F. BIOLOGICAL RESOURCES

This section describes: 1) existing biological resources at the project site; 2) sensitive plant and animal communities, including wetlands; 3) potentially occurring special-status species; 4) potential impacts to biological resources associated with implementation of the proposed project; and 5) mitigation measures, as appropriate.

1. Setting

a. Methods. The methods used to evaluate the site and project are identified below.

(1) Records Search and Literature Review. Available reports of biological resources at the project site and special-status species databases were reviewed to identify habitat types and species potentially occurring at the project site. Reports that were prepared by Sycamore Associates, LLC and reviewed by LSA include: *Rare Plant Surveys and Habitat Assessment for Wetlands at the Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California*[1]; *Rare Plant Surveys of Upland Habitats, Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California*[2]*; Summer-Season Focused Special-status Plant Surveys at the Proposed Benicia Industrial Park, Solano County*[3]*; Bat Habitat Assessment, Benicia Business Park, Solano County, California*[4]; and *Verified Wetlands Delineation and Jurisdictional Determination for the Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California*[5]. The *Benicia Business Park Bat Roost Reconnaissance Survey* that was prepared by Wetland Research Associates (WRA) was also reviewed. [6] The *California Natural Diversity Database*[7] (CNDDB) and the California Native Plant Society's (CNPS) on-line *Inventory of Rare and Endangered Plants*[8] were searched to identify potentially occurring special-status species. The CNDDB and CNPS database search covered occurrences within the Benicia and Vine Hill United States Geological Survey (USGS) 7.5-minute quadrangle, in which the site is located, as well as the following adjacent quadrangles: Cuttings Wharf, Cordelia, Fairfield South, and Mare Island. Other CNDDB records within 5 miles of the project site were also reviewed.

[1] Sycamore Associates LLC., 1997. Rare Plant Surveys and Habitat Assessment for Wetlands at the Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. September 26.

[2] Sycamore Associates LLC., 1999. Rare Plant Surveys of Upland Habitats, Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. July 1.

[3] Sycamore Associates LLC, 1999. Summer-Season Focused Special-status Plant Surveys at the Proposed Benicia Industrial Park, Solano County. September 29.

[4] Sycamore Associates LLC, 2000. Bat Habitat Assessment, Benicia Business Park, Solano County, California. March 22.

[5] Sycamore Associates LLC, 1998. Verified Wetlands Delineation and Jurisdictional Determination for the Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. April 7, 1997, revised December 12, 1997. Verified February 4, 1998. (ACOE File No. 18366E).

[6] Wetland Research Associates (WRA), 2003. Benicia Business Park Bat Roost Reconnaissance Survey. March 15.

[7] California Natural Diversity Data Base (CNDDB), 2006. *Rarefind.* Version 3.0.5. California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch, Sacramento, CA. Updated July 26.

[8] California Native Plant Society. (CNPS), 2006. Inventory of Rare and Endangered Plants. On-line version 7-06b, July 11. Website: cnps.web.aplus.net/cgi-bin/inv/inventory.cgi.

(2) Field Surveys. Field work on the site included a formal wetland delineation conducted by Sycamore Associates on March 10 and March 24, 1997.[9] This delineation was verified by the Corps in 1997[10] and was re-verified on March 5, 2003[11] because the earlier verification had expired. Focused special-status plant surveys were conducted by Sycamore Associates on March 10, March 24, and September 23, 1997 for wetland plants and on April 27, May 5, June 7, and June 8, 1999 and August 27 and September 3, 1999 for upland plants[12,13,14.] WRA conducted a bat roost reconnaissance survey at the project site on March 14, 2003[15] and Sycamore Associates conducted a bat roost survey at the project site on March 8, 2000[16]. LSA biologists conducted reconnaissance-level surveys of biological resources at the project site on August 5, 1999 and August 31, 2006. The two reconnaissance surveys focused on characterizing the vegetation communities and wildlife habitats, identifying sensitive habitats, and evaluating the potential for special-status species to occur on the site. Plant and animal species observed during the survey were recorded in field notes.

b. Regulatory Context. The regulatory context of the project is described below.

(1) U.S. Fish and Wildlife Service (USFWS). USFWS has jurisdiction over species that are formally listed as threatened or endangered under the federal Endangered Species Act. The Endangered Species Act protects listed wildlife species from harm or "take." The term "take" is broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." An activity is defined as a "take" even if it is unintentional or accidental. An endangered plant or wildlife species is one that is considered in danger of becoming extinct throughout all, or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future. In addition to endangered and threatened species, which are legally protected under the federal Endangered Species Act, the USFWS has a list of proposed and candidate species. Proposed species are those for which a proposed rule to list them as endangered or threatened has been published in the Federal Record. A candidate species is one for which the USFWS currently has enough information to support a proposal to list it as a threatened or endangered species. These latter species are not afforded legal protection under the federal

[9] Sycamore Associates LLC, 1997. Preliminary Wetlands Delineation and Jurisdictional Determination for the Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. April 7. (Previous ACOE File No. 18366E10. Renewed as 18366N as of March 5, 2003.)

[10] Sycamore Associates LLC, 1998. Verified Wetlands Delineation and Jurisdictional Determination for the Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. April 7, 1997, revised December 12, 1997. Verified February 4, 1998. (ACOE File No. 18366E).

[11] Wetland Research Associates (WRA), 2003. Verification Letter from U.S. Corps of Engineers, San Francisco District. March 5, 2003. File Number 18366N.

[12] Sycamore Associates LLC, 1997. Rare Plant Surveys and Habitat Assessment for Wetlands at the Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. September 26.

[13] Sycamore Associates LLC, 1999. Rare Plant Surveys of Upland Habitats, Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. July 1.

[14] Sycamore Associates LLC, 1999. Summer-Season Focused Special-status Plant Surveys at the Proposed Benicia Industrial Park, Solano County. September 29.

[15] Wetland Research Associates (WRA), 2003. Benicia Business Park Bat Roost Reconnaissance Survey. March 15.

[16] Sycamore Associates LLC, 2000. Bat Habitat Assessment, Benicia Business Park, Solano County, California. March 22.

Endangered Species Act. However, project-related impacts to federally-listed, proposed, and candidate species or their habitats are considered "significant" under the *CEQA Guidelines* (discussed below).

The project sponsor would be required to comply with the federal Endangered Species Act in order to avoid a take of listed species that occur on the site and to avoid adverse modification of habitat that is determined to be essential to the survival and recovery of listed species. In order to ensure compliance with the Endangered Species Act, the USFWS would conduct an independent review of the project.

(2) California Department of Fish and Game (CDFG). CDFG has jurisdiction over threatened or endangered species that are formally listed by the State under the California Endangered Species Act. The California Endangered Species Act is similar to the federal Endangered Species Act both in process and substance; it is intended to provide protection to threatened and endangered species in California. The California Endangered Species Act prohibits the "take" of any plant or animal listed or proposed as threatened, endangered, or rare ("rare" applies only to plants). The California Endangered Species Act does not supersede the federal Endangered Species Act, but operates in conjunction with it. Species may be listed as threatened or endangered under both acts (in which case the provisions of both State and federal laws would apply) or under only one act.

CDFG also maintains informal lists of "species of special concern." These species are broadly defined as plants and wildlife that are of concern to CDFG because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California. Project-related impacts to species on the State endangered or threatened lists and lists of species of special concern are considered "significant" under the *CEQA Guidelines* (discussed below). CDFG also exerts jurisdiction over the bed and banks of watercourses according to the provisions of Section 1602 of the Fish and Game Code. The CDFG requires a Streambed Alteration Permit for the fill or removal of any material from any natural drainage. The jurisdiction of CDFG extends to the top of the bank and often includes the outer edge of riparian vegetation canopy cover.

(3) U.S. Army Corps of Engineers (Corps). Under Section 404 of the Clean Water Act, the Corps is responsible for regulating the discharge of fill material into "waters of the U.S." The lateral limits of waters of the U.S. are defined in 33 Code of Federal Regulations (CFR) Part 328.3(a) and include streams that are tributary to navigable waters and their adjacent wetlands. Wetlands that are not adjacent to waters of the U.S. are termed "isolated wetlands" and are not subject to Corps jurisdiction.

In general, a Corps permit must be obtained before placing fill in wetlands or other waters of the U.S. The type of permit required depends on the amount of acreage and the purpose of the proposed fill, and is subject to discretion from the Corps. There are two categories of Corps permits: nationwide (general) permits and individual permits. To qualify for a nationwide permit, a project must demonstrate that it has no more than a minimal adverse effect on an aquatic ecosystem. The Corps typically interprets this condition to mean that there will be no net loss of either habitat acreage or habitat value. This usually results in the need to provide mitigation for project-related fill of any creek or wetland.

An individual permit is required where a nationwide permit is not applicable. The consideration of an individual permit includes, but is not limited to, factors such as significant acreage of wetlands or

waters of the U.S., areas of high biological or unique value, or length of watercourse affected. Individual permits require review of the project by the public, evidence that wetland impacts have been avoided or minimized to the extent practicable, and provision of appropriate compensatory mitigation for unavoidable impacts

(4) Regional Water Quality Control Board (RWQCB). Pursuant to Section 401 of the Clean Water Act, projects that apply for a Corps permit for discharge of dredge or fill material into wetlands or other waters of the U.S. and State must also obtain water quality certification from the RWQCB. This certification ensures that the project will uphold State water quality standards. Alternatively, the RWQCB may elect to notify an applicant that the State may issue Waste Discharge Requirements in lieu of a Section 401 certification for a project. Wetlands and waters determined to be isolated and not subject to Corps jurisdiction may be regulated by the RWQCB under the Porter-Cologne Act as waters of the State. Fill of waters of the State requires issuance of a waste discharge permit. It is the policy of the State to have no net loss of wetlands.

(5) CEQA Guidelines Section 15380. Although threatened and endangered species are protected by specific federal and State statutes, *CEQA Guidelines* Section 15380(b) provides that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet other specified criteria. These criteria have been modeled after the definition in the federal Endangered Species Act and the section of the California Fish and Game Code dealing with rare or endangered species. Section 15380 (b) was included in the *CEQA Guidelines* primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFG (and this species is considered to be at risk of population decline). Thus, CEQA provides a lead agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

(6) California Native Plant Society (CNPS). CNPS, a non-governmental conservation organization, has developed lists of plants of special concern in California. A CNPS List 1A plant is a species, subspecies, or variety that is considered to be extinct. A List 1B plant is considered rare, threatened, or endangered in California and elsewhere. A List 2 plant is considered rare, threatened, or endangered in California but is more common elsewhere. A List 3 plant is a species for which CNPS lacks necessary information to determine if it should be assigned to a list or not. A List 4 plant has a limited distribution in California.

All of the plant species on List 1 and List 2 meet the requirements of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the CDFG Code, and are eligible for State listing. Therefore, plants appearing on Lists 1 or 2 are considered to meet the *CEQA Guidelines'* Section 15380 criteria and effects to these species are considered "significant" in this document.

(7) City of Benicia General Plan. Applicable biological resources goals, policies, and implementation programs from the Benicia General Plan are presented below.

Open Space and Conservation of Resources

- *Biotic Resources Goal 3.19:* Preserve and enhance habitat for special-status plants and animals.
    - *Biotic Resources Policy 3.19.1:* Protect essential habitat of special-status plant and animal species.

        - *Biotic Resources Program 3.19.A:* Require biological assessments in sensitive habitat areas as part of environmental review of proposed development.
        - *Biotic Resources Program 3.19.B:* Require retention of essential habitat for special-status species. If infeasible, require adequate mitigation for loss of special-status species and/or habitat in compliance with State and federal regulations.

- *Biotic Resources Goal 3.20:* Protect and enhance native vegetation and habitats.
    - *Biotic Resources Policy 3.20.1:* Protect native grasslands, oak woodlands, and riparian habitat.
    - *Biotic Resources Policy 3.20.2:* Restore native vegetation, such as birch grasses and oaks, wherever possible for open spaces of existing developed areas.
        - *Biotic Resources Program 3.20.B:* Limit the loss of native vegetation or require mitigation, or both.
        - *Biotic Resources Program 3.20.C:* Require native and compatible non-native plant species, especially drought-resistant species, to the extent possible in landscaping new development and public areas.
    - *Biotic Resources Policy 3.20.3:* Encourage preservation of existing trees. Especially preserve and protect mature, healthy trees whenever practicable, particularly where such trees are of significant size or are of significant aesthetic value to the immediate vicinity or to the community as a whole.
        - *Biotic Resources Program 3.20.D:* Strive to incorporate existing mature, healthy trees into proposed developments.
    - *Biotic Resources Policy 3.20.4:* Require protection of movement corridors.
- *Biotic Resources Goal 3.21:* Permanently protect and enhance wetlands so that there is no net loss of wetlands within the Benicia Planning Area.
    - *Biotic Resources Policy 3.21.1:* Encourage avoidance and enhancement of sensitive wetlands as part of future development.
        - *Biotic Resources Biotic Resources Program 3.21.A:* Continue to require wetland delineation and mitigation as part of environmental review of proposed development.
    - *Biotic Resources Policy 3.21.2:* Require replacement for wetlands eliminated as a result of development at a higher wetlands value and acreage than the area eliminated. Replacement ratios are initially determined by State and federal agencies. The City desires to take an aggressive approach in promoting wetland enhancement. If the City desires a higher ratio, a nexus must be established between the loss and the desired replacement ratio.
        - *Biotic Resources Program 3.21.B:* Continue to coordinate with the California Department of Fish and Game, United States Fish and Wildlife Service, and the United States Army Corps of Engineers in reviewing proposed wetland modifications.
    - *Biotic Resources Policy 3.21.4:* Restore and increase marshland areas.
        - *Biotic Resources Program 3.21.E:* Identify small wetlands and require their protection, restoration, and enhancement as part of open space dedication in proposed development and in citywide open space improvements.
- *Water Resources Goal 3.22:* Preserve water bodies.
    - *Water Resources Policy 3.22.1:* Avoid development that will degrade existing lakes and streams.
        - *Water Resources Program 3.22.A:* Require that all development in watersheds flowing into lakes and unchannelized streams include features to preserve run-off water quality.
        - *Water Resources Program 3.22.B:* Require a minimum setback of 25 feet from the top of bank of streams and ravines. Do not allow development within the setback
- *Water Resources Goal 3.24:* Protect watersheds.

(8) City of Benicia Tree Ordinance. The City's Zoning Ordinance, Section 17.70.190 (H) requires a Tree Removal Permit from the Parks and Community Services Director for removing,

trimming or altering all trees with a diameter of 12 inches or more at 24 inches above the ground.[17] Two 15 gallon trees are generally required for the replacement of each mature tree that is removed. In some cases, one or two 24-inch box trees, or a mature tree, is required for the replacement of one mature tree. In some cases such as dead or dying trees, thinning groups of trees, or removal of one tree in a group of healthy trees, tree replacement is not required.

(9) City of Benicia Stream Setback. The City's Zoning Ordinance, Section 17.70.340 requires that all development be set back at least 25 feet from the top of the bank of seasonal and perennial streams and ravines.[18]

c. Site Conditions. Figure IV.F-1 shows plant communities, habitat, and jurisdictional waters at the project site. The project site consists of low rolling hills, with elevations ranging from approximately 25 to 280 feet above mean sea level. The majority of the site is dominated by non-native grassland. Wetland features present at the project site consist of coastal/valley freshwater marsh and coastal riparian scrub that are located primarily along several intermittent streams and swales. Some reaches of these streams are not vegetated (non-wetland waters of the United States). Water from these streams flows into Suisun Bay. Woody vegetation is limited on the site and consists of individuals and small stands of introduced and native trees and native shrubs. An old barn and milking shed are the only buildings on the site. The site is currently grazed by livestock.

Existing conditions at the project site are described below for: vegetation communities and wildlife habitats; sensitive plant communities and habitats; and special-status species.

(1) Vegetation Communities and Wildlife Habitats. The following sections describe vegetation communities and habitats on the site based on a review of existing biological documents and two reconnaissance surveys conducted by LSA in 1999 and 2006. Nomenclature for vegetation communities was taken from the special-status plant survey reports prepared by Sycamore Associates,[19] which were based on the Holland classification system.[20] Names that are not included in the above references, but which describe the vegetation on the site, are also used. Botanical nomenclature conforms to *The Jepson Manual, Higher Plants of California*.[21] Nomenclature for special-status plant and animal species conforms to the *California Natural Diversity Data Base* (CNDDB).[22]

[17] City of Benicia, 1999. Benicia Municipal Code, Title 17: Zoning. Chapter 17.70 Site Regulations. 17.70.90 Landscaping, Irrigation and Hydroseeding. H. Preservation of Mature Trees.

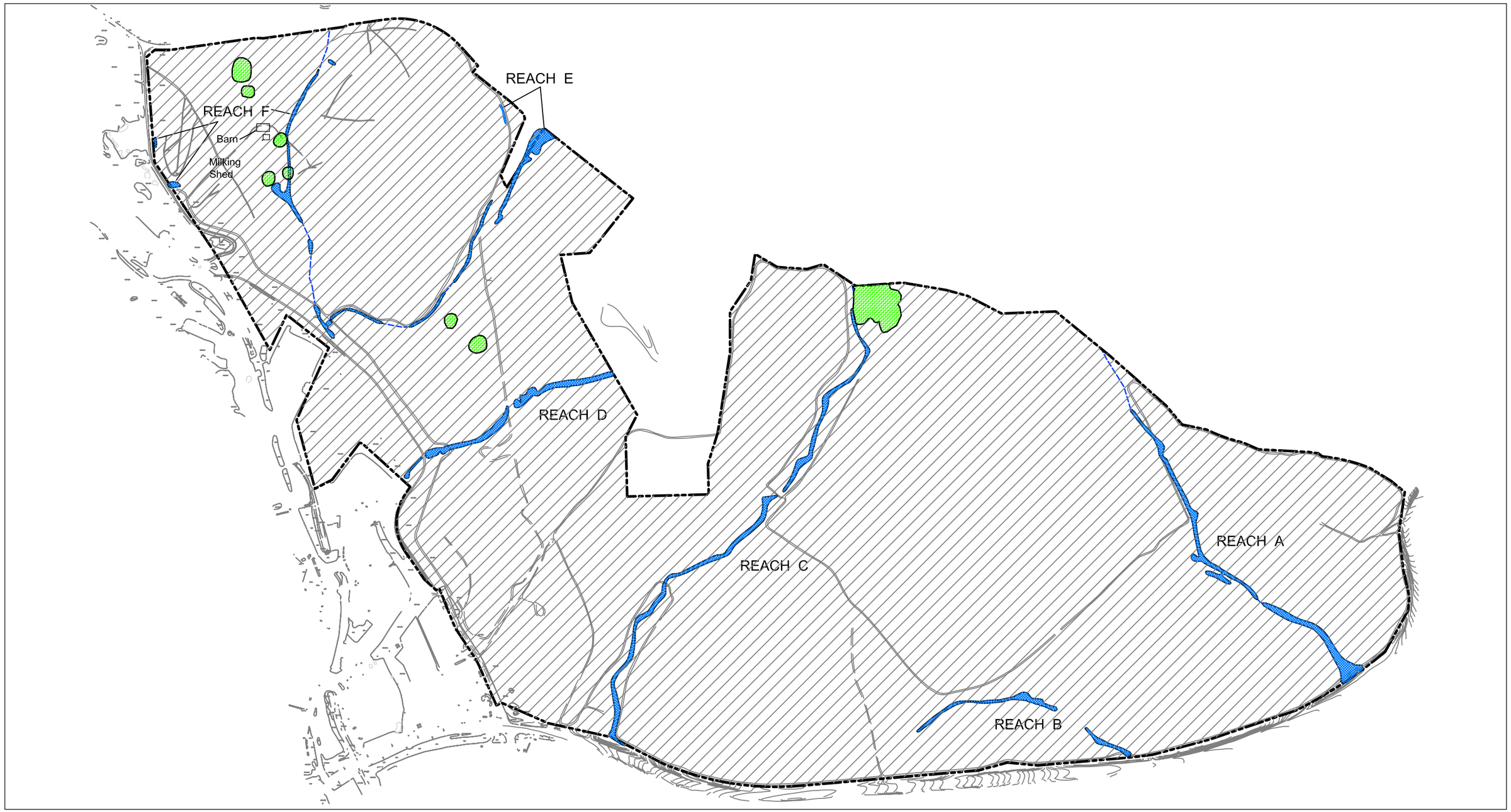
[18] City of Benicia, 2001. Benicia Municipal Code, Title 17: Zoning. Chapter 17.70 Site Regulations. 17.70.340 Stream Setbacks.

[19] California Department of Fish and Game (CDFG), 2003. *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Data Base*.

[20] Holland, R.F., 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game, Nonage-Heritage Program. Sacramento, CA. 156 pp.

[21] Hickman, J.C. (Ed.), 1993. The Jepson Manual, Higher Plants of California. University of California Press, Berkeley, CA. 1,400 pp.

[22] California Natural Diversity Data Base (CNDDB), 2006. *Rarefind.* Version 3.0.5. California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch, Sacramento, CA. Updated July 26.



LSA

LEGEND:

Project Site

Eucalyptus *(Eucalyptus globulus)*

Non-native Grasslands

Jurisdictional Waters of the United States (Corps Verified on 3-5-2003)

Non-wetland Waters

Coastal Valley Freshwater Marsh

N

0 325 650

FEET

SOURCE: WETLAND RESEARCH ASSOCIATES, 2003 (CORPS VERIFIED JURISDICTIONAL WATERS OF THE UNITED STATES)
MORTON & PITALO, INC., 2003 (BASE MAP)

FIGURE IV.F-1

Benicia Business Park EIR

Vegetation Communities and Habitats and Jurisdictional Waters of the United States

I:\CIB530 Benicia Bus Park\figures\Fig_IVF1.ai (10/12/06)

Non-Native Grassland. The majority of the project site consists of non-native grassland (approximately 517 acres.) The grassland areas have been used for livestock grazing. This plant community is characterized by a cover of non-native annual grasses, though native and non-native wildflowers (forbs) and native grasses occur in the grassland onsite. The dominant grasses at the project site are brome grasses (*Bromus diandrus, B. madritensis* ssp. *rubens*), wild barley (*Hordeum murinum* ssp. *leporinum, H. marinum* ssp. *gussoneanum*), wild oats (*Avena* spp.), medusa-head grass (*Taeniatherum caput-medusae*) and Italian wildrye (*Lolium multiflorum*). Native grass species occurring on the site include creeping wild-rye (*Leymus triticoides*), which occurs in several places, especially in the northeast section of the site, and purple needlegrass (*Nassella pulchra*).

Both native and non-native forbs are interspersed throughout the grassland, including: bellardia (*Bellardia trixago*), rough cat's ear (*Hypochaeris radicata*), California poppy (*Eschscholzia californica*), filarees (*Erodium* spp.), hedge parsley (*Torilis nodosa*), bur-clover (*Medicago polymorpha*), purple owl's-clover (*Castilleja exserta*), narrow-leaved mule ears (*Wyethia angustifolia*), blue-eyed grass (*Sisyrinchium bellum*), Ithuriel's spear (*Triteleia laxa*), lupine (*Lupinus* ssp.) and hayfield tarweed (*Hemizonia congesta*). Very few shrubs occur on the site. The only shrubs observed at the project site were coyote brush (*Baccharis pilularis*) and toyon (*Heteromeles arbutifolia*) near the eucalyptus stand south of Lake Herman Road. Italian buckthorn (*Rhamnus alaternus*) is an ornamental shrub on the plant list for the site.[23]

Pappose tarplant (*Centromadia [=Hemizonia] parryi* ssp. *parryi*), currently listed as a CNPS List 1B species, was found during the 1997/1998 focused plant surveys at the site, but this species was not listed by CNPS at that time and was not described in the special-status plant reports. The extent of this plant on the site is unknown. This species was not observed on the site during the August 31, 2006 reconnaissance survey of the site, which is during its blooming period.

Ruderal (weedy) vegetation occurs in portions of the grassland and under the blue gum eucalyptus trees (*Eucalyptus globulus*), forming dense stands in some areas. Invasive ruderal plant species present include fennel (*Foeniculum vulgare*), purple star-thistle (*Centaurea calcitrapa*), yellow-star thistle (*C. solstitialis*), artichoke thistle (*Cynara cardunculus*) and milk thistle (*Silybum marianum*).

Grasslands provide habitat for a relatively small number of wildlife species due to the uniform structure of vegetation. However, the grasslands on the site support populations of small lagomorphs (rabbits) and rodents, including black-tailed jackrabbit (*Lepus californicus*) and California vole (*Microtus californicus*), which provide an important potential prey base for avian and mammalian predators such as red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), great horned owl (*Bubo virginianus*), short-eared owl (*Asio flammeus*), coyote (*Canis latrans*) and American badger (*Taxidea taxus*).

Wildlife species commonly found in grassland habitats that were observed at the project site during the August 1999 and/or August 2006 reconnaissance-level surveys include turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), red-tailed hawk, American kestrel (*Falco sparverius*), rock pigeon (*Columbia livia*), mourning dove (*Zenaida macroura*), barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), black phoebe (*Sayornis nigricans*), northern mockingbird

[23] Sycamore Associates LLC, 1999. Rare Plant Surveys of Upland Habitats, Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. July 1.

(*Mimus poly-glottos*), loggerhead shrike (*Lanius ludovicianus*), European starling (*Sturnus vulgaris*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), and house finch (*Carpodacus mexicanus*). Golden eagles have also been observed foraging on the site and roosting in the eucalyptus trees on the site by City staff although none were observed during the 1999 or 2006 site visits. Mammals observed were black-tailed jackrabbit, California vole, coyote, and black-tailed deer (*Odocoileus hemionus columbianus*) (scat). The turkey vulture, red-tailed hawk, American kestrel, and great horned owl are wide-ranging species that would include the project site in their search for food. Likewise, deer and coyotes from the larger open spaces north of the site could include the site as part of their foraging habitat. Although often present in grassland habitat, the only California ground squirrels (*Spermophilus beecheyi*) observed were in the wood piles in the southwestern portion of the project site.

Abandoned farm buildings are present in the grasslands at the project site (Figure IV.F-1). A farmhouse was also present during the 1999 reconnaissance survey, but has since burned down leaving only the concrete walls and foundation of the building. The barn and milking shed could provide nesting habitat for swallows, black phoebe, and other birds. Pallid bats (*Antrozous pallidus*), pale Townsend's big-eared bats (*Corynorhinus townsendii pallescens*), and other bat species could also roost in these structures. No bats were observed during surveys conducted by Sycamore on March 8, 2000[24] or by WRA on March 14, 2003[25]. However, minimal amounts of old bat roosting signs were observed in the milking shed in March 2000. In 2003, WRA observed scattered droppings in the attic of the abandoned farmhouse, but WRA was unable to identify the source the droppings. Evidence of nesting by barn owls (*Tyto alba*) was observed in the barn during the bat survey in 2000[26]. Additionally, WRA observed droppings of a large bird, which they determined was likely an owl, in the attic of the farmhouse.[27] As noted above, this farmhouse has since burned down. The barn and milking shed provide potential nesting habitat for this species onsite. These owls hunt in the grasslands and around the old buildings.

In addition to the barn and milking shed, dilapidated ranch structures and concrete foundations are located west of Reservoir Road in the southwestern portion of the project site. Concrete slabs, rusty sheet metal, and wood piles are also present in this area. Wildlife species observed in the wood piles include California ground squirrel and western fence lizard (*Sceloporus occidentalis*). Other species that may utilize this habitat include common kingsnake (*Lampropeltis getulus*) and gopher snake (*Pituophis melanoleucus*). This was only place where ground squirrels were observed during the reconnaissance surveys.

Coastal/Valley Freshwater Marsh. There are approximately 7.1 acres of coastal/valley fresh-water marsh habitat at the project site. This habitat occurs at the project site along the four intermittent streams, swales, seeps and in two isolated depressions in the northwestern portion of the site (Reach F, Figure IV.F-1). This habitat is a jurisdictional wetland habitat that was verified by the Corps in 2003.

[24] Sycamore Associates LLC, 2000. Bat Habitat Assessment, Benicia Business Park, Solano County, California. March 22.

[25] Wetland Research Associates (WRA), 2003. Benicia Business Park Bat Roost Reconnaissance Survey. March 15.

[26] Sycamore Associates, LLC, 2000. Bat Habitat Assessment, Benicia Business Park, Solano County, California. March 22.

[27] Wetland Research Associates (WRA), 2003. Benicia Business Park Bat Roost Reconnaissance Survey. March 15.

Coastal/Valley Freshwater Marsh on the site is dominated by perennial and annual wetland species. Vegetation along the stream channels includes iris-leaved rush (*Juncus xiphioides*), creeping spike-rush (*Eleocharis macrostachya*), three-square bulrush (*Scirpus americanus*), narrowleaf cattail (*Typha angustifolia*), and water cress (*Rorippa nasturtium-aquaticum*). Dominant vegetation in the seeps and swales include iris-leaved rush, creeping spike rush, coast clover (*Trifolium wormskioldii*), curly dock (*Rumex crispus*), perennial ryegrass (*Lolium perenne*), mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), water buttercup (*Rannunculus aquatilis* var. *capillaceus*), and buttercup (*R. muricatus*). Vegetation in the two marshes isolated at the northwestern edge of the project site is dominated by African brass-buttons (*Cotula coronopifolia*) and perennial ryegrass. Other plants present include buttercup, stipitate popcorn-flower (*Plagiobothrys stipitatus* var. *micranthus*), California water-starwort (*Callitriche marginata*), water pigmy-weed (*Crassula aquatica*), loosestrife (*Lythrum hyssopifolia*), and curly dock (Rumex crispus).

Freshwater marshes and other wetlands provide important breeding habitat for amphibians such as the Pacific treefrog (*Pseudacris regilla*) and western toad (*Bufos boreas*); only the Pacific treefrog was observed at the project site. Some of the grassland species mentioned in the Non-native Annual Grassland section also rely on these freshwater marshes as a source of water and food. The freshwater marshes may also be used as a water source, on a seasonal basis, for local wildlife. Species observed during the reconnaissance surveys that may utilize the marshes include red-winged blackbird and black phoebe. Various water bird species are attracted to seasonal wetlands and include mallard (*Anas platyrhynchos*), greater yellowlegs (*Tringa melanoleuca*), Wilson's snipe (*Gallinago delicata*), great egret (*Ardea alba*), and great blue heron (*Ardea herodias*). The Pacific pond turtle (*Actinemys marmorata*) and California red-legged frog (*Rana aurora draytonii*) occur in aquatic habitats in the area, but have not been documented at the project site. The project site occurs outside of the known ranges of the California tiger salamander (*Ambystoma californiense*) and fairy shrimp species.

Central Coast Riparian Scrub. Central coast riparian scrub at the project site consists of small, disturbed patches and individual mature red willow (*Salix laevigata*) along the streams and seeps. These red willow trees occur along all six coastal/valley freshwater marsh reaches (Reaches A-F; Figure IV.F-1). This habitat does not appear to be included in the verified jurisdictional areas of coastal/valley freshwater marsh. This habitat is not mapped because it is small, not extensive on the site, and overlaps with coastal/valley freshwater marsh mapping in some areas.

Several bird species could forage or nest in the coastal riparian scrub habitat onsite. White-tailed kite (*Elanus leucurus*), red-tailed hawk, loggerhead shrike, and several songbird species could nest in the red willows. Special-status songbirds that could nest in the red willows onsite include saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*).

Non-wetland Waters of the United States. Several of the intermittent stream channels in the site do not support any vegetation. There is approximately 0.18 acre (7,670 square feet) of verified jurisdictional non-wetland waters at the project site (Figure IV.F-1). The channels of the intermittent streams vary in width (at the mean high water line) from approximately 4 to 30 feet and are between 6 inches and 4 feet deep.[28]

[28] Sycamore Associates LLC, 1998. Verified Wetlands Delineation and Jurisdictional Determination for the Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. April 7, 1997, revised December 12, 1997. Verified February 4, 1998. (ACOE File No. 18366E).

Eucalyptus and Ornamental Trees. A stand of mature blue gum (*Eucalyptus globulus*) trees is located along the northern boundary of the site adjacent to wetland Reach C, and individual blue gum trees are in the northwestern portion of the site (Figure IV.F-1). These trees comprise approximately 3.2 acres.

A small stand of ornamental English plain tree (*Platanus acerifolia*), English walnut (*Juglans regia*), and California black walnut (*Juglans californica* var. *hindsii*) occurs at remnant farm buildings at the southwestern corner of the site. Ornamental fruit trees are growing in the area near the barn and milking shed. Almond tree (*Prunus dulcis*) and ornamental plum (*Prunus* sp.) are included on the plant list for the site.[29] Native fremont cottonwood (*Populus fremontii* ssp. *fremontii*) is also on the plant list, but is not common on the site.

Trees provide roosting, foraging, and nesting habitat for many birds. The larger eucalyptus trees provide nesting habitat for raptors, owls, and other birds. Two large raptor nests were found during the reconnaissance surveys in the eucalyptus trees in the northwestern portion of the project site near the large barn and milking shed. Staff from the Water Treatment Plant adjacent to the project site have reported golden eagles nesting in eucalyptus trees onsite, most likely in the eucalyptus stand located in the northern-central portion of the project site, east of the plant. However, nesting by golden eagles onsite has not been confirmed by either the project sponsor's biologists or LSA. Species that were observed utilizing the eucalyptus and ornamental trees onsite during the reconnaissance surveys include European starling, red-winged blackbird, mourning dove, northern mockingbird, Nuttall's woodpecker (*Picoides nuttallii*), American kestrel, red-tailed hawk, barn swallow, American crow (*Corvus brachyrhynchos*), western scrub-jay (*Aphelocoma californica*), black phoebe, brown-headed cowbird (*Molothrus ater*), California towhee (*Pipilo crissalis*), house finch, and house sparrow (*Passer domesticus*). Other bird species in the region that may utilize ornamental trees include loggerhead shrike, Cooper's hawk (*Accipiter cooperii*), white-tailed kite, western kingbird (*Tyrannus verticalis*), Brewer's blackbird (*Euphagus cyanocephalus*), and rock pigeon. Black-tailed deer may use the trees within the project site for shelter and foraging habitat.

(2) Sensitive Plant Communities and Habitats. The CDFG monitors the status of uncommon and declining plant communities and habitats in California. These communities are denoted with an asterisk in CDFG's *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Data Base*.[30] Such communities found in the general region of the site are Red Willow Riparian Woodlands and Forests, Purple Needlegrass (*Nassella pulchra*), and Serpentine Bunchgrass.[31] Sensitive communities/habitats, except for most wetlands, have no formal legal protection but are considered "rare and worthy of protection" by the CNDDB and may require mitigation for impacts under CEQA.

The scattered red willows on the site are patchy and disturbed and their aggregation is considered scrub and not a woodland. However, these willows may be a remnant of a more developed woodland

[29] Sycamore Associates LLC, 1999. Rare Plant Surveys of Upland Habitats, Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. July 1.

[30] California Department of Fish and Game (CDFG), 2003. *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Data Base*.

[31] California Natural Diversity Data Base (CNDDB), 2006. op. cit.

or could succeed to a woodland in the absence of grazing. Purple needlegrass is also on the plant list for the site but was not described or mapped in the rare plant survey reports for the site.[32] Freshwater marsh is a wetland habitat that is considered a sensitive habitat under CEQA and is within the jurisdiction of the Corps and the RWQCB.

(3) Special-Status Species. For the purposes of this EIR, special-status species are defined as follows:

- Plants and animals that are listed or proposed for listing as threatened or endangered or rare (for plants) under the California Endangered Species Act (Fish and Game Code 1992 Sections 2050 et seq.; 14 CCR Sections 670.1 et seq.) and/or the Federal Endangered Species Act (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);
- Plants and animals that are Candidates for possible future listing as threatened or endangered under the Federal Endangered Species Act (50 CFR 17.12 for plants; 61 FR 7591, February 28, 1996 for animals);
- Plants and animals that meet the definition of rare or endangered under CEQA (14 CCR Section 15380) but are not included on State or federal Endangered Species lists;
- Plants occurring on List 1A, List 1B, and List 2 of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California.* The CDFG recognizes that Lists 1A, 1B, and 2 of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFG requests their inclusion in EIRs, as necessary;
- Species identified as species of concern in ecosystem-based recovery plans;
- Animals that are designated as "Species of Special Concern" by CDFG; and,
- Animals that are "fully protected" in California (Fish and Game Code, Sections 3511, 4700, 5050 and 5515)

(4) Special-Status Plants. Twenty six (26) special-status plant species that occur in the vicinity of the project site were evaluated to determine their potential presence at the project site. Table IV.F-1 lists the 26 species and describes each species' protective status, general habitat requirement, and blooming period, as well as survey results and potential to occur at the project site.

Fifteen of these 26 species have the potential to occur at the project site and one of these species (pappose tarplant) was observed at the project site. Some of these species occur in seasonal wetlands or vernal pools, grasslands, and freshwater marsh habitats. Some of these species have a low potential to occur based on the presence of marginal suitable habitat, such as alkaline soils. Some species are serpentine endemics and are unlikely to be present at the project site because these soil types are not present on the site. Soils present on the site are Altamont clay, 9-30 percent slopes; Altamont clay, 2 to 9 percent slopes; Corning gravelley loam, 2 to 15 percent slopes; and Corning gravelley loam, 15 to 30 percent slopes.

[32] Sycamore Associates LLC, 1999. Rare Plant Surveys of Upland Habitats, Seeno Benicia Industrial Park Project, City of Benicia, Solano County, California. July 1.

Focused special-status plant surveys were conducted by Sycamore Associates on March 10, March 24, and September 23, 1997 for wetland plants and on April 27, May 5, June 7, and June 8, 1999 and August 27 and September 3, 1999 for upland plants.[33, 34, 35] LSA biologists also conducted reconnaissance level surveys of biological resources at the project site on August 5, 1999 and August 31, 2006. Pappose tarplant (*Centromadia parryi* ssp. *parryi [Hemizonia parryi* ssp. *parryi*]), a CNPS List 1B species, was observed during either 1997 or 1998 focused surveys at the site. No other specials-status plants were observed on the site. Based on the results of these surveys, no special-status species besides pappose tarplant are likely to be present at the project site.

During the 1997 and 1998 surveys, pappose tarplant was not yet listed by CNPS and was not described in the special-status plant reports. Its location and extent on the site is unknown. The plant was not observed on the site during the August 31, 2006 reconnaissance survey of the site, but this survey was not extensive and so the plant could still be present on the site.

Special-Status Wildlife. A list of special-status wildlife species was compiled based on a CNDDB[36] record search, the site reconnaissance surveys conducted by LSA in 1999 and 2006, and LSA biologists' knowledge of the wildlife species in the region. Table IV.F-2 summarizes each species' protective status, general habitat requirements, and potential for occurrence. Five wildlife species reported in the CNDDB occur in tidal salt marsh habitats in Suisun Marsh, but would not occur at the project site because of the absence of this habitat type onsite. These are California black rail (*Laterallus jamaicensis coturniculus*), California clapper rail (*Rallus longirostris obsoletus*), Suisun song sparrow (*Melospiza melodia maxillaris*), Suisun shrew (*Sorex ornatus sinuosus*) and salt marsh harvest mouse (*Reithrodontomys raviventris*). The big free-tailed bat (*Nyctinomops macrotis*) is another special-status species that has been recorded within 5 miles of the project site, but suitable cliff and rocky crevice habitat for roosting is not present on the site. The site is within the general range of the California tiger salamander and the Conservancy fairy shrimp (*Branchinecta conservatio*) and vernal pool fairy shrimp (*B. lynchi*), but no records exist in the vicinity of the site for this species. Furthermore, the draft *Solano Multispecies Habitat Conservation Plan*,[37] a comp-rehensive document that lists all occurrences of tiger salamanders and special-status fairy shrimp within the County, lists no records of these species near the project site and does not consider the area around Benicia as habitat for these species. The closest known occurrence of California tiger salamander is at the Potrero Hills Landfill, approximately 11.5 miles northeast of the project site. The closest known occurrences of the two fairy shrimp species also are at the Potrero Hill Landfill site (Director's Guild Mitigation area), approximately 12 miles northeast of the project site. These species typically occur in vernal pools. No suitable vernal pools occur onsite and these species are unlikely to occur in the seasonal wetlands that are found at the project site.

[33] Sycamore Associates LLC, 1997. Rare Plant Surveys and Habitat Assessment for Wetlands at the Seen Benicia Industrial Park Project, City of Benicia, Solano County, California. September 26.

[34] Sycamore Associates LLC, 1999. Rare Plant Surveys of Upland Habitats, Seen Benicia Industrial Park Project, City of Benicia, Solano County, California. July 1.

[35] Sycamore Associates LLC, 1999. Summer-Season Focused Special-status Plant Surveys at the Proposed Benicia Industrial Park, Solano County. September 29.

[36] California Department of Fish and Game (CDFG), 2006. Natural Diversity Data Base (CNDDB): Special-status Species Occurrences Within 5 miles of the Project Site. Natural Resources Division, Sacramento, California.

[37] LSA Associates, Inc., 2005. Solano Multispecies Habitat Conservation Plan, Working Draft 2.1. Solano County Water Agency, December.

Of the special-status animal species listed in Table IV.F-2, 16 species are of particular concern because they have been observed in the vicinity of the site and/or potentially would be affected by the proposed project: Callippe silverspot butterfly (*Speyeria callippe callippe*), California red-legged frog, Pacific pond turtle, white-tailed kite, Cooper's hawk, northern harrier, ferruginous hawk (*Buteo regalis*), golden eagle, western burrowing owl, loggerhead shrike, saltmarsh common yellowthroat, tricolored blackbird (*Agelaius tricolor*), California horned lark, pallid bat, pale Townsend's big-eared bat, and American badger. Each species is discussed briefly below.

- **Callippe Silverspot Butterfly.** The Callippe silverspot butterfly is a federally listed endangered species. This butterfly was historically known from just 14 local populations in the San Francisco Bay region, of which only three are still extant (San Bruno Mountain in San Mateo County, a city park in the Oakland Hills in Alameda County, and the hills between Vallejo and Cordelia in Solano County). This butterfly depends on a host plant, Johnny jump-up (*Viola pedunculata*). The closest known occurrence of the Callippe silverspot is approximately 4.3 miles north of the project site.
- **California Red-legged Frog.** The California red-legged frog is listed as a federally threatened species and a California species of special concern. It occurs in the Sierra foothills and coastal hills and valleys of California and northwestern Baja California.[38] It is found in marshes, streams, lakes, reservoirs, ponds, and other, usually permanent, sources of water. The red-legged frog is chiefly a pond frog that inhabits humid forests, woodlands, grasslands, and stream sides, but disperses after rains and may appear in damp woods and meadows far from water.[39] The breeding period is from January through April, depending on locality.[40]

  The intermittent streams onsite could provide foraging, cover, and hydration habitat for California red-legged frog. No breeding habitat for this species occurs onsite. Surveys of all creeks and wetlands within the project site were conducted to determine the value of red-legged frog habitat and the likely use of the site by red-legged frog. Surveys were conducted during both daylight and night hours in 1999, but no California red-legged frogs were detected during any of the surveys. The only amphibians detected during the surveys were calling male Pacific treefrogs and their larvae. Pacific treefrogs were detected in many of the aquatic habitats on site. The report prepared after the survey concludes that the site is unsuitable for California red-legged frog due to the fact that virtually all of the aquatic habitats on the site (e.g., the plunge pools in the creek channels) dry up by mid-summer. The three seeps and watercourses still wet during the summer months are very shallow (less than three inches deep). Standing water available in the summer

[38] Stebbins, R., 2003. A Field Guide to Western Reptiles and Amphibians. 3rd ed. Houghton Mifflin Co. Boston, MA. 533 pp.

[39] Ibid.

[40] Ibid.

Table IV.F-1 Special-Status Plant Species Potentially Occurring on or in the Vicinity of the Project Site

Species	Status* (Fed/State/CNPS)	Habitat Requirement	Blooming Period	Potential for Occurrence within the Project Site
Suisun marsh aster *Aster lentus*	-/-/List 1B	Brackish and freshwater marshes. Endemic to the Sacramento/San Joaquin River Delta. Most often observed along sloughs with *Phragmites australis*, *Scirpus* spp., *Rubus* sp., *Typha* spp., etc. Inhabits elevations of 0-3 meters.	May-November	Potential to occur in freshwater marshes within project site. Closest known occurrence is approximately 0.6 mile from project site on Goodyear Slough; last observed in 1993. There are 11 other occurrences within a 5 mile radius of the project site. Not observed during 1997 and 1998 focused surveys at the site.
alkali milk vetch *Astragalus tener* var. *tener*	-/-/List 1B	Low ground, alkali flats, and flooded lands in annual grassland or in playas or vernal pools. Inhabits elevations of 1-170 meters.	March-June	Potential to occur in grasslands within project site. Closest known occurrence is > 5 miles from project site. Not observed during 1997 and 1998 focused surveys at the site.
San Joaquin saltbush *Atriplex joaquiniana*	-/-/List 1B	In seasonal alkali wetlands or alkali sink scrub with *Distichlis spicata*, *Frankenia salina*, etc. Within chenopod scrub, alkali meadow, and valley and foothill grassland. Inhabits elevations of 1-250 meters.	April-October	Potential to occur in seasonal wetlands/grasslands within project site. Closest known occurrence is > 5 miles from project site. Not observed during 1997 and 1998 focused surveys at the site.
big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	-/-/List 1B	Valley and foothill grassland and cismontane woodland. Sometimes on serpentine. Inhabits elevations of 35-1000 meters.	March-June	Potential to occur in grasslands within project site. Closest known occurrence is > 5 miles from project site. Not observed during 1997 and 1998 focused surveys at the site.
big tarplant *Blepharizonia plumosa* ssp. *plumosa*	-/-/List 1B	Valley and foothill grasslands on dry hills and plains in clay to clay-loam soils. Usually on slopes and often in burned areas. Inhabits elevations of 15-455 meters.	July-October	Potential to occur in grasslands within project site. Closest known occurrence is approximately 1.3 miles from project site; it was last observed in 1917 and is possibly extirpated. There are no other occurrences within a 5 mile radius of the project site or in Solano County. Not observed during 1997 and 1998 focused surveys at the site.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	-/-/List 1B	On wooded and brushy slopes in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Primarily from the Mt. Diablo area. Inhabits elevations of 200-800 meters.	April-June	Potential to occur in grasslands within project site. Closest known occurrence is approximately 4.2 miles from project site at Carquinez Strait Shoreline Park; last observed in 1992. There is one other occurrence within a 5 mile radius of the project site that is also at Carquinez Strait Shoreline Park and was last observed in 1992. Not observed during 1997 and 1998 focused surveys at the site.
Tiburon Indian paintbrush *Castilleja affinis* ssp. *neglecta*	FE/CE/List 1B	Valley and foothill grassland in rocky serpentine sites. Inhabits elevations of 75-400 meters.	April-June	Unlikely to occur; suitable habitat not present on project site.

Table IV.F-1 *Continued*

Species	Status* (Fed/State/CNPS)	Habitat Requirement	Blooming Period	Potential for Occurrence within the Project Site
holly-leafed ceanothus *Ceanothus purpureus*	-/-/List 1B	Rocky, volcanic slopes in chaparral. Inhabits elevations of 120-640 meters.	February-June	Unlikely to occur; suitable habitat not present on project site.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii [Hemizonia parryi* ssp. *congdonii]*	-/-/List 1B	In valley and foothill grassland on alkaline soils, sometimes described as heavy white clay. Inhabits elevations of 1-230 meters.	June-November	Potential to occur in grasslands within project site. Closest known occurrence is approximately 2.3 miles from project site. There is one other occurrence within a 5 mile radius of the project site that is adjacent to the western limits of McNabney Marsh and was last observed in 2005. Not observed during 1997 and 1998 focused surveys at the site.
pappose tarplant *Centromadia(=Hemizonia) parryi* ssp. *parryi*	-/-/List 1B	Coastal prairie, meadows and seeps, coastal salt marsh, and valley and foothill grassland in vernally mesic, often alkaline sites. Inhabits elevations of 2-420 meters	May-November	This species was observed during 1997/1998 focused surveys at the site, but this species was not listed by CNPS yet and was not described in the special-status plant reports. It was not observed on the site during the August 31, 2006 reconnaissance survey of the site, but this survey was not extensive and so the presence of the plant on the site cannot be excluded. Closest known occurrence is approximately 3.4 miles from project site; last observed 1998. There is one other occurrence within a 5 mile radius of the project site that was last observed in 1998.
Suisun thistle *Cirsium hydrophilum* var. *hydrophilum*	FE/-/List 1B	Endemic to the Sacramento/San Joaquin Delta; known only from Solano County. Grows with *Scirpus* spp., *Distichlis spicata* near small watercourses within saltmarsh. Inhabits elevations of 0-1 meter.	July-September	Unlikely to occur; suitable habitat not present on project site.
soft bird's-beak *Cordylanthus mollis* ssp. *mollis*	FE/CR/List 1B	In coastal saltmarsh with *Distichlis spicata*, *Salicornia virginica*, *Frankenia salina*, etc. Inhabits elevations of 0-3 meters.	July-November	Unlikely to occur; suitable habitat not present on project site.
western leatherwood *Dirca occidentalis*	-/-/List 1B	On brushy slopes and mesic sites; mostly in mixed evergreen and foothill woodland communities such as broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, and riparian woodland. Inhabits elevations of 30-550 meters.	January-April	Unlikely to occur; suitable habitat not present on project site.

Table IV.F-1 *Continued*

Species	Status* (Fed/State/CNPS)	Habitat Requirement	Blooming Period	Potential for Occurrence within the Project Site
dwarf downingia *Downingia pusilla*	-/-/List 2	In several types of vernal pools and vernal lakes within valley and foothill grassland along margins with a variety of associates. Inhabits elevations of 1-485 meters	March-May	Potential to occur in seasonal wetlands/grasslands within project site. Closest known occurrence is > 5 miles from project site. Not observed during 1997 and 1998 focused surveys at the site.
Mt. Diablo buckwheat *Eriogonum truncatum*	-/-/List 1B	Chaparral, coastal scrub, and valley and foothill grassland. Historically known from Alameda, Contra Costa, and Solano Counties. Dry, exposed clay or sandy substrates. Inhabits elevations of 100-600 meters.	April-November	Unlikely to occur; suitable habitat not present on project site.
fragrant fritillary *Fritillaria liliacea*	-/-/List 1B	Coastal scrub, valley and foothill grassland, and coastal prairie. Often on serpentine. Various soils reported though usually clay. Inhabits elevations of 3-410 meters	February-April	Potential to occur in seasonal wetlands/grasslands within project site. Closest known occurrence is > 5 miles from project site. Not observed during 1997 and 1998 focused surveys at the site.
Diablo helianthella *Helianthella castanea*	-/-/List 1B	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. Inhabits elevations of 25-1150 meters.	March-June	Potential to occur in grasslands within project site. Closest known occurrence is approximately 4.3 miles from project site; last observed in 1990. There are two other occurrences within a 5 mile radius of the project site that were last observed in 1990 and 1991. Not observed during 1997 and 1998 focused surveys at the site.
Contra Costa goldfields *Lasthenia conjugens*	FE/-/List 1B	In vernal pools, swales, and low depressions, in open grassy areas within valley and foothill grassland and cismontane woodland. Extirpated from most of its range. 1-445 meters.	March-June	Potential to occur in seasonal wetlands/grasslands within project site. Closest known occurrence is > 5 miles from project site. Not observed during 1997 and 1998 focused surveys at the site.
Delta tule-pea *Lathyrus jepsonii* var. *jepsonii*	-/-/List 1B	Freshwater and brackish marshes. Most of distribution restricted to the Sacramento/San Joaquin River Delta. Often found with *Typha* spp., *Aster lentus, Rosa californica*, *Juncus* spp., *Scirpus* spp., etc. Usually on marsh and slough edges. 0-4 meters.	May-September	Potential to occur in freshwater marsh within project site. Closest known occurrence is approximately 0.5 mile from project; last observed in 1992. There are 17 other occurrences within a 5 mile radius of the project site. Not observed during 1997 and 1998 focused surveys at the site.

Table IV.F-1 *Continued*

Species	Status* (Fed/State/CNPS)	Habitat Requirement	Blooming Period	Potential for Occurrence within the Project Site
legenere *Legenere limosa*	-/-/List 1B	In beds of vernal pools. Many historical occurrences are extirpated. 1-880 meters.	April-June	Potential to occur in seasonal wetlands/grasslands within project site. Closest known occurrence is > 5 miles from project site. Not observed during 1997 and 1998 focused surveys at the site.
Mason's lilaeopsis *Lilaeopsis masonii*	-/CR/List 1B	Freshwater and brackish marshes and riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. 0-10 meters.	April-November	Unlikely to occur; suitable habitat not present on project site.
robust monardella *Monardella villosa* ssp. *globosa*	-/-/List 1B	Openings in broadleaved upland forest, chaparral, cismontane woodland, and valley and foothill grassland. 30-300 meters	June-July	Potential to occur in grasslands within project site. Closest known occurrence is approximately 2.8 miles from project; last observed in 1906. There is one other occurrence within a 5 mile radius of the project site but it was last observed in 1905. Not observed during 1997 and 1998 focused surveys at the site.
Marin knotweed *Polygonum marinense*	-/-/List 1B	Coastal salt marshes and brackish marshes. 0-10 meters.	(Apr) May-Aug (Oct)	Unlikely to occur; suitable habitat not present on project site.
rayless ragwort *Senecio aphanactis*	-/-/List 2	Drying alkaline flats in cismontane woodland and coastal scrub. 20-575 meters.	January-April	Potential to occur in seasonal wetlands/grasslands within project site. Closest known occurrence is > 5 miles from project site. Not observed during 1997 and 1998 focused surveys at the site.
showy Indian clover *Trifolium amoenum*	FE/-/List 1B	In valley and foothill grassland and coastal bluff scrub in swales in open sunny sites. Most recently sited on roadside and eroding cliff face. Sometimes on serpentine soil, 5-560 meters	April-June	Unlikely to occur; suitable habitat not present on project site.
saline clover *Trifolium depauperatum* var. *hydrophilum*	-/-/List 1B	In alkaline soils in vernal pools, marshes and mesic grassland. 0-300 meters	Apr-June	Unlikely to occur; suitable habitat not present on project site.

*Status:
FE = Federally Endangered
FT = Federally Threatened
CE = California Endangered
CR = California Rare
List 1A = California Native Plant Society (CNPS): species presumed extinct.
List 1B = CNPS: plant considered rare, threatened, or endangered in California and elsewhere.
List 2 = CNPS: plant considered rare, threatened, or endangered in California but more common elsewhere.
- = No status
[a] Nearest records are based on CNDDB (2006) occurrences unless otherwise noted.
Source: LSA Associates, Inc., 2006.

Table IV.F-2: Special-Status Animal Species Potentially Occurring on or in the Vicinity of the Project Site

Species	Status (Federal/ State)	Habitat	Potential for Occurrence Within Project Site[a]
Invertebrates			
Callippe silverspot butterfly *Speyeria callippe callippe*	FT/-	Found in grasslands, typically along ridgelines where its host plant, johnny jump-up (*Viola pedunculata*), is present.	Not likely to occur onsite. Host species, Johnny jump-up, not observed during plant surveys, but species occurs in region. Closest known occurrence is approximately 4.3 miles north of the project site.
Amphibians			
California red-legged frog *Rana aurora draytonii*	FT/CSC	Found in lowlands and foothills in or near permanent ponds and streams with dense, shrubby, or emergent riparian vegetation.	Not likely to occur onsite. No breeding habitat onsite. Creeks could provide movement corridors. Closest known occurrence is approximately 3.5 miles north of the project site.
Reptiles			
Pacific pond turtle *Actinemys marmorata*	–/CSC	Found in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and adjacent grasslands or other open habitat for egg-laying.	Not likely to occur onsite. Intermittent streams not connected with suitable pond habitats. Closest known occurrence is approximately 4 miles north of the project site.
Birds			
white-tailed kite *Elanus leucurus*	–/CFP	Forages over open landscapes, such as grasslands, pastures, and fields with good populations of voles and other small rodents. Nests in isolated trees and along the edges or woodlands near open areas.	Possibly occurs onsite. Observed offsite and could nest in trees onsite. Trees on and surrounding site provide nesting habitat and grasslands are suitable foraging habitat. Kites observed during surveys. Closest known nesting occurrence is approximately 4.7 miles north of the project site.
northern harrier *Circus cyaneus*	–/CSC	Nests and forages in meadows, grasslands, open rangeland, and fresh or saltwater marshes.	Observed onsite. Not likely to nest in grassland onsite because of heavy grazing. Closest known nesting occurrence is approximately 2.9 miles from the project site.
Cooper's hawk *Accipiter cooperii*	–/CSC	Nests and forages in woodlands, often with open areas or open canopy and near water. Also known to forage in open grasslands or shrubland.	Possibly occurs onsite. May occur as a transient and winter visitor, may nest in trees onsite.
ferruginous hawk *Buteo regalis*	–/CSC (wintering)	Forages in open country and ranch lands. Occurs in California only as a winter visitor.	Possibly occurs onsite. Site could provide winter foraging habitat. Not a breeding bird in this region.
golden eagle *Aquila chrysaetus*	–/CSC	Forages in rolling foothill or coast-range terrain, with open grassland and scattered large trees. Nests in large trees, on cliffs, and occasionally on power line poles.	Known to forage onsite. No nesting detected by LSA, although unconfirmed reports from City staff suggest that nesting may occur in eucalyptus trees onsite. Closest documented nesting occurrence is approximately 4.7 miles northwest of the project site.

Table IV.F-2 *Continued*

Species	Status (Federal/ State)	Habitat	Potential for Occurrence Within Project Site[a]
merlin *Falco columbarius*	–/CSC (wintering)	Forages in open country, sea coasts, and bay lands. Occurs in California only as a winter visitor and migrant.	Possibly occurs onsite. May occur as a migrant or winter visitor. Not a breeding bird in this region.
prairie falcon *Falco mexicanus*	–/CSC (nesting)	Forages in open country and deserts. Nests on cliffs.	Possibly occurs onsite. Foraging habitat onsite. No suitable nesting habitat occurs.
long-billed curlew *Numenius americanus*	-/CSC	Forages and nests in marshes, agricultural fields, and grasslands.	Possibly occurs onsite. May forage on grasslands within site during the winter, but does not breed in the region.
western burrowing owl *Athene cunicularia hypugea*	–/CSC	Nests in burrows in grasslands and woodlands; often associated with ground squirrels. Will also nest in artificial structures (culverts, concrete debris piles, etc.).	Possibly occurs onsite. Foraging habitat present. Evidence of burrow donors (i.e., California ground squirrels) limited to a small area onsite, making nesting unlikely. Ground squirrels were observed in 2006 near the wood piles in the southwest corner of the project site.
short-eared owl *Asio flammeus*	–/CSC	Inhabits open, treeless areas with low perches and dense vegetation for roosting and nesting.	Possibly occurs onsite. May forage on grassland within site during winter, but does not breed in the region. Closest known occurrence is approximately 4.5 miles northeast of the project site.
California horned lark *Eremophila alpestris actia*	–/CSC	Forages and nests in open grasslands and barren fields.	Possibly occurs onsite. May forage and breed on grasslands onsite.
loggerhead shrike *Lanius ludovicianus*	–/CSC	Found in grasslands and open shrub or woodland communities. Nests in dense shrubs or trees and forages in scrub, open woodlands, grasslands, and croplands. Frequently uses fences, posts, and utility lines as hunting perches.	Observed in 1999 onsite. May forage onsite and nest in the trees onsite.
yellow warbler *Dendroica petechia*	–/CSC	Nests in extensive willow riparian woodlands.	Not likely to occur onsite. May nest in coastal riparian scrub habitat onsite.
yellow-breasted chat *Icteria virens*	–/CSC	Nests in extensive willow riparian woodlands with dense understory.	Not likely to occur onsite. May forage or nest in coastal riparian scrub habitat onsite. Closest known occurrence is approximately 25 miles north of the project site.
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	–/CSC	Inhabits dense vegetation near fresh water and marshes.	Possibly occurs onsite. May forage or nest in coastal riparian habitat onsite. Closest known occurrence is approximately 0.5 mile from the site.
tricolored blackbird *Agelaius tricolor*	–/CSC	Nests in dense vegetation near open water, forages in grasslands and agricultural fields.	Possibly occurs onsite. No nesting habitat onsite. Nesting colonies near site may forage onsite in grasslands. Closest known occurrence is approximately 0.2 mile northwest of the project site.

Table IV.F-2 *Continued*

Species	Status (Federal/ State)	Habitat	Potential for Occurrence Within Project Site[a]
Mammals			
pallid bat *Antrozous pallidus*	–/CSC	Roosts in crevices in rock outcrops, in the expansion joints under bridges and occasionally in old buildings; forages on large terrestrial insects in open habitats.	Possibly occurs onsite. May forage and roost onsite. Roosting habitat may occur in the trees and old buildings onsite.
Pale Townsend's Big-eared Bat (*Corynorhinus townsendii pallescens*)	–/CSC	Roosts in caves, mines, and old buildings. Forages for insects in riparian woodlands, wetlands, forest edges, and open woodlands.	Possibly occurs onsite. Could roost in abandoned buildings onsite.
American badger *Taxidea taxus*	–/CSC	Open country, ranch lands, pasture, and open woodlands with friable soils and abundant small mammal populations	Possibly occurs onsite. May occur in the grasslands onsite.

Status Codes:
FE = Federally-listed as an endangered species.
FT = Federally-listed as a threatened species.
CE = State-listed as an endangered species.
CT = State-listed as a threatened species.
CFP = State-listed as a fully protected.
CSC = State Species of Special Concern.

[a] Nearest records are based on CNDDB (2006) occurrences unless otherwise noted.

Source: LSA Associates, Inc., 2006.

time is muddy and is subject to heavy tramping by livestock. Because the site has a long history of livestock grazing during all seasons, the likelihood of red-legged frog occurring on site is considered to be very low. The last known record for the species in the area occurred in 1915. Given the long history of use of the lands in the vicinity for livestock grazing, it is expected that the species has been extirpated.

However, Unit SOL-1 of the final critical habitat for California red-legged frogs is located adjacent to the northwestern boundary of the project site.[41] The closest known occurrence of red-legged frogs is approximately 3.5 miles north of the site.[42] The intermittent streams and grassland habitat on the site could potentially support individual red-legged frogs dispersing from breeding habitat present off-site. Since the 1999 survey, protocols for red-legged frog surveys have been updated to include much more extensive survey efforts to support a determination of absence from a site. This survey data, although adequate at the time of the survey, may not be considered adequate by the USFWS and CDFG at this time.

- **Pacific Pond Turtle.** The Pacific pond turtle is a California species of special concern. The pond turtle is an aquatic species, found in ponds, marshes, rivers, streams, and irrigation ditches that typically have rocky or muddy bottoms and are vegetated with watercress (*Rorippa nasturtium-*

[41] United States Fish and Wildlife Service USFWS), 2006. Federal Register: April 13, 2006 (Volume 71, Number 71). Rules and Regulations. Page 19243-19346

[42] California Department of Fish and Game (CDFG), 2006. Natural Diversity Data Base (CNDDB): Special-status Species Occurrences Within 5 Miles of the Project site. Natural Resources Division, Sacramento, California.

aquaticum), cattail (*Typha* sp.), and other aquatic vegetation.[43] They are found in ponds and drainages year-round within woodlands, grasslands, and open forests. Eggs are laid in upland habitat from April through August.[44] Pond turtles were not observed on the site. Pond turtles are not likely to occur on the site because the streams are intermittent and are not connected with suitable pond turtle habitat. The closest known occurrence of pond turtles is approximately 4 miles north of the project site.[45]

- **White-tailed Kite.** The white-tailed kite is a California species of special concern at its nesting site. White-tailed kites are year-round residents, and nest and roost in large groves of dense, broad-leafed trees, located near suitable foraging habitat.[46] They forage for small rodents in grassland and other open habitats. The CNDDB has no records of white-tailed kite nesting at the project site vicinity.[47] However, one white-tailed kite was observed about 1 mile west of the project site during a site visit conducted on August 1999. The eucalyptus and willow trees onsite could provide nesting habitat for white-tailed kites, and the grassland provides suitable foraging habitat for white-tailed kites that could nest at the project site vicinity. The closest known nesting occurrence is approximately 4.7 miles north of the project site.[48]
- **Cooper's Hawk.** Cooper's hawk is a California species of special concern at its nesting site. This species is known to nest in urban settings in the Bay Area that support extensive stands of large shade trees and conifers, but nesting of this raptor has not been recorded within or adjacent to the project site. The Cooper's hawk is a fairly common winter visitor to urban areas and could nest where large dense stands of trees occur.
- **Northern Harrier.** The northern harrier is a California species of special concern. The CDFG has concerns about the decline of northern harrier nesting habitat. Northern harriers breed in fresh and saltwater emergent wetlands, and grasslands, in the Central Valley, and coastal valleys, from Oregon, southward. Nests are located on the ground in areas of tall dense grasses or shrubs, usually near marsh edges. They nest from April to September.[49] One northern harrier was observed foraging at the project site during the 1999 reconnaissance survey. This species could nest onsite, although the extent of disturbance to the site from grazing may reduce the suitability of the site for this species. Northern harriers nesting, in the general area could include the project site as part of their foraging range.

[43] Stebbins, R., 2003. A Field Guide to Western Reptiles and Amphibians. 3rd ed. Houghton Mifflin Co. Boston, MA. 533 pp.

[44] Ibid.

[45] California Department of Fish and Game (CDFG), 2006. Natural Diversity Data Base (CNDDB): Special-status Species Occurrences Within 5 miles of the Project Site. Natural Resources Division, Sacramento, California.

[46] Zanier, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White. Eds. 1990a. *California's Wildlife. Volume II: Birds. California Statewide Wildlife Habitat Relationships System.* California Department of Fish and Game, Sacramento, California. 731 pp.

[47] California Department of Fish and Game (CDFG), 2006. Natural Diversity Data Base (CNDDB): Special-status Species Occurrences Within 5 Miles of the Project site. Natural Resources Division, Sacramento, California.

[48] Ibid.

[49] Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White. Eds. 1990a. *California's Wildlife. Volume II: Birds. California Statewide Wildlife Habitat Relationships System.* California Department of Fish and Game, Sacramento, California. 731 pp.

- **Ferruginous Hawk.** The ferruginous hawk is a California species of special concern. The ferruginous hawk does not nest in California.[50] However, the CDFG has concerns about the loss of ferruginous hawk winter foraging habitat. In California, ferruginous hawks winter in the arid plains and open rangeland along the western edge of the Central Valley, in open valleys in the inner Coast Ranges, and in the deserts of southern California. The species primarily feeds on small to medium-sized mammals.[51] Suitable winter foraging habitat occurs in the annual grasslands of the site. The species has been observed wintering in the Potrero Hills approximately 11 miles northeast of the site.
- **Golden Eagle**. The golden eagle is a California species of special concern and is protected under the federal Bald Eagle Protection Act. The golden eagle occurs throughout much of California, particularly in hilly regions dominated by grassland and oak savannah. The golden eagle is a large, wide ranging predator of open grassland and savanna habitats in hilly country. Golden eagles nest on cliff faces and in large trees. Nests are large structures that are used for many years, by the same pair and often subsequently by other eagles.[52] The breeding territories of the golden eagle can range from 20 to 60 square miles.[53] The species feeds primarily on medium sized mammals.

  LSA did not observe golden eagles or large nests typical of golden eagles on the site. However, Water Treatment Plant staff have reported golden eagles nesting in eucalyptus trees onsite. These observations have not been confirmed. The CNDDB has a record of golden eagles nesting approximately 4.7 miles northwest of the project site.[54] Golden eagles are known to forage onsite and may nest within the project site vicinity.
- **Western Burrowing Owl.** The western burrowing owl is a California species of special concern. These owls inhabit open, dry, nearly or quite level grassland, prairie, and desert areas and nest in burrows constructed by larger burrowing mammals, most notably of the California ground squirrel.[55] The non-native grassland habitat on the site may provide suitable foraging habitat for this species. Culverts, pipes and man-made structures may also provide suitable sheltering habitat for burrowing owls.

  Burrowing owls were not observed at the project site. The only ground squirrel burrows observed onsite were present in the wood piles in the southwestern corner of the project site. California ground squirrel burrows are not extensive on the grassland habitat onsite, limiting its suitability as nesting habitat for this species. The grasslands onsite, however, provide potential foraging habitat for this species.

[50] Mallette, R. D. and G. Gould, 1976. Raptors of California. California Department of Fish and Game, Sacramento, California. 85 pp.

[51] Ibid.

[52] Palmer, R. S. (Ed.), 1988. Handbook of North American birds: diurnal raptors (Vols. 4 and 5). Yale Univ. Press, New Haven and London.

[53] Mallette, R. D. and G. Gould, 1976. Raptors of California. California Department of Fish and Game, Sacramento, California. 85 pp.

[54] California Department of Fish and Game (CDFG), 2006. Natural Diversity Data Base (CNDDB): Special-status Species occurrences within 5 miles of the Project site. Natural Resources Division, Sacramento, California.

[55] Grinnel, J. and Miller, A.H, 1944. The Distribution of the Birds of California. Artemisia Press. Lee Vining, California. 615 pp.

- **Loggerhead Shrike.** The loggerhead shrike is a California species of special concern. The loggerhead shrike is a common resident and winter visitor in the lowlands throughout California. It prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, and other perches. They feed primarily on large insects and small birds and mammals. They nest from March to August.[56] Three loggerhead shrikes were observed on and adjacent to the project site in 1999. The woody vegetation present on and adjacent to the site could provide nesting habitat for loggerhead shrikes and the on-site grassland provides suitable foraging habitat for this species.
- **Saltmarsh Common Yellowthroat.** The saltmarsh common yellowthroat is a California species of special concern. This warbler nests in dense vegetation near freshwater and brackish marshes and winters in saltmarsh habitat. It feeds on primarily on insects and insect larvae. They nest from early April to mid-July, with peak activity in May and June.[57] Saltmarsh common yellowthroats have not been observed at the project site during the surveys, but could occur in the freshwater marsh habitat onsite. The closest known occurrence is approximately ½-mile from the project site in Suisun Bay.
- **Tricolored Blackbird.** The tricolored blackbird is a California species of special concern. Tricolored blackbirds are highly colonial and nomadic and are largely endemic to the lowlands of California. Breeding is highly synchronized, with most pairs in a colony initiating nesting within a few days of each other. They prefer to nest in freshwater marshes with dense growths of emergent vegetation, but will nest in upland locations that support dense stands of herbaceous vegetation, especially plant species that are armed with thorns or spines.[58] They nest from mid-April through mid-July. They will travel up to 4 miles to forage.[59]

  Tricolored blackbirds were not observed at the project site. There is no breeding habitat on the site for this species and tricolored blackbirds are not expected to nest at the project site. The CNDDB has records of tricolored blackbirds approximately 0.2 mile and 5 miles northwest of the project site.[60] The project site could potentially provide suitable foraging habitat for tricolored blackbirds that may nest in the area.
- **California Horned Lark.** The California horned lark is a California species of special concern. These ground nesting birds occupy open habitats with short grasses, plowed fields, deserts, shorelines, and barren areas. Grasslands at the project site provide suitable nesting and foraging habitat for this species. Horned larks are known to occur in the region.

[56] Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White. Eds., 1990a. *California's Wildlife. Volume II: Birds. California Statewide Wildlife Habitat Relationships System.* California Department of Fish and Game, Sacramento, California. 731 pp.

[57] Harrison, C., 1978. A Field Guide to the Nests, Eggs and Nestlings of North American Birds. W. Collins Sons and Co., Cleveland, Ohio. 416 pp.

[58] Beedy, E. C., S. D. Sanders, and D. A. Bloom, 1991. Breeding status, distribution, and habitat associations of the tricolored blackbird (*Agelaius tricolor*), 1850-1989. June 21, 1991. Jones & Stokes Associated, Inc. (JSA 88-187.) Sacramento, California. Prepared for U.S. Fish and Wildlife Service, Sacramento, California.

[59] Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White. Eds., 1990a. *California's Wildlife. Volume II: Birds. California Statewide Wildlife Habitat Relationships System.* California Department of Fish and Game, Sacramento, California. 731 pp.

[60] California Department of Fish and Game (CDFG), 2006. Natural Diversity Data Base (CNDDB): Special-status Species occurrences within 5 miles of the Project site. Natural Resources Division, Sacramento, California.

- **Pallid Bat.** The pallid bat is a California species of special concern. These bats prefer open, lowland areas and roost in cliff fissures, abandoned buildings, and under bridges.[61] They are known to roost with other bat species. Pallid bats feed on large, hard-shelled prey on the ground or in foliage.[62]

  No bats were observed onsite during the reconnaissance surveys of the site. Subsequent to the reconnaissance surveys, a focused survey to assess habitat for special-status and common bat species was conducted.[63] During the focused bat survey, the abandoned buildings that were identified as providing potential habitat for bats were visually inspected for bats, their sign (i.e., prey remains, fecal dropping), and suitability of the structures to serve as bat roosts. Three farm buildings were searched for bats and their sign: the farmhouse, barn, and milking shed. No bats were observed in any of the buildings during the survey. Evidence of past use by bats was found in the milking shed in the form of old fecal pellets. The surveyor concluded that the sign was probably old and not evidence of current bat roosting activity. No sign of current maternity roost or day roost use was found in any of the buildings. In addition to the buildings, eucalyptus trees adjacent to the farm buildings were searched for cavities that might provide roosting sites for bats. No such sites were observed.

  Although no bats, either special-status or common species, were observed during the surveys, evidence was found demonstrating that bats have used at least one of the buildings onsite in the past.

- **Pale Townsend's Big-eared Bat.** Pale Townsend's big-eared bats live in a variety of habitats including coastal conifer and broad-leaf forests, oak woodlands, arid grasslands and deserts, and high elevation forests and meadows. The species is most common in mesic (moderately moist) sites within these communities.[64]

  Pale big-eared bats feed on insects which are captured in flight. They roost in colonies and form feeding, maternity, and hibernation roosting colonies. They roost in limestone caves, mine tunnels, buildings, and other human-made structures.[65] These roosting sites are used only when free of human disturbance. A single visit by humans can cause the bats to abandon a roost.[66]

  No bats or sign of current maternity roost or day roost were observed in any of the buildings during the reconnaissance and focused bat surveys. However, as noted above, evidence of past use by bats was found in the milking shed in the form of old fecal pellets.

- **American Badger.** The American badger is a California species of special concern. This carnivore forages and digs burrows in grassland, scrub, and woodland habitats. Badgers eat ground

[61] Jameson, E.W., Jr. and Peeters, H.J., 2004. Mammals of California, Revised Edition. University of California, Berkeley, CA, 429 pp.

[62] Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White. Eds. 1990b. *California's Wildlife. Volume III: Mammals. California Statewide Wildlife Habitat Relationships System.* California Department of Fish and Game, Sacramento, California.

[63] Sycamore Associates LLC, 2000.

[64] Williams, D. F., 1986. Mammalian species of special concern in California. California Department of Fish and Game, Sacramento, California. 112 pp.

[65] Williams, D. F., 1986. *Mammalian Species of Special Concern in California*. California Department of Fish and Game, Sacramento, California. 112 pp.

[66] Ibid.

squirrels, pocket gophers, and other small prey such as mice, reptiles, insects, earthworms, and birds. Badgers may forage and den at the project site.

2. Impacts and Mitigation Measures

The following section presents a discussion of potential impacts to biological resources that could result from the proposed project.

a. Significance Criteria. The project would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, including the City's Tree Ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

b. Less-than-Significant Biological Resources Impacts. Approximately 517 acres of non-native grassland habitat are present at the project site and approximately 432.5 acres would be affected by the proposed project. Lots A and C would remain undeveloped and would support approximately 70.1 acres of existing non-native grassland and approximately 13.4 acres will be preserved for existing wetlands, mitigation wetlands, and riparian enhancements. Because no special-status wildlife species are likely to inhabit the grasslands on the site, impacts to wildlife that inhabit the grassland habitat would be less than significant. Additionally, because the project site's southern boundary is bordered by industrial development, impacts to wildlife movement corridors are expected to be less than significant.

c. Significant Biological Resources Impacts. Implementation of the proposed development could potentially impact special-status plants and wetland resources. The following discussion describes and evaluates significant impacts to biological resources and proposes measures that would mitigate these impacts to a less-than-significant level where appropriate.

Impact BIO-1: Mature trees that are protected under the City's Tree Ordinance would be removed as part of the proposed project. (S)

The proposed project would conflict with numerous natural resource-related General Plan policies. However, these conflicts would be mitigated to a less-than-significant level with implementation of the mitigation measures described in this section.

Trees on the site include non-native blue gum eucalyptus (3.2 acres), ornamental plum, almond, English plain tree, and English walnut. All 3.2 acres of the eucalyptus are proposed for removal. The removal of the large stand adjacent to Reach C is proposed as part of the wetland mitigation plan for the site. Native trees on the site are red willow, Fremont cottonwood and California black walnut. Many of the blue gum and some of the red willow are greater than 12 inches in diameter at 24 inches above the ground and are therefore protected under the City's Tree Ordinance. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

> Mitigation Measure BIO-1: Prior to site development, a tree report shall be prepared by an arborist or biologist to identify the location, size, and health of trees on the site, and the trees that would be preserved and removed during construction of the project. The report shall also specify measures to protect all preserved trees during construction, including through the creation of Tree Protection Zones. The sponsor shall apply for a Tree Permit for the removal of all protected trees.
>
> As part of the Tree Permit, an arborist or biologist shall develop a tree replacement program in accordance with the City's tree ordinance. Two 15 gallon trees are generally required for the replacement of each mature tree that is removed. In some cases, one or two 24-inch box trees, or a mature tree is required for the replacement of one mature tree. Mitigation for the removal of protected red willow trees along the stream channels and wetlands shall be implemented in conjunction with the wetland mitigation measures as described in Mitigation Measure BIO-2a. (LTS)

Impact BIO-2: The project would adversely affect wetlands, creek channels, and associated habitat. (S)

Coastal/valley freshwater marsh (7.1 acres) and unvegetated stream channels (0.18 acre) are present on the site and some of these areas would be adversely affected by the proposed development. These features were verified as jurisdictional by the Corps on March 5, 2003. In addition, coastal riparian scrub habitat, which consists of patches or individuals of red willows along stream channels, seeps and swales on the site, also would be adversely affected by the proposed project.

The proposed development would avoid permanent impacts to approximately 1.72 acres of existing freshwater marsh and 150 linear feet of unvegetated stream channel (non-wetland waters) on the site. Lots A and C would remain undeveloped and would support approximately 70.1 acres of existing non-native grassland, approximately 1.72 acres of existing freshwater marsh/coastal riparian scrub, and approximately 12.7 acres of created mitigation wetlands (freshwater marsh) and riparian plantings.

Development on the site would result in the fill of 5.26 acres of freshwater marsh habitat subject to jurisdiction as waters of the United States under Section 404 of the Clean Water Act and 1,201 linear feet of non-wetland waters that are waters of the State subject to jurisdiction under the Porter-Cologne

Act. In addition, 0.5 acre of freshwater marsh would be temporarily affected by the implementation of the proposed wetland mitigation plan.

The compensatory mitigation plans prepared for the project propose to create a total of 12.69 acres of in-kind jurisdictional wetland and riparian habitat onsite at Lot A at Reaches A, C, E and F, consisting of approximately 5.41 acres of willow scrub habitat and 7.28 acres of freshwater marsh/seasonal wetlands. This represents a mitigation ratio greater than 2:1. Three of the four freshwater marsh wetlands are also proposed to function as storm water retention basins for the undeveloped areas. Other proposed compensatory mitigation measures include the construction of 47 linear feet of a new channel at Reach F, removing the large blue gum eucalyptus stand adjacent to Reach C, and repairing three head cuts at Reach C. These mitigation areas would comply with the City's creek set back guidelines in the zoning ordinance that require development to be set back at least 25 feet from the top of the bank.

The wetland mitigation feasibility report addressed a concern by CDFG about the adequacy of the watershed to establish the necessary wetland hydrology for supporting the proposed created wetlands. The model for estimating water budgets in the mitigation areas demonstrated that there is an adequate watershed for the created wetlands.

The mitigation plan's recommended seed palette for the created freshwater marshes includes creeping spikerush, meadow barley (*Hordeum brachyantherum*), toad rush (*Junucs bufonius*), wire rush (*J. balticus*), seep monkey flower (*Mimulus guttatus*), three-square bulrush, and broad leaf cattail (*Typha latifolia*). The willow riparian scrub areas would be planted with locally collected willow (*Salix laevigata* and *S. lasiolepis*) poles, and 1-gallon sized Fremont cottonwood, wild rose (*Rosa californica*) and California blackberry (*Rubus ursinus*). The willow scrub habitat would also be seeded with mugwort (*Artemisia douglasiana*), creek clover (*Trifolium obtusifolium*) and three-week fescue (*Vulpia microstachys*). Upland buffer areas would be planted with coyote bush, coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), and blue elderberry (*Sambucus mexicana*), and hydroseeded with California brome (*Bromus carinatus*), California poppy (*Eschscholzia californica*), tomcat clover (*Trifolium wildenovii*), and three-weeks fescue. The willow scrub and upland plantings would be irrigated for the first 3 to 5 years after planting.

Implementation of the following six-part mitigation measure would reduce impacts to wetlands, creek channels, and associated habitat to a less-than-significant level:

> Mitigation Measure BIO-2a: The project sponsor shall obtain the appropriate federal and State permits authorizing fill of wetlands or waters and shall provide copies of the permits to the City prior to issuance of a grading permit. All work in jurisdictional areas and non-jurisdictional waters of the State shall be in compliance with all terms and conditions of the permits.
>
> Mitigation Measure BIO-2b: The project sponsor shall implement the wetland mitigation and monitoring plan prepared by Sycamore Associates[67] as mitigation for impacts to jurisdictional wetlands and waters of the United States, and implement the recommendations and revisions

[67] Sycamore Associates LLC and Kamman Hydrology and Engineering, 2000. Wetland Mitigation and Monitoring Plan, Benicia Business Park, Solano County, California (ACOE File No. 18366E). January.

to the original mitigation plan in the subsequent mitigation feasibility report prepared by WRA.[68] The mitigation plan and recommendations of the feasibility report are incorporated into this mitigation measure by reference and together are referred to as the mitigation plans. The plan details the mitigation design, wetland planting design, maintenance and monitoring requirements, reporting requirements, and success criteria. This plan shall be approved by the Corps and the City prior to implementation.

As detailed in the mitigation plans, created wetlands shall be monitored for a minimum of 5 years. Annual monitoring of each site shall include: 1) observation of existing and developing problems and recommendations for remedial actions; 2) an assessment of creation of wetland habitats; 3) a formal wetland delineation in year 5; 4) notation of invasive exotic species; 5) measurement of willow survival; and 6) photo-documentation. Monitoring visits shall be made in the winter and spring of each year and quantitative data shall be collected in the spring. Annual reports shall be submitted each fall to the Corps and the City for review. At the end of the 5-year monitoring period, the Corps and the City shall review the reports and determine if the success criteria have been met. If the success criteria have not been achieved at the end of the 5-year monitoring period, remedial measures shall be identified in consultation with the City and USACE. Remedial measures could include grading, planting, seeding, exotic/invasive vegetation control, and/or an extension of the maintenance or monitoring period. Remedial measures shall be implemented by the project sponsor.

Mitigation Measure BIO-2c: A contractor education program shall be created and initiated by the project restoration specialist prior to the initiation of ground disturbing activities. The purpose of this program shall be to inform the contractors about the mitigation measures being implemented onsite, the biology and life history of special-status species that may be present, ~~and~~ the areas to be preserved and avoided during construction, and the measures being implemented to avoid the impacts to these species during construction. During construction, wetlands to be preserved shall be clearly marked with flagging and or construction fencing. During construction in the vicinity of jurisdictional wetlands and non-wetland waters of the United States, ~~T~~he project restoration specialist shall conduct periodic site visits (once every week or once every two weeks, depending on the level of activity) ~~during the construction period~~ to provide direction and ensure protection of sensitive resources and permit compliance.

Mitigation Measure BIO-2d: During project construction, no material shall be allowed to enter or be stored in any wetlands that are to be preserved. Project related dirt and other material shall be kept sufficiently far away from preserved wetlands and drainages to prevent material from entering these features. If earthmoving activities or material stockpiling occurs upslope from a preserved wetland or drainage, silt fencing shall be installed around the preserved feature to prevent soil from entering the wetland or drainage. Silt fencing shall be installed at the least 5 feet from the edges of preserved wetlands and drainages. Silt fencing shall also be installed around preserved features whenever earthmoving activities or material stockpiling occurs within 20 feet of a preserved feature. All equipment washing shall occur downslope from preserved wetlands to prevent the runoff from entering the preserved

[68] Wetland Research Associates (WRA), 2004. Feasibility Analysis for Mitigation Wetlands. February 13.

wetlands. Berms or other barriers shall be constructed outside of preserved wetlands or drainages to prevent wash water runoff from entering the preserved wetlands.

Mitigation Measure BIO-2e: A conservation easement (or similar restriction) shall be established over the preserved and created wetlands to preserve these wetlands in perpetuity. A designated public ~~The City of Benicia or other public resource~~ agency, conservation group, or open space organization shall hold the easement to ensure retention of the wetland mitigation site (including the mitigation wetlands and the associated uplands) ~~is land~~ in perpetuity as wetland habitat.

Mitigation Measure BIO-2f: The project sponsor shall provide financial assurances of a type (i.e., bond, letter of credit) and amount to be determined by the Corps and the City to ensure successful implementation of the mitigation and monitoring plan. The project sponsor shall also provide a long-term funding mechanism for the maintenance of the wetlands in the conservation easements in perpetuity. (LTS)

Impact BIO-3: Construction of the proposed project could cause indirect impacts to special-status plants. (S)

Pappose tarplant (*Centromadia [= Hemizonia] parryi* ssp. *parryi*), a CNPS List 1B species, was found during the 1997/1998 focused surveys at the site, but this species was not listed by CNPS at the time and therefore was not considered in the special-status plant reports at that time. The extent of this plant on the site is unknown. This species was not observed on the site during the August 31, 2006 reconnaissance survey of the site, although the site visit was conducted during the plant's blooming period. However, development of the proposed project would adversely affect pappose tarplant if it occurs on the site. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure BIO-3: Prior to construction of the project, a survey shall be conducted for pappose tarplant, to locate and map any individuals of this species on the site and to estimate the population size. If papoose tarplant is found on the site, then the following standards and procedures shall be implemented.

- If feasible, impacts to these plants shall be avoided completely. If complete avoidance is not possible,the extent of impact will be ~~r~~ minimized to the extent possible by the proposed development project. The project sponsor and City, in consultation with a qualified botanist, shall determine the feasibility of implementing avoidance measures and shall develop and implement those measures based on the botanist's recommendations and field assistance. Avoidance measures include redesigning the project footprint, avoiding changes in the hydrology of the plants' habitat, fencing the existing plants with ESA fencing prior to construction and establishing a buffer zone, and training construction personnel to identify this species. Long-term avoidance measures shall also be developed to ensure the long-term stability of the population.
- If impacts to pappose tarplant are unavoidable, the project sponsor shall develop and implement a salvage and recovery plan for individuals prior to initiation of construction activities on the site. The mitigation plan, which shall be prepared by a qualified botanist

experienced in the development and implementation of native plant restoration, mitigation, and management plans, shall include the following:

- Salvage and/or recovery requirements, including clearly defined goals focusing on plant establishment (stability, succession, reproduction) and non-native species control measures.
- Locations and procedures for restoration/replanting of salvaged plant material including seeds. Onsite relocation in the undeveloped areas of the site shall be considered if suitable habitat for this species is present.
- Specification of a 5-year post-construction maintenance and monitoring program by a qualified restoration team to ensure that the project goals and performance standards are being met. The monitoring program shall include provision for remedial actions to correct deficiencies, as needed. After 5 years, the species relocation shall be considered successful if the number of plants that were removed on the site is successfully established at the mitigation site at a minimum of a 1:1 ratio. Annual reports and a final report prepared by the project sponsor and subject to approval by CDFG shall document the progress/success of the revegetation effort. If the revegetation is not successful, an additional period of correction and monitoring shall be specified.
- The project sponsor shall provide and secure a source of funding for this salvage and monitoring operation.
- The mitigation shall be considered a success if for the last 3 years of the 5-year monitoring program, the numbers of pappose tarplants has remained above the number of individuals that were adversely affected by the project (1:1 mitigation). The populations should show no sign of decline during this period. In addition, for at least the last 4 of 5 monitoring years, the growth of grass, presence of thatch, and growth of weeds should not hinder tarplant plants. Grazing is a potential management tool to reduce competition from non-native grasses and weeds. If the mitigation is unsuccessful after 5 years because the number of tarplants is less than a 1:1 ratio during the last 3 monitoring years (Years 3, 4 and 5), then monitoring could ~~shall~~ be continued for a 6th year if it is feasible that a 1:1 ratio could be achieved for Years 4, 5, and 6 ~~it is warranted~~. If the lack of success after 5 years suggests that a 6th year of monitoring is not warranted, off-site mitigation land that supports this species shall be purchased. The purchase of these lands shall be approved by the City or CDFG. (LTS)

Impact BIO-4: The proposed project may result in the loss of aquatic and terrestrial habitat for the Pacific pond turtle and California red-legged frog and may result in direct take of these species through injury or mortality. (S)

The Pacific pond turtle and California red-legged frog were not observed at the project site. Although no suitable pond habitat for Pacific pond turtles and no suitable breeding habitat for red-legged frogs occur onsite, the intermittent streams and surrounding grassland habitat could provide movement corridors for these species. The proposed project could result in both direct and indirect impacts to the Pacific pond turtle and California red-legged frog.

Implementation of the following three-part mitigation measure would reduce this impact to Pacific pond turtle and California red-legged frog to a less-than-significant level.

Mitigation Measure BIO-4a: Surveys to assess the presence of Pacific pond turtles shall be conducted in the vicinity of the onsite stream channels. The surveys shall be conducted to identify basking sites and potential nesting areas and shall occur during the spring or summer when the turtles are active and observable. Surveys shall be conducted in the spring or summer prior to the start of construction and the issuance of a building or grading permit. If pond turtles are present, measures shall be implemented to avoid turtles during construction and relocate any turtles found in work areas. A pre-construction survey shall be conducted no more than 48 hours prior to ground disturbing activities within areas inhabited by turtles. Areas inhabited by turtles shall be fenced and avoided during construction activities. If pond turtles are observed within the construction area at any time, a qualified biologist shall move the turtles to a safe location at least 500 feet from the construction zone. Turtle relocations shall be approved by CDFG and carried out by a qualified biologist.

Mitigation Measure BIO-4b: Protocol-level surveys for California red-legged frogs shall be conducted according to the August 2005 protocol[69] in all areas of the site that provide suitable habitat for this species. The results of the surveys shall be provided to the City at the same time that the survey results are provided to the USFWS and CDFG. Surveys for Pacific pond turtles may be conducted at the same time as the surveys for red-legged frogs. If no red-legged frogs are observed during the survey, no additional mitigation beyond the protection and avoidance measures stipulated below and those stipulated in permits issued by the UCACE, USFWS, and CDFG shall be required.

If California red-legged frogs are observed on the site during the surveys, the project sponsor shall develop and implement a USFWS-approved mitigation plan to compensate for the loss of red-legged frog habitat on the site. The mitigation plan shall provide mitigation at a ratio of 3:1 for all adversely affected habitat (either direct or indirect) and shall provide a buffer of 300 feet around all preserved aquatic habitats onsite. Detailed protection measures shall be included in the plan. The plan shall also identify a secure funding source to provide for the maintenance of mitigation sites in perpetuity. All mitigation sites shall be placed in a conservation easement to preserve the sites as wildlife and plant habitat in perpetuity. The easements shall be held by CDFG, or the City of Benicia. The sponsor shall provide evidence of compliance with the mitigation requirements of the USACE, USFWS, and CDFG prior to issuance of a grading permit.

Mitigation Measure BIO-4c: If no California red-legged frogs are observed during the surveys, and the USFWS and CDFG concur with the findings of the surveys, then the sponsor shall comply with protection measures required by the USACE, USFWS or CDFG. At a minimum, the following protection measures shall be implemented.

- A qualified biologist shall monitor all construction or ground disturbing activities within 300 feet of suitable red-legged frog aquatic habitat.

[69] U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG), 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog.

- Immediately prior to ground disturbance or construction activities in areas with aquatic habitats or within 300 feet of aquatic habitats, a qualified biologist shall survey the work area for California red-legged frogs.
- If red-legged frogs are found within the work area, all work shall cease and the occurrence shall be reported immediately to the City, USFWS and CDFG. Work onsite shall resume only when authorized by the USFWS. If red-legged frogs are found, a~~A~~ report shall be prepared at the end of each construction season detailing the results of the monitoring effort. The report shall be submitted to the City by November 30 of each year. (LTS)

Impact BIO-5: The proposed project may result in the loss of nesting habitat for the white-tailed kite, Cooper's hawk, loggerhead shrike, saltmarsh common yellowthroat, and other breeding birds, and may result in direct take of these species through injury or mortality. (S)

The grasslands and trees at the project site provide nesting habitat for white-tailed kite, Cooper's hawk, loggerhead shrike, saltmarsh common yellowthroat, California horned lark, and other raptors and passerines. Several bird species were observed foraging on-site during the reconnaissance surveys, and many of these species could use the site for nesting. The large eucalyptus trees on the project site provide nesting habitat for large raptors. One raptor nest was present in the eucalyptus trees in the northeastern portion of the project site in 1999 and two inactive raptor nests were observed in the eucalyptus trees in the northwestern portion of the project site in 2006. Grading and construction activities near nests could cause nest abandonment and/or loss of eggs or young, which would be considered a significant impact.
Evidence of barn owl roosting was discovered in the barn during the bat survey in 2000. The structure of the barn provides potential roost and nest sites for barn owls. Demolition of the barn while barn owls are nesting there could result in destruction of the eggs, nests, and possibly individual owls.

Implementation of the following two-part mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure BIO-5a: A qualified biologist shall conduct raptor and passerine nest surveys prior to tree pruning, tree removal, ground disturbing activities, or construction activities on the site to locate any active nests on or immediately adjacent to the site. Preconstruction surveys shall be conducted no more than 14 days prior to the start of pruning, construction, or ground disturbing activities if the activities occur during the nesting season (February 1 and August 31). Preconstruction surveys for nesting raptors shall be conducted on a minimum of 3 separate days during the 14 days prior to disturbance. Preconstruction surveys shall be repeated at 30-day intervals until construction has been initiated in the area. Locations of active nests shall be described and protective measures implemented. Protective measures shall include establishment of clearly delineated (i.e., orange construction fencing) avoidance areas around each nest site that are a minimum of ~~300~~ 500 feet from the dripline of the nest tree or nest for raptors and 50 feet for passerines. The active nest sites within an exclusion zone shall be monitored on a weekly basis throughout the nesting season to identify any signs of disturbance. These protection measures shall remain in effect until the young have left the nest and are foraging independently or the nest is no longer active. A report shall be submitted to the City at the end of the construction season documenting the observations made during monitoring.

Mitigation Measure BIO-5b: A preconstruction survey shall be conducted no more than 30 days prior to demolition or removal of the abandoned barn. If no owls are observed, then demolition or removal may proceed. If owls are observed during the preconstruction survey, a determination shall be made on whether birds are roosting or nesting. If a single owl is roosting, demolition or removal of the structure can proceed after the owl has been persuaded to move from the roost area. Non-invasive techniques include light shining into the roost space for one or two nights and days. If barn owls (or other owls species) are found to be actively nesting in the barn, any work on or demolition of the structure shall be postponed until one of the following conditions have been met: 1) a qualified biologist monitoring the nest determines that the owls have abandoned the nest without any outside interference or 2) a qualified biologist monitoring the nest has determined that the young have fledged and are capable of relocating and using another roost site. Under either scenario, the monitor shall ensure that all owls have left the building prior to demolition activities. Once the young have fledged, non-invasive techniques may be used to encourage the owls to leave the barn. The barn owl nesting period is typically between February 15 and July 15. Buildings being used by nesting owls shall be fenced and designated off-limits to prevent entry into the buildings. (LTS)

Impact BIO-6: The proposed project may result in the loss of western burrowing owl habitat and direct take of this species through injury or mortality. (S)

Burrowing owls were not observed at the project site. However, they may colonize the site in the future, prior to construction and occupancy of all portions of the phased development. The loss of nesting and foraging habitat would constitute a significant impact. Implementation of the following two-part mitigation measure would reduce this potential impact to western burrowing owl to a less-than-significant level:

Mitigation Measure BIO-6a: Preconstruction surveys shall be conducted for burrowing owls prior to site preparation, grading and construction. These surveys shall conform to the survey protocol established by the California Burrowing Owl Consortium.[70] Preconstruction surveys shall be conducted no more than 30 days prior to the initiation of construction activities and at 30-day intervals if construction activities have not been initiated in an area. The following measures shall also apply:

a) If burrowing owls are found onsite, they shall be avoided to the extent practicable, as determined by the City in consultation with the California Department of Fish and Game. A clearly defined area (i.e., an area demarcated by orange construction fencing) shall be established around each burrowing owl burrow to be avoided. No disturbance shall occur within 50 meters (approx. 160 feet) of occupied burrows during the non-breeding season of September 1 through January 31 or within 75 meters (approximately 250 feet) during the breeding season of February 1 through August 31.

[70] California Burrowing Owl Consortium, 1997. Burrowing Owl Survey Protocol and Mitigation Guidelines. Appendix B, pp. 171–177 in Lincer, J.L. and K. Steenhof, eds. The Burrowing Owl, Its Biology and Management; Including the Proceedings of the First International Burrowing Owl Symposium. Raptor Research Report No. 9.

b) If burrowing owls occur at the project site and construction would begin before February or after the end of August, and the burrows cannot be avoided, then passive relocation techniques may be used to relocate owls from the site. These passive relocation techniques would include excavating all potential burrows after excluding owls from the burrow for the required length of time. Passive relocation shall be undertaken according to the current protocol established by the CDFG. Artificial burrows shall be provided on the mitigation site for each occupied burrow destroyed at the project site at a ratio of 2:1 (two artificial burrows created for each occupied burrow destroyed).

c) If western burrowing owl occurs at the project site and construction would begin during the breeding season (February through August), then a buffer of a radius of 75 meters (approximately 250 feet) shall be established around any burrows containing owls.

d) Removal of burrowing owls at the project site shall conform to the requirements of CDFG's *Staff Report on Burrowing Owl Mitigation*[71]. This shall entail establishing 6.5 acres of suitable habitat for each pair of burrowing owls displaced from the project site. These 6.5 acres shall be adjacent to an area already used by burrowing owls. The replacement mitigation site shall be preserved in perpetuity for use as burrowing owl and wildlife habitat. An endowment for management and monitoring the site shall also be established.

Mitigation Measure BIO-6b: As an alternative to purchasing land as mitigation for burrowing owls, the sponsor may purchase credits at a CDFG-approved mitigation bank authorized to sell credits for burrowing owl mitigation. The number of credits to be purchased shall be equivalent to purchasing 6.5 acres per pair or single bird observed on the site. The final mitigation requirement shall be determined following the completion of the protocol-level survey. The sponsor shall provide the City with evidence of completion of the mitigation or purchase of mitigation credits prior to the issuance of a grading permit. (LTS)

Impact BIO-7: The proposed project may result in direct take of the American badger through injury or mortality. (S)

The grassland habitat at the project site provides suitable habitat for the American badger. American badgers are known to occur in the region and could den and forage at the project site. Project development could result in impacts to this species from direct mortality or injury during construction Implementation of the following mitigation measures would reduce this impact to a less-than-significant level:

Mitigation Measure BIO-7: A qualified biologist shall conduct surveys of the grassland habitat onsite to identify any badger burrows. These surveys shall be conducted no sooner than 2 weeks prior to the start of construction. Impacts to active badger dens shall be avoided by establishing exclusion zones around all active badger dens, within which construction related activities shall be prohibited until denning is complete or the den is abandoned. A qualified biologist shall monitor each den once per week in order to track the status and

[71] California Department of Fish and Game (CDFG), 1995. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game. Sacramento, CA. 8 pp. October 17.

inform the project sponsor of when a den area has been cleared for construction. Surveys for badger dens may be conducted at the same time as burrowing owl surveys. (LTS)

Impact BIO-8: The proposed project may result in the loss of foraging and roosting habitat for the pallid bat, pale Townsend's big-eared bat, and other special-status bat species, and may result in direct take of these species through injury or mortality. (S)

The development could result in both direct and indirect impacts to the pallid bat, pale Townsend's big-eared bat, and other special-status bat species. Evidence of past roosting by bats (of undetermined species) was found in the milking shed during the focused survey and habitat assessment for bats. Although no bats were observed directly during the survey, these structures could provide special-status bat species as well as common bat species with day roosts (for non-reproductive animals) or maternity roosts (for adult females and young). Demolition of the structures while the bats are present would result in loss of the roost and impacts to these species.

Implementation of the following five-part mitigation measure would reduce this impact to bats to a less-than-significant level:

Mitigation Measure BIO-8a: Preconstruction surveys for bat roosts shall be conducted in all buildings or trees that will be removed or modified. The survey shall take place no more than 30 days prior to construction/demolition/removal activities. Preconstruction surveys shall be repeated if demolition or construction activities are delayed more than 30 days.

Mitigation Measure BIO-8b: If a bat roost is found in a building or tree cavity, the species of bat using the roost shall be identified and methods to encourage the bats to leave the roost or to prevent them from returning to the roost shall be implemented prior to roost removal. A mitigation plan shall be developed to specify the methods to be used and the timing of the activities, and this mitigation plan shall be submitted to the City for review and approval.

Mitigation Measure BIO-8c: Materials from roost sites shall be salvaged, when feasible, to be used in the construction of artificial roosts.

Mitigation Measure BIO-8d: If special-status bats (i.e., pallid bat, pale Townsend's big-eared bat) are found onsite, and the roost would be destroyed during development, an artificial roost shall be provided for the bats. The roost shall be constructed and placed onsite prior to removal of the original roost. A mitigation plan specifying the construction details and siting of the structure shall be prepared and approved by the City and CDFG prior to removal of the existing roost. The sponsor shall provide a secure source of funding for the monitoring of the artificial roost for a period of at least 5 years. A report documenting the implementation of the plan shall be provided to the City within 1 month of completion of the artificial roost. The plan shall be completed and implemented prior to the issuance of the grading permit.

Mitigation Measure BIO-8e: Removal of maternity roosts for special-status bats shall be coordinated with CDFG prior to removal. Maternity roosts for any species of bat, either common or special-status, shall not be demolished until the young are able to fly independently of their mothers. (LTS)