer, ed., *Handbook of North American Indians, Volume 8: California*, pp. 25-36. Smithsonian Institution, Washington.

Wilson, N. L., and A. H. Towne

1978 *Nisenan*, in R. F. Heizer, ed., *Handbook of North American Indians, Volume 8: California*, pp. 387-397. Smithsonian Institution, Washington.

LIST OF APPENDICES

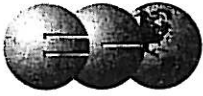
Appendix A – Literature Search Results

Appendix B – Resumes

Appendix C – CONFIDENTIAL Isolate Record

APPENDIX A

Literature Search Results



July 1, 2005

Wendy Hall
Conservation Resources
3600 American River Drive, Suite 225
Sacramento, Ca 95864

RE: YANKEE SLOUGH MITIGATION BANK, PLACER COUNTY #2000-143
IC # PLA-04-31

Dear Ms. Hall:

A records search for the *Yankee Slough Mitigation Bank* project (Attachment A) was completed using files from the North Central Information Center with the following results:

Prehistoric Resources: The records indicate that no previously recorded sites are located within or within a 1.5-mile radius from the project.

Historic Resources: The records indicate that no previously recorded sites are located within or within a 1.5-mile radius of the project.

Previous Archaeological Investigations: The records show that no archaeological surveys have been conducted within the project area. However, two cultural resource survey has been conducted within one-half mile of the project area: *Finding of Effect for the Proposed Route 65 Modification Study near Lincoln, Placer County, California* by CalTrans (1994); *Cultural Resource Inventory and Evaluation Yankee Slough Restoration Area, Placer County* by ECORP Consulting, Inc. 2005.

Literature Search: In addition to the official records and maps for archaeological sites and surveys in Placer County, the following historic references were also reviewed: the National Register of Historic Places-Listed properties (2004), California Historical Landmarks (1995 and updates), California Points of Historical Interest (1992 and updates), Gold Districts of California (1979), California Gold Camps (1975), California Place Names (1969), Survey of Surveys Historic and Architectural Resources (1989), Directory of Properties in the Historical Resources Inventory (1999), Caltrans Local Bridge Survey (1989, updated 2000), Caltrans State Bridge Survey (1987), California and Pony Express Trail (1984), Historic Spots in California (2002), 1856 Geologic Land Office (GLO) Plat map and Handbook of North American Indians Volume 8 (1978).

Literature Results: The 1856 GLO plat map shows a portion of the Upper Sacramento Road to Nevada passing a short distance to the west of the project in the Northwest corner of section 30 and bisecting Section 19. The remaining literature and records did not reveal any known resources.

undertaking. We made follow-up contact with the NA individuals. We did receive a letter from the United Auburn Indian Community expressing that a survey be conducted. They have also requested that if resources are recorded within or within a mile radius of the project they would like a copy of the cultural resources report. All information sent and received is included in the record of consultation (Attachment B).

In conclusion, the project area has not been archaeologically surveyed. Therefore, it is recommended that the parcel be surveyed for cultural resources.

Sincerely,

Julia K. Green
Cultural Resource Specialist

APPENDIX A

Project Site and Vicinity

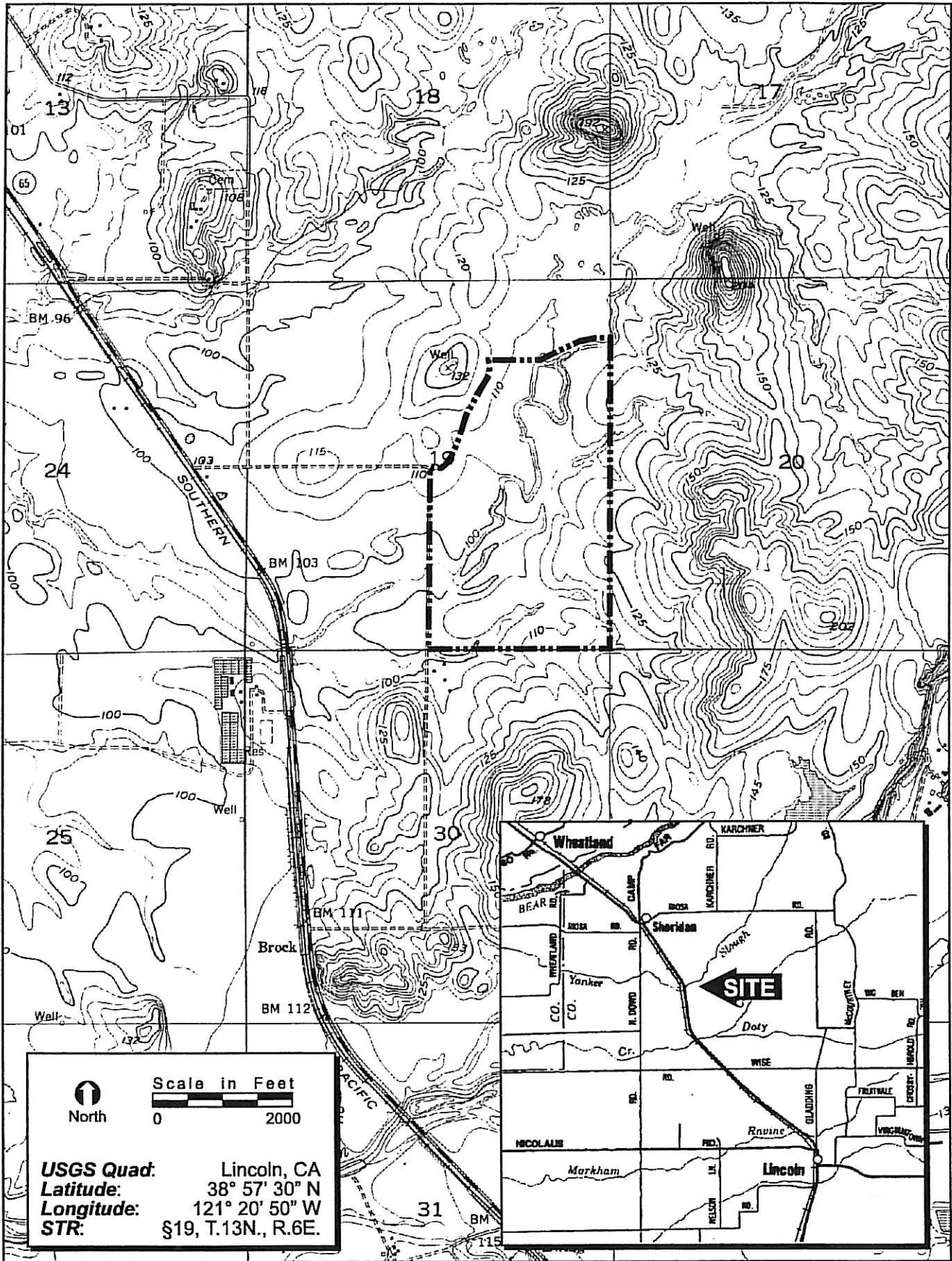
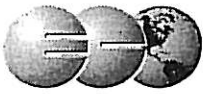


FIGURE 1. Project Site and Vicinity Map

APPENDIX B

Consultation



March 10, 2004

Ms. Debbie Pilas-Treadway
Associate Governmental Program Analyst
Native American Heritage Commission
915 Capital Mall, Room 364
Sacramento, CA 95814

RE: Cultural Resources Identification Effort at Yankee Slough Mitigation Bank, Placer County, California.

Dear Ms. Pilas-Treadway:

ECORP Consulting, Inc. has been retained to assist in the planning of the development on the parcel indicated above. As part of the identification effort, we are seeking information from all parties that may have knowledge of or concerns with historic properties or cultural resources in the area of potential effect.

Included is a map showing the project area outlined. We would appreciate input on this undertaking from the Native American community with concerns about possible traditional cultural properties or potential impacts within or adjacent to the area of potential effect. Please understand that this is not a request for location, data or any other information that may be deemed sensitive or confidential to individual Native Americans, Native American organizations, or Federally Recognized Tribes. Information on other parties that may have interests or concerns in the undertaking would be appreciated. Thank you in advance for your assistance in our cultural resource management consultation.

Sincerely,

Julia K. Green
Cultural Resource Specialist

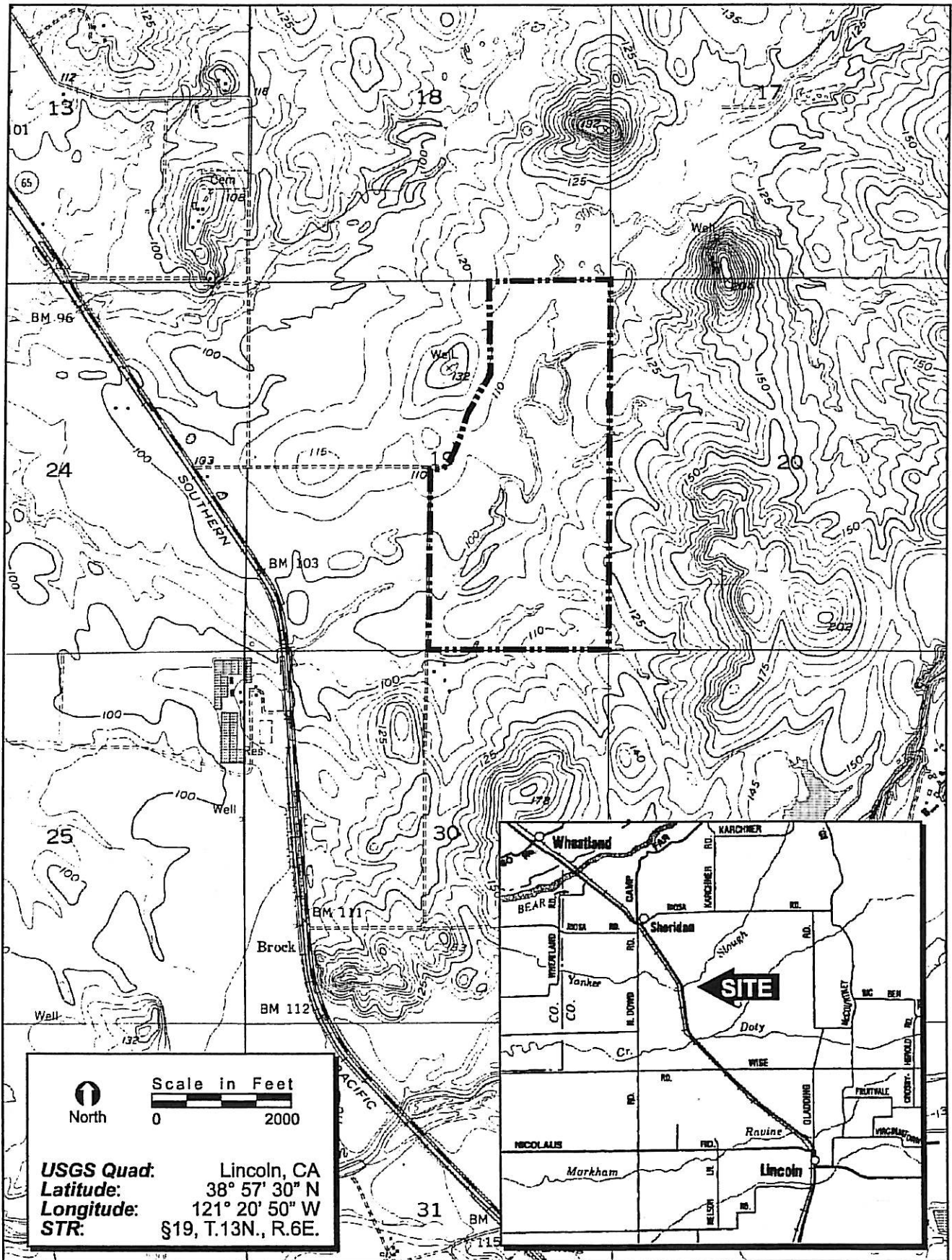


FIGURE 1. Project Site and Vicinity Map

2000-143 Yankee Slough Mitigation Bank

NATIVE AMERICAN HERITAGE COMMISSION

815 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov



March 12, 2004

Julie K. Green
ECORP Consulting, Inc.
2260 Douglas Blvd., Suite 160
Roseville, CA 95661

Sent by Fax: 916-782-9134
Number of Pages: 11

RE: Proposed

Yankee Slough

Mitigation Bank project, Placer County

Dear Ms. Green:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

for: Debbie Pilas-Treadway
Environmental Specialist III

NATIVE AMERICAN CONTACTS
Placer County
March 11, 2004

Jose Enos
5310 Bancroft Road Maidu
Auburn, CA 95603 Washoe
(530) 878-2378

United Auburn Indian Community of the Auburn
John Suehead
575 Menlo Drive, Suite 2 Maidu
Rocklin, CA 95765 Miwok
916 663-3720
916 663-3727 - Fax

Shingle Springs Band of Miwok Indians
Jeff Murray, Cultural Resources Manager
P.O. Box 1340 Miwok
Shingle Springs, CA 95682 Maidu
(530) 676-8010
(530) 676-8033 Fax

Foothill Valley Miwok-Maidu Cultural Foundation
Christopher Suehead, Cultural Representative
PO Box 1490 Miwok
Foresthill, CA 95631 Maidu
vmmcf@foothill.net
(530) 367-3893 - Voice / Fax

United Auburn Indian Community of the Auburn
Jessica Tavares, Chairperson
575 Menlo Drive, Suite 2 Maidu
Rocklin, CA 95765 Miwok
916 663-3720
916 663-3727 - Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regards to cultural resources assessment for the proposed Yankee Slough Mitigation Bank project, Placer County



April 14, 2004

Rose Enos
15310 Bancroft Road
Auburn, California 95603

RE: *Cultural Resources Identification Efforts, Yankee Slough Mitigation Bank, Placer County, California*

Dear Rose Enos:

ECORP Consulting, Inc. is conducting an environmental and cultural resource study at Yankee Slough Mitigation Bank project. A record search of the project area has been conducted. A map showing the project study area is attached.

The State of California Native American Heritage Commission recommended that we contact you to provide an opportunity for you to contribute information about cultural resources within this project study area. An important element of our investigation is to identify sites, resources, or locations that are of cultural importance to the local Native American community. We would appreciate any information you might have concerning these resources in the project study area. If you cannot supply information, but know of others who can, we would appreciate it if you would provide us with the names of individuals.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist.

If you have any questions, please do not hesitate to contact me at ECORP Consulting, Inc. at 916-782-9100. Thank you in advance for your participation in our cultural resource consultation.

Sincerely,

Julia K. Green
Cultural Resource Specialist

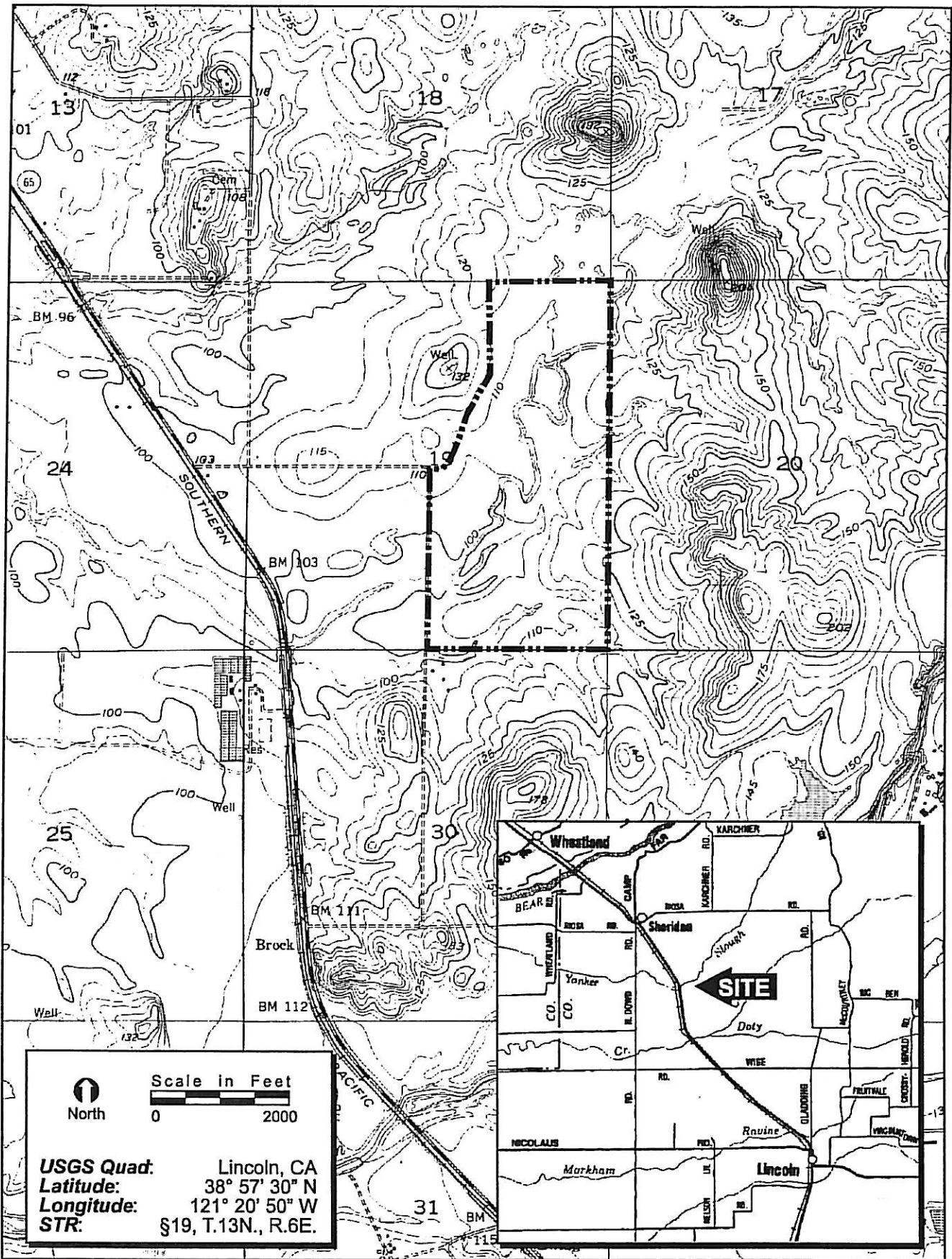


FIGURE 1. Project Site and Vicinity Map

2000-143 Yankee Slough Mitigation Bank

JESSICA TAVARES
CHAIRPERSONDAVID KEYSER
VICE CHAIRCHRISTINE BEALL
SECRETARYDOLLY SUEHEAD
TREASURERMONA CAMP
COUNCIL MEMBER

May 4, 2004

Julia Green
ECORP Consulting, Inc.
2260 Douglas Blvd., Suite 160
Roseville, CA 95661

Subject: Impact to Cultural Resources on Project Site

Dear Ms. Green,

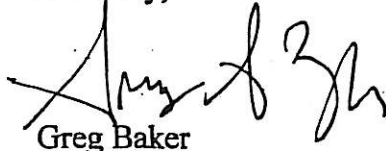
We recently received notifications indicating that you are working on several projects in Placer County (Yankee Slough Mitigation Bank,

that have the potential to impact Native American cultural sites. As you may know, under the California Environmental Quality Act and Section 106 of the National Historic Preservation Act, you are required to consult with Indian tribes that may have cultural affiliations or interest in your project. The United Auburn Indian Community is composed of Miwok and Maidu Indians with an ancestral territory encompassing Placer and Nevada Counties, and surrounding areas. We are concerned about projects that may impact our ancient burial grounds and village sites, and sites that have cultural and religious importance to us.

We request that a qualified archaeologist conduct a field survey of the project sites and complete a records search at the appropriate Information Center associated with the California Historical Resources Information System. If any cultural resources are located within the project boundaries or within a one mile radius of the project boundaries, we would like to receive a copy of the cultural resources report for that particular project. We will then review the report and determine if cultural resources of importance to us may be impacted.

Please contact our environmental consultant, Dr. Shelley McGinnis, of Analytical Environmental Services, at (916) 447-3479 if you have any questions regarding this matter.

Sincerely,



Greg Baker
Tribal Administrator

APPENDIX B

Resumes

Kyle Johnson

Archaeological Technician

3 years
Professional
Experience

Summary

Mr. Johnson is an ECORP archaeologist with five years experience in cultural resource management California. He has worked for the USDA Forest Service and in the private sector. He has participated in numerous research projects involving cultural resource survey archaeological site excavation and site recording.

Mr. Johnson's emphasis of his academic and professional research interests have been on the study of prehistoric and historic archaeology.

Relevant Experience

- Participated in a semester long field class with Sacramento State which involved all aspects of excavation and recording of a prehistoric and historic site. Other duties included identifying, sorting, cleaning, and cataloging of recovered artifacts while in the field and lab.
 - Employed by the US Forest Service. Duties included background research of documents related to the management of cultural resources, archaeological surveys, assisting in the evaluation of historic structures and sites, cultural resource protection and monitoring, prehistoric site test excavations, recording and documentation of prehistoric and historic sites.
 - Participated in a Phase II testing excavation with the El Dorado National Forest (CA).
 - Member of a US Forest Service wild-land field crew which involved current, post-fire survey and excavation with the Tahoe National Forest.
 - Involved with phase II testing of a historic church basement in downtown Sacramento.
 - Phase II testing of property due to be developed in downtown Sacramento.
 - Data recovery project of a historic Saloon in downtown Sacramento.
 - Attended six-day environmental archaeology field study with Sacramento State and the UC Bishop Research Center of past and current ecosystems as they relate to prehistory in eastern California and western Nevada.
 - Geological, natural and cultural history field studies in Death Valley, western and central Nevada with Sierra College Natural History Museum.
 - Participated in the excavation of two Mastadon tusks with the Sierra College Natural History Museum for the Douglas County, Nevada history museum in Yerrington, Nevada.
-

- Involved with numerous paleontological field surveys with the Sierra College Natural History Museum which include excavation and screening for possible paleontological resources.

Education

- BA Anthropology; California State University, Sacramento, 2003
- AS Geology, Sierra College, Rocklin, 1998

- Crew Chief for the District's Heritage program, directed the daily field and office activities
- Authored cultural resource reconnaissance and compliance documentation reports that provided recommendations for treatment of cultural resources.
- Selected heritage projects that I led or contributed to include: By The Way Roadside Hazard Tree Removal Project (design, execution, & reporting), Otter Creek Abandoned Mines Closure Project (design, execution, & reporting), and the Star Fire suppression activities.
- Involved in all phases of fieldwork for the Beacon Rock State Park Bicentennial Celebration Project. Work conducted at the site focused on defining the boundaries of a proto-historic village occupied by Cascade peoples and visited twice by Lewis and Clark on their epic journey. Duties included survey, site mapping, test unit excavation, field observation/analysis of cultural materials, and record keeping.
- Research and explored the prehistory of Central Oregon through the examination of eight archaeological sites from the Upper Deschutes River Basin. Inquiry focused on the land use, mobility, technological organization, and raw material procurement of the aboriginal inhabitants of the area. Archaeological data was augmented with ethnographic accounts to inform interpretations.
- Detailed technological analysis of a prehistoric flaked stone tool and debitage assemblage from the Swamp Wells site located on the flank of Newberry Crater.
- Involved in several phase I, II, and III projects in Oregon and Washington, most notably the *Level 3 Fiber Optic Project*. My work on this project contributed to the discovery and mitigation of a 19th Century railroad labor camp.
- Laboratory work of analysis of soil samples, cataloging, data entry, and artifact processing.
- Phase II site testing project on Mendocino National Forest directed crew in two excavation units. Duties on this project included excavation, record keeping, cataloging, soil collection, and unit profiling.
- Extensive foot survey, site monitoring, data collection and mapping in the Willamette National Forest for the Blue River Archaeological Project.
- Duties for the Lake Earl Phase II Archaeological Investigation involved extensive cultural resource survey, site recordation, monitoring, and site mapping.
- Cultural resource survey of the Somoa Dunes Recreation Area.
- This phase II site testing project and field school at Sugar Loaf State Park (CA) focused on the techniques used in field identification, excavation, and preliminary analysis of cultural materials.

Geographic Information Systems

Proficient in Geographic Information Systems: special analysis and cartographic production. He is competent in ArcView and Pathfinder software.

Additional Professional Information

Education / Special Training

BA Anthropology; Humboldt State University, Arcata, California, 1998
MA Master of Arts in Interdisciplinary Studies; Oregon State University, Corvallis, Oregon, 2002

Professional Organizations / Associations

- Register of Professional Archaeologists
- Society of California Archaeology
- Society of American Archaeologists

Courses

Certification in Burned Area Emergency Response Team, Forest Service, 2001
Type II Wild-Land Fire Fighter, Forest Service, 2001

APPENDIX C

CONFIDENTIAL Isolate Record

This appendix contains information on the specific locations of cultural resources.

This information is not for publication or release to the general public. It is for planning, management and research purposes only. Information on the locations of prehistoric and historic sites is exempted from the Freedom of Information Act.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code

Reviewer

Date

Page 1 of 1

*Resource Name or #: ISO 1

P1. Other Identifier:

*P2. Location: Not for Publication Unrestricted
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*a. County: Placer

*b. USGS 7.5' Quad: Lincoln, Ca. Date: 1981 photorevised T13N; R6E; NE¼ of NE¼ of Sec:19; M.D. B.M.

c. Address: City: Zip:

d. UTM: Zone: 10 ; 643900 mE/ 4314320 mN

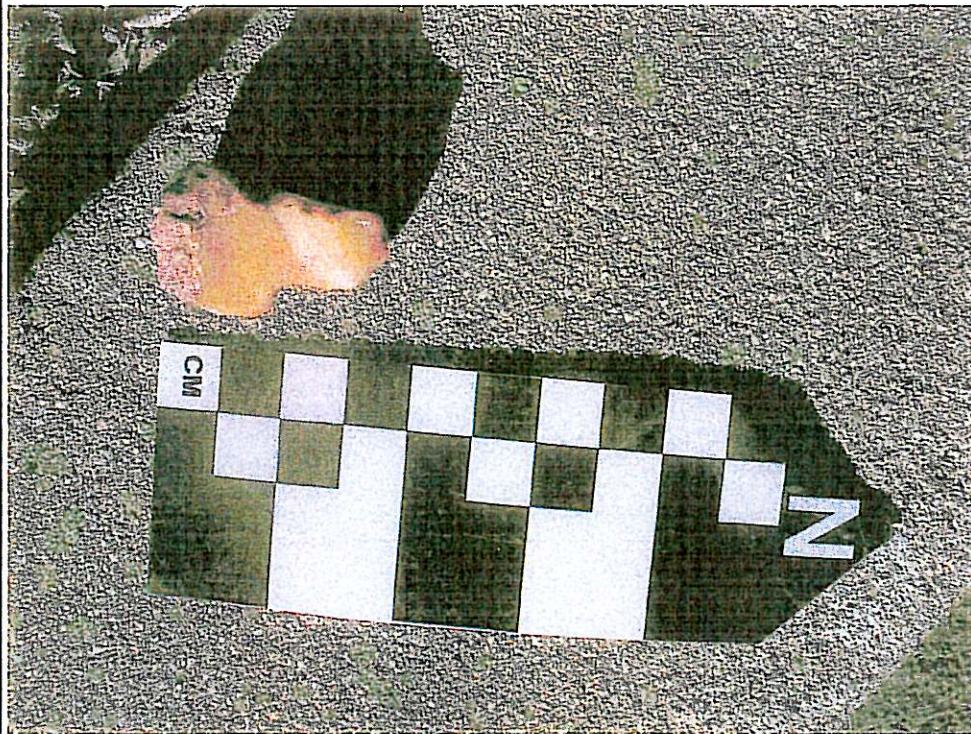
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 100 MSL

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
One 3.5 x 2 x 1.5cm flake comprised of opalized wood.

*P3b. Resource Attributes: (List attributes and codes) AP2 Lithic Scatter

*P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #)
Top view of flake. Photo taken 5/26/05. Digital image DSCN 1246

*P6. Date Constructed/Age and Sources: Historic Prehistoric Both

*P7. Owner and Address:

*P8. Recorded by: (Name, affiliation, and address)

Kyle Johnson
ECORP Consulting, Inc.
2260 Douglas Blvd., Suit e160
Roseville, California 95661

*P9. Date Recorded: 5/24/05

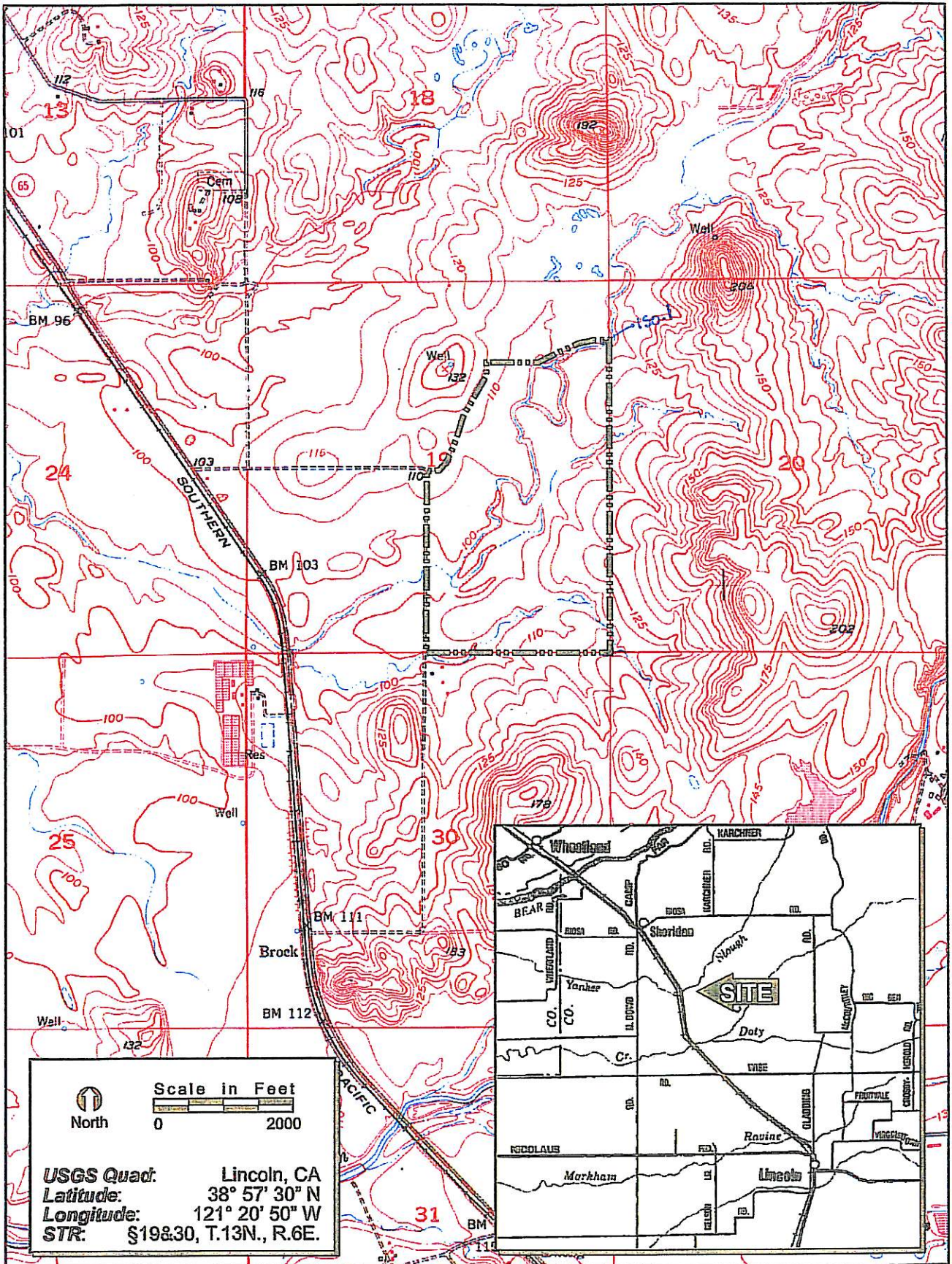
*P10. Survey Type: (Describe)
Intensive Survey (30 m. transects)

*P11. Report Citation: (Cite survey report and other sources, or enter "none.")
Cultural Resource inventory, Yankee Slough, Placer County, California. Project #2000-143

*Attachments: NONE Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List):

DPR 523A (1/95)

*Required information



VERNAL POOL MITIGATION AND MONITORING PLAN

FOR THE

FIDDYMENT 44 PROJECT

AT THE

YANKEE SLOUGH PRESERVE

(PLACER COUNTY, CALIFORNIA)

Finalized:

September 1, 2005

Prepared for:

Conservation Resources

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Figure 8 – Mitigation Site NRCS Soil Types

Figure 9 – Regional Conservation Areas

Figure 10 – Reference Pool Locations

Figure 11 – Photo Point Locations

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Attachment A – Biological Opinion (1-1-05-F-0037)

Attachment B – Department of the Army Permit (200400213)

Attachment C – Vernal Pool Restoration Plan Set

Attachment D – Wetland Delineation Verification

Attachment E – Cultural Resources Identification & Evaluation

ATTACHMENT A

Biological Opinion (1-1-05-F-0037)

ATTACHMENT B

Department of the Army Permit (200400213)

ATTACHMENT C

Vernal Pool Restoration Plan Set

ATTACHMENT D

Wetland Delineation Verification

ATTACHMENT E

Cultural Resources Identification & Evaluation

Cultural Resources Inventory & Evaluation
Yankee Slough Mitigation
Placer County, California
Project 2003-170

Prepared by:
ECORP Consulting
2260 Douglas Blvd., Suite 160
Roseville, CA 95661
916-782-9100

Prepared for:
Ms. Wendy Hall
Conservation Resources, LLC
3600 American River Drive, #225
Sacramento, CA 95864

Keywords: Cultural Resource Inventory,
Section 106, no historic properties,
USGS Lincoln, CA 7.5 minute quadrangle,
T13N, R6E, Approximately 230-acres

August 2005

LIST OF APPENDICES

Appendix A – Literature Search Results

Appendix B – Resumes

Appendix C – CONFIDENTIAL Isolate Record

APPENDIX A

Literature Search Results

APPENDIX B

Resumes

APPENDIX C

CONFIDENTIAL Isolate Record

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